

The Economics of Neutrality: Spain, Sweden and Switzerland in the Second World War

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of the London School of Economics for the degree of Doctor
of Philosophy, London, 15 June 2011.

Declaration

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Abstract

Neutrality has long been seen as impartiality in war (Grotius, 1925), and is codified as such in The Hague and Geneva Conventions. This dissertation empirically investigates the activities of three neutral states in the Second World War and determines, on a purely economic basis, these countries actually employed realist principles to ensure their survival. Neutrals maintain their independence by offering economic concessions to the belligerents to make up for their relative military weakness. Depending on their position, neutral countries can also extract concessions from the belligerents if their situation permits it.

Despite their different starting places, governments and threats against them, Spain, Sweden and Switzerland provided similar types of political and economic concessions to the belligerents. This thesis comparatively investigates neutral trade, labour and capital. Using standardized trade statistics, this study shows that while all three neutrals were dependent on the Germans for most basic goods, they were generally able to benefit from relative gains in prices and excess imports of goods in periods of German weakness. In trade with the Allies, at least two of the three countries permitted the illicit export of items necessary for the Allied war effort, and did so at reduced relative prices.

All three neutrals benefitted from substantial services revenue and positive balance of payments in all of their belligerent relationships. In several cases the neutrals were able to force the belligerents to cover their balance of payments deficits in gold because they needed to maintain access to the neutral markets. The final chapters demonstrate that despite political promises, the Spanish and Swiss governments constructed labour transfer systems to limit the number of workers for Germany.

Acknowledgements

With gratitude to all of those who have supported me through this project and during my education.

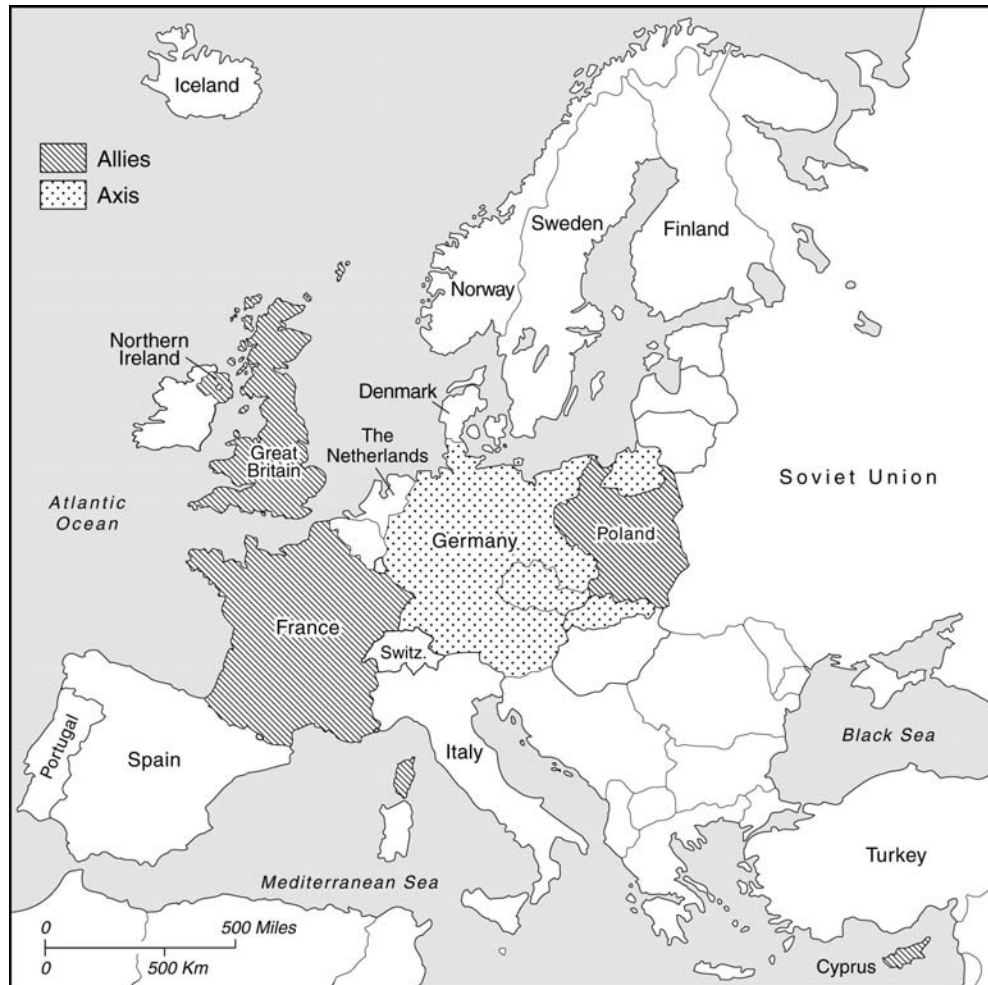
Odd coincidences and sheer happenstance brought me to the London School of Economics, the University of Chicago and Marin Academy. During the last fourteen years I have taken classes from and taught with many inspiring teachers, enjoyed the company of good friends and been challenged by three of the best schools in the world.

As a young child, I was intellectually impatient. I wanted answers. I am forever in debt to the late Yuri Smiley, who spent considerable effort teaching me Japanese and piano. I would never have completed this dissertation without learning the virtue of patience and how to control my intellectual curiosity.

どうもありがとう スマイリー先生.

The breadth of this project and the number of people who have contributed make the task of acknowledging each individual contribution on this page impossible. Specific thanks are due to Dr. Peter Howlett, Dr. Eve Richards, FDr. Peter Sims, and Dr. Christopher Colvin for their assistance with specific elements during the research and writing process. Professors Mark Harrison and Neville Wylie served as rigorous examiners and identified the many strengths and weaknesses of this work. Dr. Tim Leunig pushed me forward and gave me confidence. Countless other individuals contributed to this thesis and general thanks are due to so many it is impossible to acknowledge them on this single page. It is my sincere hope that as each of you read this dissertation you will notice the individual contributions you have made.

Figure 0.1: Axis, Allied and Neutral Blocs at September 1939



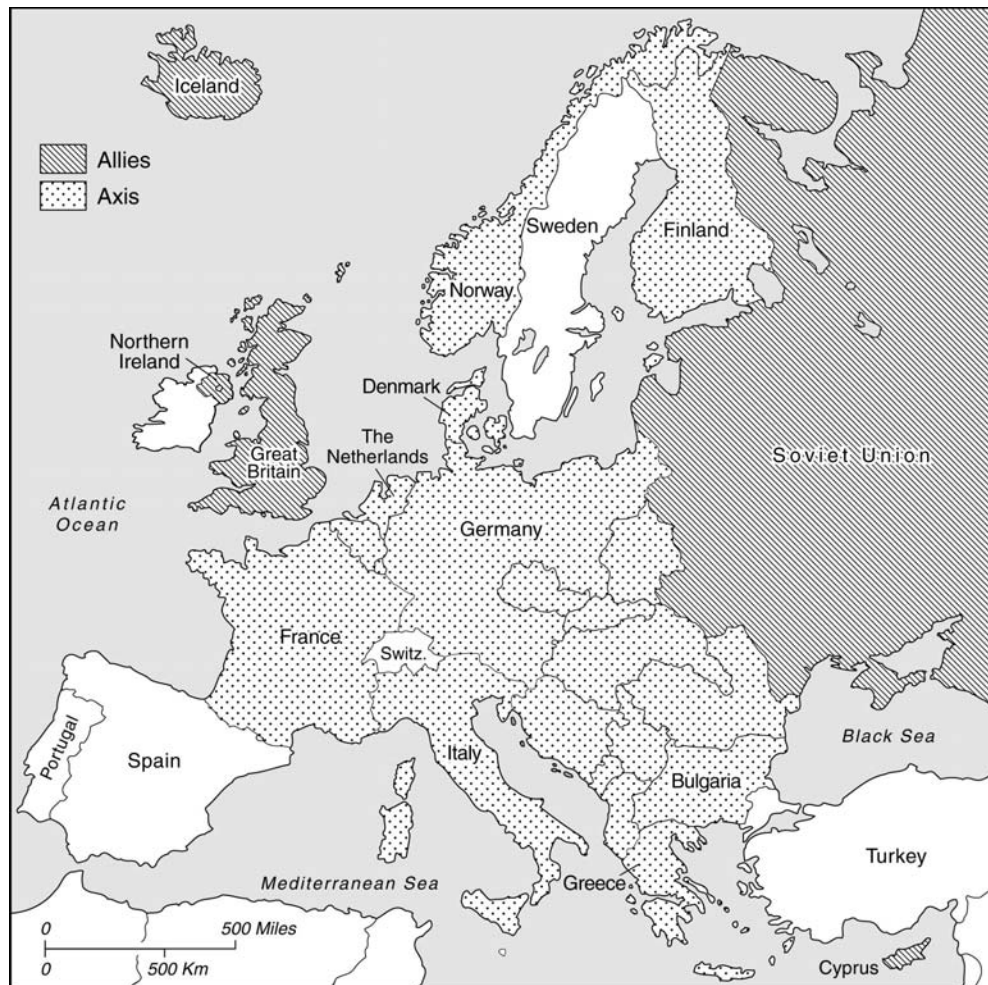
Axis Countries: the German Reich and the Italian Empire

Allied Countries: Great Britain, France and Poland their associated Empires

Neutrals: Belgium, Bulgaria, Denmark, Finland, Greece, Hungary, Ireland, the Netherlands, Norway, Portugal, Romania, Spain, Sweden, Switzerland, Turkey and Yugoslavia

Source: Author

Figure 0.2: Axis, Allied and Neutral Blocs at June 1941



Axis Countries: German Reich, Italian Empire, Bulgaria, Finland, Hungary and Romania

Axis Occupied: Belgium, Denmark, France, Greece, the Netherlands, Norway and Yugoslavia

Allied Countries: Great Britain, the Soviet Union and their associated Empires

Neutrals: Ireland, Portugal, Spain, Sweden, Switzerland and Turkey

Source: Author

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Abbreviations

AAC	Army Air Corps (United States)
AATS	Army Air Transport Service (United States)
ABA	AB Aerotransport (Sweden)
ADAP	<i>Akten zur Deutschen Auswärtigen Politik</i> [Documents on German Foreign Policy]
AEdE	<i>Anuario Estadística de España</i> [Annual Statistics of Spain]
AGA	<i>Archivo General de la Administración</i> [General Administrative Archive], Alcalá de Henares, Madrid, Spain <i>Archivo de Ministerio de Asuntos Exteriores y de Cooperación</i>
AMAEC	[Archive of the Ministry of Foreign Affairs and Cooperation], Madrid, Spain
ASTUK	<i>Annual Statement of the Trade of the United Kingdom</i>
BAr	<i>Bundesarchiv</i> [Federal Archives], Bern, Switzerland
BA-K	<i>Bundesarchiv Koblenz</i> [Federal Archives], Koblenz, Germany
BA-MA	<i>Bundesarchiv/Militärarchiv</i> [Federal Military Archives], Freiburg, Germany
BAMA	British Airways Museum and Archive Hounslow, United Kingdom
BdeE	<i>Archivo de Banco de España</i> [Archive of the Bank of Spain], Madrid, Spain
BdeE EIE	<i>Importación y Exportación Cajas, Archivo de Banco de España</i> [Import and Export Books, Archive of the Bank of Spain], Madrid, Spain
BOAC	British Overseas Airways Corporation
BoE	Bank of England Archive London, United Kingdom
CAC	Churchill Archives, Cambridge, United Kingdom
DGFP	Documents on German Foreign Policy
DVK	<i>Deutsche Verrechnungskasse</i> [German Clearing Office]
ECEdE	<i>Estadística de Comercio Exterior de España</i> [Spanish Commercial Trade Statistics]
FNFF	<i>Archivo de Fundación Nacional Francisco Franco</i> [Archives of the Francisco Franco Foundation], Madrid, Spain
FRUS	Foreign Relations of the United States Series

Abbreviations

GLA	<i>Generallandesarchiv</i> Baden [General State Archive]
HPOWWII	History of Preclusive Operations in World War II [NARA RG234/16/19]
IWM	Imperial War Museum, Speer Archive Lambeth, London, United Kingdom
IWM-D	Imperial War Museum, Speer Archive Duxford, United Kingdom
MT	Metric Tons
NA	National Archives of the United Kingdom Kew Gardens, London, United Kingdom
NARA	National Archives and Records Administration Washington DC, United States
RA	<i>Riksarkivet</i> [National Archives of Sweden], Stockholm, Sweden
RAF	Royal Air Force (United Kingdom)
RBA	Sveriges Riksbankarkivet [Swedish National Bank Archive], Stockholm, Sweden
SOE	Special Operations Executive (United Kingdom)
SOU	<i>Statens Offentliga Utredningar: Handelsdepartement</i> Official State Register for the Trade Department, Sweden
SAfSTA	<i>Statistiska Årsbok for Sverige Tjugoåttonde Årganden</i> [Annual Statistics Book for Sweden]
SHvD	<i>Statistisches Handbuch von Deutschland, 1928-1944</i> [Statistical Handbook for Germany, 1928-1944]
SJdS	<i>Statistisches Jahrbuch der Schweiz</i> [Statistical Yearbook of Switzerland]
SITC	Standard International Trade Classification
SKF	Svenska Kullager Fabrik AB [Swedish Bearing Manufacturing Co.], Bofors/Gothenburg, Sweden
SOSH	<i>Sveriges Officiella Statistik: Handel</i> [Swedish Official Trade Statistics]
SVSt	<i>Schweizerische Verrechnungstelle</i> [Swiss Clearing Office]
TC	Tons of Mineral Coal (energy equivalent)
UKCC	United Kingdom Commercial Corporation
USCC	United States Commercial Corporation
VKF	Vereinigte Kugellager Fabriken [United Bearing Manufacturers], Schweinfurt, Germany

Foreign Exchange Values

Table 0.1: Foreign Exchange Values Spanish Peseta to (average of year):

Year	German Reichsmark 1 RM =	British Pound 1 £ =		United States Dollar 1 \$ =	
	Official	Official	Banknote	Official	Banknote
	Rate	Rate	Rate	Rate	Rate
2H1936	3.01	37.22		7.43	
1937	3.45	42.36		8.57	
1938	3.45	42.45		9.36	
1939	3.56	40.65		10.74	
1940	4.16	40.01		10.95	
1941	4.24	40.50	38.10	10.74	9.85
1942	4.24	40.50		10.95	
1943	4.24	40.85		10.95	
1944	4.24	44.00		10.95	

Source: AEdE, 1949; ECEdE, 1941

Table 0.2: Foreign Exchange Values Swedish Krona to (average of year):

Year	German Reichsmark 1 RM =	British Pound 1 £ =	United States Dollar 1 \$ =
	Official	Official	Official
	Rate	Rate	Rate
1936	1.6255	18.74	4.038
1937	1.6850	18.74	4.038
1938	1.6850	18.74	4.038
1939	1.6850	16.95	4.038
1940	1.6850	16.95	4.200
1941	1.6850	16.95	4.200
1942	1.6850	16.95	4.200
1943	1.6850	16.95	4.200
1944	1.6850	16.95	4.200

Source: RBA, *Penning- och kreditväsen*, 1950, Table 72.

Table 0.3: Foreign Exchange Values Swiss Francs to (December of year):

Year	German Reichsmark 1 RM =		British Pound 1 £ =		United States Dollar 1 \$ =	
	Official	Banknote	Official	Banknote	Official	Banknote
	Rate	Rate	Rate	Rate	Rate	Rate
1936	1.745	-	17.35	21.35	4.35	4.35
1937	1.740	0.880	17.35	21.60	4.35	4.32
1938	1.7685	0.535	17.35	20.58	4.35	4.43
1939	1.790	0.480	17.35	17.20	4.35	4.61
1940	1.730	0.560	17.35	8.10	4.35	4.24
1941	1.730	0.320	17.35	6.85	4.35	2.90
1942	1.730	0.185	17.35	13.25	4.35	3.95
1943	1.730	0.130	17.35	9.25	4.35	3.02
1944	1.730	0.068	17.35	-	4.35	-

Source: SIdS 1946; SHvD.

Part One:

The Economics of Neutrality

Chapter One

The Economics of Neutrality in the Second World War

This dissertation studies the economic behaviour of three neutral countries during the Second World War. For the last sixty years, the popular media, politicians and lawyers have increasingly used the traditional version of wartime neutrality as impartiality to evaluate Spain, Sweden and Switzerland's wartime choices. Engaging in merchandize and invisibles trade with the belligerents preserved the neutrals' position, but did not endear them to either belligerent group. This criticism has continued into the post-war era. The issue of neutral complicity has been raised time and time again in the post-war era during the Eichmann and Auschwitz trials.

“Of all the neutrals, Switzerland had the greatest right to distinction. She has been the sole international force linking the hideous-sundered nations and ourselves. What does it matter whether she has been unable to give us the commercial advantages we desire or has given too many to the Germans, to keep herself alive? She has been a democratic state, standing for freedom in self-defence among her mountains and in thought, despite of race, largely on our side.”¹

But as these words of Winston Churchill suggest, neutral survival depended on economics in the period from the fall of France in June 1940 to the liberation of Europe in May 1945. This dissertation makes two contributions to knowledge. Firstly, this study develops more accurate economic statistics to reveal Spain, Sweden and Switzerland's wartime position. Second, it uses these new statistics to define each country's neutrality and the phenomenon more generally; in so

¹ Winston Churchill, *The Second World War: Triumph and Tragedy*, vol. VI (Boston, 1953), p.712.

doing, it chooses to ignore the popular moral arguments which have been used measure the neutrals' actions. Rather, using these new figures and certain Samuelsonian assumptions about causation, this dissertation confirms Churchill's view of neutrals as rational economic actors who sought primarily to preserve their own interests.

Dozens of books appeared in the mid-1990s accusing Spain, Sweden, Switzerland, the Vatican and others of aiding Hitler's war machine.² The situation escalated in the late 1990s when the United States Senate held hearings into missing assets and the economic gains made by the neutrals in the war, threatening diplomatic retaliation for actions of fifty years before.³ The final Eizenstat report, named for the leader of the United States Commission investigating the neutrals, put considerable emphasis on the movements of gold between the Third Reich and neutral countries as well as Jewish deposits in Swiss banks. Subsequent reports of gold transfers were prepared by several European Central banks.⁴ Although the movement of gold in the Second World War is

² The most important texts presenting the revisionist position on Switzerland are Mark Aarons and John Loftus, *Unholy Trinity: The Vatican, the Nazis, and the Swiss Banks* (New York, 1998); Tom Bower, *Blood Money: The Swiss, the Nazis and the Looted Billions* (London, 1997); Adam LeBor, *Hitler's Secret Bankers* (New Jersey, 1997); Werner Rings, *Raubgold aus Deutschland: die Golddrehscheibe Schweiz in Zweiten Weltkrieg* [The Robbery of German Gold: The Revolving Door of Gold in Switzerland in the Second World War] (Ascona, 1990); Philipp Sarasin and Regina Wecker, *Raubgold Réduit Flüchtlinge: Zur Geschichte der Schweiz im Zweiten Weltkrieg* [The Robbery of Gold: The History of Switzerland in the Second World War] (Zurich, 1998); Jakob Tanner, "Hand mit den Nazis," *Bilanz*, 10 (1989), p.346-352; Isabel Vincent, *Swiss Banks, Nazi Gold, and the Pursuit of Justice* (New York, 1997); Don Arthur Waters, *Hitler's Secret Ally, Switzerland* (La Mesa, 1992); and Jean Ziegler, *The Swiss, the Gold, and the Dead* (New York, 1998).

³ See United States Congress: Senate. Committee on Banking, Housing, and Urban Affairs, Swiss banks and the status of assets of Holocaust survivors or heirs: hearing before the Committee on Banking, Housing, and Urban Affairs, United States Senate, One Hundred Fourth Congress, second session, April 23, 1996 (Washington, 1996); and United States Congress: Senate. Committee on Banking, Housing, and Urban Affairs, Swiss banks and attempts to recover assets belonging to the victims of the Holocaust hearing before the Committee on Banking, Housing, and Urban Affairs, United States Senate, One Hundred Fifth Congress, first session on the inquiry into the assets of Holocaust victims deposited in Swiss banks and the issues surrounding the recovery and restoration of gold and other assets looted by Nazi Germany during World War II, and the acts of restitution which must follow, 15 May 1997 (Washington DC, 1997).

⁴ Jan Heuman, "Final Report on the Riksbank's Wartime Acquisition of Gold" *Riksbank* (Stockholm, 1997); International Commission of Experts (ICE), *Switzerland: National Socialism*

important, there are underlying merchandise trade, services and payments reasons for these gold payments which are not explored in these reports. The movement of gold is only a small part of a much larger story about neutral-belligerent relations.⁵

There has been considerable moral debate on why Spain, Sweden and Switzerland chose to engage politically and economically with the belligerents during the war. This dissertation also gives no weight to these morally-based arguments since they are both difficult to measure and because neutral actions need to be placed in context. Over the last decade, lawyers have been working to trace confiscated assets and punish companies which were suspected of trading with the belligerents.⁶ A particularly vocal group of these revisionist historians castigate the Swedes and the Swiss for “abetting genocide, by refusing to offer sanctuary to Hitler’s victims, bankrolling the Nazi war economy and callously profiting from Hitler’s murderous actions.”⁷ For the trade in material goods, these authors cite Switzerland’s exports of precision instruments and weapons, Sweden’s provision of ball bearings, iron ore, railway equipment and other related goods and Spain’s contributions of wolfram and tungsten as one-sided contributions to the German war machine.⁸ One of these authors, Professor Jean Ziegler, goes so far as to charge the Swiss government of being

and the Second World War (Zurich, 2002), p.245ff; Mugacia Commission, *Report of the Commission of Inquiry on Gold Transactions with the Third Reich* (Madrid, 1998).

⁵ William Z. Slany “Preliminary Study on US and Allied Efforts to Recover and Restore Gold and Other Assets Stolen or Hidden by Germany During World War II” United States Department of State Report (Washington DC, May 1997).

⁶ The most notable legal action was a 1996 class action lawsuit against European banks and insurers on behalf of Holocaust victims and survivors. The largest settlement in this lawsuit came from Swiss Banks, totalling some USD \$1.25 billion (New York Federal docket #CV-96-4849). Other smaller actions included suits in the United States Courts’ against various Austrian, French and German companies for slave labour and museums to reclaim artwork seized during the war.

⁷ Neville Wylie, *Britain, Switzerland, and the Second World War* (Oxford, 2003), p.2.

⁸ Includes: Paul A. Levine, “Swedish Neutrality during the Second World War: tactical success or moral compromise?,” in Neville Wylie (ed.), *European Neutrals and Non-Belligerents During the Second World War* (Cambridge, 2002); Jordi Catalán Vidal, *La Economía Española y la Segunda Guerra Mundial* [The Spanish Economy and the Second World War] (Barcelona, 1995).

more docile than the Vichy government.⁹ This dissertation does not address the moral issues raised by these groups as measuring them is subjective.

Moreover, the moral arguments also lack context. To quote historian Paul Levine on the reasons for this re-examination as they relate to Sweden, “that two generations after the war, the Swedes hold a rather different understanding of neutrality’s moral implications than do most scholars, establishment politicians and other defenders of what might be called the traditional or standard view of neutrality.”¹¹ This follows on the ideas raised by so-called ‘code-of-conduct’ scholars, who assert “if the neutrals expect to enjoy their rights, they must scrupulously observe their duties, especially the fundamental duty of impartiality.”¹² In order to understand their ideas, it is necessary to review the arguments behind neutrality. Legal scholar Stephen Neff argues impartiality is a modern phenomenon which it imposes obligations on those who want to remain at peace.¹³ An entire chapter of Neff’s work, *The Rights and Duties of Neutrals*, overviews the many rules created during the early twentieth century to protect neutrals.¹⁴ Legal scholars see these treaties as valuable in protecting neutral rights during the war.

But the treaties only provide the framework for neutral-belligerent relations. The assumption inherent in the revisionist argument for Sweden is their conduct was somehow wrong. But it is difficult to reach this conclusion. How can we quantify the value of Sweden’s contribution to Germany of ball bearings against the subjective worth of Allied signals intelligence or the rescue of the Danish Jews? If we limit this just to the economic perspective, the ‘code-of-conduct’ group argues Sweden provided strategic goods to one or both parties which changed the course of the war in violation of the spirit, if not the

⁹ Ziegler, *The Swiss*, p.163.

¹¹ Paul A. Levine, “Swedish Neutrality during the Second World War: tactical success or moral compromise?” in Neville Wylie (ed.), *European Neutrals and Non-Belligerents During the Second World War* (Cambridge, 2002), p.305.

¹² Stephen C. Neff, *The Rights and Duties of Neutrals* (Manchester, 2000), p.172.

¹³ *Ibid.*

¹⁴ Neff, *Rights and Duties*, Chapter 7.

letter, of the treaties. But these individual sales are frequently not placed in context.

For example, the Swedish provision of ball bearings and iron ore to Germany is taken out of perspective with the overall wartime trade situation and the Swedish need to earn German foreign exchange to buy food. If we follow the logic of Mancur Olson, there are no strategic goods and therefore, individual items must be examined in context of overall trade.¹⁵ As this thesis shows, the Swedes provided similar goods to the Allies throughout the war, even allowing Allied planes to land and boats to dock on Swedish territory to collect the much needed Swedish exports.¹⁶ These sales were, at least in part, made to obtain coal and petroleum products. While it is beyond the scope of this inquiry, the question clearly arises: should the Swedish government have cut-off trade with Germany and the Allies in order to satisfy their moral obligations, would it have been acceptable to allow its citizens to starve and freeze? Although it does not directly address the moral issues, this dissertation places these moral and 'code-of-conduct' arguments within the larger economic framework of wartime economic relations. Only then can we begin to understand them.

Several authors, most notably Neville Wylie and Christian Leitz, have approached this subject as a question of international relations. Wylie's edited volume, *European Neutrals and Non-Belligerents during the Second World War*, provides one of the most comprehensive currently available historical reviews of European neutrality in the wartime period. This history includes both neutrals which were victims of aggression and those who survived the war.¹⁷ However, Wylie defines the neutrals according to the period in which they perished, not the way in which they maintained their independence. This focus on the way

¹⁵ Mancur Olson, *The Economics of Wartime Shortage: History of British Food Supplies in the Napoleonic War and in World Wars I and II* (Durham, 1965). Please see the introduction to Chapter Two for a fuller exploration of Olson's ideas.

¹⁶ See Chapter Two.

¹⁷ Wylie, *European Neutrals*.

they perished only tells half the story; importance has to be placed on determining why the countries who survived remained neutral throughout war.

In his comparative work, Leitz focuses on only the five European neutrals which survived the duration of the war;¹⁸ he reviews nominal German-neutral trade statistics for a limited number of goods. Leitz asserts that each of the five neutrals in his study provided a significant contribution to the German war effort. But this results from a reliance on statistics from existing sources which focus on specific goods; many are based on political archives as opposed to more economically minded ones. As such, Leitz provides support for the revisionist argument by not placing this merchandise trade in wider context. For example, the discussion of Sweden does not give us overall statistics for Swedish-German merchandise trade, but examples from what Leitz considers to be key goods, such as Swedish iron ore or Spanish wolfram.¹⁹ In this way it becomes anecdotal – providing a history of things which are important based on the reading of the political archives and not based on economic measurement. Although the first to provide economic comparisons between the neutrals during this period, Leitz leaves his readers without a general understanding of the economic relationships between neutrals and belligerents. The present study builds on the work of both Wylie and Leitz by using standardized statistics which allow for cross-neutral comparison and which reveal neutral preferences.

In three separate articles, Bruno Frey and various co-authors have used economic choices by bond investors to assess the perception of threats against belligerents and neutrals.²⁰ Using bond prices, Frey shows the turning points in

¹⁸ Christian Leitz, *Nazi Germany and Neutral Europe during the Second World War* (Manchester, 2000).

¹⁹ Leitz, *Nazi Germany*, p.71 and p.p.131.

²⁰ Bruno S. Frey and Marcel Kucher, "History as Reflected in the Capital Markets: The Case of World War II" *The Journal of Economic History*, 60:2 (June 2000), p.468-496; Bruno S. Frey and Marcel Kucher, "Wars and Markets: How Bond Values Reflect the Second World War," *Economica*, New Series, 68:271 (August 2001), p.317-333; Daniel Waldenström and Bruno S. Frey, "Using Markets to Measure Pre-War Threat Assessments: The Nordic Countries Facing World War II," IMF Working Paper No.676 (2006).

the perceived threat against a neutral and which countries the markets believed would be successful in maintaining their independence through concessions. In particular, Frey is able to demonstrate that the price levels of Swiss bonds after June 1940 suggest the effectiveness of the Swiss concessions, with the markets perceiving little risk of invasion, especially relative to other neutrals.²¹ This study builds on the Frey's use of economics to explain how Sweden, Switzerland and Spain's wartime activities demonstrate they were trying obtain the best possible deal from the belligerents while preserving their independence: neutrality is realism.

Interpreting Economic Outcomes

Using three European neutrals, Spain, Sweden and Switzerland and three different economic points of study, namely, merchandise and invisible trade flows, labour movements and capital transfers, this dissertation contributes to a retrospective understanding of neutral-belligerent economic relations. The standards used to evaluate neutrals in this dissertation are different than most political histories. Politicians representing countries during war often say one thing and do another. This thesis is focused on and makes inferences from economic outcomes. It provides the first economic cross-comparative analysis of neutrality in the Second World War. Readers looking for a complete political history of neutral-belligerent relations in the Second World War will be disappointed. This study will provide the necessary background to understand the economic and statistical changes highlighted in each chapter, but it will not provide a complete diplomatic history. Rather, using these new statistics, it is able to provide a picture of neutral-economic relations with the three countries. From this, it is possible to draw retrospective conclusions on the neutral countries' policies during the war. It will answer questions such as how and to whom Sweden continued to provide ball bearings and ball bearings machinery

²¹ Frey and Kucher, "History as Reflected in the Capital Markets...", pp.484-485.

during the war, but unlike Leitz, it will do so in the context of overall Swedish-belligerent trade.²²

Connecting the new economic knowledge presented herein to the political actions during the war and making claims as to causation, of course, raises many issues. Spain, Sweden and Switzerland found themselves in a difficult position. The use of economic outcomes limits the scope of the potential conclusions. We do not know precisely what types of non-economic pressure were exerted by the Germans and Allies. Readers should recognize the situation is nuanced and can be complicated by cultural elements and political signals exchanged between the partners which are not included in this study. This study resists the desire to overly simplify the situation to cases of good and evil.

Nevertheless, by relying on preference theory, we can reach new conclusions on Spain, Sweden and Switzerland's wartime activities which are different than the stated preferences shown in the diplomatic correspondence. Paul Samuelson established revealed preference theory, which can be used to show a consumer's ultimate beliefs as they substitute until they maximize their own utility.²³ This is compared against stated preference theory, which is just verbal commitments to items which are not binding on an individual's utility. The principle unit in this Samuelsonian analysis would be the neutral government, negotiating within the constraints set by the belligerents to obtain the best results it can to the satisfaction of the belligerents and its own citizens; the precise operation of this game will be discussed later in this introduction. The revealed preferences show clear elements of economic realism. These results are different than the diplomatic material in Wylie, Leitz and others, providing

²² Leitz, *Nazi Germany and Neutral Europe*, p.49-84.

²³ Paul Samuelson, "A Note on the Pure Theory of Consumers' Behaviour," *Economica*, 5:17 (1938), p.61-71; and Paul Samuelson, "The Empirical Implications of Utility Analysis," *Economica* 6:4 (1938), p.344-356; see also Robert A. Pollak, "Samuelson's 'Dr.Jekyll and Mrs. Jekyll' Problem: A Difficulty in the Concept of the Consumer," Michael Szenberg (ed.), et al, *Samuelsonian Economics and the Twenty-First Century* (Oxford, 2006), p.116-145.

amongst other things, overall trade statistics, prices, capital flows and labour contributions by which is possible to interpret neutral actions.

The results of this dissertation suggest the three neutrals used *realpolitik* or economic realism to survive the war, adapting their strategies in order to survive. Contrary to the popular literature, from an economic perspective, the neutrals were not pro-German in the face of military pressure. All three actually made a specific effort to avoid being considered as such, using illicit trade and other means to maintain trade links with the Allies. They provided advantages in their terms of trade, labour and capital flows only where necessary to maximize their own utility (in this case, to survive and sustain their populations). By linking the economic outcomes to the changing events in the war, it is possible to confirm neutrality is realism in this period. While certainly not the last word on the subject, the new economic statistics herein provide a new and unique view.

Neutrality as Impartiality: Historical Context

As a legal concept, neutrality as impartiality first emerged in the early seventeenth century, when the first vague definitions of non-participation in war were penned by Hugo Grotius, a philosopher of modern natural law. Grotius argued: “from those who are at peace nothing should be taken except in case of extreme necessity and subject to the restoration of its value;”²⁸ with reference to the duties of those who remain at peace, Grotius circumscribed neutral actions such that they should “show themselves impartial to either side in permitting transit, in furnishing supplies to his troops and in not assisting those under siege.”²⁹ Grotius’ version of neutrality as impartiality remains the most widely understood definition of the concept.

The Hague Conventions, Conference of London Declarations, Geneva Conventions and other treaties of the late nineteenth and early twentieth

²⁸ Hugo Grotius, *De Jure Belli ac Pacis* [On the Laws of War and Peace], vol.2:bk.3 (London, 1925), p.783 (Translation).

²⁹ *Ibid.*

century institutionalized the concept of neutrality as impartiality in war. The treaties detail the rights and duties of neutrals on land and at sea. Land rights include the inviolability of neutral territory, interment of combatants, rights to trade and the neutrals' duties in protecting prisoners of war; naval rights include the ability to pass freely through the lines of war and maintain their trade relationships amidst war.³⁰ Legal scholar Stephan Neff argues these rights and duties were part of the requirements of a new form of impartiality; and in effect measurements of morality could be made from the neutral's actions on these issues.³¹

Support for Neff's position can be found in the legal changes neutrality underwent after the First World War. New treaties established clear rules for the impartiality with which neutrality should function and restricted the behaviour of neutrals in war. Declarations of neutrality had to meet the minimum standards of the Fifth Hague Convention, constraining the belligerents' actions against neutral states; a neutral's behaviour was also restricted. With the adoption of these rules, the international community sought to lower the levels of uncertainty in wartime and prevent the spread of war to neutral countries.

³⁰ See The Fifth Hague Convention of 1907, which details the rights and duties of neutral powers and persons in case of war on land. For a complete text, see *Treaties and Other International Agreements of the United States of America 1776 to 1917*, vol.1: Multilateral 1776-1917 (Washington, DC, 1968). The International Naval Conference of London, 1908-1909 set international rules for the transportation of neutral goods during wartime, including the rights of inspection, seizure and blockade afforded to the belligerents and neutrals alike. For a longer discussion of the conference and its impact on trade in wartime, see C.H. Stockton, "International Naval Conference of London, 1908-1909" *The American Journal of International Law*, 3:3 (July, 1909), pp.596-618. On the lack of ratification of several treaties by potential belligerents, see Stockton, p.596 and James Brown Scott, *The Hague Conventions and Declarations of 1899 and 1907* (New York, 1915). A curious set of clauses made these treaties "international law" with ratification by a small number of states. Visit www.unhcr.ch/html/menu3/b/91.html, last visited 3 March 2007 for a copy of the 1949 Geneva Convention and the Protocols of 1977. For the prior Conventions (1864, 1928 and 1929) visit the Avalon project's website on the laws of war at: <http://www.yale.edu/lawweb/avalon/lawofwar/lawwar.htm>, last visited 3 March 2007. The Swiss and Swedish governments, along with the International Committee of the Red Cross, are entrusted with carrying out certain legal and humanitarian duties during times of war. These duties include the documentation, transit, inspection and provision of privileges for prisoners-of-war. For examples of the ways in which institutions lower systemic uncertainty, see Douglass North, *Institutions, Institutional Change, and Economic Performance* (Cambridge, 1990).

³¹ Stephen C. Neff, *The Rights and Duties of Neutrals* (Manchester, 2000).

The codification of neutrality as impartiality and agreements as to neutral rights provided neutral states with methods of redress against belligerents which violated their position. Examples include simple two-actor cases, such as the bombing by the Japanese of the neutral United States vessel *USS Panay* in a Chinese river in December 1937, for which the government of Japan paid slightly over \$2.2 million dollars compensation in order to pacify the US;³² or the bombing of the Swiss city of Schaffhausen in 1944 by the US, for which compensation of \$4 million was paid to Switzerland directly after the incident to maintain relations and Allied intelligence operations in the country.³³ These payments reinforce the concept of neutrality as impartiality according to Neff's criteria.

The Rise of Realist Neutrality

The meaning of neutrality changed in the First World War. From this point, the concept of neutrality as impartiality, whether measured according to the Grotius or Neff-versions, changed. The military imbalance between neutrals and belligerents, and particularly aggressive offensive tactics used in the Second World War confirm a version of neutrality which is based largely on economic *realpolitik*.³⁵ Neutral countries had rights and duties, but they were constrained by the power of the belligerent. What they were allowed to do was determined by their trade in material goods, services, capital and labour as opposed to the law or moral considerations. Support for this position can be found in the writings of neutrality expert Nils Ørvik, who after the war posited:

³² William Gerald Downey, Jr. "Claims for Reparations and Damages Resulting from Violation of Neutral Rights" *Law and Contemporary Problems*, 16:3 (Summer 1951), p.488.

³³ Jonathan E. Helmreich, "The Diplomacy of Apology: U.S. Bombings of Switzerland during World War II" *Air University Review* (May-June 1977); also by the same author, "The Bombing of Zurich" *Aerospace Power Journal* (Summer 2000), pp.48-55.

³⁵ Jack Snyder, "Civil-Military Relations and the Cult of the Offensive, 1914 to 1984" *International Security*, 9:1 (Summer 1984), pp.108-146.

“The outcome of the struggle to establish [a system of neutral rights] has at all times been entirely dependent on the economic and military strength, the strategic position and the perspicacity and persistence of the two sides. In short the products of two forces pulling in opposite directions, the final result being determined by the relative bargaining power of the parties.”³⁶

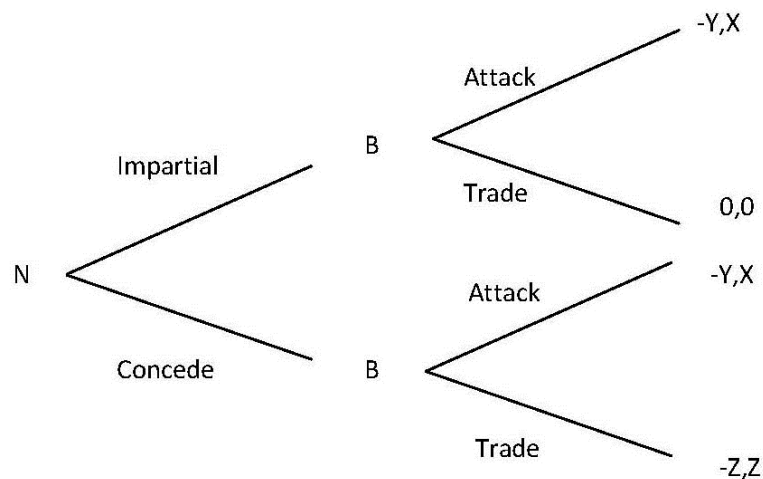
As Ørvik describes, with the increasing relative military strength of the Great Powers and their use of the cult of the offensive, neutrality evolved from impartiality into a realist system where the belligerents and the neutrals continually re-evaluated their relations on the basis of the power balance between them. In this realist power balance there were two critical components: the belligerent’s strength and the neutral’s deterrent against invasion. The belligerent’s offensive strength over a neutral would have to be calculated with respect to military, economic and political forces it could employ over the neutral and the credibility of such threats. Similarly, the neutral’s defensive deterrent would involve some combination of the same forces, although the neutral not only has to ensure the credibility of its deterrent force, but also broadcast its willingness to defend itself clearly to the belligerent. The rights and duties of neutrals were not important to the relative power balance; they were regularly ignored. The services the neutrals provided in the new version of neutrality outlined by Neff are important as part of this power balance; they are ultimately captured as economic payments in this dissertation (they were not done through altruism).³⁷

³⁶ Nils Ørvik, *The Decline of Neutrality 1914-1941* (London, 1971), pp.13-16.

³⁷ For more information on rational deterrence theory, see Christopher Achen and Duncan Snidal, “Rational Deterrence Theory and Comparative Case Studies” *World Politics*, 41:2 (January 1989), p.143-169; Jack S. Levy “When Do Deterrent Threats Work?” *British Journal of Political Science*, 18:4 (October 1988), p.485-512; and John J. Mearsheimer, *Conventional Deterrence* (Ithaca, 1983); Richard Ned Lebow, “Rational Deterrence Theory: I Think, Therefore I Deter” *World*

This dissertation proposes a simple game in order to understand this relationship. This game is based on same principles as those introduced in “The Problem of Social Cost” by Ronald H. Coase.³⁸ In this realist power balance, there were two critical components: the belligerent’s overall strength and the neutral’s deterrent against invasion. It is also important to note the neutral’s concession is constrained by the maximum potential cost the neutral might incur if invaded. The relative power balance between a single belligerent and a neutral can be defined according to the following relationship:

Figure 1.1: Belligerent-Neutral Game: Single Belligerent Model



Where: B is the belligerent and N the neutral
 X is the net benefit or cost of war to the belligerent
 $X > 0$ represents a benefit for the belligerent
 $X < 0$ represents a cost to the belligerent
 Z is the cost of any concession on the part of the neutral country
 $Z > 0$ represents concessions (costs) for the neutral
 $Z < 0$ represents benefits for the neutral
 Y is the cost to the neutral in the event of war ($Y > 0$);

Politics, 41:2 (January 1989), p.208-224; and Kenneth Waltz, *Theory of International Politics* (Reading, 1979).

³⁸ Ronald H. Coase, “The Problem of Social Cost,” *The Journal of Law and Economics*, 3:1960, pp.144-171.

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The cost to the neutral in the event of war must be greater than the concessions offered by the neutral ($Z > -Y$)

N chooses concessions if $Z < Y$

B chooses trade if $Z > X$

Concessionary trade is the equilibrium if $X < Z < Y$

There are indifference points at $X=0$ and $(X-Z)=0$

This game form shows the estimation by the belligerent of deciding to wage war on the neutral. The belligerent will wage war if they think they will benefit more than they will lose; and it shows how a neutral can, by offering concessions, make war by the belligerent less likely. X represents the net cost or benefit of invasion for the belligerent. It can be both positive (representing a benefit) and negative (representing a cost), depending on the relative positions of the neutral and the belligerent. For example, a shortage of military troops and equipment on the part of the belligerent would increase the costs of invasion; as would a strengthening of the neutral's deterrent. This increased cost of invasion would lower the benefits, and hence, reduce the value of X . These values are fixed for each instantaneous round of the game, but they can change with each new round. The game can be played until either the neutral is invaded or the neutral perceives threat from the belligerents to have ended.

Z represents the concession on the part of the neutral country. The neutral has the choice whether or not to provide concessions and, if it does provide them, the level and degree of the concessions provided. Concessions can include both political and economic means such as trade, labour and capital provision. The value of Z is positive when neutrals provide concessions; but when they do not want to provide concessions and they adopt a strictly isolationist neutral position, Z is set equal to 0. It is also possible for Z to be negative, as in the examples of extortion from belligerents by neutrals profiting by the inherent advantages of their position. Examples include situations where neutrals have goods wanted or required by the belligerents and therefore, the belligerents surrender to them.

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Belligerents' Perspective

For the belligerent power, the game hinges on the relative values of X and Z , namely, what it would win or lose in a war and what it would benefit in concessions. A costly invasion or increased military deterrence on the part of the neutral would lower the X value relative to both Z and 0 . If the benefits of invading the neutral are net negative, as in $X < 0$, then it will not invade. But if the benefits are less than the concessions $Z > X$, then the belligerent power has no incentive to invade. The neutrals presented in this dissertation are all clear cases of the value of the concessions exceeding the benefits of invasion such that $Z > X$; each example with high costs of military invasion, and at least in the cases of Switzerland and Sweden, limited strategic benefits. Each provided specific and much demanded goods which were important for the belligerents' war efforts and which might have been lost in an invasion. If the benefits of war for the belligerent exceed the value of the concessions offered by the neutral $Z < X$, the belligerent power will invade. Neutrals including Belgium, Denmark, the Netherlands and Norway are clear cases of large strategic benefits which sustained only limited military costs for Germany.

Neutrals' Perspective

This game has two players, insofar as the neutral power has the option to give concessions to lessen the belligerent's benefits from invasion. No neutral would logically give more than is necessary to deter invasion, so the neutral should always seek to minimize Z so that is only slightly larger than X . The game also hinges on the relative values of Y and Z . No neutral country will offer more in concessions than the costs of being invaded; therefore in the event of concessions in our model, $Z < Y$. Belgium, Denmark, the Netherlands and Norway offered only limited concessions to the Germans in the period before they were invaded. These losses for these countries were also substantially less than others; Norway and Denmark even maintained civilian administrations for much

of the war. The overwhelming German strategic return from invasion make it unlikely these neutrals could provide economic benefits sufficient to turn the balance away from invasion in the way neutral countries which were more costly to invade, such as Spain, Sweden and Switzerland, could.

Realist Neutrality amidst Multiple Strong Belligerents

As this simple two player model demonstrates, neutrals have to rely on economic and military deterrents. The military disparity at the opening of the Second World War was unusually stark. This meant the costs of invasion for a belligerent were small compared to the benefits. The neutrals collapsed quickly in the face of German aggression. During the interwar period, the Great Powers made significant military advances, while the neutrals continued to rely on out-dated technology and strategies. As the statistics in Table 1.1 suggest, these changes gave the Great Powers notable advantages.³⁹

³⁹ Martin van Creveld, *Technology and War: From 2000 B.C. to the Present* (London, 1991); Larry H. Addington, *The Patterns of War Since the Eighteenth Century* (Bloomington, 2004), pp.176-189.

Table 1.1: Selected Military Strengths of European Armies

Country	Men under Arms	Tanks	Heavy Guns	Air Forces	Naval Forces (Home Fleet)	Mechanized Forces (divisions)
Belgium (1939)	600,000	10	lacked heavy guns	50 modern 200 obsolete	2 small warships; coastal defence vessels	2 fully motorized 2 partially motorized
Denmark (1940)	14,000	none	none	50 obsolete	2 coastal defence vessels	none
Finland (1939)	125,000	none	50 anti-aircraft; under 2,000 artillery	on order	small coastal defensive vessels	one partially motorized division
Greece (1940)	333,000	none	fewer than 450	300 obsolete	10 destroyers 6 submarines 53 other vessels	one partially motorized division
Hungary (1941)	216,000	190	no anti-tanks and anti-air weapons	189 obsolete	not applicable	two motorized brigades
Ireland (1939)	7,494	none	none	4 fighters	2 patrol boats	none
Netherlands (1940)	400,000	none	656 obsolete	50 obsolete	1 cruiser 1 destroyer 3 submarines 8 gun boats 5 minesweepers	bicycle corps
Norway (1939)	56,000	none	few anti-tank and anti-air weapons	24 modern 44 older 150 on order	7 destroyers 1 minelayer 40 smaller vessels	none
Poland (1939)	1,000,000	300 medium tanks; 500 light tanks	4,000 heavy field guns, of which 1,154 were of 'front line quality'	423 aircraft of which 16 were modern bombers and 27 were modern fighters	4 destroyers 5 submarines 6 minesweepers	2 complete, 1 incomplete motorized infantry brigades 100 armoured cars 10 armoured transport carriers
Sweden (1937)	403,000	none	79 anti-aircraft	257 modern (1936)	47 assorted vessels (Sept. 1939)	none
Switzerland (1939)	435,000	none	30 to 60 anti-aircraft guns	200 modern	not applicable	bicycle corps
Yugoslavia (1941)	700,000	110 light tanks	none	419 aircraft	4 destroyers, 1 cruiser, 1 submarine	none

Principal Belligerents:						
Country	Men under Arms	Tanks	Heavy Guns	Air Forces	Naval Forces (Home Fleet)	Mechanized Forces (divisions)
France (1939)	5 million	3,000 high quality	1,927 guns 7,500 more on order	2,200 planes, of which 1,000 were modern	7 battleships 2 aircraft carriers 19 cruisers 58 destroyers 77 submarines	3 armoured 7 motorized infantry, 3 light mechanized 3 light motorized infantry
United Kingdom (1939)	897,000	969 total	1,900 total over 75mm	7,940 total, all types including old bi-planes	15 battleships 4 aircraft carriers 37 cruisers 105 destroyers 57 submarines	1 armoured, 4 motorized infantry 2 light mechanized
Germany (1939)	3.74 million	4,700 high quality	5,000 total	2,564 modern	5 battleships, 1 heavy cruiser, 4 light cruisers 21 destroyers 57 submarines	6 armoured, 4 motorized infantry, 4 light mechanized 2 airborne infantry

Sources: Oxford University Press (ed.) *The Oxford Companion to World War II* (Oxford, 2001), pp. 95-96, 252, 228, 316-318, 369-277, 402, 433-34, 610-611, 640, 702 and 853; British and German Army figures taken from Mark Harrison (ed.), *The Economics of World War II* (Cambridge, 1998), p.14; Finnish anti-aircraft guns from H. Peter Krosby, *Finland, German and the Soviet Union, 1940-1941* (Madison, 1968), p.11; Finnish heavy guns, air forces, coastal defences from Olli Vehviläinen, *Finland in the Second World War* (Basingstoke, 2002), pp.50-53; Dutch Naval forces (home fleet) from A. Kroese, *The Dutch Navy at War* (London, 1945), p.7; Polish forces: Josef Garlinski, *Poland and the Second World War* (London, 1985), pp.12-13; Greek heavy guns from J. Moher, "Summary table of the Wartime Composition of an Infantry Division (Mountain Type): Greek Army 1940-1941."

Against sixteen mechanized German and French divisions, the best-equipped neutral country could boast only two mechanized and two partially mechanized infantry divisions. The Dutch and the Swiss still relied for mobility on bicycle corps and requisitioned civilian transportation. Others had no provision whatsoever for mechanized forces. Apart from ten experimental Belgian models, the neutrals did not own a single tank, compared with some 4,700 German models in 1939. The neutrals did have air forces, most notably the Swedes and Swiss, who had some 257 and 200 modern aircraft, respectively, but again these

were small compared to the German force of 2,564. Nor had the neutrals developed any new strategies to counter the new belligerent armies; instead, on 1 September 1939 they choose to deploy their infantry on the basis of strategies used in the Great War.⁴⁰

It was to the advantage of the more powerful belligerents to invade and expropriate the forces of the militarily weaker neutrals. Within nine months, the war had absorbed the Netherlands, which had a weak military and a strategy based on foreign intervention. The advantages of invading the Netherlands were particularly stark for the Germans, who could capture the coastal ports, gold reserves and manufacturing centres.⁴¹ The strategic advantage of attacking France through Belgium made the latter's military defences of little consequence from a strategic perspective. The limited economic cost of attacking compared with the benefits of not having to attack the Maginot line outweighed the few costs for the Germans. No economic concessions sufficient to counter these interests were deployed.

As seen in the maps in Figures 0.1 and 0.2, less than two years into the war only four continental European neutrals were left: Portugal, Spain, Sweden and Switzerland. In the face of the military power of the belligerents, these remaining independent countries could not instantaneously reshape their military forces. A country such as Switzerland, now surrounded by Germany and similarly aligned Italy, could not instantly build a military force capable of countering German influence.⁴⁴ Nor could they build a Navy capable of

⁴⁰ Sweden relied on a 1925 strategy almost identical to its strategy in the Great War; see Ulf Olsson, "The State and Industry in Swedish Rearmament" in Martin Fritz et al, *The Adaptable Nation: Essays in Swedish Economy during the Second World War* (Stockholm, 1983), p.60. Switzerland relied on a defence-in-depth scheme from September 1939, later replaced by the *réduit*; see Henri Guisan, *Bericht an die Bundesversammlung Über den Aktivdienst 1939-1945* [Report to the Federal Council about (my) Active Service 1939-1945] (Lausanne, 1946), pp.91-126. Franco apparently lacked a grand military strategy for Spain (see FNFF).

⁴¹ Bob Moore, "The Netherlands," in Wylie, *European Neutrals*, pp. 76-96.

⁴⁴ It took Germany three and a half years (1935 to 1938) to build an air force of 50,000 men trained to use the various new types of aircraft; see *La Rearmement Clandestine du Reich 1930-1935* [Clandestine Rearmament of the Reich, 1930 to 1935] author unknown (Paris, 1954),

protecting their merchant marine against the Allies. Instead they were dependent on economic concessions to counter the belligerents' desire to conquer them. Sufficient concessions have to be offered to assuage both parties without upsetting the other. Understanding this more complex situation with two belligerents, B^1 and B^2 , and a neutral requires a multi-belligerent model of the Coasian game.

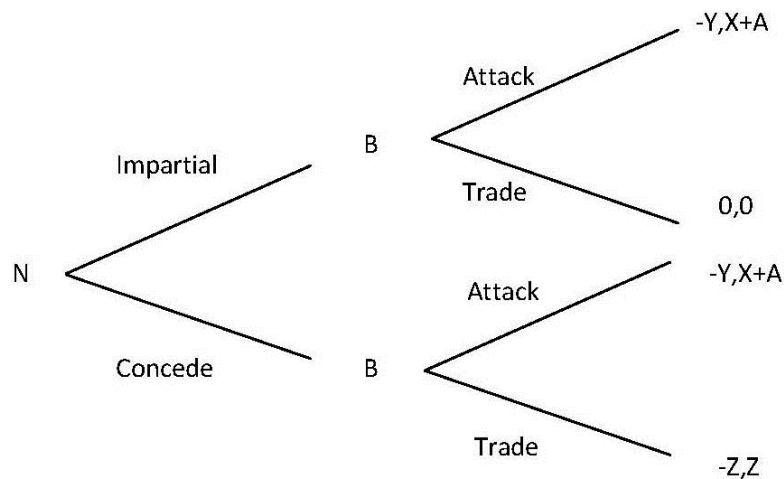
The Multi-Belligerent Model

In so-called world wars, neutrals are faced with threats from not just one belligerent, as in the previous game, but at least two belligerents, if not more. As it takes only one belligerent to make war, this quickly complicates the game as the neutral must satisfy multiple belligerents in order to maintain peace. It is possible to build a multi-belligerent model of this Coasian-game to demonstrate the additional levels of complexity faced with two or more belligerents.

This two belligerent model accounts for complexities created for a neutral when trying to maintain peace with multiple belligerents. These complexities are reflected throughout the political negotiations and in the economic relationships portrayed in this study. The basic aspects of the relationships are retained from the earlier single relationship model, including the definitions of the variables X , Z and Y , and the need for $(X+A) < Z < Y$ in order to maintain peace. However, this two belligerent model also accounts for two additional phenomena, multi-belligerent conditionality and the relative advantage problem.

pp.139-154. Defensive efforts were made, but these were insufficient against the superior German military of the time. Swiss General Guisan built a national réduit in July 1940, a series of linked defensive fortifications in the Alps based on the defeat of the German mechanized forces by the highly skilled Swiss troops. See Willi Gautschi, *General Guisan: Commander in Chief of the Swiss Army in World War II* (New York, 2003), pp.240-273. After fifteen years of spending under \$50 million altogether, Swedish military spending in 1939 increased to \$322 million. It peaked in 1942 at \$527 million (1938 dollars). Little information exists on Spanish military forces at this time.

Figure 1.2: Belligerent-Neutral Game: Multiple Belligerent Model



Note: This game is the same for both B^1 and B^2 .

Where: B is a belligerent, and N the neutral
 B^1 represents belligerent #1 and B^2 represents belligerent #2; they are at war with each other.
 X is the net benefit or cost of war to the belligerent
 $X > 0$ represents a benefit for the belligerent
 $X < 0$ represents a cost to the belligerent
 Z is the cost of any concession on the part of the neutral country
 $Z > 0$ represents concessions (costs) for the neutral
 $Z < 0$ represents benefits for the neutral
 Y is the cost to the neutral in the event of war ($Y > 0$);
 The cost to the neutral in the event of war with all belligerents must be greater than the concessions offered by the neutral [$(Z^1 + Z^2) > -(Y^1 + Y^2)$]
 A is the value of trade with N to the adversary.
 N chooses concessions if $Z < Y$
 B chooses trade if $Z > X + A$, which is less likely.
 So concessionary trade is the equilibrium given $(X + A) < Z < Y$
 There are indifference points at $X = 0$, $(X - Z) = 0$, and $Z = A$

The relative advantage problem refers to one belligerent becoming jealous of the other. For example, there is a distinct possibility belligerent one (B^1) will go to war if it thinks belligerent two (B^2) receives more from the neutral

which gives it a significant advantage in the war. As seen in Figure 1.2, this more advanced model introduces the variable A , which in terms of Z , measures a belligerent's willingness for the neutral to provide a concession to the other. There are several instances in this dissertation where one belligerent forces changes to the neutral's relationship with the other belligerent. For example, in mid-1944, the Allies threatened retribution unless the Swedes reduced trade with Germany;⁴⁵ in effect the Allies reduction of their tolerance to provide concessions, A , forced to Sweden to reduce its concessions, Z , to Germany. As seen in this dissertation, neutrals have to undertake complicated strategies, including eschewing written agreements and allowing illicit trade, in order to overcome the problem of one belligerent perceiving it has a relative disadvantage over the other.

This model also uses multiple conditional statements which result from the need to maintain peace with both belligerent groups. Switzerland, Sweden and Spain were trapped between two belligerent groups, the Allies and the Axis. As seen in the model in Figure 1.2, in order to maintain peace, the neutral has to ensure the concessions are sufficient to offset the benefits from invasion for both belligerents [$(X^1 - Z^1 < 0)$ and $(X^2 - Z^2 < 0)$]. The need to maintain the conditional 'and' in that statement is very important, as once the conditions for invasion by one party (let's say B^1) are satisfactory, the value of the future deterrent offered by the neutral to the second belligerent (B^2) declines. Even if B^1 does not invade, this instability creates a so-called bank run scenario where it is to the benefit of all parties to invade. For example, Germany invaded Norway because it feared a British invasion of the same territory. The neutral also has to ensure both belligerents are satisfied with the concessions it has made to their opponents [$(Z^1 < A^1)$ and $(Z^2 < A^2)$]; this is especially important for the neutral countries at points where the power dynamic between the two belligerents is shifting: for example, as will be discussed in Chapter Two, Allied requests for Sweden to stop

⁴⁵ See Chapter Two.

supplying Germany with ball bearings in 1943; had the Swedes not found a way of implementing a reduction which proved satisfactory, it is clear the Allied governments would have taken retaliatory action; this would have prompted German action. For each belligerent-neutral relationship peace is marked by $(X+A) < Z < Y$. The violation of any one of these conditions means the neutral is faced with war. These conditions make the neutral's position very tenuous.

Why Spain, Sweden and Switzerland?

The strength of this study can be found in the differences between the three countries. Geographically, economically and politically, Spain, Sweden and Switzerland were the neutral countries most affected by the Second World War. Unlike Portugal or Turkey, they were not under particular control of either belligerent group, but were subject to the whims of both. As seen in the Figures 0.1 and 0.2, Sweden and Switzerland were physically surrounded by the Axis powers, cut-off from the rest of the world save for trade, capital flows and communication unless mutually agreed to by both Germany and the Allied powers. Although less isolated, Spanish dictator Francisco Franco's political desire to ally himself the fascist cause meant Spain also faced a strict Allied blockade; all external Spanish trade required Allied consent.⁴⁶ All three countries were threatened by the superiority of the belligerent forces.

⁴⁶ See Chapter Two

Table 1.2: Population, Gross Domestic Product, Territory of Selected European Countries, 1938

		Territory, sq. km.		GDP, International Dollars and 1990 Prices	
	Population, millions	Total, thousands	Per Thousand People	Total, \$bn	Per head
<i>Neutral powers</i>					
Spain	25.3	504	20	45.2	1,790
Sweden	6.3	450	71	26.8	4,725
Switzerland	4.1	41	10	29.8	6,390
<i>Selected Allied Powers</i>					
UK	47.5	245	5	284.2	5,983
France	42.0	551	13	185.6	4,424
UK dominions	30.0	19,185	639	114.6	3,817
Allied Total	689.7	47,603	69	1,024.3	1,485
UK + France	89.5	796	9	469.8	5,252
<i>Selected Axis Powers</i>					
Germany	68.6	470	7	351.4	5,126
Austria	6.8	84	12	24.2	3,583
Italy	43.4	310	7	140.8	3,244
Axis Total	258.9	6,336	24	751.3	2,902
Germany, Austria, + Italy	118.8	864	7	516.4	4,346

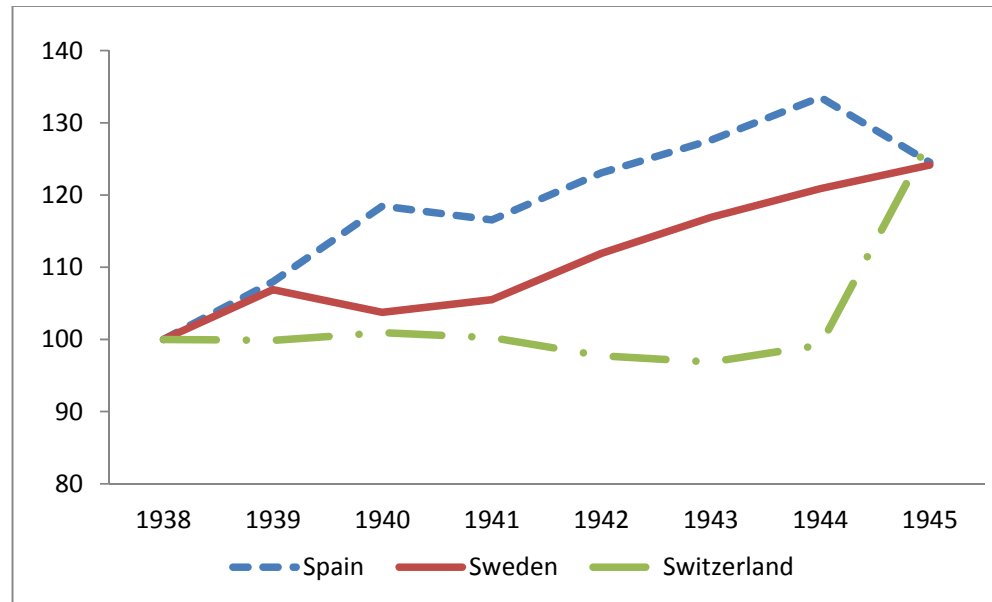
Notes: Neutral countries reported in 1990 international Geary-Khamis dollars.

Sources: Angus Maddison, *The World Economy: Historical Statistics* (OECD, 2003), Tables 1a-1d. Mark Harrison (ed.), *The Economics of World War II* (Cambridge, 1998), p.3.

The differences are more than just physical. The systems of government were quite diverse: Spain, having just come out of a civil war, was a repressive military dictatorship. Franco had fired many of the Spanish government's technocrats, giving the military control of most ministries. Sweden was a constitutional monarchy, where King Gustaf V provided stability in times of controversy. Switzerland remained a Confederation throughout the war; considerable temporary powers were transferred from the Cantons to the Federal

government and especially to the Swiss military, whose chief, General Henri Guisan, has since been framed as the national saviour. These effected how decisions were made and communicated to the belligerents.

Figure 1.3: Nominal GDP Development in Spain, Sweden and Switzerland, 1938-1945



Source: Maddison, *The World Economy*, Tables 1b.

The three countries also had very different economic starting points. Although Switzerland had the smallest population of the three, it was the richest, with per capital GDP of about \$6,390 in 1990 dollars. Economic development in Switzerland had been retarded in the 1930s by the Swiss government's adherence to the strong franc policy and the French-backed gold bloc.⁴⁷ It was until just before the war that things returned to pre-1930s levels.⁴⁸ Over the course of the war, the Swiss economy continued to contract slightly; as seen in Figure 1.3, by 1943 the war retarded GDP growth by about 4% of 1938 levels. Part of this GDP contraction could have been the result of changes in trade,

⁴⁷ Zurlinden, Mathias. *Gold Standard, Deflation and Depression: The Swiss Economy during the Great Depression*, SNB Quarterly Bulletin, 86:2 (2003).

⁴⁸ Maddison, *The World Economy*, Tables 1b.

which fell from 16% of GDP before the war to 12% by the end of the war. According to Maddison, there was a considerable 24% increase in 1945 GDP as the war ended.⁴⁹ As seen in Chapter Four, Swiss exports included finished goods and machinery. Imports consisted largely of primary products. Unemployment was less than 2% and just over 10% of the population under arms during the peak periods in 1939/1940 as indicated in Table 1.1.

With vast sparsely inhabited lands, Sweden was somewhere in the middle of the extremes of Switzerland and Spain. Almost as big as Spain in territory terms, it had a population about one-and-a-half times the size of Switzerland with a slightly smaller overall GDP output. The result was a GDP per capita of about \$4,725, with about 16% of the economy focused both on primary product and specialty goods exports at the start of the war.⁵⁰ Swedish GDP was stagnant for the first three years of the war, but then increased steadily starting in 1943; GDP increased 26% from 1938 to 1945.

Spain had the largest population, economy and territory of the three. But it was poor by European standards. As seen in Table 1.2, Spanish GDP per capita was \$1,790 in 1990 dollars; amongst the main European belligerent powers, only Italy had worse GDP per capita figures. Economic development in Spain had been severely reversed by the Spanish civil war, with overall GDP 29% below the 1928 peak of \$63.57 billion and the 1935 pre-war figure of \$63.48 billion.⁵¹ As a result, going into the war Spain had significant spare productive capacity which allowed for a rapid increase in output. As seen in Figure 1.3, during the Second World War, the Spanish economy increased output by some 33% between 1939 and 1944. Main exports throughout the war were largely primary products, including wolfram, furs and food.⁵² Unemployment was rife, and although no reliable statistics are available, it is suggested to have been as high as 40% of the

⁴⁹ *Ibid.*

⁵⁰ *Ibid*; Osten Johansson, *The Gross Domestic Product of Sweden and its Composition, 1861-1955* (Stockholm, 1967), Table 66.

⁵¹ Maddison, *The World Economy*, Tables 1b.

⁵² See Chapter Three.

population during this period; although it is important to note skilled labour was in short supply throughout the wartime period.⁵³

Whether it is through physical encirclement, changes in trade patterns or through political rhetoric, Spain, Sweden and Switzerland were all threatened by the war. As suggested in Tables 1.1 and 1.2, the main aggressors were physically, militarily and economically larger than these three neutrals. Both the UK and Germany were wealthier than Spain or Sweden on a per capita basis; with the territories under the belligerent control came access to raw materials, skilled labour and in some cases, capital. While there can be no question of consistent shortages of all three throughout the war for the belligerents, their particular policies of rationing material goods often made these shortages worse in neutral countries. Despite some political overtures, each neutral was forced to engage in economic *realpolitik* in the areas of goods trade, capital and skilled labour order to ensure their survival. So while this section has shown these three had different starting points and unique political perspectives, this dissertation ultimately observes similar economic patterns for the three countries and demonstrates they survived the war by analogous means.

Economic Concessions

Spain, Sweden and Switzerland survived their encirclement by Germany through carefully conceived economic deterrents and concessions. Economic engagement was the only way to maintain independence. Over six chapters, this study examines Spanish, Swedish and Swiss trade, capital and labour exchanges with the belligerents. It ultimately confirms the economic aspects of neutrality in the Second World War demonstrate survival is marked a willingness to provide concessions to the belligerents in order to secure their own position.

Despite the different political origins the three neutrals policies, their economic concessions turn out to be quite similar. Following the existing

⁵³ Enrique Prieto Tejeiro, *Agricultura y Atraso en la España Contemporánea* (Madrid, 1988), pp.58-59.

literature on these countries wartime activities and Mancur Olson's focus on physical goods in wartime situations, the first three chapters of this dissertation examine merchandise trade. Chapter Five integrates the merchandise trade into the more general story of wartime payments, including trade in services and capital transfers.

This is the first study to show that, despite the different political agreements and two unique systems of payment, merchandise and services trade as well as capital transfers across the three cases have many similarities in GDP terms. In particular, it highlights the periodicity of the changes in belligerent-neutral relations. With respect to both merchandise trade and services earnings, this dissertation demonstrates that when Hitler wielded most power, the Germans benefited from increased trade volumes, favourable pricing and capital flows. This favouritism towards Germany was particularly notable during its period of strength after the defeat of France in June 1940 and declined following the increasing Allied successes after 1943.

The two most isolated countries, Switzerland and Sweden, also provided concessions to the Allies in order to maintain the recognition of their neutrality and access to Allied markets. Small goods critical to the Allies' war effort were smuggled through every available channel around the blockades; services were extended to the Allies. Spain provided pricing benefits to the countries with the greatest relative power and which could provide it with goods that it needed and wanted – these countries being the United Kingdom and Germany.

In its two final chapters, this dissertation is the first to review the Spanish and Swiss labour contributions to Germany. The Spanish provided a direct, state-endorsed labour contribution at the apex of German power. The Swiss allowed informal commuters to cross its borders. However, few workers were ever transferred to Germany. This study revises downwards the number of labourers from Spain and Switzerland estimated to have been employed to Germany's advantage. Germany was able to recruit only a handful of labourers from

European neutrals. The first author to mention neutral labour contributions, Edward Homze, cites German Labour Ministry statistics from October 1941 showing 39,564 neutral workers in Germany, who represent one-tenth of one per cent of the German workforce;⁵⁴ of these, he indicates that 16,970 (42.9%) were Swiss and 1,300 (3.3%) Spanish.⁵⁵ Using a new measure of what constitutes a neutral wartime labourer, this work updates Homze's figures to show a maximum in Germany of 9,550 workers from Spain and about 1,800 from Switzerland. Border transfers to/from France and Italy were even smaller; they are not studied as these transfers were limited by agreements and were interrupted by the war at greater intervals.⁵⁶

This study ultimately shows that, whether in trade, labour or capital flows, the three neutrals in this study survived the war through concessions and deterrents. Although this dissertation does not address the policy deliberations behind the economic outcomes, the economic concessions are consistent with a realist interpretation of neutrality and the abstraction created in the multiple belligerent model. With military deterrents alone, it would have been very difficult for these neutrals to resist German or Allied aggression. Nor could they simply have built militaries sufficiently capable of opposing these belligerents. In order to maintain a realist power balance between a neutral and a belligerent, it became necessary for the neutrals to use economic means for their survival. In this context, neutrality is no longer impartiality, with its sale of identical quantities of goods and the provision of equal rights. Rather, as shown by the merchandise trade, labour and capital concessions of these three neutrals in the Second World War, neutral self-preservation is an exercise in economic realism. Both as individual case studies and as cases viewed together for comparison, the following chapters confirm this theory; finally, it is important to note these

⁵⁴ Edward Homze, *Foreign Labor in Nazi Germany* (Princeton, 1967), p.65.

⁵⁵ *Ibid*, p.57.

⁵⁶ BAr E3320B/1000-773/22, reports; StABS PD-REG/8c/(1)/2-1:3, correspondence, various dates 1939-1940.

Chapter One: The Economics of Neutrality

economic conclusions are ultimately preliminary and require support in light of needed research into the political choices. Nevertheless, they do change the existing view of Spanish, Swedish and Swiss neutrality during the Second World War.

Part Two:
Neutral-Belligerent Merchandise
Trade in the Second World War

Chapter Two

Swedish-Belligerent Merchandise Trade in the Second World War

Abstract

This chapter details the system of Swedish-belligerent wartime merchandise trade negotiations based on new nominal and real trade statistics. It demonstrates there was some periodization to Swedish actions based on the perceived power of the belligerents. Political promises of concessionary prices were given, illicit trade traffic endorsed and contractual terms overlooked. Updating the current statistics, it shows that Sweden benefited from consistent goods import surpluses with all belligerents. It was solely focused on trade with Germany during the war. Finally, it examines particularly contested areas, including iron ore, ball bearings and Sweden's energy position.

Remarks on Merchandise Trade

Mancur Olson has argued material goods are substitutable in times of war and there is no such thing as strategic goods favoured by one party or another. Olson uses the example of food, which he considered an 'essential product.'⁵⁷ In his view every nation and in particular Great Britain, "never need fear that it would be completely without all kinds of food" as even the most dependent on food imports will still grow some food at home.⁵⁸ A savvy consumer will merely alter his preference set to ensure he was sufficiently nourished.

Arguing against the physiocrats, Olson also states particular raw materials are more important than manufactured goods or services, indicating the producer can substitute for missing items. Substitution effects mean no one class of material goods should be rated more important than another:

⁵⁷ Mancur Olson, *The Economics of Wartime Shortage* (London, 1963), p.9-14.

⁵⁸ Olson, *Economics*, Chapter 4.

“just as the consumer could increase his satisfaction from a given income by making certain that the last penny he spent on each type of goods brought the same amount of satisfaction, so the producer finds that he will get the maximum production from a given amount of resources, if he uses different raw materials machinery and labour...”⁵⁹

In the merchandise trade chapters, revealed preferences show substitution within the overall trade basket, but certain items were in particular demand. For example, Sweden accepted more German coal to compensate for shortages of petroleum. This type of substitution is in keeping with Olson’s theories.⁶⁰

But Olson’s substitution idea is somewhat counterintuitive in a modern war – certain speciality manufactures are demanded by the belligerents for which there are limited viable substitutes. These strategic goods make it possible to dismiss Olson’s claim. The overall increases seen in neutral export goods such as Swedish ball bearings, Swiss watches and Spanish wolfram relative to overall price deflators show how certain items were particularly demanded by the belligerents. All three neutrals suffered from energy shortages and needed access to fuels provided by the belligerents. Limited substitutes for these goods were sometimes possible, but were either prohibitively expensive or of inferior quality, as demonstrated by the ball bearings discussion in the case studies at the end of this chapter. Substitution for these goods was therefore not entirely possible. Trade between neutrals and belligerents continued using whatever means possible to overcome blockades, including the British blockade running.⁶¹ But even while dismissing Olson’s logic, this study maintains his focus on overall

⁵⁹ Olson, *Economics*, p.13.

⁶⁰ See section on Fuels at the end of this Chapter.

⁶¹ See section in this Chapter “Ball Bearings to Germany and the Allies”

merchandise trade. It provides the first overall nominal and real statistics for belligerent-neutral merchandise trade during the war.

Focusing specifically on merchandize trade allows us to examine the flows and relative importance of specific goods as well as the price changes within the trade relationships. All three merchandise trade chapters are only concerned with neutral-belligerent merchandise trade in isolation from all other balance of payments categories. There are good reasons for this choice. The first is the attempt to answer the questions of importance in keeping with the Olson discussion. The second is volume: merchandise trade often dominated the belligerent-neutral relationships during this period. The diplomatic correspondence between the neutrals and belligerents is heavily focused on merchandise trade; there is very little on the trade in services or capital flows.⁶² Political histories reviewed in all three demonstrate the importance accorded to certain items based on the amount of time diplomats spent negotiating for these items in trade agreements. The third is convention: even when drawing up statistics, many of the National banks during this period only reviewed nominal merchandise trade, excluding services.⁶³ As a result, this thesis separates the balance of payments discussion into four main categories – goods, services, private capital transfers and government capital account – as seen in Table 2.0. Additional discussion concerning the creation of the balance of payments statistics presented herein can be found in the methodology in and the appendix to Chapter Five. By examining merchandise trade separately from services and capital transfers, we can better answer the questions posed about merchandise trade.

The focus on merchandise trade in these three chapters means final conclusions on the balance of payments cannot be drawn on the merchandise trade alone without taking into account the other aspects of the current account.

⁶² See the short political histories at the start of each trade chapter.

⁶³ See discussion in the Appendix to Chapter Five concerning sources.

Shipping, transportation and other elements of the current account are covered in Chapter Five as part of the reconciliation of the balance of payments for the relationships. Therefore, the merchandise trade chapters will only discuss merchandise trade account surpluses or deficits, and relate these to GDP. Final conclusions on overall Swedish balance of payments will not be provided until Chapter Five.

**Table 2.0: Example Balance of Payments Relationship
Germany-Switzerland, 1939 in thousands of Sterling Pounds**

		1939			Examined In Chapter
		+	-	Net	
Current Account	I. Goods	10,988	-21,140	-10,152	Chapters 2,3,4: Merchandise Trade
	I.1 Exports	10,988			
	I.2 Imports		-21,140		
	II. Services	8,450	-3,693	4,756	Chapter 5: Section on Services
	II.1 Freight and Insurance	3,920	-949		
	II.2 Other Transport Expenses	454	-516		
	II.3 Tourism and Travel	1,940	-196		
	II.4 Investment Income	1,444	-237		
	II.5 Government Transactions	52	-1,795		
	II.6 Other Services	640			
Capital Account	III. Private Transfers	4,808	-165	4,643	Chapter 5: Private Transfers
	IV. Government Capital Account	2,363	-464	1,898	Chapter 5: Overall Balance of Payments
V. Errors and Omissions			-1,145	-1,145	

Source: See Appendix 5.5.

In order to obtain comparable results, all three trade chapters in this work share common methodology. The trade analysis is based on ex-factory values. Merchandise trade statistics are arranged according to 1948 SITC

designations. The Paasche price indices used herein are based on tonnage divided into currency values at the unit level. But during the war there are some potentially non-random changes in underlying goods which make up these categories. As a result, these indexes incorporate some systematic biases. For example, Sweden exported increasing quantities of high value, lower weight manufactures from 1938. This could artificially increase the Paasche price indices of export goods reported in Tables 2.2-2.5 and Tables 2.8-2.11, lowering the reported real export statistics. Hence it is likely overall real exports reported in this chapter are in fact the lower bounds for these figures. Similarly, the Swedish imports of lower value, higher weight goods (including coal and grains) increased from 1938 onwards. This would push down the import price index and provide an upper bound for the real import trade statistics. Further information on the systematic biases can be found in the notes to the appendices to this chapter.

It is also necessary to take note methods of national accounting conventions used in the trade chapters. For the merchandise trade chapters, the importation of a good is represented as a debit; the exportation of a good is represented as a credit for accounting purposes. The credits and debits are added together to obtain a final balance of merchandise trade. Any remaining differences between the chapters are discussed in methodology sections in each trade chapter. The appendix to each chapter provides additional statistics and further reinforces how these biases cannot be overcome given the available data.

Introduction

This chapter shows during the war the Swedish government was able to assuage the belligerents' political demands and maintain friendly relations by exporting various material goods, most notably iron ore and ball bearings. Swedish trade was particularly beneficial for the resource-strapped German Reich. The German government used military pressure and threats of blockades to influence Sweden. To counter the German position, the Swedish government

provided iron ore, ball bearings, machine tools and other requisite items for the manufacture of German guns, tanks and aircraft. However, reflecting the changing balance of power, the peak year of exports to Germany was 1941. Sweden never exported its entire production of iron ore or ball bearings to the German bloc. In exchange, Sweden benefited from a net merchandise trade import surplus from Germany.

The Allies used both financial and diplomatic power to influence the Swedish government. The Allied test for Swedish independence was continued exports. Despite its geographic location within the German sphere, the Swedish government allowed much-needed war materials to reach the United Kingdom illicitly. The Allies were also successful in mandating the Swedish government to reduce exports to Germany, despite continued Swedish dependence on German fuel and food. The trade concessions by the Swedish government, in 1943 and 1944 in particular, enabled the Allies to recognize Sweden as a victim of the conditions of war.

In a 1982 overview of Swedish trade, economic historian Martin Fritz summarizes the Swedish wartime trade position with Germany.⁶⁴ A 1952 government report by Karl Åmark measured authorized trade through the blockade of the Skagge Rak.⁶⁵ The standard political work on the subject, by W. N. Calgren, does not create a unified understanding of the relationship between politics and the actual trade which occurred.⁶⁶ Examining Swedish trade relations in these and other works depending on the same sources misses the illicit trade and reveals the use of exclusively aggregate nominal trade statistics, ignoring the changes in prices which help to explain the shifting power dynamics of the relationship. This chapter expands on these works by illuminating the political

⁶⁴ Martin Fritz, "Swedish iron ore and ball-bearings in the German War Economy" in Martin Fritz et al, *The Adaptable Nation* (Stockholm, 1982).

⁶⁵ Karl Åmark, "Kristidspolitik och kristidshushållning i Sverige under och efter andra världskriget [Crisis Policy and Crisis Housekeeping in Sweden during and after the Second World War]" in *Statens Offentliga Utredningar: Handelsdepartement* (Stockholm, 1952), p. 996.

⁶⁶ W.M. Calgren, *Swedish Foreign Policy during the Second World War* (London, 1977).

situation with new, standardized trade statistics. It compares trade with the 1938 benchmark used by the Allies to limit exports to Germany.

This work also updates a number of specific case studies and incorporates them into the overall trade discussion to understand better the shifting dynamics. Several studies have focused on specific Swedish case studies, including iron ore, ball bearings and energy. Alan Milward's 1967 article asserts that Sweden could not have stopped the Second World War by withholding its iron ore from Germany.⁶⁷ In his 1973 book, *German Steel and Swedish Iron Ore*, Martin Fritz reinforces Milward's position and demonstrates that Sweden's importance to the German steel industry was declining.⁶⁸ This chapter reinforces Milward's view, by further demonstrating that Sweden's iron ore was sold to Germany according to the war trade agreements.⁶⁹ However, this chapter also shows Sweden's consistent benefit to Germany in providing iron ore particularly cheaply, in real terms.

This chapter includes figures for Sweden's illicit ball bearings exports to the Allies and shows that these were extremely important for Britain's war effort. In a 1982 study, Fritz examines Sweden's ball bearing contribution to Germany.⁷⁰ He asserts that ball bearings and ball bearing steel were important exports; Swedish-controlled production became an integral part of the German war economy. This work expands Fritz's study. It provides figures for Swedish bearings exported to the Allies and examines the Anglo-American negotiations with the Swedish bearings manufacturer, SKF, to pre-emptively purchase ball bearings and terminate exports to Germany in 1944. It demonstrates that these were Sweden's most important export; any embargo would probably have altered the course of the war.

⁶⁷ Alan S. Milward "Could Sweden have stopped the Second World War?" *The Scandinavian Economic History Review*, 1967:XV, pp.127-138.

⁶⁸ Martin Fritz, *German Steel and Swedish Iron Ore* (Gothenburg, 1974)

⁶⁹ *Ibid*, p.53.

⁷⁰ Martin Fritz, "Swedish iron ore and ball-bearings in the German War Economy" Fritz et al, *The Adaptable Nation*, p.29ff.

Figure 2.1: Map of Sweden and Northern Europe, September 1939 Borders



Source: Author

Finally, this study extends the work of Sven-Olof Olsson, who reviews the availability of Swedish energy resources, imports and consumption during the war.⁷⁷ Olsson gives an excellent summary of imports from the German bloc, but this study widens his analysis to include America's contribution of petrol to Sweden. Germany could not provide nearly enough petrol, leaving Sweden beholden to the Americans. This petrol was crucial, forming a *quid pro quo* basis for the illicit trade with the Allies, whereby fuel was exchanged only for ball bearings. As part of this analysis, a full review of Swedish energy supplies is provided.

Swedish Wartime Trade: Political Developments

This section outlines Swedish political-economic relations with the Allies and Axis powers. The German invasion of Norway and Denmark transformed Swedish trade. Before the war, Germany had been its single largest trading partner, its share nearly 20% of all Swedish trade. However, the Allies combined were Sweden's largest trading partners by turnover, Britain accounting for 17.3% and the Americans 12.8% of its trade overall. With the invasion of Norway in April 1940, Sweden was surrounded by German controlled territory and subject to German government demands. It was increasingly dependent on Germany for basic goods, such as fuel and food.

War trade agreements established the legal basis for commercial relations between a belligerent group and Sweden for a particular period; actual trade differed, being affected by prevailing wartime conditions. Unlike the other neutrals in this study, Sweden conducted trade negotiations on a parallel basis with the Ministry of Economic Warfare in London and the *Auswärtiges Amt* in Berlin. As this study unprecedentedly demonstrates, the Swedish approach was pragmatic, given that they were caught between the desires of the two belligerent parties: the Commercial Department of the Swedish Foreign Ministry

⁷⁷ Sven-Olof Olsson, "German coal in Swedish Energy Consumption," in Fritz, et al, *The Adaptable Nation*, p.33-56; Sven-Olof Olsson, *German Coal and Swedish Fuel, 1939-1945* (Stockholm, 1975).

negotiated first with whichever belligerent it perceived to have more power at the time, establishing a consensus based on yearly request lists. It then approached the opposing belligerent to continue the process.⁷⁸ This relative power was based on both military and economic influence, with Germany often issuing military threats and Britain and Americans using economic leverage. A series of compromises by both groups of belligerents, mediated by Swedish desires, led to the final agreements. It should also be noted that a separate agreement was reached with the Soviets, outside this process.⁷⁹

Based on the statistics presented here, this study proposes to divide Swedish trade relations in the Second World War into three distinct periods. The first, from September 1939 to May 1940, covers the period before the German invasion of Denmark and Norway. Trade in this period was much the same as before the war; however, conditions for future wartime trade were established, the Allies insisting on a 1938-based limit for exports to Germany. During the second period, from July 1940 to September 1943, the Swedish government increasingly deferred on most matters to German requirements. Germany benefited from particularly good terms of trade throughout this period. Illicit exports to the Allies ran concurrently. Then, from September 1943 until the end of the war, Sweden increasingly deferred to the Allies and reduced trade with Germany.

In the first period, Sweden agreed to standards under which its wartime trade would be measured by the Allies. Initially viewing Britain as the stronger power, the Swedish negotiated with London throughout late 1939. The resulting Anglo-Swedish War Trade Agreement was signed on 28 December 1939.⁸⁰ It set the wartime standards for British recognition of Sweden's neutral position and

⁷⁸ NA BT11/1140, Draft War Trade Agreement with the United Kingdom [1939].

⁷⁹ RA UDA/1920ds/HP64Er/2766, agreement dated 7 September 1940 and RA UDA/1920ds/HP64Er/2767, dated 8 September 1940.

⁸⁰ *Ibid*; Gunnar Hägglöf, *Diplomat* (London, 1971), p.121.

for continued Swedish trade throughout the war.⁸¹ This agreement pledged the Swedish government to maintain all wartime exports to Germany at or below 1938 levels of nominal value and promised not to re-export certain Allied imports to Axis countries.⁸² It also made a spoken promise to limit exports of iron ore to Germany;⁸³ in exchange, the British government promised to limit restrictions on goods to Sweden and hasten the procedure for *Navicerts*, which permitted the safe transportation of cargo through Allied waters.⁸⁴ This agreement was viewed as a victory for Sweden. As suggested in Figure 2.2, a similar agreement with Germany was signed on 26 December 1939; all allowances for trade in the latter were based on consent from Britain.⁸⁵

The April 1940 invasion of Norway and imposition of the blockade and counter-blockade changed Sweden's geostrategic position considerably. Whereas the 1939 agreements had been negotiated on the assumption that Britain was in the best position to control Swedish trade, Germany now clearly held the military advantage in Scandinavia.⁸⁶ Sweden was isolated: the Skagerrak strait was closed to almost all shipping. Swedish trade outside the Baltic Sea was now subject to both German and British consent.

⁸¹ Hägglöf, *Diplomat*, p.121.

⁸² NA BT11/1140, War Trade Agreement.

⁸³ Calgren, *Swedish Foreign Policy*, p.18.

⁸⁴ *Ibid.*

⁸⁵ Hägglöf, *Diplomat*, p.121.

⁸⁶ NA CAB67/3/41, report dated 18 December, 1939, p.4.

Figure 2.2: Swedish-Belligerent War Trade Agreements

	from 1 September 1939	1940	1941	1942	1943	1944	to May 1945
USSR			7 SEPTEMBER 1940 WAR TRADE AGREEMENT				
UK	28 DECEMBER 1939 WTA	16 MAY 1940 SHIPPING AGREEMENTS	DEC 1941 AGREEMENTS	19 JUNE 1943 DECLARATIONS	23 SEPT 1943 TRIPARTITE AGREEMENT	13 DECEMBER 1944 AGREEMENTS	
USA							
GERMANY	26 DECEMBER 1939 WTA	8 JULY 1940 TRANSIT AGREEMENT	19 DEC 1941 WTA	NOV 1942 WTA	10 JANUARY 1944 WTA		

Notes: **Bold text** denotes countries with which initial negotiations are held.

Sources: NA BT11/140; Calgren, *Swedish Foreign Policy*; NA CAB67/3/41; RA UDA/1920ds/HP64Ct/2766; RA UDA/1920ds/HP64Ct/2774.

Despite this change in power, the 1939 War Trade Agreements were not replaced immediately and Sweden negotiated with neither belligerent group for new long-term trade treaties.⁸⁷ Because the 1939 Anglo-Swedish Agreement was negotiated under more favourable circumstances than it could now obtain (in terms of restricting Swedish-German trade), Britain insisted on maintaining the existing agreements and limitations. Rather than a new agreement, the old one was supplemented by a series of short-term supply agreements from May to July 1940; the 16 May 1940 agreement gave Britain access to Swedish shipping resources outside the blockade for which Britain agreed to give Sweden access through the blockade to purchase necessities.⁸⁸ The German government increased its provision of basic goods, including fuels, as part of the 8 July 1940 deals linked to the transit of German soldiers in Scandinavia, some using Swedish railroads.⁸⁹

As seen in Chapter Five, in late 1941 Germany was accruing a capital account deficit with Sweden. Temporary credits, which allowed trade to continue, were arranged by the Swedish Government between October and December 1941, amounting to approximately 200 million Kronor or about 20% of annual Swedish-German trade.⁹⁰ American intelligence reports suggest that only 115 million Kronor of this trade credit was ever used.⁹¹ Germany used these commercial credits to continue purchasing wood, paper, cellulose and other non-war materials. Purchases of other Swedish raw and war materials, such as ball bearings, received priority treatment and were not affected by these credits.⁹² The German government paid these commercial credits before the

⁸⁷ Hägglöf, *Diplomat*, pp.146-158.

⁸⁸ NA FO837/820-821; FO837/890; NARA RG107/160/925, see report dated 6 December 1940.

⁸⁹ Calgren, *Swedish Foreign Policy*, pp.15-72.

⁹⁰ Martin Fritz, "Wirtschaftliche Neutralität während des Zweiten Weltkriegs [Business Neutrality in the Second World War]" in Rudolf Bindschedler, et al (eds.), *Schwedische und schweizerische Neutralität im Zweiten Weltkrieg* (Zurich, 1985), p.76ff; NARA RG107/160/926, file marked "US Trade Policy (BEW) HHN Dissenting 11/7/1942," report dated 11 November 1942, p.24.

⁹¹ NARA RG107/160/928, file marked "Statistical Reports," undated memo marked "Received from State Jan 22 1944 at Blockade Meeting," attached tables.

⁹² *Ibid.*

November 1942 Swedish-German War Trade Agreement covering trade in 1943.⁹³

As seen in Figure 2.2, Sweden concluded a War Trade Agreement in September 1940 with the Soviets. It called for increased trade between the two countries on a barter basis. Soviet fuel was traded for finished Swedish manufactures, including ball bearings and machinery. The Swedish government extended trade credits totalling approximately 25 million Kronor. This agreement was expected to greatly increase Soviet-Swedish trade from 20 million Kronor in 1939 to about 170 million in 1941. However, wartime developments intervened. In June 1941 the German campaign in the East restricted trade, as the ports of Leningrad and Tallin were overrun.⁹⁴ In September 1941, the Soviet and British governments guaranteed the Swedish government that no Russian designated material would be re-exported to Germany. The British gave the Soviets dollars to pay for their Swedish wares and accepted the material for onward shipment among the Allied supplies.⁹⁵

From 1941 onwards, a limited number of British merchant ships and later airplanes engaged in blockade-running.⁹⁶ While the precise statistics are discussed later, the general impact of these operations on Sweden's position is notable. They were organised by British military staff. The first two British naval operations were on Norwegian boats, commanded by captains with naval links; in Operation Bridford, the boats were former naval vessels under the command of British captains, several of whom were military officers. All were armed with deck guns and had stowed weapons to which the crew had full access; when at sea, these boats used SOE evasion tactics (which included changing flags to

⁹³ RA UDA/1920ds/HP64Ct/2457.

⁹⁴ RA UDA/1920ds/HP64Er/2766, agreement dated 7 September 1940; RA UDA/1920ds/HP64Er/2767, memos dated 8 September 1940.

⁹⁵ RA UDA/1920ds/HP64Er/2773, minute dated 29 September 1941; RA UDA/1920ds/HP64Er/2774, memorandum marked "Russian Contracts with Swedish Manufacturers;" RA UDA/1920ds/HP64Er/2774, agreement dated 4 November 1941.

⁹⁶ RA UDA/1920ds/HP64Ba/3311-3317; NA BT60/68/2; NA H58/769; CAC BINN/1; CAC BINN/2; CAC BINN/3, reports by Sir George Binney on Operations Bridford, Performance and Cabaret.

confuse the enemy); crews were instructed to hide their secret equipment when Swedish pilots boarded and while docked in Sweden.⁹⁷ The American and British planes were ex-RAF aircraft refitted for civilian use. They were commanded by furloughed and ex-AAC and RAF officers.⁹⁸ These operations created a double standard, whereby Sweden was enforcing different rules for Britain and Germany. Exports to Germany depended on British government approval, but high-value exports to Great Britain were not subject to German control. Apart from the actual circumstances of the blockade-running operations, these naval and air exports from Sweden have not hitherto been reported as part of Swedish trade. This is the first study to provide estimates of this trade and include them in the export figures.

While allowing the Allies to smuggle goods, in late 1941, the Swedish government initiated further negotiations with the German government. These eventually resulted in the 19 December 1941 Swedish-German War Trade Agreement which regulated trade for 1942.⁹⁹ Germany ultimately provided increased levels of basic goods to Sweden in exchange for agreed quantities of iron ore, ball bearings and other exports; parallel negotiations with Britain in November/December 1941 resulted in the 19 December 1941 Anglo-Swedish War Trade Agreement.¹⁰⁰ In this, Britain succeeded in continuing the limitations on Swedish-German trade imposed under the 1939 War Trade Agreement, even though Sweden now depended on Germany for basic materials.¹⁰¹

The negotiating pattern started to change in 1942.¹⁰² Although a follow-on German-Swedish trade agreement was made in November 1942 covering

⁹⁷ RA UDA/1920ds/HP64Ba/3311-3317; NA BT60/68/2; NA H58/769; CAC BINN/1; CAC BINN/2; CAC BINN/3, reports by Sir George Binney on Operations Bridford, Performance and Cabaret.

⁹⁸ RA UDA/1920ds/HP73Ba/3311-3317, personnel lists.

⁹⁹ RA UDA/1920ds/HP64Ct/2452, agreement dated 19 December 1941.

¹⁰⁰ FO837/851, agreement dated 19 December 1941.

¹⁰¹ *Ibid.*

¹⁰² NA FO837/823; NA FO837/824; NA FO837/826; NARA RG107/160/924, correspondence in file marked "HH Notes;" W.N. Medlicott, *History of the Second World War: The Economic Blockade*, vol.II (London, 1952), pp.191-193.

trade in 1943, Anglo-American-Swedish negotiators were much slower to agree.¹⁰³ For the first time, Allied negotiations included the Americans; they wanted concessions which the Swedish-German agreement covering trade in 1943 precluded. In addition, the Allied-Swedish negotiations became linked to the fate of two Norwegian ships under British charter held in Swedish ports. Because the problem of the two ships was not resolved by 1942, the Allies reinstated their blockade against Sweden and stopped all traffic from outside the German bloc in early 1943.¹⁰⁴ Rather pragmatically, the Swedish government was unwilling to acquiesce to the various Allied demands on trade reductions with Germany which would now violate their agreements with Germany.¹⁰⁵ In what could have been a show of strength, Germany was aggressively harassing Sweden's borders with military and naval incursions.¹⁰⁶

Allied-Swedish negotiations eventually led to the 19 June 1943 Anglo-American-Swedish Declarations regarding continued trade, which marked the start of the third period in Swedish trade relations. The declarations were a compromise: Sweden remained unwilling to sign a formal agreement which would counter the Swedish-German agreement covering 1943 trade, but needed the resumption of Skagerrak import traffic.¹⁰⁷ The Allies needed to continue blockade-running flights from Sweden in order to maintain access to ball bearings. The declarations, largely pledges of future cooperation, gave little ground to either side.¹⁰⁸

However, amidst declining German military power and Allied economic superiority, Sweden reinstated the Allies in primary negotiating position,

¹⁰³ RA UDA/1920ds/HP64Ct/2457.

¹⁰⁴ NA FO837/897; NA FO837/895; NA FO837/893; NA HS2/256 Operation Cabaret; Medicott, *Economic Blockade*, vol.II, pp.454-465.

¹⁰⁵ Gunnar Hägglöf, *Svensk krigshandelspolitik under andra världskriget* [Swedish Trade During World War II] (Stockholm, 1958), pp.250-257.

¹⁰⁶ Calgren, *Swedish Foreign Policy*, p.145; NARA RG226/16/394/72768R.

¹⁰⁷ NA FO837/897, various correspondence on negotiations.

¹⁰⁸ Medicott, *Economic Blockade*, vol.II, pp.468-469 and pp.471-473; NA FO837/897, agreement dated 23 September 1943; NARA RG107/160/928, undated memo marked "Received from State Department Jan 22, 1944 at Blockade Meeting."

allowing them to set the initial quotas for discussion.¹⁰⁹ The resulting September 1943 Tripartite War Trade Agreement was an important turning point in Swedish-Allied trade relations. This was the first Swedish trade agreement to include the US. The Tripartite Agreement returned to 1939 War Trade Agreement principles, with Sweden agreeing to limit exports to the German bloc at or below 1938 levels in many broad categories. Tonnage was now taken into account, alongside prices. Iron ore exports were limited to approximately 90% of their 1938 levels for Germany only and about 75% for the German-Axis bloc. The Agreement reduced exports of ball bearings, machinery and other crucial materials.¹¹⁰

Despite many protestations, Germany ultimately agreed to the terms established by the Allies in their new Tripartite Agreement with Sweden. A final Swedish-German War Trade Agreement was signed on 10 January 1944 after lengthy negotiations.¹¹¹ Although this policy reduced overall trade, it prevented Allied blacklisting, asset seizures and other economic sanctions.¹¹² In retaliation for the reduced Swedish exports to Germany in the Tripartite Agreement, Germany reduced some exports to Sweden, including fuels and food.¹¹³

The Swedish government entered into a further War Trade Agreement with Britain and America in 13 December 1944, which allowed Sweden to stockpile materials in 1945 and confirmed the end of Swedish-German trade.¹¹⁴ No further trade agreements were concluded with Germany during the Second World War. The Swedish government finished exporting to Germany in early October 1944. However, following the re-imposition of the German blockade of

¹⁰⁹ Medlicott, *Economic Blockade*, vol.II, pp.469-471.

¹¹⁰ NA FO837/897 Tripartite War Trade Agreement dated 23 September 1943; also see NARA RG107/160/925, file marked "Sweden – Statistics – Ball Bearings," memo "Swedish Exports to Enemy Europe," from H.H. Neff to Judge Patterson, dated 19 April 1944.

¹¹¹ Hägglöf, *Svensk krigshandelspolitik*, pp.272-283.

¹¹² Hägglöf, *Svensk krigshandelspolitik*, pp.272-283.

¹¹³ RA UDA/1920ds/HP64Ct/2469, German-Swedish War Trade Agreement, dated 10 January 1944.

¹¹⁴ RA UDA/1920s/HP64Ct/2321, Allied-Swedish Agreement dated 13 December 1944.

the Skagerrak in November 1944, only limited illicit Allied-Swedish trade by air was possible.¹¹⁵

In the negotiation of the War Trade Agreements, the Swedish government unquestionably maintained a careful policy of appeasing what it considered to be the stronger belligerent, while not materially damaging the interests of the other. These agreements provided only a foundation for trade. As will be shown for the first time in the next section, their terms were ignored whenever the Swedish government could obtain some advantage in its relationship with the belligerents.

Swedish-Belligerent Wartime Merchandise Trade

The Second World War created stark shortages of goods. This section assumes that above all, the Swedish government wanted to maintain imports of goods to sustain its population. This chapter is not concerned with the resulting balance of payments flows, which are detailed in Chapter Five. With this in mind, the Swedish government should seek to maximize its trade position in two different respects. In trying to sustain its population through the war, the Swedish government should firstly maximize nominal good imports and minimize the export of goods which would damage their domestic position. Secondly, in real trade terms, the Swedish government should seek to maximize the prices of exports while minimizing the prices of imports. As previously suggested, the Swedish government did not always work in an ideal world and was faced with threats. They responded to these challenges by changing their trade policies.

Methodology

Before the new trade statistics for German and Allied trade with Sweden are examined, the methodology behind these statistics should be clarified. All figures presented in Appendices 2.1-2.4 are standardized in accordance with

¹¹⁵ Calgren, *Swedish Foreign Policy*, pp.203-206.

1948 SITC designations, allowing for cross-country comparability. When discussing trade, this chapter's reference point is always the neutral country. Trade is measured as net exports. Therefore, a trade surplus reported in the Allied-Swedish relationship in Table 2.1 reflects a goods trade balance in favour of the Allies, with exports from Sweden exceeding imports. A negative figure represents a trade deficit, where Sweden imported more goods than it exported to the Allies.

Statistics include officially reported trade, together with all known smuggling. The main resources are the *Statistiska Årsbok* [Swedish Statistical Yearbooks - SAFSTA] and *Handel Statistik* [Trade Statistics - SOSH], which list all trade in twenty standardized categories.¹¹⁶ These are reported in value and tons. To provide cross-country comparability, trade categories in the SAFSTA and SOSH have been consolidated in accordance with the rubric in the notes to the appendices; real prices have been calculated for each separate category, based on available Paasche price deflators created for each category based on the value and tons considerations.¹¹⁷ Further information on the systematic biases can be found in the appendix to this chapter.

As far as possible, the Swedish statistics are supplemented from archives in the Trade Department of the Swedish Foreign Ministry and available Allied sources, to account for illicit trade from 1941 to 1944; these additions are discussed in Table 2.6 and in the notes to Appendices 2.1 to 2.4. Allied statistics are also used to highlight imports from Sweden relating to production overall.¹¹⁸ Discussions by the German planning authorities on iron ore production, pricing and availability are used when examining the provision of ferrous materials and ball bearings to Germany.¹¹⁹

¹¹⁶ SAFSTA; SOSH.

¹¹⁷ RA UDA/1920ds/HP64Ct-HP73Ba/various.

¹¹⁸ NARA RG107/160/922-926; NA FO837/series; NA CAB66 series; NA AVIA series, NA ADM series.

¹¹⁹ IWM and IWM-D, FD Series; BA-K R13/I files.

The German-Swedish balance of payments relationship involved some compensation clearing, where prices were not so much determined by internal market forces as by government negotiators.¹²⁰ Despite government involvement, few individual transactions are statistically transparent. The effect that this pricing may have had remains unknown. A complete discussion of sources can be found in the notes to Appendices 2.1-2.4; and while error terms exist and are reported as such in the statistics, the figures available represent the most accurate available and are often the first, compliant with the 1948 SITC standards, to have been presented.

Overall Balance of Merchandise Trade

On the surface, the nominal trade statistics clearly support the most popular view in the current literature: Germany dominated Swedish trade from 1940 to 1944.¹²¹ As seen in Figure 2.3, trade with the Axis bloc increased from about 21% of total turnover in 1938 to over 80% by 1941. When Germany closed the Skagerrak, Sweden's potential for non-German foreign trade was immediately reduced by up to 75%; this naturally shifted trade to the Axis powers.¹²² Carrying capacity was reduced by an even larger percentage, since Sweden's considerable merchant marine was immediately split in two; the ships in Allied territory were compelled to sail for Britain and America, while those still in the Baltic were pressed into Germany's service.¹²³

As Figure 2.3 and Table 2.1 suggest, Swedish trade with the outside world continued, despite the blockade, but at far below pre-war levels. Normal marine traffic through the blockade was controlled by both Germany and the Allies; approval for trade was often withheld if either side believed that it might be used to aid its enemies. As seen in Figure 2.3, these restrictions led to significant

¹²⁰ See Chapter Five.

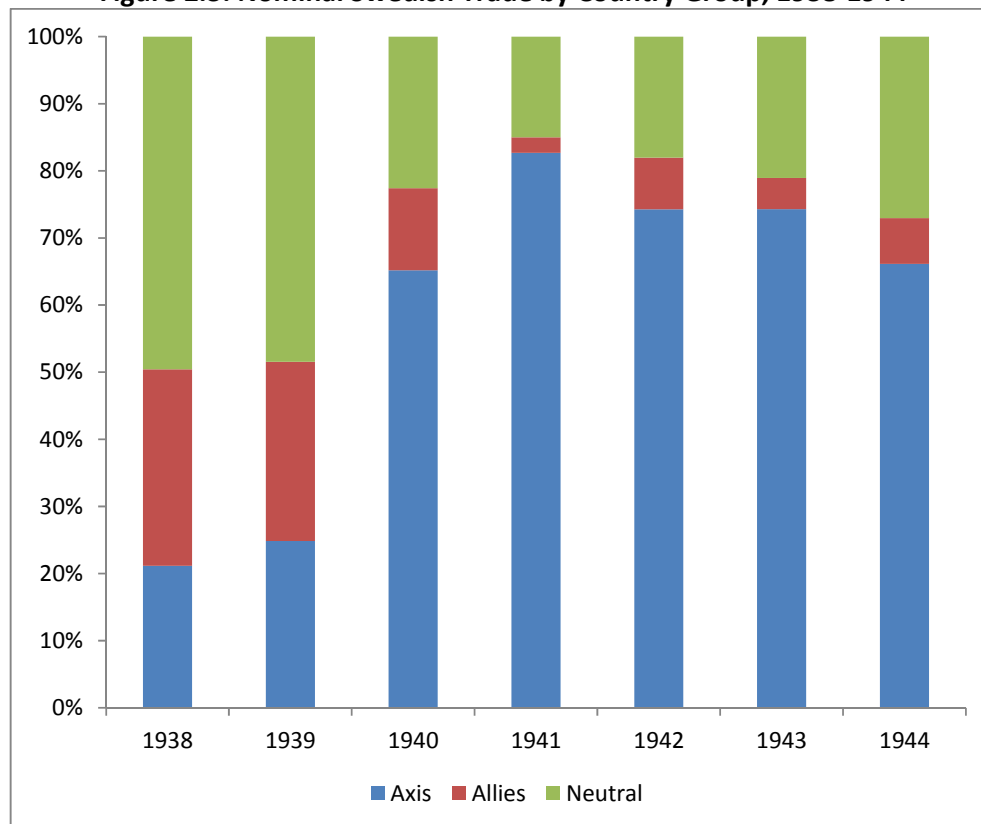
¹²¹ Fritz, "The Swedish Economy: A Survey" in Fritz, *The Adaptable Nation*; Karl Åmark, *Kristidspolitik och kristidshushållning i Sverige*; Calgren, *Swedish Foreign Policy*.

¹²² SAFSTA 1939, pp.162-163.

¹²³ RA UDA/1920ds/HP64Ba/2324, see correspondence for the *Sjöfartskommitten* [Transport Committee] dated June 1940.

declines in trade with both Allies and neutrals. In 1938, 75% of overall Swedish trade was with these countries; by 1941, they accounted for less than 20%. The literature shows little improvement on these levels, but after Allied illicit trade statistics were introduced a slight improvement ensued over 1943. By 1944, the Allies had managed to double their 1941 levels of trade with Sweden. Having previously benefited from small Allied import surpluses, for the last three years of the war, the Allies sent Sweden imports at least twice the amount of nominal Swedish exports.

Figure 2.3: Nominal Swedish Trade by Country Group, 1938-1944



Sources: see Table 2.1

While the overall trade story of increasing German control is important, the underlying terms of trade with each belligerent group are crucial to understanding the nuances of the Swedish position. This chapter now examines

Swedish trade with the German and Allied blocs in detail. Nominal and real trade statistics, including illicit trade, are reported for each belligerent group, along with selected information on price movements and the composition of Swedish imports and exports.

Table 2.1: Sweden's Foreign Merchandise Trade by Country Group, 1938-1944
(in millions of nominal Kronor)

IMPORTS	1938	1939	1940	1941	1942	1943	1944
Allies	523	569	237	42	173	136	161
Axis	469	680	1,186	1,323	1,267	1,308	1,098
Neutrals	1,089	1,249	581	282	340	370	419
Total	2,081	2,499	2,004	1,647	1,780	2,736	1,835
EXPORTS	1938	1939	1940	1941	1942	1943	1944
Allies	626	602	171	49	88	24	39
Axis	361	410	986	1,151	1,034	910	576
Neutrals	856	876	171	167	219	259	266
Total	1,843	1,888	1,327	1,367	1,341	1,193	881
BALANCE OF M. TRADE	1938	1939	1940	1941	1942	1943	1944
Allies	103	33	(66)	7	(85)	(112)	(122)
Axis	(108)	(270)	(200)	(172)	(233)	(398)	(522)
Neutrals	(233)	(373)	(410)	(115)	(121)	(111)	(153)
Total	(238)	(610)	(676)	(280)	(439)	(621)	(797)

Source: BdeE EIE; EdCdE, 1941; rounded to the nearest whole number.

Notes: For definition of the trade blocs, see notes to Appendices 3.1-3.6; balance of merchandise trade is reported as net exports: a negative figure indicates net Swedish goods imports and a positive figure indicates net Swedish exports.

Swedish Nominal Trade with the German Bloc

This section reviews Swedish nominal trade with the German bloc. It demonstrates that the Sweden benefited from trade surpluses throughout the war. The Swedish government also benefitted from favourable terms of trade in 1942 and 1944 vis-à-vis the German bloc. Sweden sent Germany machinery, iron ore and ball bearings, all three of which were essential for Germany's war effort. It also demonstrates the flexibility of Swedish policy: trade with Germany

exceeded 1938 levels from 1941 to 1943, in violation of the Allied-Swedish agreements.

From the start of the war, in both real and nominal terms, Germany required additional exports of Swedish raw materials for the Axis war effort in exchange for the coal, coke, chemicals, textiles and war material imported by Sweden. As seen in Table 2.2, nominal Swedish exports in 1941 topped nearly 1.2 billion Kronor or about 3.2 times their 1939 levels, with exports declining thereafter to 910 million Kronor in 1943 and 576 million Kronor in 1944. These statistics suggest that the Allied efforts to reduce Swedish exports to Germany in 1943 merely prolonged a trend which started in 1941.

Table 2.2: Nominal Swedish Merchandise Trade with Germany and the German Bloc, 1938-1944, in Nominal Kronor (in millions)

IMPORTS	1938	1939	1940	1941	1942	1943	1944	1939-44
Goods Imported	469	680	1,186	1,323	1,267	1,308	1,098	6,862
Goods Imported Index (1938=100)	100	145	253	282	270	279	234	
EXPORTS	1938	1939	1940	1941	1942	1943	1944	1939-44
Goods Exported	361	410	986	1,151	1,034	910	576	5,067
Goods Exported Index (1938=100)	100	114	273	319	286	252	160	
BALANCE OF MERCH. TRADE	1938	1939	1940	1941	1942	1943	1944	1939-44
Net Exports	(108)	(270)	(200)	(172)	(233)	(398)	(522)	(1,795)

Sources: see Appendices 2.1 and 2.2; figures rounded to the nearest whole number.

Notes: see notes to Appendices 2.1 to 2.4; the balance of merchandise trade is reported as net exports: a negative figure indicates net goods imported into Sweden and a positive figure indicates net exports.

Changes in Swedish imports from Germany in nominal terms demonstrate how dependent Sweden now was on Germany. As Table 2.2 shows, from a nominal value of 469 million Kronor in 1938, Swedish imports rose to a

peak of 1.3 billion Kronor in 1941. They were within 15 million Kronor of this peak again in 1943; this is equivalent to 2.8 times 1938 levels. Unlike exports, imports continued at similar levels in 1944, with a decline to only 1.1 billion Kronor from the 1943 peak.

Total nominal Swedish exports to Germany and the German bloc from 1939 through 1944 amounted to 5.1 billion Kronor; Swedish imports from the German bloc totalled 6.9 billion Kronor. Over the wartime period, nominal Swedish imports exceeded exports by some 1.8 billion Kronor, about 14.9% of Sweden's 1938 NNI.¹²⁴ Sweden, therefore, benefited from net imports of goods and was not a net exporter of goods and overall contributor to the German war effort.

Table 2.3: Value of Certain Goods in Swedish Imports from the German Bloc, 1938-1944 as a Percentage of Total Imports from the German Bloc (by nominal value)

Year	Fuels	Metals	Machinery	Foodstuffs	Chemicals	Textiles
1938	9.1%	16.1%	31.9%	1.3%	12.9%	15.5%
1939	9.6%	16.9%	25.9%	4.0%	14.8%	14.6%
1940	20.4%	14.5%	19.5%	5.3%	11.3%	12.2%
1941	2.4%	12.2%	15.6%	7.2%	23.6%	15.4%
1942	20.3%	14.6%	15.2%	11.0%	13.0%	12.7%
1943	23.3%	13.7%	15.0%	9.3%	13.2%	11.0%
1944	5.8%	13.6%	13.5%	6.4%	13.8%	11.9%

Source: see Appendix 2.2.

The composition of exports and imports also changed noticeably. The nominal level of raw materials imported by Sweden from Germany rose and the levels of manufactures declined. As Table 2.3 suggests, the greatest change in Swedish imports (in nominal terms) from 1938 is the rise in fuels and food. Fuels from Germany consisted largely of coal and coke. Although the wartime statistics based on deliveries from Germany fluctuated dramatically, the general trend rose, from 9.1% of imports from the German bloc in 1938 to 23.3% in

¹²⁴ Östen Johansson, *The Gross Domestic Product of Sweden and its Composition 1861-1955* (Stockholm, 1967), Table 57.

1943. Declines in the same period include machinery and textiles, with machinery in particular halving as a percentage of total trade between 1938 and 1941.

Table 2.4: Value of Certain Goods in Swedish Exports to the German Bloc, 1938-1944 as a Percentage of Total Exports to the German bloc (by nominal value)

Year	Animal Products	Machinery	Metals	Minerals	Paper	Wood
1938	13.6%	4.9%	16.8%	49.5%	5.5%	5.4%
1939	13.6%	6.2%	17.1%	48.4%	3.9%	8.1%
1940	5.4%	12.1%	19.9%	19.1%	17.2%	17.0%
1941	3.0%	11.6%	22.4%	17.4%	20.2%	18.3%
1942	1.3%	13.0%	20.4%	18.6%	26.3%	16.0%
1943	0.8%	14.1%	24.3%	25.2%	20.0%	11.6%
1944	1.3%	15.8%	20.6%	20.0%	20.2%	12.5%

Source: see Appendix 2.1.

As Table 2.4 reveals, the most striking changes in Swedish exports to Germany are the increases in machinery, finished metals, paper and wood exports. The greatest increases in trade involved paper and wood, the former increasing four-fold to 20% of overall nominal exports in 1944 and the latter representing at its peak 18.3% of exports in 1941. Equipment and machinery, which included all-important ball bearings, rose from 4.9% of overall exports in 1938 to 15.8% in 1944. Metals increased from 16.8% (1938) to a peak of 24.3% in 1943. Although mineral exports, iron ore in particular, rose in Kronor terms, they declined over the period in percentage terms because exports of refined iron ore were limited by the Swedish government (see discussion in the relevant section).

Swedish Trade with the German Bloc: Real Statistics

Large price increases make the rises in nominal trade seem more dramatic, in real terms, than they otherwise are. When adjustments are made to bring prices into real terms, 1940 is the peak year for Swedish exports to

Germany, with 880 million 1938 real Kronor from goods dispatched (equalling 2.4 times 1938 levels). Real Swedish export levels in 1941 are slightly lower than these; but thereafter exports decline to only 1.5 times above 1938 levels in 1942/1943. By 1944 real exports decline to about 9/10ths of 1938 figures.

Table 2.5: Real Swedish Merchandise Trade with Germany and the German Bloc, 1938-1944, in 1938 Swedish Kronor (in millions)

IMPORTS	1938	1939	1940	1941	1942	1943	1944	1939-44
Goods Imported (1938 Kronor)	469	690	898	866	777	732	641	4,604
Goods Imported Index (1938=100)	100	147	191	184	165	156	137	
Import Price Deflator (Index, 1938=100) [Pi]	100	99	132	153	163	179	171	
EXPORTS	1938	1939	1940	1941	1942	1943	1944	1939-44
Goods Exported (1938 Kronor)	361	437	880	862	556	523	326	3,584
Goods Exported Index (1938=100)	100	121	244	239	154	145	90	
Export Price Deflator (Index, 1938=100) [Px]	100	94	112	134	186	174	177	
BALANCE OF MERCH. TRADE	1938	1939	1940	1941	1942	1943	1944	1939-44
Net Exports	(108)	(253)	(18)	(4)	(221)	(209)	(315)	(1,020)
Terms of Trade [Px/Pi]	100	95	85	88	114	97	104	

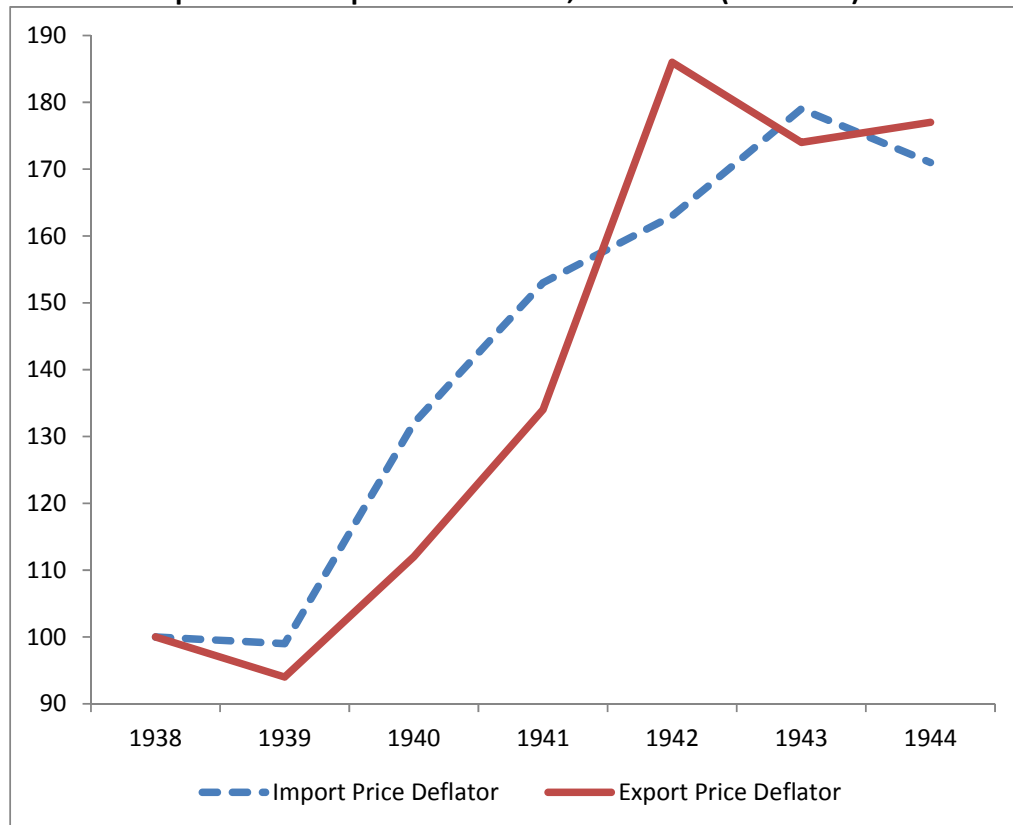
Sources: see Appendices 2.1 and 2.2; figures rounded to the nearest whole number.

Notes: see notes to Appendices 2.1 to 2.4; the balance of merchandise trade is reported as net exports: a negative figure indicates net goods imported into Sweden and a positive figure indicates net exports. Price deflators are calculated based on value and tons basis. This causes systematic biases. See notes in the Appendix to this chapter.

Swedish imports in real terms closely follow real exports. Using the price deflator, the peak year for imports, 1940, declines by about 30% to 898 million Kronor. Thereafter imports steadily decline, reaching 641 million 1938 Kronor or 1.3 times 1938 levels in 1944; this is approximately a 30% decline from the peak

1941 value. Sweden remains a net importer, although the balances in 1940 and 1941 are considerably smaller, reflecting the improved German influence over trade relations.

**Figure 2.4: German-Swedish Trade,
Import versus Export Price Indices, 1938-1944 (1938=100)**



Sources: see Appendices 2.1 and 2.2; for index construction see notes to appendices.

As the terms of trade statistics suggest, from 1941 to 1942 and again from 1944, the influence of improved trade pricing and increasing net imports benefits Sweden in relation to Germany. As seen in Table 2.5 and Figure 2.4, in 1940 and 1941, Germany extracted relatively better prices for exports to Sweden (called imports in graph). In 1942, Sweden extracted price concessions from Germany, charging more for its exports than the countervailing traffic. The pricing situation reverses in 1943, perhaps suggesting the Swedish reduction in export traffic relative to imports gave Germany the pricing advantage. As

Chapter Two: Swedish-Belligerent Merchandise Trade

confirmed in the terms of trade presented in Table 2.5, this situation reverses and again to favour Sweden in 1944.

German pressure was effective in increasing exports of critical goods from Sweden from 1940 to 1942; but even in this period Germany continued to provide Sweden with excess imports in both nominal and real terms. In 1943 and 1944, Swedish import surpluses of goods increased further. Terms of trade initially favoured Germany, but shifted towards Sweden as German power declined. Unlike Switzerland, Sweden undertook very little of this trade on credit and outstanding balances were discharged by the end of the war. Thus, although Sweden may have been surrounded by German forces and at their mercy, Germany did not materially exploit Sweden.

Swedish Nominal Trade with the Allied Bloc

This section reviews the Allies' trade with Sweden, with details of legal and illicit trading with the Allies through the Skagerrak blockade. From the statistics presented below, it is evident the Allies provided Sweden with excess nominal and real imports, including much needed petroleum products, food, chemicals, cacao, tobacco, metals and textiles for Sweden. In exchange, the Swedish government allowed the Allies illicit access to Swedish ball bearings, machine tools and other goods, selling these items at a consistent discount to the Allied supplies.¹²⁵

¹²⁵ Nicolaus Rockberger, *Göteborgstrafiken: Svensk lejdtrafik under andra världskriget* [Gothenburg Traffic: Swedish Swedish Naval Traffic during the Second World War] (Stockholm, 1973), pp.246 and 263.

Nominal Illicit Trade

This is the first study to provide information on Swedish illicit exports to the Allies. Illicit trade refers to trade which was not approved by both belligerent parties and otherwise excluded from official negotiations and reporting. Apart from approved traffic to the Allies through the German marine blockade, two illicit trade methods were approved during the war by the Swedish government: blockade-running using British ships and the use of Allied and Swedish aircraft to transport passengers, diplomatic materials and regular cargo from Sweden to Scotland. The British (in particular) faced acute shortages of Swedish ball bearings and similar specialty products for their war economy.¹²⁶ No previous study has given a comprehensive account of this trade, which was actively chosen by the Swedish government to aid the Allied war effort; since the Swedish government did not obtain Germany's consent, it indicates a particular pragmatism on Sweden's part. As this section shows, the Allied desire for these goods gave Sweden significant terms of trade advantages, allowing it to run consistent surpluses of goods imports and gain pricing advantages while obliging the Allies to recognize its neutrality.¹²⁷ Supplies of petrol were the Allies' primary bargaining tool; increased supplies were linked to their receiving additional Swedish exports of ball bearings.¹²⁸

In Table 2.6, trade through the Skagerrak is divided into three parts: authorized naval traffic, blockade-running ships and air traffic; the latter two bypassed the Skagerrak blockade. Examining the authorized naval traffic first, from 1941 to 1943, the number of authorized vessels per month was meant to be five, but only in 1942 was the full quota actually met.¹²⁹ The quota of

¹²⁶ *Ibid*; NA ADM199/7517, memo dated 5 March 1943.

¹²⁷ NA CAB122/241, memo dated 1 December 1942.

¹²⁸ NA CAB122/241, correspondence dated 27 May 1942, November 1942 and between January and February 1943; NARA RG107/160/926, folder marked "US Trade Policy (BEW), HHN Dissenting 11/7/1942," report dated 11 November 1942, p.5, marked 55.

¹²⁹ RA UDA/1920ds/HP64Ba/2321, declarations and correspondence dated 13 September 1944; NA FO837/897 Tripartite War Trade Agreement dated 23 September 1943.

authorized vessels was increased to six per month for 1944 to 1945, but the actual figures are lower.¹³⁰

Table 2.6: Swedish Export Trade with the Allies, 1940-1944
Comparison of Types of Export Traffic and
Valuation of Illicit Trade in Nominal Swedish Kronor (millions)

EXPORT TRAFFIC		1941	1942	1943	1944	To May 1945
Illicit Traffic	Blockade Running Ships to UK (Outbound)	5	7	13	14	0
	Round-trip Flights to UK	0	174	320	727	369
Authorized Traffic	Vessels Inbound	32	58	46	77	13
	Vessels Outbound	35	62	44	78	6
EXPORTS BY VALUE		1941	1942	1943	1944	To May 1945
Illicit Exports By Ship		21.1	21.6	14.3	14.3	0
Illicit Exports By Airplane		0	1.4	6.3	13.6	7.0
Total Illicit Exports		21.1	23.0	20.6	27.9	7.0
Illicit Trade as a Share of Swedish Exports to the Allies		43.4%	26.0%	85.8%	70.8%	N/A

Sources: Nicolaus Rockberger, *Göteborgstrafiken: Svensk lejdtrafik*, p.246 and p.263; NA HS7/191, report on "The Performance Operation," from Sir George Binney to Sir Andrew Duncan, Dated June 1942; CAC BINN/2, "Operation Performance," NA BT60/68/2 "Appendix A: List of Materials Shipping from Gothenburg to England in January, 1941," from "Report by George Binney, H.M. Legation, Stockholm," and CAC BINN/1, "Operation Rubble."

Notes: Illicit trade is included in overall trade reported in Table 2.8. Vessels inbound refers to ships travelling to Sweden; outbound refers to ships leaving Sweden.

Three different ship-borne blockade-running operations ran between January 1941 and late 1943. To increase the chance of avoiding detection, these operations typically occurred during the long Scandinavian nights in the early months of the year. The first, Operation Rubble, in January 1941, used Norwegian ships piloted by a British-Norwegian-Swedish crew to transport Swedish iron, ingots, ball bearings, machine tools, spare parts and steels of

¹³⁰ Åmark, "Kristidspolitik och kristidshushållning..." SOU, p. 996; Rockberger, *Göteborgstrafiken*, p.246.

various qualities.¹³¹ 18,800 metric tons of goods were transported to the UK, valued at 21.1 million Kronor (1,142 Kronor per ton).¹³² The Norwegian ships released from behind the Skagerrak blockade were in addition worth 42.3 million Kronor, but were not counted as imports; they remained the legal property of their Norwegian owners and were merely leased by the Allies.¹³³

Operation Performance in March 1942 was destined to bring the UK Kingdom approximately 19,000 metric tons of specialty iron and steel materials, machinery and ball bearings, together with 5,500 metric tons of Russian-owned material for forwarding.¹³⁴ As Table 2.6 indicates, only seven Norwegian ships with 4,838 metric tons of cargo completed the journey to the UK after German naval activity forced the return of half the material to Gothenburg harbour.¹³⁵ The received cargo was valued at 21.6 million Kronor (4,464 Kronor per ton).¹³⁶

Bridford, the most successful blockade-running operation, began in October 1943 and ended in March 1944. British Motor Gun Boats (MGBs), manned with British crews (most seconded from the military), were to return with supplies of ball bearings, speciality steels, machine tools and other items.¹³⁷ Over six return voyages, these boats carried 24-26,000 metric tons of material urgently required for British war production.¹³⁸ No values are reported, but on the basis of the lower per ton value of Operation Rubble, the cargo of Bridford is estimated at 28.6 million Kronor. This conservative measure probably underestimates the value of this cargo. Since precise sailing dates are missing,

¹³¹ NA BT60/68/2, "Appendix A: List of Materials Shipping from Gothenburg to England in January, 1941," from "Report by George Binney, H.M. Legation, Stockholm;" and CAC BINN/1, "Operation Rubble."

¹³² *Ibid*; and RA UDA/1920ds/HP64Ba/2800, folder marked "1944, Nov 21-Dec 19," memo dated 6 December 1944.

¹³³ *Ibid*.

¹³⁴ NA HS7/191, report on "The Performance Operation," dated June 1942; CAC BINN/2, "Operation Performance."

¹³⁵ NA HS7/191, report on "The Performance Operation," dated June 1942, p.55.

¹³⁶ *Ibid*; and RA UDA/1920ds/HP64Ba/2800, folder marked "1944, Nov 21-Dec 19," draft memo dated 6 December 1944.

¹³⁷ NA H8/769, undated report on Operation Bridford, p.10ff; CAC BINN/3, "Operation Bridford."

¹³⁸ *Ibid*; note: precise manifest does not exist; based on ships' carrying capacity and associated notes in these reports.

Table 2.6 spreads the total value of these shipments equally over 1943 and 1944.¹³⁹

From January 1940, the Swedish government also permitted civilian air traffic from the UK; but the invasion of Norway and the imposition of the Skagerrak blockade delayed a regular service until March 1942.¹⁴⁰ Three companies ultimately operated services from RAF Luechars in Scotland to various points in Sweden during the war: BOAC, AATS (only April 1944-1945) and ABA. The Swedish ABA operated sporadic passenger services with minimal freight in Douglas DC-3 aircraft. Britain, using American Lend-Lease, provided the new engines and spare parts for these ABA aircraft.¹⁴¹ BOAC employed a variety of aircraft on the route from March 1942, including the Curtiss-Wright CW20, Douglas DC-3, Mosquito and converted American Liberator aircraft;¹⁴² this British service was primarily a cargo operation.¹⁴³ The AATS began flying Liberator aircraft primarily for passengers in April 1944.¹⁴⁴ The Americans and British were limited to three aircraft on Swedish soil at any given time, although towards the end of the war these rules were informally relaxed.¹⁴⁵ America imported fuel for these flights through the blockade.¹⁴⁶

The Commercial Department of the Swedish government maintained detailed records of the illicit exports.¹⁴⁷ As Table 2.7 shows, the number of

¹³⁹ NA BT60/68/2; NA HS7/191.

¹⁴⁰ RA UDA/1920ds/HP73Ba/3311, folders marked "1940-1941" and "Jan-Feb 1942"

¹⁴¹ RA UDA/1920ds/HP73Ba/3312, telegram dated 23 March 1942, letter dated 23 March 1942 and correspondence dated between 23 May and 26 May 1942.

¹⁴² RA UDA/1920ds/HP73Ba/3312-3313.

¹⁴³ RA UDA/1920ds/HP73Ba/3312-3317.

¹⁴⁴ RA UDA/1920ds/HP73Ba/3316-3317, see reports entitled "Översikt över flygtrafiken mellan Sverige och England under tiden..."[Overview of the Average Air Traffic Sweden to England], "various dates from 12 April 1944 to 1945.

¹⁴⁵ RA UDA/1920ds/HP73Ba/3316, memo dated 18 February 1944.

¹⁴⁶ *Ibid* and RA UDA/1920ds/HP73Ba/3316, memos dated 27 April 1944, 14 September 1944 and 18 September 1944.

¹⁴⁷ RA UDA/1920ds/HP73Ba/3311-3317, reports marked "Översikt över flygtrafiken mellan Sverige och England under tiden...", various dates from 1942 to 1945 and reports marked "Statistik över visa uppgifter i lastningsbeskeden för de utgående brittiska kurirflygplanen [Statistics on Exports by Britain Courier Airplanes], " various dates from 1943 to 1945.

round-trip flights increased consistently from 1942 to May 1945.¹⁴⁸ Excluding passenger luggage and similar passenger-related cargo, total goods exported to the UK by air increased from 46 metric tons in 1942 to 448 metric tons in 1944.¹⁴⁹ As the end of the war approached (January to May 1945), the annualized rate declined to about 350 metric tons.¹⁵⁰

Table 2.7: Sweden-United Kingdom Air Operations, Cargo by Nationality, March 1942-May 1945 (in kilograms)

Year	American Diplomatic Cargo	British Diplomatic Cargo	Other Diplomatic Cargo ²	Unclassified Commercial ³	Total
1942	862	24,324	9,254	11,869	46,309
1943	0	32,845	5,810	170,119	208,774
1944	478	42,494	6,411	398,736	448,119
1945	0	17,003	0	144,684	161,687
Total	1,340	116,666	21,475	725,408	864,889
% Total	0.2%	13.5%	2.5%	83.9%	100%
Weekly Average	11	926	170	5,757	

Sources: RA UDA/1920ds/HP64Ba/2800, draft memo dated 6 December 1944; RA UDA/1920ds/HP73Ba/3314, undated table marked "Export till Storbritannien med kurirflyg under 1942;" RA UDA 1920ds/HP73Ba/3311-3317, reports marked "Översikt över flygtrafiken mellan Sverige och England under tiden...", various dates from 1942 to 1945, and reports marked "Statistik över visa uppgifter i lastningsbeskeden för de utgående brittiska kurirflygplanen," various dates from 1943 to 1945; BAMA AW/1/6512, "Air Service – Midnight Sun Period," memo dated 26 February 1944.

Notes: ¹Losses accounted for on a percentage basis (see BAMA AW/1/6512); ²Includes Norwegian (11,067 MT), Russian (10,393 MT) and Polish Diplomatic Cargo (15 MT); ³Unclassifiable commercial cargo includes Swedish manufactures in transit to Britain for itself or Russian government.

The transports included a variety of cargo. As Table 2.7 indicates, the Swedish authorities divided the cargo into six different categories: American, British Diplomatic, Norwegian Diplomatic, Russian, Polish and other commercial

¹⁴⁸ RA UDA 1920ds/HP73Ba/3312-3317, reports marked "Översikt över flygtrafiken mellan Sverige...", various dates from 1942 to 1945.

¹⁴⁹ RA UDA 1920ds/HP73Ba/3312-3317, reports marked "Statistik över visa uppgifter i lastningsbeskeden...", various dates from March 1942 to 1945.

¹⁵⁰ *Ibid*, from 1 January 1945 to 28 April 1945.

cargo.¹⁵¹ The high levels of British diplomatic cargo are noteworthy; it can be stated with some certainty that the nearly one metric ton of British diplomatic cargo per week was not entirely diplomatic correspondence. It probably included some freight requiring export licenses which the British government wanted to avoid.¹⁵² This is confirmed in part by the large cash expenditures of the British Embassy in Stockholm in this period.¹⁵³

As expected, the air cargo consisted of very high-value materials needed for the Allied war effort. Ball bearings, machinery, high-speed steel and other similar items were exported as cargo. A 1942 Swedish report on air exports to Britain recorded a value of 30,383 Kronor per metric ton for these goods.¹⁵⁴ Using this figure and the calculated tonnage of the commercial cargo for each year, total exports by air in 1942 are estimated at 1.4 million Kronor, increasing to 6.3 million Kronor in 1943 and doubling again to 13.6 million Kronor in 1944. The figure then declined to 5.0 million Kronor in the last five months of the war. All of these statistics are included in the nominal exports presented in Table 2.8.

Overall Nominal Trade with the Allies

Table 2.8 shows that after the Skagerrak blockade was imposed, Allied-Swedish trade declined considerably. In the first full year of the blockade (1941), nominal imports declined to 42 million Kronor, a mere 8% of 1938 figures. After the illicit export programmes began in 1941, nominal imports increased to a wartime peak of 173 million Kronor in 1942 and in subsequent years imports ranged between 130 and 160 million Kronor.

¹⁵¹ *Ibid*, all dates.

¹⁵² RA UDA/1920ds/HP73Ba/3314, folder marked "1943 Febr.-April," table marked "Export till Storbritannien med kurirflyg under 1942 [Exports to Great Britain by Courier Plane 1942];" RA UDA 1920ds/HP73Ba/3312-3317, reports marked "Statistik over visa uppgifter i lastningsbeskeden....," various dates from March 1942 to 1945.

¹⁵³ BoE OV6/150-154, various dates from 1940 to 1945.

¹⁵⁴ RA UDA/1920ds/HP73Ba/3314, folder marked "1943 Febr.-April," table marked "Export till Storbritannien med kurirflyg under 1942."

Table 2.8: Nominal Swedish Merchandise Trade with the Allied Bloc, 1938-1944, in Nominal Swedish Kronor (in millions)

IMPORTS	1938	1939	1940	1941	1942	1943	1944	1939-44
Goods Imported	523	569	237	42	173	136	161	1,318
Goods Imported Index (1938=100)	100	109	45	8	33	26	31	
EXPORTS	1938	1939	1940	1941	1942	1943	1944	1939-44
Goods Exported	626	602	171	49	88	24	39	973
Goods Exported Index (1938=100)	100	96	27	8	14	4	6	
BALANCE OF MERCH TRADE	1938	1939	1940	1941	1942	1943	1944	1939-44
Net Exports	103	33	(66)	7	(85)	(112)	(122)	(345)

Sources: see Appendices 2.3 and 2.4; figures rounded to the nearest whole number.

Notes: see notes to Appendices 2.1 to 2.4; the balance of merchandise trade is reported as net exports: a negative figure indicates net goods imported into Sweden and a positive figure indicates net exports.

Nominal exports declined to 171 million Kronor in 1940. In 1941, trade declined to 49 million Kronor, only approximately 60% of which was legal (see Table 2.6). Nominal exports to the Allies increased in 1942 to 88 million Kronor, of which 26% is attributable to illicit traffic; but exports declined in 1943 as Germany reduced the number of safe conduct ships and restricted exports to the Allies. This resulted in 24 million Kronors' worth of exports in 1943, 86% of which was sent via illicit sea and air traffic. Approximately 39 million nominal Kronor were exported to the Allies in 1944, about 71% sent illicitly.

The periodic changes in overall trade flows are particularly notable, supporting the new historiography presented earlier. Before the German invasion of Scandinavia, Sweden was a net exporter of goods to the Allies. This reverses briefly in 1940 and then returns to the pre-war situation in 1941, when the British test for Swedish neutrality was established as continued excess exports. This reverses again with the start of the illicit supply programme. By

1943 and 1944, Swedish imports from the Allies are nearly five times the countervailing traffic.

Total nominal Swedish exports to the Allied bloc from 1939 to 1944 amounted to 973 million Kronor, equalling 8.0% of Swedish 1938 NNI.¹⁵⁵ Swedish imports totalled about 1.3 billion Kronor. This resulted in excess goods imports of 345 million Kronor or 2.8% of Swedish 1938 NNI.¹⁵⁶

**Table 2.9: Value of Certain Goods in Swedish Imports
from the Allied Bloc, 1938-1944 as a Percentage of
Total Imports from the Allied Bloc (by nominal value)**

Year	Fuels	Metals	Machinery	Foodstuffs	Chemicals	Textiles
1938	28.6%	9.4%	8.7%	11.9%	5.2%	19.8%
1939	33.9%	9.7%	8.0%	10.4%	5.2%	21.8%
1940	19.2%	9.2%	6.8%	14.3%	4.5%	23.3%
1941	9.7%	0.8%	3.4%	29.0%	1.7%	42.3%
1942	11.4%	0.6%	2.2%	22.5%	3.5%	39.3%
1943	14.1%	0.3%	5.2%	38.7%	5.8%	28.3%
1944	8.1%	0.5%	3.2%	33.2%	4.3%	41.5%

Source: see Appendix 2.4.

The shifts in Allied trade changed the composition of Allied imports and exports. As noted in Table 2.9, Swedish pre-war imports from the Allied bloc were fairly diverse, including significant imports in each category of goods. By 1941, this trade consisted almost entirely of fuel, foodstuffs and textiles, imported foodstuffs accounting for 33% and textiles for 42% in 1944. When the blockade began, imported metals were strictly rationed, leading to substantially reduced trade, as Table 2.9 indicates.

¹⁵⁵ Johansson, *Gross Domestic Product*, Table 57.

¹⁵⁶ *Ibid.*

**Table 2.10: Value of Certain Goods in Swedish Exports
to the Allied Bloc, 1938-1944 as a Percentage of
Total Exports to the Allied Bloc (by nominal value)**

Year	Animal Products	Machinery	Metals	Minerals	Paper	Wood
1938	10.9%	9.7%	15.3%	6.7%	31.3%	19.2%
1939	10.3%	9.8%	16.7%	5.8%	33.6%	15.4%
1940	10.0%	7.2%	19.3%	6.7%	41.2%	10.9%
1941	0%	52.9%	46.2%	1.3%	0.2%	0.0%
1942	0.1%	69.2%	22.1%	0.1%	7.7%	0.0%
1943	2.4%	89.9%	6.9%	0.1%	0.0%	0.0%
1944	4.3%	75.6%	10.6%	0.0%	0.0%	0.0%

Source: see Appendix 2.3.

Some changes in export patterns closely connect with the illicit trade programme. As Table 2.10 reveals, from less than 10% of exports in 1938, machinery (including ball bearings) had climbed to nearly 90% of exports by 1943; most of the remainder consisted of metals, including high-speed steel, at the expense of all other exports. All previous pre-war exports in animal products, minerals, paper and wood were reduced to virtually nil by Germany's wartime export restrictions. Only animal products were still exported from 1942 to 1944, largely due to the illicit export programme, which included some furs for the UK and the Soviet Union.

Swedish Trade with the Allied Bloc: Real Statistics

Table 2.11: Real Swedish Merchandise Trade with the Allied Bloc, 1938-1944
in 1938 Kronor (in millions)

IMPORTS	1938	1939	1940	1941	1942	1943	1944	1939-44
Goods Imported (1938 Kronor)	523	545	172	19	81	52	70	939
Goods Imported Index (1938=100)	100	104	33	4	15	10	13	
Import Price Deflator (Index, 1938=100) [Pi]	100	104	138	214	214	259	231	
EXPORTS	1938	1939	1940	1941	1942	1943	1944	1939-44
Goods Exported (1938 Kronor)	626	639	144	35	48	12	22	900
Goods Exported Index (1938=100)	100	102	23	6	8	2	4	
Export Price Deflator (Index, 1938=100) [Px]	100	94	119	137	184	200	177	
BALANCE OF MERCHANDISE TRADE	1938	1939	1940	1941	1942	1943	1944	1939-44
Net Exports	103	94	(28)	16	(33)	(40)	(48)	(39)
Terms of Trade [Px/Pi]	100	90	86	64	86	77	77	

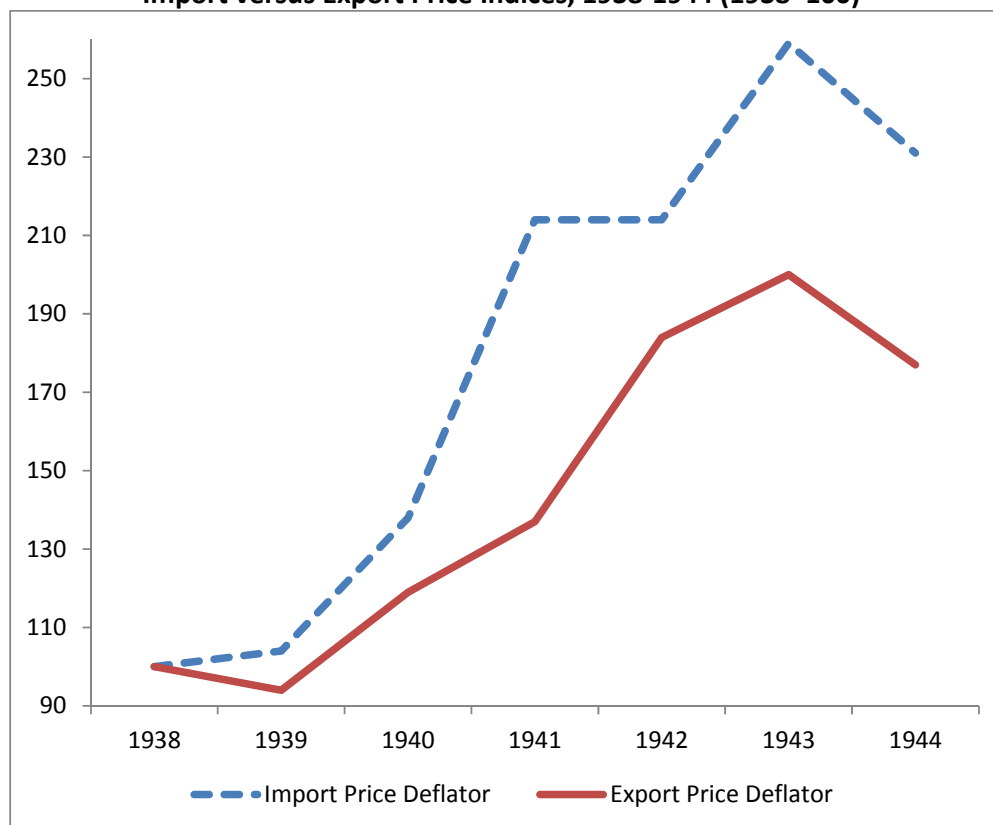
Sources: see Appendices 2.3 and 2.4; figures rounded to the nearest whole number.

Notes: see notes to Appendices 2.1 to 2.4; the balance of merchandise trade is reported as net exports: a negative figure indicates net goods imported into Sweden and a positive figure indicates net exports. Price deflators are calculated based on value and tons basis. This causes systematic biases. See notes in the Appendix to this chapter.

Nominal exports were affected by precipitous price increases. In real terms, at no point between 1941 and 1944 did trade exceed 15% of 1938 levels. Price increases reduce the 1941 imports by about half, from 42 million nominal Kronor to 19 million real 1938 Kronor; throughout the rest of the war imports declined by similar amounts. Much as with Allied imports, Sweden increased the prices of goods, reducing their real value. At no point between 1941 and 1944 were exports over 10% of real 1938 levels, the minimum being 2% of 1938 real

export values, reached in 1944. As a result of the changes in the prices of goods, the net import surplus is reduced to 39 million real 1938 Kronor.

**Figure 2.5: Allied-Swedish Trade,
Import versus Export Price Indices, 1938-1944 (1938=100)**



Source: see Appendices 2.3 and 2.4; for index construction see notes to appendices.

The Allies had a pricing advantage over Sweden. As suggested by the terms of trade presented in Table 2.11 and illustrated in Figure 2.5, Allied-Swedish trade saw sizeable price increases in favour of the Allies. At their peak in 1943 the gains in import prices outstripped export prices by about 35%. This increase in prices can be at least partially attributed to the restriction of imports via the blockade.

Swedish pragmatism over trade is also highlighted throughout the Allied-Swedish trade statistics. The Swedish government countered economic pressure from the US and UK by establishing an illicit trade programme on price terms

which favoured them; the Germans did not approve this trade and the Swedish government flouted the terms of the German blockade, in particular after 1941. In exchange, Sweden continued to receive from the Allies a net merchandise trade surplus and economic support, including supplies of much needed oil. In seeking to appease the Allies and maintain positive relations Sweden created a political double standard: all Swedish exports to Germany had to meet Allied approval, but the illicit (and important) exports to the Allies needed no German consent. The Swedish government was willing to violate trade agreements with the Allies and the Germans to satisfy the stronger party. Therefore, trade with Allies indicates Sweden acted pragmatically, ensuring the delivery of resources necessary to sustain the Swedish population.

From a strictly numerical perspective, Sweden's wartime trade policies navigated very successfully between the two sets of belligerents. The next sections examine three specific areas of Swedish-belligerent trade so as to determine in more detail how trade in scarce and much-wanted resources enabled Sweden to both satisfy the demands of the belligerents and maintain its much needed imports.

Iron Ore Trade with Germany

According to a 1944 State Department Report, iron ore was the single most important Swedish export to Germany. The iron content of Swedish ore was ideal for use in tanks, armaments and other applications where high-strength steel was required.¹⁵⁷ This section overviews the iron ore trade and, unlike previous studies, it demonstrates that the Swedish government maintained exports to the entire German bloc at or below 1938 levels. It demonstrates that the Swedish Government was able to dramatically increase production allocated to Germany because it was no longer shipping to the Allies, but did not export this excess capacity despite pressure. But it also shows (for

¹⁵⁷ NARA RG107/160/928, file marked "Statistical Reports," undated memo marked, "Received from State Department, Jan 22, 1944 at Blockade Meeting,"

the first time) that Sweden was providing substantial benefits to Germany, continuing a pre-war policy of undercharging for iron ore of high quality from Swedish mines.

Measuring Iron Ore Exports

The record of Swedish exports of iron ore depends on the measure used. Most authors follow the wartime convention and use a financial measure of the Swedish-German iron ore trade; however, this chapter presents both weight and value measures to account for changes in real prices. It also examines the trade at its height in 1942 in terms of Germany versus the entire German bloc.

Table 2.12: Swedish Nominal and Real Iron Ore Exports to Germany, 1939-1944 (in millions of Kronor, as indicated):

Year	Iron Ore Exports to Germany Nominal	Iron Ore Exports to Germany Real
1938	143	143
1940	131	136
1941	161	166
1942	144	136
1943	189	177
1944	84	71

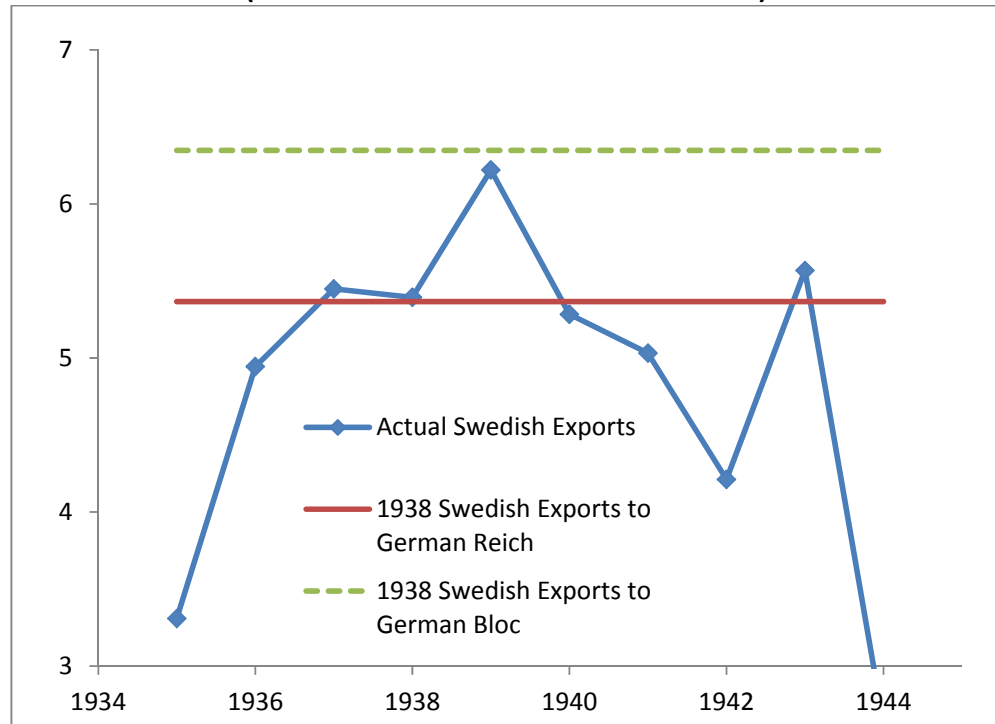
Sources: Adapted from Fritz, *German Steel and Swedish Iron Ore*, p.106; appendix 2.1; SaFSTA; NARA RG107/160/925, Table II," and "Table III" from memo "Swedish Exports to Enemy Europe," dated 19 April 1944, file marked "Sweden - Statistics – Ball Bearings;" RA UDA/1920ds/HP64Ct/2450, memo dated 1 September 1940.

Most authors cite nominal figures which show that Sweden from 1941 to 1943 exported more iron ore than the 1938 War Trade Agreements allowed.¹⁵⁸ As Table 2.12 shows, price changes in this period indicate that actual real imports exceeded 1938 values in only two wartime years, 1941 and 1943.¹⁵⁹

¹⁵⁸ Fritz, *German Steel and Swedish Iron Ore*; Milward, "Could Sweden Have Stopped the Second World War?"

¹⁵⁹ *Ibid.*

**Figure 2.6: Swedish Iron Ore Exported to the German Bloc, 1935-1944
(in millions of metric tons of iron content)**



Sources: SÅSTA, 1939-1945; NARA RG107/160/925, "Table II," and "Table III" from memo "Swedish Exports to Enemy Europe," dated 19 April 1944, file marked "Sweden - Statistics - Ball Bearings."

Figure 2.6 provides a graphical representation of Swedish iron ore exports to the entire German bloc in metric tons of ferrous ore from 1935 to 1944. Although the Allied measure of unfair trade practices, as established in the 1939 War Trade Agreement, was exporting more than 1938 Kronor figures, it made no mention of whether German-occupied territory should be counted as part of the calculations.¹⁶⁰ As represented by the solid line in Figure 2.6, exports by weight, apart from 1943, were consistently under the 1938 Germany-only levels.¹⁶¹ The dashed line denotes the level of exports sent to all of German occupied Europe in 1938 (the German bloc as defined by its 1942 peak; see

¹⁶⁰ NA FO837/897, 1939 Anglo-Swedish War Trade Agreement [Draft].

¹⁶¹ NARA RG107/160/925, memo dated 19 April 1944.

notes to appendices); it indicates that exports by weight never exceeded 1938 levels during the war. Even in 1943, exports were considerably lower.

After May 1940, Germany had both the military and economic means to persuade Sweden to allocate additional iron ore production to Germany. The Swedish government could easily have permitted excess exports to Germany since it was no longer providing the Allies with iron ore; the production of over two million tons previously allocated to the Allies remained available for redirection.¹⁶² Estimates indicate that Sweden could have increased exports of iron ore to the German bloc by 73.4%.¹⁶³ Instead the Swedish government resisted the German government's desire to increase supplies. These statistics review the current understanding to show that Sweden acted with some restraint.

Although they did not increase, exports from Sweden to Germany were maintained, despite wartime logistical challenges. Transportation problems related to the invasion of Norway were quickly overcome: after June 1940, most of the ore travelled via the Swedish ports of Luleå to Northern Germany instead of via Norway where it could have been blockaded or seized by the Allies (see Figure 2.1). Although Germany had estimated a yearly delivery of 3.2 million metric tons of ore from Northern Sweden, a yearly equivalent of 11.2 million metric tons of ore was delivered via Luleå in the second half of 1940.¹⁶⁴ As Table 2.13 indicates, Sweden provided about 28% of German iron ore consumption during this period. Alan Milward has already proven that this iron ore was not crucially important to the German war effort in the short term, but re-routing

¹⁶² NA CAB67/6/3, report dated 13 April 1940.

¹⁶³ NARA RG107/160/925, file marked "Sweden - Statistics - Ball Bearings," item marked "Table II" from memo "Swedish Exports to Enemy Europe," dated 19 April 1944; "Table C: *Produktionen av viktigare industrivaror åren 1936-1940* [Table C: Production in Selected Industries 1936-1940]" in *Sveriges Officiella Statistik: Industri och Bergshantering* [Swedish Official Industrial Statistics], *Industri, Berättelse för år 1940 av Kommerskollegium* [Industrial Figures for 1940] (Stockholm, 1945), p. 10; BA-K R13I/532-533 for 1941-1942 and NARA RG242/T-84/195/1561073 for 1943-1944.

¹⁶⁴ SOSH, 1941, p.43.

the iron ore trade was crucial to maintaining Germany's imports over the long term.¹⁶⁵

Table 2.13: Germany's Supply of Iron Ore, 1935-1944 (by source, in per cent)

Year	Domestic Production				Imports			Total 1,000 metric tons of iron content
	"Alt- reich" ¹	Rest of "Reich" ²	Grosser- raum ³	Total	Sweden	Other Imports ⁴	Total	
1935	22.4			22.4	40.1	37.5	77.6	8,252
1936	21.1			21.1	46.1	32.8	78.9	10,726
1937	23.0			23.0	45.5	31.5	77.0	11,976
1938	24.5			24.5	39.3	36.2	75.5	13,725
1939	26.0	5.7		31.7	41.2	27.1	68.3	15,099
1940	37.5	17.6	0.0	55.1	39.5	5.4	44.9	13,378
1941	25.4	31.9	14.2	71.5	26.9	1.6	28.5	18,704
1942	22.8	32.9	16.7	72.4	23.2	4.4	27.6	18,153
1943	20.1	33.1	18.0	71.2	27.5	1.3	28.8	20,250
1944	24.0	40.1	11.2	75.3	23.9	0.8	24.7	10,980

Sources: Adapted from Tables 2 and 3 in Martin Fritz, "Swedish Iron Ore and Ball-Bearings" in Fritz, et al, *The Adaptable Nation*, p.20; the Fritz figures are based on *Wi Rue Amt* [Military Planning Authorities] and the *Wirtschaftsgruppe Eisen scaffende Industrie* [Steel Industry Coordinating Org.] The figures for Swedish contributions differ from those of the *Planungsamt*, the German economic planning organization; where 1938 is estimated as being 35.3%, 1939 is 40.9%, 1940 is 42.2%, and 37.6%

Notes: ¹ Includes Germany at its 1937 borders; ² Includes areas absorbed into the German Reich from 1938 through July 1940; including: Alsace and Lorraine, Austria, Czech, Luxembourg and Western Poland; ³ Occupied areas and peripheral countries under German control: Denmark, Finland, Norway, Belgium, Bulgaria, Danzig, Estonia, France, Greece, Italy, Yugoslavia, Latvia, Lithuania, the Netherlands, Eastern Poland, Rumania, and the Western USSR; ⁴ Declines as areas previously outside German Reich are incorporated into its borders and become domestic producers.

The Swedish government gave Germany price benefits. When the war began, Swedish iron ore was significantly cheaper on a metric ton of iron content basis than German domestic equivalents. It became even cheaper during the war because Sweden maintained the price of its iron ore until 1945,

¹⁶⁵ Milward, "Could Sweden Have Stopped the Second World War?"

though it allowed increases in other areas.¹⁶⁶ The German Steel Industry Coordinating Organization's analysis in 1935/1936 gave the cost of producing one ton of Thomas pig-iron using Swedish imported iron ore as approximately 42 Reichsmarks plus taxes of approximately 4 Reichsmarks, whereas producing one ton of pig-iron in the Ruhr using domestic iron ore was estimated to cost over twice as much, 97 Reichsmarks.¹⁶⁷ Winkhaus, who conducted this study, further indicates that prices did not change through 1939 and Swedish ore remained roughly half as expensive as German ore.¹⁶⁸ Not taking into account the wartime price changes and using only the Winkhaus discount of 52 Reichsmarks per ton, total wartime savings from using Swedish ore could have reached 1.9 billion Reichsmarks or 3.2 billion Kronor if the full difference were allocated to Sweden;¹⁶⁹ this saving equals 26.5% of Swedish 1938 NNI or 62.7% of Swedish exports to Germany.¹⁷⁰

Iron ore was one of the single most important wartime commodities. This section has shown how Sweden maintained a dual policy of limiting exports to Germany, while not substantially increasing prices to reflect their actual value to the German government. By weight, the Swedish government maintained exports to Germany below 1938 levels and upheld its 1938 spoken promise to Britain.¹⁷¹ This policy approach appears to have satisfied both Germany and the Allies. The export of ball bearings reveals a similar dual policy.

¹⁶⁶ RA UDA/1920ds/HP64Ct/2450, memo dated 1 September 1940.

¹⁶⁷ BA-K R131/532-533, "*Bericht des Herrn Bergassessor a.D. Direktor Dr. H. Winkhaus zur Frage des Erz- und Schrottpreisausgleiches* [Report of the assessor, Director Dr. H. Winkhaus, on the question of ore and scrap metal price reconciliation]."

¹⁶⁸ *Ibid.*

¹⁶⁹ SHvD, p.526.

¹⁷⁰ Johansson, *Gross Domestic Product*, Table 57. See section on German-Swedish trade.

¹⁷¹ Calgren, *Swedish Foreign Policy*, p.18.

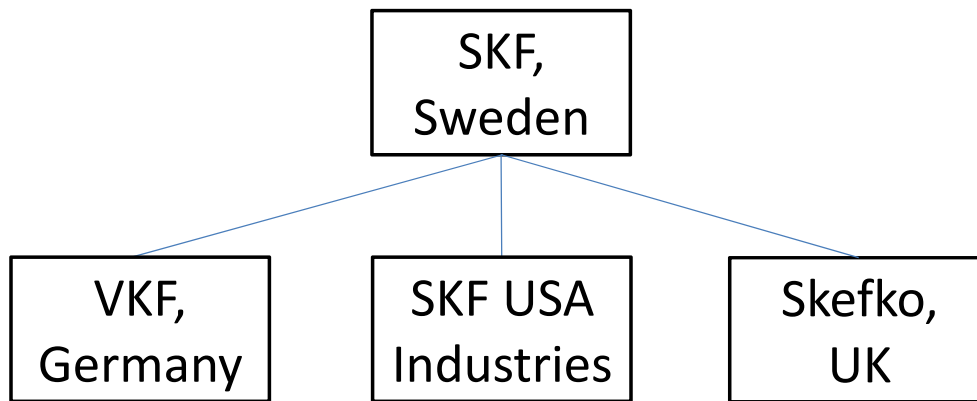
Ball Bearings to Germany and the Allies¹⁷²

Ball bearings were among the most sought after manufactures of the war. This section reviews Swedish ball bearing exports to Germany and the United Kingdom. Ball and roller bearings are speciality engineering products which use balls to maintain separation between two moving axles; they reduce rotational friction and support loads. They are essential in airplane motors, tanks, automobiles, guns, submarine motors and similar war materiel. As Sweden had the requisite high-strength raw materials, machine tools, patents and highly-skilled labour force, it produced most of Europe's ball bearings or controlled subsidiary companies.

A fresh examination of the ball bearings industry in the Second World War indicates that Swedish-controlled ball bearings were crucial to both German and British war efforts. The Swedish parent company supplied more ball bearings and machine tools to Germany, enough to significantly affect the outcome of the war. But the Swedish government's overall wartime activities were more even-handed than the headline trade statistics might suggest, for example, letting British planes and ships run the blockade from Sweden in 1942. But, while it nominally controlled much German and British ball bearing production, Sweden's denying bearings or machines to either belligerent would merely have slowed the war effort, not ended it.

¹⁷² For the purposes of this examination, the term "ball bearings" includes ball bearings, roller bearings and, if applicable, their associated balls and rollers.

Figure 2.7: Organisational Structure of SKF Sweden



Source: SKF Archiv

Both Germany and the UK had two sources of Swedish ball bearings: imports and Swedish-controlled local products. The parent company, *Svenska Kullagerfabriken* (SKF), produced and directly exported ball bearings to both belligerents. As Figure 2.7 shows, SKF also part-owned local manufacturing facilities in both, producing ball bearings which were unaffected by Swedish government export quotas and restrictions; although only part SKF-owned and therefore out of the parent company's direct control, these subsidiaries relied on SKF supplies of Swedish-built machinery and technical knowledge transfers. SKF Subsidiaries included the *Vereinigte Kugellagerfabriken AG* (VKF), concentrated in Schweinfurt, Germany, SKF Industries in Philadelphia, USA and the Skefko Ball Bearing Company, in Luton, England, as well as other subsidiaries throughout occupied Europe.¹⁷³ Together with its subsidiaries, SKF held a near monopoly position in the manufacture of high-quality ball bearings in Europe. While each country had other domestic ball bearings producers, none was able, to paraphrase an American report, to acquire the raw material and intellectual

¹⁷³ Martin Fritz and Birgit Karlsson, *SKF: A Global Study, 1907-2007* (Stockholm, 2006).

knowledge to produce bearings as robust and durable as SKF's.¹⁷⁴ However, the company was vulnerable to war-related actions, including blacklisting in the Allied zone and the seizure of plants and assets at the end of the war.

German Imports from Sweden

**Table 2.14: German Supply of Bearings with Swedish Origin
(in millions of nominal Kronor and per cent)**

Year	Swedish Origin Production		Total Swedish Controlled Production for Germany	Total German Production + Imports	Swedish Production as a % of German Supply
	VKF Production in Germany	SKF Exports to Germany			
1937	131	3.9	135	232	58%
1938	155	6.6	162	283	57%
1939	175	7.9	183	324	56%
1940	190	14	204	358	57%
1941	215	24	239	407	59%
1942	249	33	282	478	59%
1943	250	46	-	-	-
1944	195	-	-	-	-

Sources: Fritz, "Swedish iron ore and ball bearings....," in Fritz et al, *Adaptable Nation*, Table 7; NARA RG242/T-71/108/611492-05, memo entitled "Der Außenhandel Deutschlands 1943 [German Trade 1943];" RA UDA/1920ds/HP64Ua/2800 memo dated 10 June 1944; NARA RG107/160/925, memo dated 13 March 1944; NA CAB66/29/6, memo dated April 1944.

Notes: - = Figures Not Available

The growth in German purchases of Swedish ball bearings violated the 1939 Anglo-Swedish War Trade Agreement.¹⁷⁵ As Table 2.14 illustrates, more than 58% of German ball bearings production can be traced to Sweden and SKF. Despite Allied efforts to limit them, direct SKF exports from Sweden constituted 10.5% (by nominal value) of all German production.¹⁷⁶ All Swedish exports were

¹⁷⁴ NARA RG107/160/925, report entitled "The Swedish Ball Bearing Business," draft dated May 1944, in file marked "General Ball Bearings SKF," p.9.

¹⁷⁵ NA FO837/897.

¹⁷⁶ Fritz, *Swedish Iron Ore and Ball Bearings*, p.28; NA CAB66/49/6, Table I, "Anglo-American Differences over Blockade Measures," dated April 1944, p.2. British figures indicate, with SKF providing 22% of German production, that 1943 saw the most annual imports. This cannot be verified with available German statistics.

technically controlled by various War Trade Agreements. These agreements were typically negotiated in parallel by the Swedish government on the basis of British and German lists of acceptable goods. Once quotas were established, Swedish companies received export permits.¹⁷⁷ The Swedish government was bound by a 1939 agreement with Britain to maintain exports to Germany at or below 1938 levels.¹⁷⁸ In the area of ball bearings, measured in either nominal or real Kronor, Swedish exports throughout the wartime period broke this agreement.

Most studies suggest that exports increased nominally through the war at an *annual rate* of 42%, from 7.9 million Kronor in 1939 to 45.5 million in 1943.¹⁷⁹ However, if nominal price increases of 49% from 1938 to 1943 and the changing boundaries of the German trade bloc are allowed for, the *annual increase* in real Kronor of production sent to Germany is 35%.¹⁸⁰

German Domestic Production

About half the production of German ball bearings, mainly in Schweinfurt, was controlled by *Vereinige Kullagerfabriken AG (VKF)*.¹⁸¹ Although SKF had no operational control, the VKF factories were almost entirely Swedish in origin, apart from labour and energy inputs: they were developed with Swedish capital, employed Swedish designs/intellectual property and used Swedish machine tools.¹⁸² As Table 2.14 indicates, VKF provided approximately 52% of the bearings produced in 1942, the last wartime year with reliable figures.

SKF provided machines and supplies for normal operation and increased capacity. VKF grew proportionately in the run-up to the war, with VKF's

¹⁷⁷ Calgren, *Swedish Foreign Policy*.

¹⁷⁸ NA BT11/140.

¹⁷⁹ See Fritz, *Swedish Iron Ore and Ball Bearings*, p.28.

¹⁸⁰ RA UDA/1920ds/HP64Ua/2897, table dated 10 July 1943.

¹⁸¹ See Table 2.14.

¹⁸² NARA RG107/160/925, report entitled "The Swedish Ball Bearing Business," draft dated May 1944, contained in file marked "General Ball Bearings SKF."

Schweinfurt plant capacity increasing by 50% in 1938.¹⁸³ In late 1943 it tried to expand again, to make up for declining exports from Sweden.¹⁸⁴ The table shows that from 1939 to 1943 VKF increased its nominal production overall by 45%, about 11% *annually*, largely thanks to SKF machines. SKF's provision of machinery to VKF can be described as crucial for maintaining and increasing plant production in this period – 48% of Germany's supplies of bearings was Swedish-related.

Allied Action to Limit German Ball Bearings

Allied pre-emptive attempts to end this Swedish-German trade were only partially successful, given the nature of its supply chain. By late 1943, the Allies were treating ball bearings as one of the “choke points” in Germany's war economy.¹⁸⁵ America and Britain collaborated to limit both German domestic production and Swedish imports.¹⁸⁶ Germany produced less because of Allied bombings in August and October 1943, which damaged VKF's factories in Schweinfurt.¹⁸⁷ As Table 2.14 indicates, VFK production declined by about 23% in 1944 to a nominal 195 million Kronor.¹⁸⁸ However, although these activities reduced the supply of bearings, their impact came only in late 1944, when Germany had begun to lose the war.

The Allies also pressured the Swedish government, and later SKF, to reduce ball bearing and machinery exports to Germany.¹⁸⁹ As part of the Tripartite War Trade Agreement regulating 1944 trade, Sweden agreed in 1944

¹⁸³ RA UDA/1920ds/HP64Ua/2897, correspondence dated September to November 1944; Martin Fritz and Birgit Karlsson, *SKF i stormaktspolitikens kraftfält: Kullagerexporten, 1943-1945* [SKF in A Policy Vacuum: Ball Bearing Exports] (Gothenburg, 1998); Fritz and Karlsson, *SKF: A Global Study, 1907-2007*; RA UDA/1920ds/HP64Ua/2800, 2897-2898, various.

¹⁸⁴ Fritz, *Swedish Iron Ore and Ball Bearings*, p.29.

¹⁸⁵ NARA RG107/190/925.

¹⁸⁶ NA WO219/2201, documents dated between March and October 1944;

RA/UDA/1920ds/HP64Ua/2897, documents dated 22 January to 22 April 1944.

¹⁸⁷ NA AVIA11/7; NA WO219/2201; NA FO115/4029-4031.

¹⁸⁸ Table 2.14.

¹⁸⁹ NA HS2/267, “Schweinfurt – Bombing of Ball Bearing Installations. Liaison with SKF,” correspondence dated from August 1942 to February 1944.

to reduce its ball bearings exports to the German bloc to 29 million Kronor,¹⁹⁰ about a third over its 1943 level. However, Sweden would not accept an Allied request in early 1944 to reduce all exports to Germany.¹⁹¹ The Commercial Department of the Swedish Foreign Office cited agreements with Germany and the 1944 quotas established in the Tripartite Agreement.¹⁹² Such levels remained unacceptable to the Allies, who pre-emptively negotiated directly with SKF to end its promised deliveries to Germany. Sweden did not attempt to stop these Allied activities or enforce the SKF-German contract.

Representatives of the United States Commercial Corporation (USCC) and the United Kingdom Commercial Company (UKCC), the two companies responsible for all Allied pre-emptive purchasing operations, were involved in these negotiations.¹⁹³ In April 1944, the American military forces in Europe suggested paying the equivalent of 88 million Kronor to SKF if it defaulted on its German contracts.¹⁹⁴ In negotiations with the American and British economic warfare offices and representatives of the USCC and UKCC, SKF agreed for 22 million Kronor in cash to severely limit exports to Germany from 13 April until 12 October 1944. However, the American government also agreed, among other benefits, to compensate SKF by the equivalent of 140 million Kronor for bombing VKF in Germany and to unfreeze SKF assets in the US (which had blacklisted it as an enemy cooperating company).¹⁹⁵ The long list of benefits to SKF for ending exports to Germany makes it seem that access to a neutral's

¹⁹⁰ NA FO837/897, Tripartite War Trade Agreement dated 23 September 1943; NA CAB6/29/6, although the figure of 29 million Kronor is the most frequently mentioned in Allied and Swedish correspondence and in the agreement, 26 million Kronor is also noted in several places.

¹⁹¹ RA UDA/1920ds/HP64Ua/2897, documents dated between 22 January 1944 and 22 April 1944.

¹⁹² RA UDA/1920ds/HP64Ua/2897, folder marked "1 April-April 30," Aide-mémoire dated 22 April 1944.

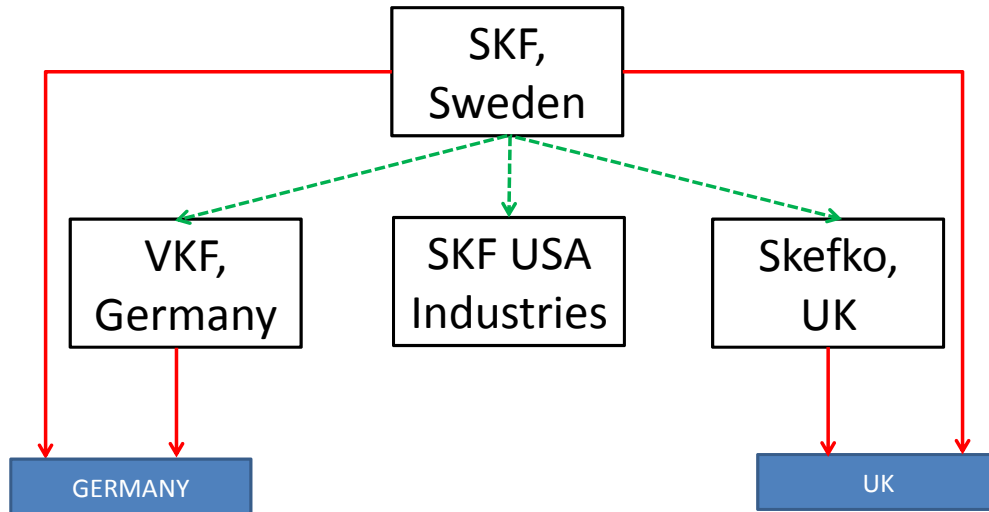
¹⁹³ NARA RG234/26/19, report "Preclusive Operations in the Neutral Countries in World War II by Blanche Britt Armfield," section entitled "Swedish Ball bearings."

¹⁹⁴ NA WO219/2201, memo marked "Status of the VKF-Ball Bearing Factor and Export Position at Gothenburg, Sweden" from Spaatz (USAFE) to Eisenhower (SAC, ETOUSA).

¹⁹⁵ NA FO837/916, memorandum from Economic Warfare Division, American Embassy, London, received by Ministry of Economic Warfare dated 28 November 1944. See further correspondence on Allied-Swedish payments for SKF in NA FO 837/919 and NARA RG234/26/19.

production goes to the highest bidder, notwithstanding previously agreed trade patterns.

Figure 2.8: SKF Organisational Changes to Maintain the Export of Ball Bearings



These Anglo-American tactics ultimately prevented the export to Germany of 45.9 million Kronors' worth of ball bearings, machinery and other related items, amounting to 74.9% of 1943's imports.¹⁹⁶ The Allies seem to have taken delivery of 20% of this amount, worth approximately 9.2 million nominal Kronor.¹⁹⁷ The Swedish government suspended exports to Germany after the Allied-SKF agreement expired in October 1944, due to transportation problems in the North Sea.¹⁹⁸ However, despite their extraordinary cost, these pre-emptive efforts did not curtail German domestic production.

¹⁹⁶ NARA RG242/T-71/108/611492-05, memo entitled "Der Außenhandel Deutschlands 1943," Reichsministerium für Rüstung und Kriegsproduktion; RA UDA/1920ds/HP64Ua/2800 SKF memo dated 10 June 1944. NARA RG107/160/925, "Swedish Exports of Bearings 1943 as Compared with 1942," memo entitled "Ball Bearings" from Neff dated 13 March 1944.

¹⁹⁷ NA FO836/916, letter from Stockholm to the Ministry of Economic Warfare, dated 21 November 1944.

¹⁹⁸ NA FO837/916, see correspondence from April 1944 to November 1944.

As Figure 2.8 illustrates, the flexibility in the bearings supply chain meant that Swedish production could be shifted to Germany, by moving machines and steel there. Consequently, in 1944, SKF exports of extra machines and suitable steel increased, allowing Germany to continue production by itself and thus maintain the levels of its armaments manufacturing. After the Allied actions began to limit the export of finished products, SKF and the Swedish government agreed to increase exports of ball-bearing steel; SKF Hofors mining subsidiaries provided 20,820 tons of this in 1944, compared with an average of 12,600 tons from 1941 to 1943.¹⁹⁹ Exports of machinery in 1944 were also to be 200% of the 1943 total.²⁰⁰ German armaments, aircraft and tank production continued in 1944 at 25% above 1943 levels on average; in the circumstances, some ball bearings stockpiles were probably depleted.²⁰¹ Thus, these Allied activities were in the short term ineffective and possibly too late to materially affect the German war effort.

Preferential Ball Bearings Pricing?

According to the current political histories, SKF should have been re-pricing all exported ball bearings in response to commercial demand.²⁰² The long waiting-lists and political pressure to be sent them should have increased prices significantly, certainly above the overall export price index levels. However, the statistics suggest that pricing responded to non-commercial forces – increases for ball bearings do not reflect the overall export deflator for Sweden nor necessarily relate to volume. However, as Figure 2.9 shows, the export prices of ball bearings lagged behind the overall price index for Swedish exports to Germany. Despite a near 35% rise in the overall price deflator from 1938 to 1941, the export prices of ball bearings declined 6% below 1938. It was not until

¹⁹⁹ Fritz, *Swedish Ball-Bearings and The German War Economy*, p.24, Table 4.

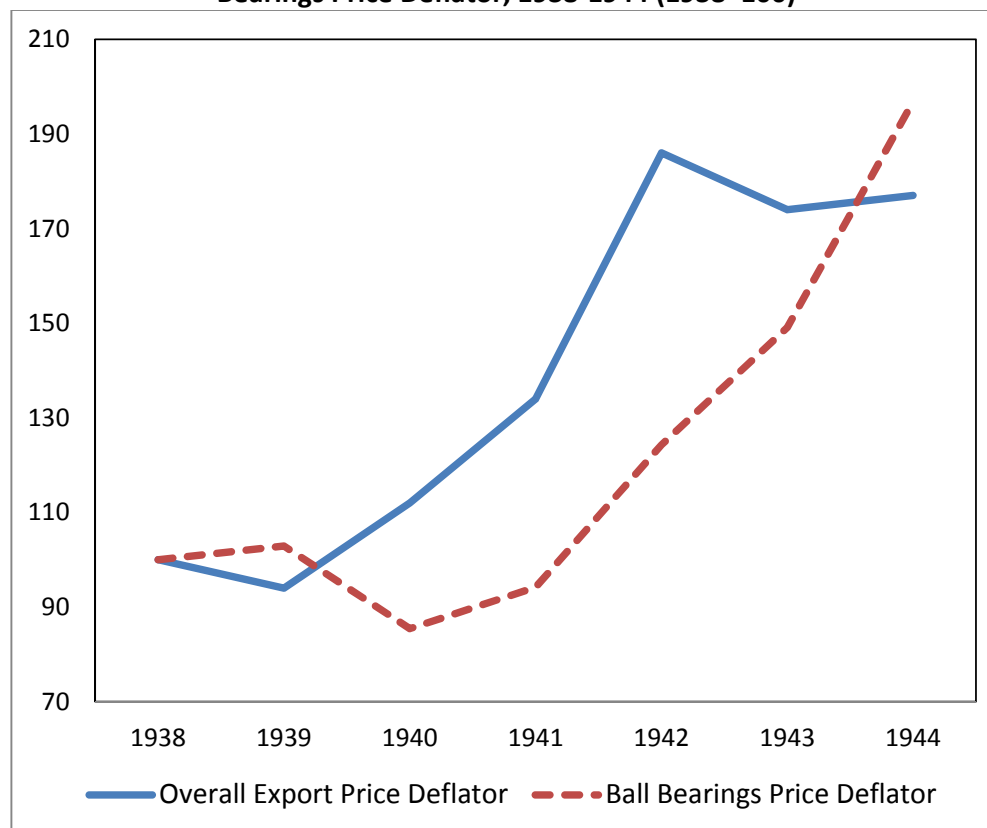
²⁰⁰ RA UDA/1920ds/HP64Ua/2800, correspondence dated between 9 October and 20 December 1943.

²⁰¹ R. Wagenführ, *Die deutsche Industrie im Kriege, 1939-1945* [German Industry in the War, 1939-1945] (Berlin, 1963), p.178.

²⁰² Fritz and Karlsson, *SKF: A Global Study, 1907-2007*.

1944, when ball bearings cost nearly double their 1938 levels that they exceeded the overall export price index, which had increased by only 77% since 1938's.²⁰³ Although more ball bearings were exported, the quantities delivered in any particular year do not particularly correlate with the prices charged.

Figure 2.9: German-Swedish Export Trade, Overall Price Deflator versus Ball Bearings Price Deflator, 1938-1944 (1938=100)



Source: Appendix 2.1; SOSH, 1938-1946

The existing view is also challenged by the preferential pricing for Germany vis-à-vis the rest of the German bloc. Table 2.15 shows that Germany also received consistent discounts for balls and rollers, compared to either the occupied territories or the neutrals, before and during the war.²⁰⁴ The relative discount to the occupied territories increased in these years. Calculating a

²⁰³ See Appendix 2.1.

²⁰⁴ RA UDA/1920ds/HP64Ua/2897, file marked "Juli 1943 – Mars 31 1944," table marked "SKF:s Totalexport Exkl. Maskiner och Gångtappar under Aren 1938-1942," dated 19 July 1943.

straight discount for Germany, the maximum difference between Germany's price index and that for the neutrals is 29%.²⁰⁵

Table 2.15: Total Exports of Ball Bearings (excluding machines) from 1938-1942 (in millions of nominal Kronor); with prices relative to those charged in Germany (in percentages). Excludes transportation and insurance.

Country or Countries	1938		1940		1941		1942	
	Kronor (mil)	% of German Price	Kronor (mil)	% of German Price	Kronor (mil)	% of German Price	Kronor (mil)	% of German Price
Germany	6.4	100	12.3	100	23.0	100	39.9	100
German allied/annexed territories ¹	9.1	113	8.1	114	9.0	111	3.1	99
German occupied territories ²	8.7	124	8.5	127	11.3	136	13.1	133
Neutrals ³	14.4	131	20.3	117	19.8	129	27.3	118
United Kingdom	4.3	74	3.4	70	4.6	76	3.5	68
USSR	5.5	100	2.3	89	5.3	85	1.6	83

Source: RA UDA/1920ds/HP64Ua/2897, file marked "Juli 1943 – Mars 31 1944," table marked "SKF:s Totalexport Exkl. Maskiner och Gängtappar under Åren 1938-1942," dated 19 July 1943.

Notes: Figures do not necessarily match Tables 2.5 and 2.7 because boundaries and border changes were handled differently in this report; ¹ Includes occupied France, Austria, Bohemia and Moravia, Sudetenland, Slovakia, Poland and Croatia; ² Includes Norway, Denmark, Finland, Belgium, Holland, Italy, Bulgaria, Hungary and Romania; ³ Includes Switzerland, Portugal, Spain, Turkey, Argentina and Sweden; for the first five, trade conducted with approval of both the Axis and Allied powers.

These examples confirm that someone tried to ensure that Germany paid less for these much-needed items. If SKF was setting the price levels, the discounts suggest that the company wanted to ensure that Germany continued to buy Swedish-made bearings and did not turn exclusively to the German-based VKF. One reason was perhaps a desire to prevent the full nationalisation of the

²⁰⁵ Table 2.15.

German ball bearings industry. But the destruction of the SKF archives after the war prevents the exact motives from emerging. The Allies do not appear to have been aware of these price differences.

The record for this aspect of Swedish-German trade indicates that SKF controlled most of the German ball bearings used in the German war effort; about 58% of them can be traced to Sweden. Until 1944 at least, SKF provided Germany with more ball bearings than it had in 1938, as well as discounts. This trade exceeded the levels set by the 1939 Anglo-Swedish War Trade Agreement. Allied pre-emptive attempts to limit this trade came too late and were bypassed too easily to affect the outcome.

The United Kingdom

SKF also had an important effect on Britain's war effort, providing some 31% of British ball bearings production, including considerable quantities for aero engines. As with Germany, Sweden's part in Britain's ball bearings supply chain includes both domestic production and Swedish imports. Although the archives of the British ball bearing control directorate are missing, the UK depended on SKF for certain aspects of production. Britain was particularly short of bearings under 1" and over 4" in diameter, all important for tanks, aeroplanes and large motors.²⁰⁶ As late as March 1943, the Controller of Bearings in the Ministry of Supply noted a severe shortage of aircraft bearings, which materially affected production; it was "in [his] opinion, of the gravest importance to obtain as many bearings from Sweden as possible with the absolute minimum of delay."²⁰⁷ Moreover, at various points hundreds of British tanks and up to 10% (1,700 units) of all British aircraft production were awaiting Swedish bearings.²⁰⁸

²⁰⁶ NA AVIA22/191, report entitled "Reply to the Enquiry from the Minister of Production Regarding the Ball Bearing Industry," points 2 and 3; BAMA AW/1/6512, "Air Service – Midnight Sun Period," memo dated 26 February 1944.

²⁰⁷ NA ADM199/7517, memo "Bearings from Sweden," dated 5 March 1943.

²⁰⁸ NA AVIA38/333; NA AVIA38/381; NA AVIA38/409; NA AVIA38/811; Mark Harrison, "The Economics of World War II: an overview" in Mark Harrison (ed.), *The Economics of World War II* (Cambridge, 1998), p.15.

Unfortunately, substitute American supplies were not available, since bearing shortages also affected the US and Swedish metric specification bearings had no suitable American substitutes.²⁰⁹

It is also significant that ball bearings were among the few items whose supply chains in America and Britain could not be integrated. Because of scarcities in the US, America could supply only 10.6% of all British requirements.²¹⁰ Though European and American ball bearings were different, many were produced for the United Kingdom by SKF Industries of Philadelphia or under licence.²¹¹ The war created continuing transportation problems; to prevent shortages in Britain resulting in production delays, some shipments were sent by special military air transport.²¹² Because of the shortages among the Allies, the UK had to continue importing ball bearings and raw materials from Sweden. Swedish ball bearings were deemed of “overwhelming importance to our [UK] war effort” by high-level ministers.²¹³ Imports from Sweden were limited by the *Skaggerak* blockade, which at times prevented British access to Swedish ball bearings and to the special steels, lubricating oils and machinery for bearings needed to increase Britain’s output.²¹⁴

²⁰⁹ NA CAB115/195, memo dated 27 August 1940.

²¹⁰ NA AVIA22/191, report Entitled “Reply to the Enquiry from the Minister of Production Regarding the Ball Bearing Industry,” points 5 and 6.

²¹¹ Due to the lack of any relevant information, US-produced Swedish bearings are not counted in this paper.

²¹² NA AVIA38/333; NA AVIA38/381; NA AVIA38/409; NA AVI 38/811; CAB115/195-197.

²¹³ NA CAB122/241, Mr. Eden to Viscount Halifax, 1 December 1942.

²¹⁴ See Calgren, *Swedish Foreign Policy*.

Imports from Sweden

Wartime imports from Sweden provided about 15% of all British ball bearings. As previously discussed, blockade-running ships and airplanes maintained British imports from Sweden. This trade was an overt choice by the Swedish government to aid the Allied war effort without German consent, typical of the War Trade Agreement process.²¹⁵ Table 2.6 from the earlier overall trade discussion reports the value of these imports. On the basis of statistics from Operation Performance, the quantities of cargo can be determined by type. As seen in Table 2.16, of the 49,000 tons of cargo sailed through the blockade to the UK from 1941 to 1945, of which approximately 5,437 tons was ball bearings and the steel for them. Some 98 tons of SKF machine tools destined for the UK subsidiary, Skefko, were also smuggled in this way.²¹⁶

Table 2.16: Sweden-United Kingdom North Sea Smuggling Operations, 1941 to 1945, Exported Materials by Type

Description	Metric	
	Tons	% of Total
Bar Iron, Pig-iron and Ingots	26,166	53.4%
Rolled Steel	12,789	26.1%
Ball Bearings & Ball Bearing Steel for SKF Luton (Skefko)	5,437	11.3%
Machine Tools for SKF Luton (Skefko)	98	0.2%
Spare parts for engines	588	1.2%
Ferro Chrome	2,744	5.6%
Other	1,078	2.2%
Total – all materials from all shipments	49,000	100%

Sources: RA UDA/1920ds/HP64Ba/2800, draft memo dated 6 December 1944; RA UDA/1920ds/HP73Ba/3314, undated table marked “Export till Storbritannien med kurirflyg under 1942;” RA UDA 1920ds/HP73Ba/3311-3317, reports marked “Översikt över flygtrafiken mellan Sverige och England under tiden...,” various dates from 1942 to 1945, and reports marked “Statistik över visa uppgifter i lastningsbeskeden för de utgående brittiska kurirflygplanen,” various dates from 1943 to 1945; BAMA AW/1/6512, “Air Service – Midnight Sun Period,” memo dated 26 February 1944.

Notes: Does not include passengers or passenger luggage. Based on data available from Operation Performance; probably understates ball bearings supply, since Swedish raw materials were given priority during this period. See limited available import statistics from FO837/905.

²¹⁵ *Ibid.*

²¹⁶ NA CAB115/197, cipher telegram dated 10 October 1942.

From the unclassified commercial air cargo reported in Table 2.7 (see overall trade section), the amount of ball bearings exported can be determined. The air cargo reported consisted of very high-value materials needed for the British and Allied war effort, including ball bearings, machinery and high-speed steel. The 1942 report on exports to Britain recorded a value of 30,383 Kronor per ton for this air cargo.²¹⁷ Table 2.17 shows that of 725 tons of unclassified commercial cargo in the air smuggling operation, an estimated 399 tons was SKF ball bearings materials with approximately 43 tons of machines destined for Skefko.²¹⁸ These official statistics probably omit some of the more covert export operations, including possible smuggling in the nearly one metric ton of Britain diplomatic cargo reported in Table 2.7 (see overall trade section) and the expropriation by Britain of the bearings meant for the USSR.²¹⁹ Unfortunately, the lack of archives for the British ball bearings control organization makes it difficult to assess these possible additions to Britain's supply chain.

Table 2.17: Sweden-United Kingdom Air Smuggling Operations, 1941 to May 1945, Exported Materials by Type

	% of total	tons
Atlas Diesel Motors	6%	36
SKF Machines	6%	43
SKF Bearings	55%	399
USSR – Priority Commercial Materials	33%	239
Total Unclassified Commercial	100%	725

Sources: See Table 2.16.

Finished bearings from Sweden constituted a significant fraction of the UK's ball bearings supply. According to a post-war report, average annual British wartime ball bearings supplies amounted to £16 million, resulting in production

²¹⁷ RA UDA/1920ds/HP73Ba/3314, folder marked "1943 Febr.-April," table marked "Export till Storbritannien med kurirflyg under 1942."

²¹⁸ *Ibid*, all dates.

²¹⁹ *Ibid*; RA UDA 1920ds/HP73Ba/3312-3317, reports marked "Statistik over visa uppgifter i lastningsbeskeden for de utgående brittiska kurirflygplanen," various dates from March 1942 to 1945;

from 1941 to May 1945 equivalent to 1,120 million Kronor.²²⁰ In total, the United Kingdom imported some 5,300 tons of ball bearings from Sweden between 1941 and May 1945. Using the 1942 air shipment value of 30,393 Kronor per ton, the value of the imported bearings totals 161 million Kronor.²²¹ Thus, Sweden directly provided approximately 15% of Britain's ball bearings supplies. As previously noted, they included the valuable small precision and large bearings necessary for important parts of Britain's war effort.

Domestic Production

Exports of machinery and similar equipment from Sweden allowed Skefko to maintain domestic production during the war. As Figure 2.8 suggests, machines and equipment sold by SKF were used at the Skefko Ball Bearings works in Luton. Although Skefko was not wholly owned by SKF at the start of the war, SKF and Skefko had a 30-year agreement to supply high-speed steel, interchange finished products and pool patents, designs and technical information within the group controlled by the SKF Company.²²² This arrangement continued throughout the war. Skefko's machines depended on imported SKF parts and materials for continued production. There are clearly documented cases of Skefko's waiting for machines and machine parts from Sweden.²²³ British attempts to make substitutes led to increased rejection rates and mechanical wear which ultimately damaged other parts.²²⁴

²²⁰ NA SUPP 14/90, report entitled "Ball, Roller and Taper Roller Bearings," dated 21 June 1951.

²²¹ RA UDA/1920ds/HP73Ba/3314, folder marked "1943 Febr.-April," table marked "Export till Storbritannien med kurirflyg under 1942."

²²² NA CAB24/246. In 1936, SKF sold 55% of the company to British investors in what was probably a defensive measure against the perceived risk of the state seizure of arms and weapons manufacturing; after a Royal Commission had checked the feasibility of prohibiting the private manufacture of arms in 1935-1936; see "Royal Commission on the Private Manufacture of and Trading in Arms (1935-1936)." By 1943, SKF holdings were further reduced to approximately 36% of the share capital; see NARA RG107/160/925, file marked "General Ball Bearings SKF," report entitled "The Swedish Ball Bearing Business," draft dated May 1944, p.12.

²²³ NA BT60/68/2 "Appendix A" from "Report by George Binney, H.M. Legation, Stockholm," NA AVIA11/8, Correspondence from Skefko Ball Bearing Company.

²²⁴ NA AVIA22/1171, memos regarding the efficiency of new ball bearings installations in Britain dated between 1943 and 1944.

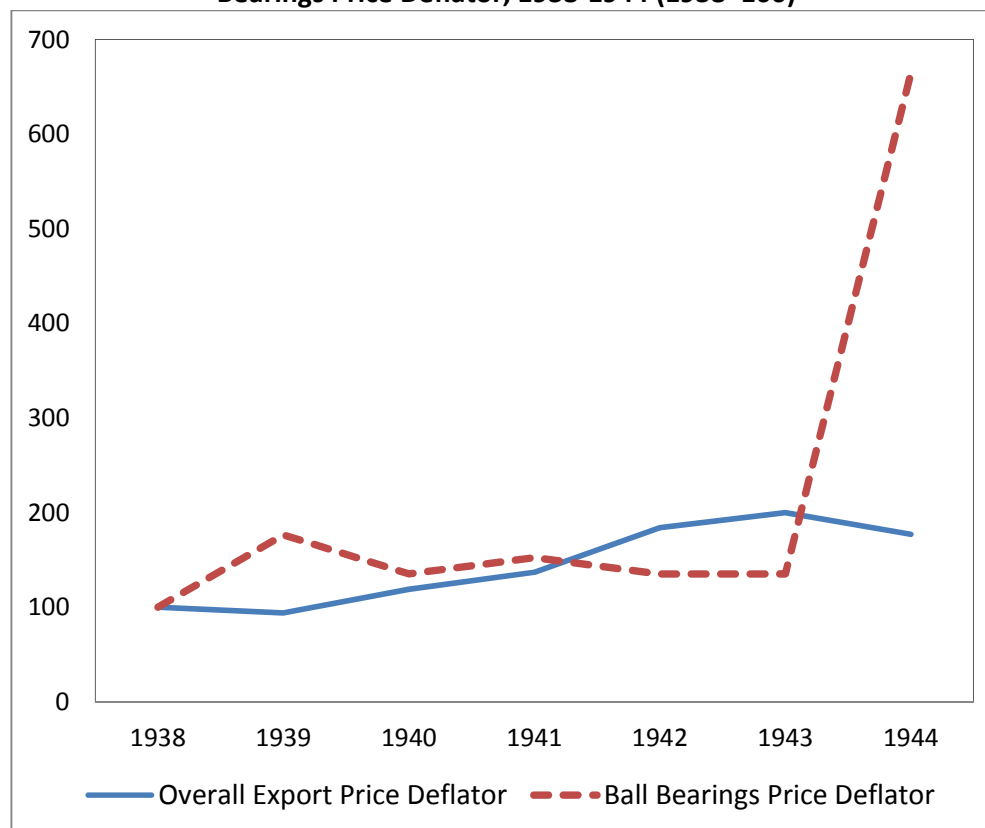
Lack of SKF machines and machine parts would not have stopped production but would certainly have progressively slowed it as equipment aged. No complete list remains of the materials provided, but they are believed to have included *inter alia* dies, stamping machines, lathes, grinding machines, balls and rollers. According to government memoranda in 1942, Skefko had approximately 16% of the United Kingdom bearings market,²²⁷ equivalent to all the 1941-May 1945 revenue of approximately 193 million Kronor.²²⁸ Hence, Swedish-dependent wartime production amounted to at least 31% of British bearings supplies.

²²⁷ NA AVIA22/191, report entitled "Reply to the Enquiry from the Minister of Production Regarding the Ball Bearing Industry."

²²⁸ NA SUPP14/90, report entitled "Ball, Roller and Taper Roller Bearings," dated 21 June 1951.

Discounts Provided to the United Kingdom?

Figure 2.10: Anglo-Swedish Export Trade, Overall Price Deflator versus Ball Bearings Price Deflator, 1938-1944 (1938=100)



Source: Appendix 2.1; SOSH, 1938-1946

For direct exports of Swedish ball bearings to the UK, SKF price negotiations seem clearly to have depended on political forces. Figure 2.10 reveals the prices for imported ball bearings rising faster than Sweden's overall price index for exports to Britain. But with air deliveries (1942-3), prices fell below this index. The rapid rise in prices seen in 1944 is not an error, but rather the effect of British commitments under the Allied pre-emptive purchasing programme. This dramatically increased the overall cost of ball bearings to the UK, whatever the volume.

It should be noted that SKF's discounts for Britain's ball bearings purchases were even more substantial than for Germany's.²²⁹ Table 2.15 shows that in 1938 SKF charged Britain 74% of the price to Germany for the same material, though by 1943 this figure had fallen slightly, to 68%. Such discounts off list price were commercial decisions agreed under the trade negotiations.²³⁰ Their rationale remains unclear, but it may be argued that they derived from the convertibility of the Pound versus other currencies received; since SKF set the prices and retained only Kronor earnings, under-pricing gave no advantage.²³¹ The discounts could have been SKF's attempt, notable at the time, to maintain favour and quash Allied blacklisting and other threats against itself and its British and American subsidiaries.²³² Unfortunately, the loss of the SKF archives probably put the precise reasons for these discounts beyond discovery.

The statistics make certain that the Swedish bearings industry, specifically SKF, worked for the German war effort more than the Allies' and settled prices by factors beyond normal business considerations. But it should be remembered that Sweden violated the established trade rules for both sides, as the over-supplying of Germany and Britain's blockade-running make clear. Moreover, the Americans and British were allowed to pre-emptively contravene Sweden's previously agreed contractual trade terms with Germany. This does not absolve the industry from working more for Germany than Britain, but does demonstrate Sweden's active role in ensuring both belligerents' access to the industry.

The Swedish government allowed much needed ball bearings to travel from Sweden to Britain by blockade-running. These continued exports, creating a double standard, damaged Sweden's perceived impartiality: however, they

²²⁹ RA UDA/1920ds/HP64Ua/2897, file marked "Juli 1943 – Mars 31 1944," table marked "SKF:s Totalexport Exkl. Maskiner och Gångtappar under Aren 1938-1942," dated 19 July 1943.

²³⁰ RA UDA/1920ds/HP64Ua/2897-2898.

²³¹ RA UDA/1920ds/HP64Ua/2800.

²³² See relevant documents in RA UDA/1920ds/HP64Ua/2800, 2897-2898; Fritz and Karlsson, *SKF i stormaktspolitikens kraftfält: Kullagerexporten, 1943-1945*.

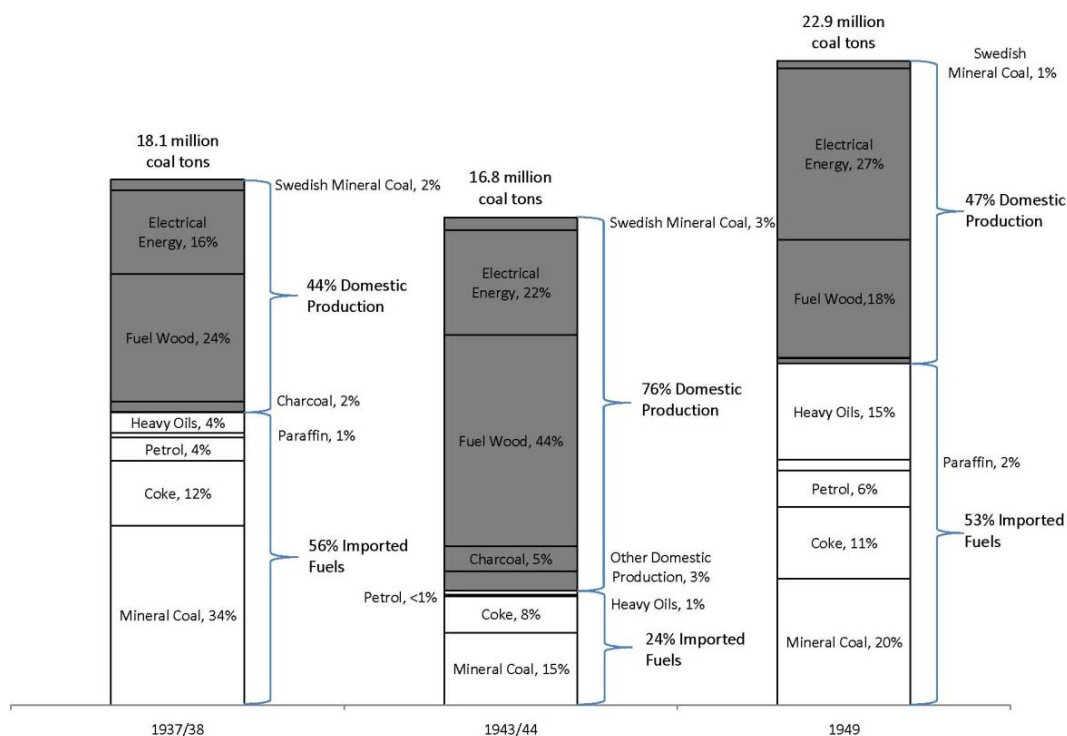
greatly benefited the UK and its war effort in an area where all the Allies were facing acute shortages. They also allowed Sweden to gain access to much needed Allied petroleum and heavy oil.

The Swedish Energy Supply Situation

Sweden had to import energy products during the war to maintain its standard of living. This final section outlines Swedish energy requirements and delineates the shift in suppliers when the Skagerrak blockade was set up. It connects the heavy oil and petrol imported for the Swedish military with exports of specialized Swedish goods. It dismisses the idea that Sweden could have survived and maintained its standard of living in isolation during the war.

Figure 2.11: Consumption of Energy in Sweden in fuel years 1937/1938, 1943/1944, 1949

In tons of coal equivalent comparison, with percentage figures



Sources: See Appendix 2.5

Notes: Comparison prepared using tons of coal energy equivalence; some assumptions are made as to energy values of these materials; see Appendix 2.5.

Although wartime imports declined significantly, Sweden was a net energy importer before, during and after the war. As Figure 2.11 displays, in the 1937/1938 fuel year, Sweden imported approximately 56% of various energy products, including 34% in mineral coal and 4% in petrol; 44% of its overall energy supply was produced domestically, including 16% electrical energy. In fuel year 1943/44 there was less than a 10% decline in consumption; however, there was a large decline in imported energy products. Coal had previously been

imported from German-occupied territory and oil from the US.²³⁷ Imported mineral coal from Germany declined to 14% of energy; petrol imports of 30,000 tons, all from the Allies, were below 1%.²³⁸ The decline in foreign imports was remedied by a large increase in domestic electrical, fuel wood and charcoal production. For comparison, the origins of the energy supplies for 1949 are also included in this chart. As a percentage of the overall figures, in 1949 imports return to within 3% of their relative levels seen in 1937/38; actual imports of fuel in 1949 are about 10% above the 1937/38 levels.²³⁹ Much of the difference in the 1949 domestic supply figures can be attributed to an increase in electrical energy production (principally hydro-electricity) and lower fuel wood production.²⁴⁰

With the onset of war, the provision of energy supplies to Sweden changed considerably. Before the war, most Swedish energy imports came from Great Britain. With the invasion of Poland in September 1939 and then the blockade of the Skagerrak in April 1940, Germany became Sweden's chief foreign supplier of energy products. It supplied close to 100% of coal imports until trade ceased in October 1944.²⁴¹ German supply patterns were erratic month to month, with large swings in imports depending on availability, transportation and the status of trade negotiations.

The exception to Germany's absolute control of Swedish energy imports was the Allied provision of high-octane petrol for airplanes and heavy oil, both intended for Swedish military use. At the end of the war, Sweden was relying on the US and UK for annual petrol imports of some 120,000 tons of aviation and

²³⁷ Åmark, "*Kristidspolitik och kristidshushållning i Sverige*," p.698; see electrical energy conversion statistics referenced in Appendix 2.5.

²³⁸ NA CAB122/241, correspondence dated 27 May 1942, November 1942 and between January and February 1943.

²³⁹ Åmark, "*Kristidspolitik och kristidshushållning i Sverige*," p.698.

²⁴⁰ SAFSTA, 1939-1949.

²⁴¹ Olsson, *German Coal and Swedish Fuel*, p. 327ff.

heavy oil.²⁴² As noted above, Sweden informally linked a continued supply of ball bearings through the Skagerrak to American fuel.²⁴³ These supplies proved crucial, for Sweden had to maintain fuel imports in order to reduce the threats against its essential military power.

Table 2.18: Sweden's Imports of Mineral Oil (in metric tons)

	1941	1942	1943	1944
Imports from Allied Bloc	55,255	68,478	119,948	127,188
Total Imports	131,887	108,339	147,621	137,391
Allied Traffic in %	42	63	81	93

Source: Nicolaus Rockberger, *Göteborgstrafiken: Svensk lejdtrafik under andra världskriget* (Stockholm, 1973), p.272.

Sweden almost completely depended on the United States for oil in the last years of the war. As Table 2.18 shows, although in 1941 Germany provided over half the Swedish imports of mineral oil, by 1944, it was providing less than 7%.²⁴⁴ This increasing dependency for fuel imports would have given the Americans substantial diplomatic and political power over the Swedish government. The Swedish government's decisions to permit SKF to void its contracts with Germany in April 1944 and suspend exports in October 1944 must be considered in the light of the pressure that the US could have placed on Sweden by blockading fuel.²⁴⁵

²⁴² NA FO837/897, War Trade Agreement; for summary see: NARA RG107/160/928, undated memo marked, "Received from State Department, Jan 22, 1944 at Blockade Meeting."

²⁴³ NA CAB122/241, see correspondence dated 27 May 1942, November 1942 and between January and February 1943.

²⁴⁴ Rockberger, *Göteborgstrafiken*, p.273.

²⁴⁵ NA FO837/897, Tripartite War Trade Agreement dated 23 September 1943; summary of main points in Medlicott, *Economic Blockade*, vol.II, pp.470-472; see summary NARA RG107/160/928, file marked "Statistical Reports," undated memo marked "Received from State department, Jan 22, 1944 at Blockade Meeting;" Calgren, *Swedish Foreign Policy*, pp.147-156. NA FO837/897 Tripartite War Trade Agreement dated 23 September 1943; also see NARA RG107/160/925, file marked "Sweden – Statistics – Ball Bearings," memo dated 19 April 1944.

Table 2.19: Swedish Industrial Energy Consumption 1939-1943

Year	Industrial Consumption in coal tons	% Provided by Energy Imports	% Provided by German-origin Imports
1939	9,351	94%	17%
1940	8,267	71%	59%
1941	7,102	67%	67%
1942	7,831	51%	50%
1943	7,716	62%	62%
1944	7,976	45%	45%
1945	8,218	5%	0%

Sources: Olsson, *German Coal and Swedish Iron Ore*, tables 67 and 69; Appendix 2.5.

Sweden could not have survived without energy imports. Germany supplied Sweden with coal, used not only for manufacturing exports, but also for domestic purposes. Germany provided approximately 23% of all Sweden's energy supplies from mid-1940 to 1943. As Table 2.19 shows, during this period, Swedish industry, including mining and ore extracting, consumed about 62% of these imports; but only one-twelfth of this figure went into exports.²⁴⁶ Thus, Germany provided a net gain equivalent to about 20% of Swedish energy use. Had Sweden stopped trading with Germany altogether, it would have had to compensate for this net loss of 20% of its energy supplies. The only alternative resource, Swedish timber, cost about three times the price of German mineral coal and, from a domestic perspective, was a finite resource. Shortages and increased energy costs would have made it impossible to maintain living standards without these German imports.²⁴⁷

Under a full blockade, imports of mineral oil, crucial for Swedish transportation and defence, would have stopped. Even if the limited quantities of exports to the UK are taken into account, Sweden was still a large net energy importer from the US. There was no way to replace the Allies' petrol and heavy oil, used by the Swedish military. The only way to obtain these imports and

²⁴⁶ German-Swedish trade taken from Johansson, *Gross Domestic Product of Sweden*, Table 16.

²⁴⁷ Olsson, *German Coal and Swedish Fuel*, p.242.

maintain the Swedish standard of living was to acquiesce to the US' demands. The illicit export programme therefore ensured Swedish (energy) survival.

Conclusions

Swedish government trade policy during the Second World War is best described as a pragmatic, flexible policy designed to use trade for political and economic survival. This is the first study to provide updated nominal and real trade statistics, including illicit trade. It shows that Sweden favoured one belligerent over another, depending on events: it provided Germany at the peak of its power with additional trade in valuable goods and discounts. As German power declined, the Swedish government increasingly satisfied American and British demands. Nevertheless, Sweden still imported more goods than it exported to both belligerent groups and did not provide substantial trade credits. Through this trade the Swedish government was able to import sufficient quantities of fuel and other goods to maintain the country's standard of living.

The policy fulfilled the stated aims of the Swedish government, maintaining domestic stability and international recognition of Swedish independence. However, the Swedish government's means of implementing this policy, including providing goods in excess of international agreements, using reduced relative prices and allowing the use of its soil for blockade-running activities, distances its version neutrality from the impartiality on which it had traditionally been based. The Swedish position will be examined further in the conclusion to Chapter Five.

Appendix 2.1: Swedish Merchandise Exports to German Bloc (in Millions of Kronor)

	1938	1939	1940	1941	1942	1943	1944
Total Exports (NOMINAL TERMS)	361.1	410.3	985.5	1,150.9	1,034.4	910.4	576.2
Total Exports (NOMINAL), 1938=100	100	114	273	319	286	252	160
Total Exports (REAL)	361.1	436.9	879.9	861.5	660.7	522.9	325.8
Total Exports (REAL), 1938=100	100	121	244	239	183	145	90

Nominal - By Category (Nominal Kronor):	1938	1939	1940	1941	1942	1943	1944
Animals and their products	49.2	56.0	52.8	34.4	13.6	7.0	7.7
Arms and military goods	0.0	0.0	30.8	15.6	8.5	0.2	0.0
Chemicals and their derivatives	4.1	5.9	27.6	26.2	21.5	18.5	14.3
Edible foodstuffs and drinks	14.0	6.9	17.3	37.3	11.2	12.3	28.8
Fuels	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Machinery, equipment and vehicles	17.8	25.3	119.4	133.6	134.2	128.4	90.8
Metals and their alloys	60.7	70.2	196.6	257.5	210.9	221.6	118.8
Minerals, materials and their derivatives	178.7	198.7	188.5	199.8	192.8	229.6	115.4
Other consumer manufactures	0.3	0.1	1.8	1.7	1.1	0.1	0.4
Paper and paper manufactures	19.8	15.8	169.8	232.7	271.5	181.9	116.4
Textiles and their raw materials	1.8	1.5	12.4	0.8	2.5	2.6	10.2
Wood and other industrial plant materials	19.4	33.4	167.2	210.6	165.3	105.9	71.7
Sub-Total	365.7	413.8	984.3	1,150.1	1,033.0	908.1	574.5
Various consumer products [1]	0.1	0.1	2.8	0.6	0.7	0.7	0.3
Unclassified trade [2]	-4.7	-3.6	-1.6	0.2	0.7	1.7	1.5
Total Nominal Trade	361.1	410.3	985.5	1,150.9	1,034.4	910.4	576.2

Nominal - By Category (in Percent of Nominal Kronor):	1938	1939	1940	1941	1942	1943	1944
Animals and their products	13.6%	13.6%	5.4%	3.0%	1.3%	0.8%	1.3%
Arms and military goods	0.0%	0.0%	3.1%	1.4%	0.8%	0.0%	0.0%
Chemicals and their derivatives	1.1%	1.4%	2.8%	2.3%	2.1%	2.0%	2.5%
Edible foodstuffs and drinks	3.9%	1.7%	1.8%	3.2%	1.1%	1.3%	5.0%
Fuels	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Machinery, equipment and vehicles	4.9%	6.2%	12.1%	11.6%	13.0%	14.1%	15.8%
Metals and their alloys	16.8%	17.1%	19.9%	22.4%	20.4%	24.3%	20.6%
Minerals, materials and their derivatives	49.5%	48.4%	19.1%	17.4%	18.6%	25.2%	20.0%
Other consumer manufactures	0.1%	0.0%	0.2%	0.1%	0.1%	0.0%	0.1%
Paper and paper manufactures	5.5%	3.9%	17.2%	20.2%	26.3%	20.0%	20.2%
Textiles and their raw materials	0.5%	0.4%	1.3%	0.1%	0.2%	0.3%	1.8%
Wood and other industrial plant materials	5.4%	8.1%	17.0%	18.3%	16.0%	11.6%	12.5%
Various consumer products	0.0%	0.0%	0.3%	0.1%	0.1%	0.1%	0.0%
Unclassified	-1.3%	-0.9%	-0.2%	0.0%	0.1%	0.2%	0.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Real - By Category (Real Kronor, 1938=100):	1938	1939	1940	1941	1942	1943	1944
Animals and their products	49.2	59.2	47.8	17.4	5.5	1.6	5.6
Arms and military goods	0.0	0.0	60.5	30.3	25.5	0.2	0.1
Chemicals and their derivatives	4.1	5.2	18.4	16.2	12.8	9.4	8.9
Edible foodstuffs and drinks	14.0	6.5	9.7	12.3	4.2	4.2	15.6
Fuels	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Machinery, equipment and vehicles	17.8	24.6	101.7	84.2	82.8	62.7	55.5
Metals and their alloys	60.7	74.0	168.4	196.3	121.1	105.4	53.4
Minerals, materials and their derivatives	178.7	219.8	197.0	206.1	181.8	213.8	97.5
Other consumer manufactures	0.3	0.1	1.2	1.0	1.0	0.1	0.3
Paper and paper manufactures	19.8	17.6	132.8	140.8	115.8	67.6	41.9
Textiles and their raw materials	1.8	1.3	6.2	0.8	1.6	1.9	7.8
Wood and other industrial plant materials	19.4	32.3	135.1	155.4	108.0	54.7	38.2
Sub-Total	365.7	440.7	878.7	860.8	659.9	521.6	324.8
Various consumer products [1]	0.1	0.1	2.5	0.5	0.4	0.4	0.2
Unclassified trade [2]	-4.7	-3.9	-1.4	0.2	0.4	0.9	0.8
Total Real Trade	361.1	436.9	879.9	861.5	660.7	522.9	325.8

Appendix 2.1: Swedish Merchandise Exports to German Bloc (in Millions of Kronor)

	1938	1939	1940	1941	1942	1943	1944
Total Exports (NOMINAL TERMS)	361.1	410.3	985.5	1,150.9	1,034.4	910.4	576.2
Total Exports (NOMINAL), 1938=100	100	114	273	319	286	252	160
Total Exports (REAL)	361.1	436.9	879.9	861.5	660.7	522.9	325.8
Total Exports (REAL), 1938=100	100	121	244	239	183	145	90

Real - By Category (in Percent of Real Kronor, 1938 Prices, 1938=100):

	1938	1939	1940	1941	1942	1943	1944
Animals and their products	13.6%	13.6%	5.4%	2.0%	0.8%	0.3%	1.7%
Arms and military goods	0.0%	0.0%	6.9%	3.5%	3.9%	0.0%	0.0%
Chemicals and their derivatives	1.1%	1.2%	2.1%	1.9%	1.9%	1.8%	2.7%
Edible foodstuffs and drinks	3.9%	1.5%	1.1%	1.4%	0.6%	0.8%	4.8%
Fuels	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Machinery, equipment and vehicles	4.9%	5.6%	11.6%	9.8%	12.5%	12.0%	17.0%
Metals and their alloys	16.8%	16.9%	19.1%	22.8%	18.3%	20.2%	16.4%
Minerals, materials and their derivatives	49.5%	50.3%	22.4%	23.9%	27.5%	40.9%	29.9%
Other consumer manufactures	0.1%	0.0%	0.1%	0.1%	0.1%	0.0%	0.1%
Paper and paper manufactures	5.5%	4.0%	15.1%	16.3%	17.5%	12.9%	12.9%
Textiles and their raw materials	0.5%	0.3%	0.7%	0.1%	0.2%	0.4%	2.4%
Wood and other industrial plant materials	5.4%	7.4%	15.4%	18.0%	16.3%	10.5%	11.7%
Various consumer products	0.0%	0.0%	0.3%	0.1%	0.1%	0.1%	0.0%
Unclassified	-1.3%	-0.9%	-0.2%	0.0%	0.1%	0.2%	0.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Price Deflators (Paasche) by Category (1938=100) - See Notes

	1938	1939	1940	1941	1942	1943	1944
Animals and their products	100	94	110	197	249	445	137
Arms and military goods	100		51	52	34	129	27
Chemicals and their derivatives	100	114	150	162	168	196	160
Edible foodstuffs and drinks	100	106	178	303	267	295	184
Fuels							
Machinery, equipment and vehicles	100	103	117	159	162	205	164
Metals and their alloys	100	95	117	131	174	210	223
Minerals, materials and their derivatives	100	90	96	97	106	107	118
Other consumer manufactures	100	92	145	161	111	155	112
Paper and paper manufactures	100	90	128	165	235	269	278
Textiles and their raw materials	100	114	201	109	152	135	131
Wood and other industrial plant materials	100	104	124	136	153	194	188

Overall Price Deflator (Paasche), 1938=100	100	94	112	134	157	174	177
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Sources and Notes: see attached notes.

Appendix 2.2: Swedish Merchandise Imports from the German Bloc (in Millions of Kronor)

	1938	1939	1940	1941	1942	1943	1944
Total Imports (NOMINAL TERMS)	469.5	680.1	1,186.6	1,323.5	1,267.4	1,308.6	1,097.5
Total Imports (NOMINAL), 1938=100	100	145	253	282	270	279	234
Total Imports (REAL)	469.5	689.8	898.0	866.0	776.6	732.1	640.9
Total Imports (REAL), 1938=100	100	147	191	184	165	156	137

Nominal - By Category (Nominal Kronor):	1938	1939	1940	1941	1942	1943	1944
Animals and their products	9.9	16.3	53.1	62.1	43.7	41.7	52.0
Arms and military goods	3.1	13.7	70.7	47.8	28.9	34.5	49.0
Chemicals and their derivatives	60.7	100.8	134.0	312.7	164.7	173.0	151.9
Edible foodstuffs and drinks	6.2	26.9	63.3	94.9	140.0	121.0	70.0
Fuels	42.8	65.2	242.3	31.4	256.8	304.4	64.0
Machinery, equipment and vehicles	150.0	176.2	231.6	207.0	192.3	195.7	147.8
Metals and their alloys	75.8	114.6	171.9	161.1	185.1	178.7	149.4
Minerals, materials and their derivatives	14.3	22.8	20.1	22.4	28.5	32.9	30.7
Other consumer manufactures	5.6	9.1	10.3	11.2	8.6	8.8	9.3
Paper and paper manufactures	9.6	11.5	13.6	91.0	15.0	13.6	11.3
Textiles and their raw materials	72.9	99.2	144.6	204.2	161.0	144.3	130.6
Wood and other industrial plant materials	2.0	2.6	8.2	11.7	14.2	18.4	10.7
Sub-Total	452.9	658.8	1,163.6	1,257.5	1,238.9	1,266.9	876.5
Various consumer products [1]	16.2	21.2	20.1	25.2	26.6	29.3	43.3
Unclassified trade [2]	0.4	0.0	2.9	40.7	1.9	12.4	177.8
Total Nominal Trade	469.5	680.1	1,186.6	1,323.5	1,267.4	1,308.6	1,097.5

Nominal - By Category (in Percent of Nominal Kronor):	1938	1939	1940	1941	1942	1943	1944
Animals and their products	2.1%	2.4%	4.5%	4.7%	3.4%	3.2%	4.7%
Arms and military goods	0.7%	2.0%	6.0%	3.6%	2.3%	2.6%	4.5%
Chemicals and their derivatives	12.9%	14.8%	11.3%	23.6%	13.0%	13.2%	13.8%
Edible foodstuffs and drinks	1.3%	4.0%	5.3%	7.2%	11.0%	9.3%	6.4%
Fuels	9.1%	9.6%	20.4%	2.4%	20.3%	23.3%	5.8%
Machinery, equipment and vehicles	31.9%	25.9%	19.5%	15.6%	15.2%	15.0%	13.5%
Metals and their alloys	16.1%	16.9%	14.5%	12.2%	14.6%	13.7%	13.6%
Minerals, materials and their derivatives	3.1%	3.3%	1.7%	1.7%	2.2%	2.5%	2.8%
Other consumer manufactures	1.2%	1.3%	0.9%	0.8%	0.7%	0.7%	0.8%
Paper and paper manufactures	2.1%	1.7%	1.1%	6.9%	1.2%	1.0%	1.0%
Textiles and their raw materials	15.5%	14.6%	12.2%	15.4%	12.7%	11.0%	11.9%
Wood and other industrial plant materials	0.4%	0.4%	0.7%	0.9%	1.1%	1.4%	1.0%
Various consumer products	3.5%	3.1%	1.7%	1.9%	2.1%	2.2%	3.9%
Unclassified	0.1%	0.0%	0.2%	3.1%	0.2%	0.9%	16.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Real - By Category (Real Kronor, 1938=100):	1938	1939	1940	1941	1942	1943	1944
Animals and their products	9.9	15.6	39.2	29.9	18.1	15.9	20.3
Arms and military goods	3.1	12.2	60.3	54.6	29.8	52.0	53.4
Chemicals and their derivatives	60.7	82.9	94.4	198.8	93.8	92.5	76.9
Edible foodstuffs and drinks	6.2	21.4	44.2	41.8	54.7	35.3	26.4
Fuels	42.8	59.6	158.0	19.0	150.3	181.5	35.8
Machinery, equipment and vehicles	150.0	181.2	184.0	123.3	125.2	98.0	92.7
Metals and their alloys	75.8	151.4	160.3	156.2	175.5	149.7	126.1
Minerals, materials and their derivatives	14.3	24.2	11.1	10.6	13.0	12.5	10.6
Other consumer manufactures	5.6	9.2	9.3	9.1	5.2	3.3	3.0
Paper and paper manufactures	9.6	13.8	13.3	87.5	9.6	3.6	3.0
Textiles and their raw materials	72.9	95.1	99.3	81.2	76.5	54.5	57.6
Wood and other industrial plant materials	2.0	1.8	7.3	10.8	7.4	9.8	6.2
Sub-Total	452.9	668.3	880.5	822.8	759.2	708.8	511.8
Various consumer products [1]	16.2	21.5	15.2	16.5	16.3	16.4	25.3
Unclassified trade [2]	0.4	0.0	2.2	26.6	1.2	6.9	103.8
Total Real Trade	469.5	689.8	898.0	866.0	776.6	732.1	640.9

Appendix 2.2: Swedish Merchandise Imports from the German Bloc (in Millions of Kronor)

	1938	1939	1940	1941	1942	1943	1944
Total Imports (NOMINAL TERMS)	469.5	680.1	1,186.6	1,323.5	1,267.4	1,308.6	1,097.5
Total Imports (NOMINAL), 1938=100	100	145	253	282	270	279	234
Total Imports (REAL)	469.5	689.8	898.0	866.0	776.6	732.1	640.9
Total Imports (REAL), 1938=100	100	147	191	184	165	156	137

Real - By Category (in Percent of Real Kronor, 1938 Prices, 1938=100):

	1938	1939	1940	1941	1942	1943	1944
Animals and their products	2.1%	2.3%	4.4%	3.5%	2.3%	2.2%	3.2%
Arms and military goods	0.7%	1.8%	6.7%	6.3%	3.8%	7.1%	8.3%
Chemicals and their derivatives	12.9%	12.0%	10.5%	23.0%	12.1%	12.6%	12.0%
Edible foodstuffs and drinks	1.3%	3.1%	4.9%	4.8%	7.0%	4.8%	4.1%
Fuels	9.1%	8.6%	17.6%	2.2%	19.4%	24.8%	5.6%
Machinery, equipment and vehicles	31.9%	26.3%	20.5%	14.2%	16.1%	13.4%	14.5%
Metals and their alloys	16.1%	22.0%	17.9%	18.0%	22.6%	20.5%	19.7%
Minerals, materials and their derivatives	3.1%	3.5%	1.2%	1.2%	1.7%	1.7%	1.7%
Other consumer manufactures	1.2%	1.3%	1.0%	1.0%	0.7%	0.4%	0.5%
Paper and paper manufactures	2.1%	2.0%	1.5%	10.1%	1.2%	0.5%	0.5%
Textiles and their raw materials	15.5%	13.8%	11.1%	9.4%	9.9%	7.4%	9.0%
Wood and other industrial plant materials	0.4%	0.3%	0.8%	1.2%	1.0%	1.3%	1.0%
Various consumer products	3.5%	3.1%	1.7%	1.9%	2.1%	2.2%	3.9%
Unclassified	0.1%	0.0%	0.2%	3.1%	0.2%	0.9%	16.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Price Deflators (Paasche) by Category (1938=100) - See Notes

	1938	1939	1940	1941	1942	1943	1944
Animals and their products	100	104	136	208	242	262	257
Arms and military goods	100	112	117	88	97	66	92
Chemicals and their derivatives	100	121	142	157	176	187	197
Edible foodstuffs and drinks	100	126	143	227	256	343	266
Fuels	100	109	153	165	171	168	179
Machinery, equipment and vehicles	100	97	126	168	154	200	159
Metals and their alloys	100	76	107	103	105	119	118
Minerals, materials and their derivatives	100	94	182	212	219	262	290
Other consumer manufactures	100	99	111	124	165	270	312
Paper and paper manufactures	100	84	103	104	157	376	375
Textiles and their raw materials	100	104	146	251	210	265	227
Wood and other industrial plant materials	100	148	112	108	192	187	173

Overall Price Deflator (Paasche), 1938=100	100	99	132	153	163	179	171
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Sources and Notes: see attached notes.

Appendix 2.3: Swedish Merchandise Exports to Allied Bloc (in Millions of Kronor)

	1938	1939	1940	1941	1942	1943	1944
Total Exports (NOMINAL TERMS)	626.1	602.2	170.6	48.6	88.3	24.0	39.4
Total Exports (NOMINAL), 1938=100	100	96	27	8	14	4	6
Total Exports (REAL)	626.1	639.0	143.7	35.4	47.9	12.0	22.3
Total Exports (REAL), 1938=100	100	102	23	6	8	2	4
Nominal - By Category (Nominal Kronor):	1938	1939	1940	1941	1942	1943	1944
Animals and their products	68.2	62.3	17.0	0.0	0.1	0.6	1.7
Arms and Military Goods	15.0	18.9	1.0	0.0	0.0	0.0	0.0
Chemicals and their derivatives	18.3	21.1	7.0	0.1	0.3	0.1	0.3
Edible foodstuffs and drinks	5.7	4.0	0.2	0.3	1.1	0.0	0.0
Fuels	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Machinery, equipment and vehicles	60.5	58.7	12.3	25.7	61.1	21.6	29.8
Metals and their alloys	95.9	100.6	33.0	22.4	19.5	1.7	4.2
Minerals, materials and their derivatives	42.0	35.1	11.4	0.6	0.0	0.0	0.0
Other consumer manufactures	0.6	0.3	0.0	0.0	0.0	0.0	0.0
Paper and paper manufactures	195.7	202.5	70.2	0.1	6.8	0.0	0.0
Textiles and their raw materials	3.1	2.2	0.2	0.0	0.0	0.0	0.0
Wood and other industrial plant materials	120.2	92.9	18.5	0.0	0.0	0.0	0.0
Sub-Total	625.4	598.8	170.9	49.3	88.9	23.9	36.0
Various consumer products [1]	0.5	0.6	0.1	0.0	0.0	0.0	0.0
Unclassified trade [2]	0.2	2.8	-0.3	-0.8	-0.7	0.1	3.4
Total Nominal Trade	626.1	602.2	170.6	48.6	88.3	24.0	39.4
Nominal - By Category (in Percent of Nominal Kronor):	1938	1939	1940	1941	1942	1943	1944
Animals and their products	10.9%	10.3%	10.0%	0.0%	0.1%	2.4%	4.3%
Arms and military goods	2.4%	3.1%	0.6%	0.0%	0.0%	0.0%	0.0%
Chemicals and their derivatives	2.9%	3.5%	4.1%	0.3%	0.4%	0.3%	0.8%
Edible foodstuffs and drinks	0.9%	0.7%	0.1%	0.6%	1.2%	0.0%	0.0%
Fuels	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Machinery, equipment and vehicles	9.7%	9.8%	7.2%	52.9%	69.2%	89.9%	75.6%
Metals and their alloys	15.3%	16.7%	19.3%	46.2%	22.1%	6.9%	10.6%
Minerals, materials and their derivatives	6.7%	5.8%	6.7%	1.3%	0.1%	0.1%	0.0%
Other consumer manufactures	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Paper and paper manufactures	31.3%	33.6%	41.2%	0.2%	7.7%	0.0%	0.0%
Textiles and their raw materials	0.5%	0.4%	0.1%	0.1%	0.0%	0.0%	0.0%
Wood and other industrial plant materials	19.2%	15.4%	10.9%	0.0%	0.0%	0.0%	0.0%
Various consumer products	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%
Unclassified	0.0%	0.5%	-0.2%	-1.6%	-0.8%	0.3%	8.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Real - By Category (Real Kronor, 1938=100):	1938	1939	1940	1941	1942	1943	1944
Animals and their products	68.2	66.1	16.5	0.0	0.0	0.0	0.2
Arms and military goods	15.0	23.0	1.9	0.0	0.0	0.0	0.0
Chemicals and their derivatives	18.3	18.6	4.7	0.1	0.2	0.0	0.2
Edible foodstuffs and drinks	5.7	3.8	0.1	0.0	0.5	0.0	0.0
Fuels	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Machinery, equipment and vehicles	60.5	62.7	10.6	17.9	33.5	11.1	18.1
Metals and their alloys	95.9	106.3	28.3	17.1	11.3	0.8	1.9
Minerals, materials and their derivatives	42.0	37.9	11.9	0.7	0.0	0.0	0.0
Other consumer manufactures	0.6	0.4	0.0	0.0	0.0	0.0	0.0
Paper and paper manufactures	195.7	225.0	54.9	0.1	2.9	0.0	0.0
Textiles and their raw materials	3.1	1.9	0.1	0.0	0.0	0.0	0.0
Wood and other industrial plant materials	120.2	89.8	15.0	0.0	0.0	0.0	0.0
Sub-Total	625.4	635.4	144.0	35.9	48.3	11.9	20.4
Various consumer products [1]	0.5	0.7	0.1	0.0	0.0	0.0	0.0
Unclassified trade [2]	0.2	2.9	-0.3	-0.6	-0.4	0.0	1.9
Total Real Trade	626.1	639.0	143.7	35.4	47.9	12.0	22.3

Appendix 2.3: Swedish Merchandise Exports to Allied Bloc (in Millions of Kronor)

	1938	1939	1940	1941	1942	1943	1944
Total Exports (NOMINAL TERMS)	626.1	602.2	170.6	48.6	88.3	24.0	39.4
Total Exports (NOMINAL), 1938=100	100	96	27	8	14	4	6
Total Exports (REAL)	626.1	639.0	143.7	35.4	47.9	12.0	22.3
Total Exports (REAL), 1938=100	100	102	23	6	8	2	4

Real - By Category (in Percent of Real Kronor, 1938 Prices, 1938=100):

	1938	1939	1940	1941	1942	1943	1944
Animals and their products	10.9%	10.3%	11.5%	0.0%	0.0%	0.3%	0.7%
Arms and military goods	2.4%	3.6%	1.3%	0.0%	0.0%	0.0%	0.0%
Chemicals and their derivatives	2.9%	2.9%	3.3%	0.2%	0.4%	0.4%	0.9%
Edible foodstuffs and drinks	0.9%	0.6%	0.1%	0.1%	1.0%	0.0%	0.0%
Fuels	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Machinery, equipment and vehicles	9.7%	9.8%	7.4%	50.7%	69.8%	92.3%	81.2%
Metals and their alloys	15.3%	16.6%	19.7%	48.3%	23.5%	6.6%	8.5%
Minerals, materials and their derivatives	6.7%	5.9%	8.2%	1.8%	0.0%	0.1%	0.0%
Other consumer manufactures	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Paper and paper manufactures	31.3%	35.2%	38.2%	0.2%	6.0%	0.0%	0.0%
Textiles and their raw materials	0.5%	0.3%	0.1%	0.1%	0.0%	0.0%	0.1%
Wood and other industrial plant materials	19.2%	14.0%	10.4%	0.0%	0.0%	0.0%	0.0%
Various consumer products	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%
Unclassified	0.0%	0.5%	-0.2%	-1.6%	-0.8%	0.3%	8.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Price Deflators (Paasche) by Category (1938=100) - See Notes

	1938	1939	1940	1941	1942	1943	1944
Animals and their products	100	94	103	176	1,784	1,595	1,015
Arms and military goods	100	82	51				
Chemicals and their derivatives	100	114	150	162	168	196	160
Edible foodstuffs and drinks	100	104	195	687	227	70	181
Fuels							
Machinery, equipment and vehicles	100	94	116	143	183	195	165
Metals and their alloys	100	95	117	131	173	210	221
Minerals, materials and their derivatives	100	93	96	96	224	196	268
Other consumer manufactures	100	92	145				
Paper and paper manufactures	100	90	128	165	235	269	278
Textiles and their raw materials	100	114	201	109	152	135	131
Wood and other industrial plant materials	100	104	124	136		194	
Overall Price Deflator (Paasche), 1938=100	100	94	119	137	184	200	177

Sources and Notes: see attached notes.

Appendix 2.4: Swedish Merchandise Imports from the Allied Bloc (in Millions of Kronor)

	1938	1939	1940	1941	1942	1943	1944
Total Imports (NOMINAL TERMS)	522.7	569.0	236.8	41.6	173.3	135.5	160.8
Total Imports (NOMINAL), 1938=100	100	109	45	8	33	26	31
Total Imports (REAL)	522.7	544.5	171.7	19.4	80.9	52.3	69.5
Total Imports (REAL), 1938=100	100	104	33	4	15	10	13

Nominal - By Category (Nominal Kronor):	1938	1939	1940	1941	1942	1943	1944
Animals and their products	28.6	33.2	13.8	5.7	9.0	9.1	3.8
Arms and military goods	0.3	0.3	0.2	0.0	0.0	0.0	0.0
Chemicals and their derivatives	27.0	29.5	10.6	0.7	6.1	7.8	6.9
Edible foodstuffs and drinks	62.2	59.3	33.8	12.1	39.0	52.5	53.4
Fuels	149.6	193.1	45.5	4.0	19.7	19.2	13.0
Machinery, equipment and vehicles	45.7	45.7	16.0	1.4	3.8	7.0	5.1
Metals and their alloys	49.0	55.3	21.7	0.3	1.0	0.4	0.9
Minerals, materials and their derivatives	4.6	5.0	1.3	0.3	0.8	0.7	0.8
Other consumer manufactures	2.0	1.4	0.7	0.1	0.0	0.1	0.1
Paper and paper manufactures	5.3	5.2	1.7	0.1	0.8	1.1	1.4
Textiles and their raw materials	103.7	124.2	55.1	17.6	68.1	38.4	66.7
Wood and other industrial plant materials	7.5	10.4	1.1	0.1	0.0	0.1	0.2
Sub-Total	485.5	562.6	201.6	42.4	148.3	136.4	152.2
Various consumer products [1]	4.9	5.3	1.7	0.1	0.3	0.5	1.3
Unclassified trade [2]	32.4	1.1	33.5	-0.9	24.6	-1.4	7.3
Total Nominal Trade	522.7	569.0	236.8	41.6	173.3	135.5	160.8

Nominal - By Category (in Percent of Nominal Kronor):	1938	1939	1940	1941	1942	1943	1944
Animals and their products	5.5%	5.8%	5.8%	13.6%	5.2%	6.7%	2.3%
Arms and military goods	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%
Chemicals and their derivatives	5.2%	5.2%	4.5%	1.7%	3.5%	5.8%	4.3%
Edible foodstuffs and drinks	11.9%	10.4%	14.3%	29.0%	22.5%	38.7%	33.2%
Fuels	28.6%	33.9%	19.2%	9.7%	11.4%	14.1%	8.1%
Machinery, equipment and vehicles	8.7%	8.0%	6.8%	3.4%	2.2%	5.2%	3.2%
Metals and their alloys	9.4%	9.7%	9.2%	0.8%	0.6%	0.3%	0.5%
Minerals, materials and their derivatives	0.9%	0.9%	0.6%	0.7%	0.4%	0.5%	0.5%
Other consumer manufactures	0.4%	0.2%	0.3%	0.1%	0.0%	0.1%	0.1%
Paper and paper manufactures	1.0%	0.9%	0.7%	0.3%	0.4%	0.8%	0.9%
Textiles and their raw materials	19.8%	21.8%	23.3%	42.3%	39.3%	28.3%	41.5%
Wood and other industrial plant materials	1.4%	1.8%	0.5%	0.3%	0.0%	0.1%	0.1%
Various consumer products	0.9%	0.9%	0.7%	0.2%	0.2%	0.3%	0.8%
Unclassified	6.2%	0.2%	14.2%	-2.1%	14.2%	-1.0%	4.5%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Real - By Category (Real Kronor, 1938=100):	1938	1939	1940	1941	1942	1943	1944
Animals and their products	28.6	31.6	9.9	2.7	3.4	2.7	1.3
Arms and military goods	0.3	0.3	0.1	0.0	0.0	0.0	0.0
Chemicals and their derivatives	27.0	24.3	7.5	0.5	3.5	4.2	3.5
Edible foodstuffs and drinks	62.2	45.8	24.3	5.6	14.3	15.3	19.5
Fuels	149.6	176.5	29.7	2.4	11.5	11.4	7.3
Machinery, equipment and vehicles	45.7	47.6	12.7	0.8	2.4	3.5	3.3
Metals and their alloys	49.0	73.4	20.1	0.3	1.0	0.3	0.7
Minerals, materials and their derivatives	4.6	5.3	0.7	0.1	0.4	0.3	0.3
Other consumer manufactures	2.0	1.4	0.6	0.0	0.0	0.0	0.0
Paper and paper manufactures	5.3	6.2	1.6	0.1	0.5	0.3	0.4
Textiles and their raw materials	103.7	119.0	37.9	7.0	32.4	14.5	29.4
Wood and other industrial plant materials	7.5	7.0	1.0	0.1	0.0	0.1	0.1
Sub-Total	485.5	538.4	146.1	19.8	69.3	52.6	65.8
Various consumer products [1]	4.9	5.1	1.2	0.0	0.1	0.2	0.6
Unclassified trade [2]	32.4	1.1	24.3	-0.4	11.5	-0.5	3.1
Total Real Trade	522.7	544.5	171.7	19.4	80.9	52.3	69.5

Appendix 2.4: Swedish Merchandise Imports from the Allied Bloc (in Millions of Kronor)

	1938	1939	1940	1941	1942	1943	1944
Total Imports (NOMINAL TERMS)	522.7	569.0	236.8	41.6	173.3	135.5	160.8
Total Imports (NOMINAL), 1938=100	100	109	45	8	33	26	31
Total Imports (REAL)	522.7	544.5	171.7	19.4	80.9	52.3	69.5
Total Imports (REAL), 1938=100	100	104	33	4	15	10	13

Real - By Category (in Percent of Real Kronor, 1938 Prices, 1938=100):

	1938	1939	1940	1941	1942	1943	1944
Animals and their products	5.5%	5.8%	5.8%	14.0%	4.2%	5.2%	1.8%
Arms and military goods	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%
Chemicals and their derivatives	5.2%	4.5%	4.4%	2.3%	4.3%	8.0%	5.0%
Edible foodstuffs and drinks	11.9%	8.4%	14.1%	28.9%	17.7%	29.3%	28.1%
Fuels	28.6%	32.4%	17.3%	12.6%	14.3%	21.9%	10.4%
Machinery, equipment and vehicles	8.7%	8.8%	7.4%	4.3%	3.0%	6.7%	4.8%
Metals and their alloys	9.4%	13.5%	11.7%	1.6%	1.2%	0.6%	1.0%
Minerals, materials and their derivatives	0.9%	1.0%	0.4%	0.7%	0.4%	0.5%	0.4%
Other consumer manufactures	0.4%	0.3%	0.4%	0.2%	0.0%	0.1%	0.1%
Paper and paper manufactures	1.0%	1.1%	1.0%	0.6%	0.6%	0.5%	0.5%
Textiles and their raw materials	19.8%	21.9%	22.1%	36.1%	40.0%	27.7%	42.3%
Wood and other industrial plant materials	1.4%	1.3%	0.6%	0.6%	0.0%	0.1%	0.2%
Various consumer products	0.9%	0.9%	0.7%	0.2%	0.2%	0.3%	0.8%
Unclassified	6.2%	0.2%	14.2%	-2.1%	14.2%	-1.0%	4.5%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Price Deflators (Paasche) by Category (1938=100) - See Notes

	1938	1939	1940	1941	1942	1943	1944
Animals and their products	100	105	139	208	267	339	294
Arms and military goods	100	112	117	88	97	66	92
Chemicals and their derivatives	100	121	142	157	176	187	197
Edible foodstuffs and drinks	100	129	139	215	273	343	273
Fuels	100	109	153	165	171	168	179
Machinery, equipment and vehicles	100	96	126	169	161	202	153
Metals and their alloys	100	75	108	104	105	120	123
Minerals, materials and their derivatives	100	94	182	212	219	262	290
Other consumer manufactures	100	99	111	124	165	270	312
Paper and paper manufactures	100	84	103	104	157	376	375
Textiles and their raw materials	100	104	146	251	210	265	227
Wood and other industrial plant materials	100	148	112	108	192	187	173

Overall Price Deflator (Paasche), 1938=100	100	104	138	214	214	259	231
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Sources and Notes: see attached notes.

Appendix 2.5: Swedish Energy Consumption (1937/38, 1943/44 and 1948)

		1937/38			1943/44			1949		
	Unit of Measurement	Quantity in Units of Measurement	Equivalent in Tons of Mineral Coal	%	Quantity in Units of Measurement	Equivalent in Tons of Mineral Coal	%	Quantity in Units of Measurement	Equivalent in Tons of Mineral Coal	%
Domestic Fuel										
Electrical Energy	1,000,000 kwh = 388 TC	7,479,381,443	2,902,000	16%	9,337,628,866	3,623,000	22%	15,279,756,326	5,928,545	27%
Swedish Mineral Coal	1,000 tons = 800 TC	450,000	360,000	2%	560,000	448,000	3%	320,000	256,000	1%
Fuel Wood	1,000 m ³ = 17 TC	260,000,000	4,420,000	24%	430,000,000	7,310,000	44%	240,000,000	4,080,000	18%
Charcoal	1,000 m ³ = 17 TC	20,000,000	340,000	2%	50,000,000	850,000	5%	1,380,000	23,460	0%
Peat	1,000 tons = 500 TC	30,000	15,000	0%	1,160,000	580,000	3%	200,000	100,000	0%
Shale Oil	1,000 tons = 1,500 TC	0	0	0%	45,000	67,500	0%	30,000	45,000	0%
Motor Spirit	1,000 tons = 900 TC	20,000	18,000	0%	40,000	36,000	0%	40,000	36,000	0%
Tar	1,000 tons = 1,500 TC	0	0	0%	30,000	45,000	0%	0	0	0%
Total Domestic Fuel			8,037,000	44%		12,811,000	76%		10,388,005	47%
Imported Fuel										
Mineral Coal	No conversion	6,200,000	6,200,000	34%	2,500,000	2,500,000	15%	4,360,000	4,360,000	20%
Coke and Briquettes	1000 tons = 1,050 TC	2,130,000	2,236,500	12%	1,200,000	1,260,000	8%	2,370,000	2,488,500	11%
Petrol	1,000 tons = 1,600 TC	502,000	803,200	4%	30,000	48,000	0%	780,000	1,248,000	6%
Paraffin	1,000 tons = 1,500 TC	107,000	160,500	1%	7,000	10,500	0%	250,000	375,000	2%
Heavy Oils	1,000 tons = 1,500 TC	473,000	709,500	4%	85,000	127,500	1%	2,220,000	3,330,000	15%
Total Imported Fuel			10,109,700	56%		3,946,000	24%		11,801,500	53%
Grand Total			18,146,700	100%		16,757,000	100%		22,189,505	100%

Sources:

Food and Agriculture Organization of the United Nations, *Forestry and Forest Products: World Situation 1937-1946* (Stockholm, 1946), pp.19, 78-84;

Food and Agriculture Organization of the UN, *Minutes of the International Timber Conference 1947*, Czechoslovakia, April-May 1947, Document number G.2/15, in FAO/F47/Co3/CI/2;

SAfSTA, 1939-1949

Notes:

TC = Tons of Mineral Coal Equivalent

Electricity realized at an energy equivalence of 388 tons of coal per million kwh.

Notes to Appendices 2.1-2.4

Swedish-Belligerent Merchandise Trade in the Second World War

Purpose

These notes explain how the nominal and real trade merchandise figures and the price statistics for Swedish trade with each belligerent bloc are calculated and reported in Chapter 2. Statistics are standardized across this work in accordance with the international standards immediately after the war. These notes provide information on calculating real price and trade figures, how the Swedish trade statistics are standardized and on the assumptions made as part of this process.

Overview of Steps for Calculations

1. Develop nominal trade statistics to comply with 1948 SITC standards (14 categories of trade) from the SOSH standards (20 categories of trade).
2. Calculate price deflators from the SOSH figures for 19 of the 20 SOSH trade categories (excluding the various/undetermined category).
3. Depreciate the SOSH categories by their relevant price deflators, report in accordance with SITC standards.

Methodology

The best period for evaluating Swedish trade during the Second World War begins in January 1941 and ends in December 1944. These appendices use the lowest level figures available to develop nominal and real trade statistics for Swedish trade. Although there are no particular limitations on the availability of data, the dramatic shifts in control of the European map make it difficult to evaluate the 1939 to 1940 wartime period; however, statistics for these two years, together with those for 1938, are provided as comparisons (with 1938 forming the base year for Allied evaluation of Swedish trade relations).²⁴⁶

²⁴⁶ NA BT11/1140, "Sweden: Draft War Trade Agreement with the United Kingdom [1939]"

Unfortunately, the yearly figures cannot be divided into shorter periods to account for the changes and fractional first and last years of the war. Finally, it should be noted that the illicit trade with the Allies is reported in the Allied section on a where-known basis, as indicated;²⁴⁷ there are no similar smuggling figures for German-Swedish trade. Despite extensive auditing, there is no evidence to suggest other manipulations of the trade statistics and therefore all other figures are used unchanged from the available statistics.

Sources

There are two principal sources for the trade statistics, one of which is an official government publication, while the other is based on statistics presented in this text.

1. The annual Swedish Official Statistics Trade (SOSH) reports are considered the standard, lowest level trade statistics for Swedish trade in this period. These books provide the following statistics, which are used in these appendices, for 1939 to 1944.
 - a. Imports and Exports by Country (in Swedish Kronor); verified with and matching SAfSTA figures.²⁴⁸
 - b. Imports and Exports of Goods by Country (in Swedish Kronor)
 - c. Imports and Exports of Goods (in Swedish Kronor and Metric Tonnes)
2. Estimates of illicit trade not included in the SOSH. This trade is valued according to the methodology in the text and figures provided in Table 2.6.

²⁴⁷ See Tables 2.6, 2.7, and 2.8.

²⁴⁸ *Sveriges Officiella Statistik, Handel Berättelse For År 1939 av Kommerskollegium* (SOSH), 1938-1946; *Statistiska Årsbok for Sverige Tjugoåttonde Ånganden* (SAfSTA), 1938-1946.

Archival Sources

SOSH Imports and Exports by Country

Tab. 3. Handelsomsättningen i kronor med samtliga ursprungs- och förbrukningsländer år 1939. (Tabell över inköps- och försäljningsländer, se sid. 32.)

Anm. Beträffande omfattningen av vissa här redovisade länder och stater m. m., se Tullverkets Förf.-Samling 1938: 333.

	1	2	3	4	5	6
	Införsel		Utförsel		Införsel	Utförsel
Europa	1 700 266 198	1 476 948 487		Asien	106 506 925	77 520 981
Spetsbergen		44 299		Cypern	143 199	326 943
Norge	88 430 520	137 448 843		Syrien	66 842	1 071 229
Danmark	65 473 994	97 755 898		Palestina	5 728 457	2 031 242
Färöarna	27 193	369 438		Arabien	221 893	198 047
Island	9 197 677	2 751 396		Irak	14 405	1 171 382
Finland	26 034 368	93 883 517		Iran	6 559 096	1 910 116
Europeiska Sörjet- unionen	10 418 987	7 775 434		Brittiska Indien (med Ceylon)	23 414 902	17 142 410
Estland	6 956 050	6 073 119		Brittiska Malacka	11 995 812	1 951 161
Lettland	4 590 406	5 720 653		Thailand (Siam)	1 527 978	2 765 389
Litauen	4 913 197	2 910 338		Franska Indokina	481 894	908 680
Polen	55 412 922	25 522 974		Nederländska Ost- indien	14 801 843	11 225 253
Fria staden Danzig	262 160	638 137		Filippinerna	4 725 608	2 414 003
Tyska riket	619 800 427	369 020 217		Kina	5 193 184	6 078 491
Nederländerna	99 911 617	85 548 951		Mandsjuriet	15 615 972	4 175 433
Belgien	108 665 542	46 897 715		Japan (med Korea och Formosa)	14 951 469	23 967 215
Luxemburg	21 200 291	82 771		Asiatiska Sörjet- unionen	1 054 863	500
Storbritannien	325 719 834	415 492 441		Övriga Asien	9 508	183 464
Nordirland	1 664 901	2 040 230		Amerika	637 621 085	273 936 420
Irland	513 872	8 067 892		Grönland	110 663	14 638
Frankrike (med Korsika)	81 553 092	61 902 366		Britt. Nordamerika (med Bermudas- öarna)	12 967 334	8 350 177
Spanien	5 247 829	7 607 725		Amerikas Förenta Stater	414 260 263	178 643 750
Portugal (med Azo- rerna o. Madeira)	8 255 577	5 517 787		Mexiko	16 684 886	8 784 578
Malta och Gibraltor	7 444	458 439		Brittiska Honduras	72 868	13 353
Italien	39 318 135	44 523 488		Guatemala	4 733 816	349 467
Schweiz	45 846 795	17 812 300		Salvador	3 223 595	258 471
Tjeckoslovakien	22 911 026	11 064 973		Honduras	384 969	28 068
Ungern	16 969 218	5 671 001		Nicaragua	235 855	40 102
Jugoslavien	3 441 359	2 485 287		Costa Rica	1 310 331	163 124
Rumänien	6 793 597	2 028 198		Panama	1 782	1 741 561
Bulgarien	1 897 180	907 981		Cuba	1 316 811	3 445 957
Turkiet	6 471 686	2 896 431		Brittiska Västindien	2 305 831	525 471
Grekland (med Kreta)	12 298 746	6 014 837		Nederländska Väst- indien	33 985 917	199 671
Albanien	556	13 411		Övr. Västindiska öar	917 808	180 356
Afrika	29 413 320	43 255 001		Venezuela	677 278	2 169 615
Egypten	7 726 380	6 864 527		Brasilien	37 808 419	15 066 490
Libyen	2 299	45 456		Uruguay	6 815 481	5 663 583
Tunis	261 928	731 124		Argentina	48 164 403	34 064 365
Algeriet	1 166 353	739 463		Chile	41 031 561	4 465 565
Marocko	1 003 539	1 293 722		Bolivia	829 878	531 475
Kanarieöarna	545 110	505 665		Peru	2 657 901	2 507 361
Franska Väst- och Ekvatorialafrika	694 810	711 772		Ecuador	402 439	284 020
Brittiska Västafrika	4 688 668	907 139		Colombia	6 463 446	5 274 846
Belgiska Kongo	494 666	392 514		Övriga Sydamerika	258 150	267 556
Sydafrikanska Uni- onen	6 477 715	26 463 700		Australien	24 541 557	17 872 788
Rhodesia	2 456 350	273 758		Anstr. statsförbundet	15 609 860	13 787 022
Portugisiska Ost- afrika	776 058	2 943 997		Nya Zeeland	3 438 653	3 912 864
Madagaskar och Re- union	394 076	279 891		Övriga Oceanien	5 493 044	172 902
Brittiska Ostafrika	1 990 448	758 508		Internationella fiskevatten	336 072	514
Italiska Ostafrika	275 633	2 125		Summa	2 495 685 157	1 888 634 261
Övriga Afrika	459 287	343 640				

This SOSH (1939) table shows imports and exports by value in Kronor for each country.

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SOSH Imports and Exports by Good (value and metric tons)

Tab. 2. År 1939 till riket införda och därifrån utförda varor, fördelade i grupper.

Anm. Denna tabell omfattar vid *införseln* direkta förtullningar samt förtullningar från tullager (tullnederlag och transitupplag); vid *utförseln* ingå icke från tullnederlag utförda varor samt övrig reexport.

Varuslagens gruppering och nummer äro i överensstämmelse med gällande tulltaxa med statistisk varuförteckning (jfr Kungl. generaltullstyrelsens kungörelse den 11 november 1929).

Värdeuppgifterna äro enligt gällande tullstadga och tullordning (Sv. Förf.-Samling 1927, nr 391 och 392) samt Kungl. brev till generaltullstyrelsen den 28 november 1930 (Tallverkets Förf.-Samling 1930, nr 261) i regel lämnade av varuhavarna själva (»deklarerade»).

1	2	I			U		
		Införsel			Utförsel		
Statistiskt nummer	Varugrupp och varuslag	Kvantitet	Kronor	Enhetsvärde Kronor	Kvantitet	Kronor	Enhetsvärde Kronor
	I. Levande djur och animaliska ämnen ton	77 085	49 826 055		93 350	102 819 589	
	A. Levande djur, andra än fisk, kräftdjur och musslor	898	1 460 218		6 791	6 070 052	
	<i>Hästar st.</i>	<i>1 294</i>	<i>1 065 106</i>		<i>125</i>	<i>117 577</i>	
1	föl under ett år	12	13 350	1 112.50	6	1 975	329.17
2	andra slag: hingstar	19	186 650	7 192.11	7	22 900	3 271.48
3	andra	1 263	915 106	724.63	112	122 702	1 095.55
	<i>Nötkreatur</i>	<i>235</i>	<i>91 009</i>		<i>6 019</i>	<i>2 652 611</i>	
4	kor	198	55 788	281.76	3 214	1 238 215	383.71
5	oxar	—	—	—	69	30 398	440.55
6	tjurar	10	30 046	3 004.60	2 677	1 365 727	510.17
7	ungnöt och kalvar	27	5 172	191.56	59	23 243	393.95
8	<i>Får</i>	<i>43</i>	<i>2 904</i>	<i>67.53</i>	<i>106</i>	<i>780</i>	<i>78.00</i>
9	Scin st. inf. 214, utf. 20 001 kg.	1 266	5 367	2.73	5 654 994	5 106 297	0.85
10	Levande djur, ej särskilt nämnda	—	295 823	—	—	162 847	—
11	fjäderfä st.	2 666	4 345	1.63	1	30	30.00
	andra	—	291 490	—	—	162 817	—
	B. Kött och fläsk ton	7 595	7 886 546		15 514	25 667 588	
	<i>Kött, ätbara djurdelar, ej särskilt nämnda, härunder inbegripna . . . kg.</i>	<i>4 765 507</i>	<i>4 962 209</i>		<i>1 574 939</i>	<i>1 801 190</i>	
12	av fågel: gäslar	1 896	19 144	10.10	18	506	28.11
13	annat: vilt	256 950	394 334	1.53	19 382	33 707	1.74
14	annat	1 151 141	1 387 942	1.21	2 791	5 799	2.08
15	av får: färskt	561 982	634 532	1.13	68	127	1.87
16	rökt eller saltat	40 263	31 902	0.79	44	84	1.91
17	av häst: färskt	17 409	9 257	0.53	178 527	105 315	0.59
18	rökt eller saltat	942 463	621 655	0.66	3	8	3.67
19	av nötkreatur: färskt	1 428 031	1 325 223	0.93	156 476	224 407	1.43
20	rökt eller saltat	207	306	1.48	3 417	5 414	1.58
21	av andra djur: färskt	149 090	186 417	1.25	164 243	150 197	0.91
22	rökt eller saltat	3 296	8 599	2.61	2 018	8 061	3.99
23	ätbara djurdelar, ej särskilt nämnda, ej hänförliga till nr 12—14 . . .	212 779	342 868	1.61	1 047 952	1 237 565	1.21
24	Fläsk	2 829 089	2 924 337	—	13 958 604	23 506 398	—
25	rökt	1 251	3 287	2.68	328	805	2.45
26	andra slag: färskt	727 025	849 970	1.17	258 654	97 876	0.38
	saltat	2 100 813	2 071 080	0.99	13 679 622	23 767 717	1.74

As these two images show, the SOSH provides the total amount of imports and exports for each SOSH category by weight and ton.

Standardization

1. The following standards are applied in Appendices 2.1-2.4:

- a. Countries: The countries in each belligerent bloc are standardized as follows:

German controlled Europe includes states from the first year in which they either joined the Tripartite Pact or were occupied by Germany. The German bloc includes Germany, Denmark (1940-1944), Finland (1940-1944), Norway (1940-1944), Belgium (1940-1944), Bulgaria (1941-1944), Danzig (1939-1944), Estonia (1941-1944), France (1940-1944), Greece (1941-1944), Italy (1940-1944), Yugoslavia (1941-1944), Latvia (1941-1944), Lithuania (1941-1944), Luxembourg (1940-1944), the Netherlands (1940-1944), Poland (1939-1944), Rumania (1939-1944), Austria (1938-1944), Czechoslovakia (1939-1944), and Hungary (1940-1944).

Allied territories include Great Britain, Australia, Canada, India, China, France (1938-1940), Brazil (1942-1944), United States (1942-1944), Cuba (1942-1944), Haiti (1942-1944), Dominican Republic (1942-1944), Iran, Iraq, India, Palestine, Netherlands Antilles (1940-1944) and Egypt.

- b. Any amounts reported in currencies other than Kronor have been converted at the standard rate listed in the currency notes at the beginning of this work.
- c. Categories: trade reported in Appendices 2.1-2.4 is categorized on the basis of the 1948 SITC standards, for ease of use and comparability.

Standardization: Categories of Goods

This paper standardizes the Swedish categories of goods as reported in the SOSH import and export statistics. Trade is reported in the SOSH statistics in 20 separate categories: 19 distinct categories for types of goods and one

category for unknown or unspecified trade ('various'). Each is consolidated into twelve master categories based on the 1948 SITC statistical guide, plus separate categories for arms and unknown trade. The trade categories are consolidated to provide easy comparability across neutrals. The following is a guide to the way in which the Swedish statistics are consolidated.

Table 2A.1: Standardization of Categories of Swedish Imports and Exports

No.	Swedish SOSH Import/Export Category (translated from Swedish into English)	SITC Category
1	Live animals and animal substances	Animals
2	Vegetable matter	Food
3	Fats, oils and waxes of animal or vegetable origin	Animals
4	Food, beverages, tobacco, and animal feeds	Food
5	Mineral and fossil substances	Minerals
6	Chemicals and pharmaceuticals	Chemicals
7	Hides and skins	Other Consumer Manufactures
8	Leather	Other Consumer Manufactures
9	Wood and cork materials; basket materials	Wood
10	Pulp, paper and paperboard (including printed materials)	Paper
11	Textiles	Textiles
12	Footwear, hats, umbrellas	Other Consumer Manufactures
13	Stone and Mineral substances (finished products)	Minerals
14	Noble Metals	Metals
15	Base Metals	Metals
16	Machinery, appliance and electrical goods	Machinery
17	Transportation (equipment)	Machinery
18	Instruments (inc. musical) and scales	Other Consumer Manufactures
19	Arms and ammunition	Arms
20	Various Goods	Various

Calculating trade

Nominal and real imports and exports for each Swedish-belligerent trade relationship are calculated in three steps: the reckoning of nominal trade, price deflators and the real trade.

Step 1: Nominal trade for each belligerent bloc

Construction

- a. Nominal trade by category is constructed by adding the relevant SOSH categories for each country into the standardized 1948 SITC categories for each belligerent bloc, according to the above rubric.
- b. For trade with the Allied bloc, the estimates of illicit trade (as per Table 2.5) are added to the machinery category of Appendix 2.3 (Swedish Exports to the Allied bloc).
- c. The master category 'Various Consumer Products' (with note [1] in the appendices) includes items which are known, but for which there is no available price deflator. These are mostly small items which have little impact on the overall trade statistics.
- d. The unknown category (with note [2]) is the error term, representing the difference between the available unit level statistics and the total reported for the bloc by the Swedish authorities.

Step 2: Price deflators for the SOSH price categories

Construction

- a. Price indices for Swedish-belligerent trade are assembled from the overall import/export statistics for each of the twenty SOSH categories of goods presented. There is only one set of price statistics covering all 20 SOSH categories: import/export prices per ton values for each category are for all trade (not individual blocs) for the entire

period from 1938 to 1944. The base year for the 20 SOSH-based price deflators is 1938.

**Step 3: Real trade by type and group
Construction**

- a. Real trade by SOSH category is constructed by taking the SOSH reported category of nominal trade for each bloc and depreciating it according to the relevant constructed price deflator for this category.
- b. Real trade by SITC category is then calculated by adding the relevant SOSH categories for each bloc into the standardized SITC categories for each country.
- c. In order to obtain an overall real price deflator by bloc, the total nominal trade in a given year is divided by total real trade (both excluding the 'unclassified and various' category of trade).
- d. For price deflators for categories of individual goods: the total nominal trade in an SITC category is divided by the total of real trade in this category in any given year.
- e. Real unclassified trade represents the nominal unclassified trade depreciated, based on the assumption that this unclassified trade inflated at the same rates as the overall trade for which price deflators are known.
- f. Real various trade represents the nominal various trade depreciated, based on the assumption that this unclassified trade inflated at the same rates as the overall trade for which price deflators are known.

Assumptions in constructing SITC-standardized real trade statistics and sensitivity analysis (where possible)

1. Using the available figures, reported price indices are based on tonnage divided into currency values at the unit level. This approach is subject to faults. It ignores potentially non-random changes in underlying goods which make up the categories and so incorporates some systematic biases. It is possible to comment on some of these biases as they relate to the construction of price indices:
 - a. Based on the change in composition in exports reported in Appendices 2.1 and 2.3, Sweden exported higher value, lower weight goods during the war than before. This could artificially increase the overall price index reported and lead to lower real exports. It is likely overall real exports reported in this chapter are in fact the lower bounds for these figures.
 - b. Similarly, the Swedish imports of lower value, higher weight goods (including coal and grains) increased relative to before the war. These statistics are included in Appendices 2.2 and 2.4. This would push down the price index. Therefore, it is likely reported Swedish real imports provide an upper bound for the real trade figures.
2. Some biases are created by the use of Paasche as opposed to Laspeyres price indices. As there are large variations in the underlying quantity components of some goods, Paasche indices are more appropriate. This privileges the most recent quantities of goods over those from the pre-war consumption basket. However, in order to increase transparency, Laspeyres are also presented in Tables 2A.2-2.A.5 as follows:

Table 2A.2: Paasche and Laspeyres Price Indices for Swedish Exports to Germany, 1938=100

Period	Paasche Index as Reported in Appendix 2.1	Laspeyres Index
1938	100	100
1939	94	93
1940	112	110
1941	134	132
1942	157	154
1943	174	171
1944	177	174

Table 2A.3: Paasche and Laspeyres Price Indices for Swedish Imports from Germany, 1938=100

Period	Paasche Index as Reported in Appendix 2.2	Laspeyres Index
1938	100	100
1939	99	99
1940	132	134
1941	153	151
1942	163	165
1943	179	179
1944	171	142

Table 2A.4: Paasche and Laspeyres Price Indices for Swedish Exports to the Allies, 1938=100

Period	Paasche Index as Reported in Appendix 2.3	Laspeyres Index
1938	100	100
1939	94	94
1940	119	119
1941	137	140
1942	184	186
1943	200	200
1944	177	162

Table 2A.5: Paasche and Laspeyres Price Indices for Swedish Imports from the Allies, 1938=100

Period	Paasche Index as Reported in Appendix 2.4	Laspeyres Index
1938	100	100
1939	104	111
1940	138	126
1941	214	135
1942	214	197
1943	259	281
1944	231	236

3. In addition, there are also problems related to the lack of country specific data.

- c. Use of non-country specific price deflators: the use of non-specific price deflators cannot be avoided. The SOSH does not present complete tonnage figures for exports to specific countries. As a result, the same price indices must be used for each individual country presented. In the case of Swedish-German trade, this has a smoothing effect, lowering import prices while increasing export prices. This is confirmed by Swedish Foreign Ministry records which examine the price situation for 1938 to the first half of 1941 in regard to trade with Germany:²⁴⁹

²⁴⁹ RA UDA/1920ds/HP64Ct/2450, memo dated 1 September 1941.

**Table 2A.6: Comparison of Overall Swedish-German
Export Price Deflators, 1938=100**

Period	Overall Price Deflator (from Appendix 2.1)	Swedish Foreign Ministry Estimates
1938	100	100
1939	94	93
1940	112	
2H1940		106
1H1941		110
1941	134	

**Table 2A.7: Comparison of Overall Swedish-German
Import Price Deflators, 1938=100**

Period	Overall Price Deflator (from Appendix 2.2)	Swedish Foreign Ministry Estimates
1938	100	100
1939	99	106
1940	132	
2H1940		153
1H1941		177
1941	153	

- d. The values expressed in Table 2.6 depend on the estimates of value given in the George Binney reports, as described in the text.²⁵⁰ These per ton value figures may be incorrect; but because no other figures exist it is impossible to determine the effects of these assumptions, if any.

²⁵⁰ NA HS7/191, report on "The Performance Operation," from Sir George Binney to Sir Andrew Duncan, dated June 1942; CAC BINN/2, "Operation Performance;" NA BT60/68/2, "Appendix A: List of Materials Shipping from Gothenburg to England in January, 1941," from "Report by George Binney, H.M. Legation, Stockholm;" and CAC BINN/1, "Operation Rubble."

Chapter Three

Spanish-Belligerent Merchandise Trade in the Second World War

Abstract

This chapter demonstrates that Spain used its possession of important natural resources to obtain particularly favourable terms of merchandise trade. In answering the question of what constituted Spanish wartime merchandise trade, this chapter first provides a brief overview of the political relations between Spain and the principal belligerents. It provides comprehensive nominal and real statistics for Spanish trade with Germany, the United States and the United Kingdom from archives hitherto not generally used. It also examines several case studies, including those of Spain's energy supply and the high-density lightweight metal wolfram, which was used in armour piercing shells.

Introduction

Considering the close political links between the two countries, Germany did particularly poorly in its economic relations with Spain. Spain and Germany shared a special ideological relationship after Germany supported Franco and his Nationalists during the Spanish Civil War.²⁵¹ Germany unsuccessfully sought to use this relationship to exploit the Spanish position in certain raw materials. This chapter demonstrates that, although nominal trade increased consistently from 1939 to 1943, Germany suffered from increasingly poor terms of trade after 1939, as Spain paid less for its German imports and charged more for its exports. As part of Germany's payment for Spanish resources, Spain was able to exact particularly valuable goods from Germany, including military equipment needed for the German war effort.

²⁵¹ Christian Leitz, *Economic Relations Between Nazi Germany and Franco's Spain, 1936-1945* (Oxford, 1996).

Figure 3.1: Map of Spain



Source: Author

Political and economic relations between Spain and the Allies were particularly frosty during the war, but the Allied governments had to deal with Spain lest it become absorbed into the German sphere by default. The Allies used economic threats and petroleum embargoes as a way of regulating Spanish political outcomes. The effectiveness of the petroleum embargoes is examined in the last section. The economic relationship between the Allies and Spain improved in nominal terms from 1942 onwards, as Allied pre-emptive and supply purchase activities substantially improved the Spanish terms of trade. Spain also benefited from favourably priced exports in its relationship with the Allies.

The Spanish trade system was considerably less stable than other neutrals' and subject to short-term political influences and demands; but this flexibility benefited the Spaniards. There were no long-term agreements, as in

the Swedish or Swiss cases.²⁵² The Spanish government's trade policy was throughout the war based on a *quid pro quo* system, whereby one side exchanged goods with another without long-term agreements to fix quotas and prices. The party setting the terms of the *quid pro quo* trade at a particular time determined the relations between the states. This lack of bilateral agreements created consistent trust problems between Spain and its trading partners. Instead of agreements which forced upfront compromises, each individual wanted to ensure continuous maximum gain at minimum cost.²⁵³ When any given counterpart did not like what the other was doing (economically, politically or militarily), it was immediately free to alter the terms of trade, withdraw and/or seek other retribution.

Given Spain's monopoly position in a few critical resources, the short-term nature of this system increased the likelihood that Spain would always gain the greatest benefit. A unique system of permits and currency controls gave the Spanish government considerable authority over trade. This government refused to export goods without requisite imports or other payments; when combined with Spain's much-desired exports, this system provided an obvious tool for obtaining favourable terms of trade and scarce wartime imports.²⁵⁴ If they wanted access to Spanish goods such as wolfram and food, there could be only the most limited version of Mancur Olson's *Economics of Wartime Shortage* version of substitution by belligerents for other Spanish merchandise.²⁵⁵ Consequently, in its relations with all three major belligerents Spain enjoyed particularly good terms of trade. It was able to obtain necessary imports, break

²⁵² See Chapters Two and Four.

²⁵³ NARA RG84/UD3162/2/600, correspondence between dated 9 April through 30 August 1941.

²⁵⁴ BoE OV61/29, documents dated after 7 October 1943.

²⁵⁵ Mancur Olson, *The Economics of Wartime Shortage: History of British Food Supplies in the Napoleonic War and in World Wars I and II* (Durham, 1965).

sanctions, charge higher prices for exports and sometimes receive gold in payment for exports.²⁵⁶

Academic interest in the economic relationship between Franco's Spain and the belligerents has been renewed within the last fifteen years; however, no single study has comprehensively examined Spanish trade relations or offered any complete nominal or real trade statistics.

The most detailed political-economic study of Spanish-German relations is unquestionably Christian Leitz's *Economic Relations Between Nazi Germany and Franco's Spain, 1936-1945*.²⁵⁷ Leitz, building on the theses of Angel Viña, Rafael García Pérez and Jordi Catalan Vidal, asserts that Germany had a first mover advantage in trading with Spain during the Second World War, from the strong Spanish-German economic cooperation in the Spanish Civil War.²⁵⁸ This did not change until Spain's physical isolation from German-occupied territory in late 1944. However, these conclusions rely on specific goods and anecdotal evidence; indeed, the statistics on which Leitz's thesis relies are largely from political archives as opposed to more economically-minded ones. Although the statistics presented below confirm Leitz's thesis on the increases in levels of nominal trade, they also show other clear trends which are not evident in Leitz's study. For example, the price indices and real trade statistics indicate the Germans suffered from poor terms of merchandise trade with the Spaniards.

²⁵⁶ BoE OV6/94, memo dated 2 July 1939 and letter dated 7 September 1939; BofE OV6/102, letter dated 27 August 1940.

²⁵⁷ Christian Leitz, *Economic Relations Between Nazi Germany and Franco's Spain, 1936-1945* (Oxford, 1996).

²⁵⁸ Angel Viñas et al, *Política comercial exterior en España* [Politics of Spanish International Trade, 1931-1975] (Madrid, 1979); Angel Viñas, *Guerra, dinero dictadura: Ayuda fascista y autarquía en la España de Franco* [War, Money and Dictatorship: Assisting Fascism and Autarky in Franco's Spain] (Barcelona, 1984); Rafael García Pérez, *Franquismo y Tercer Reich: Las Relaciones Económicas Hispano-Alemanas Durante la Segunda Guerra Mundial* [Francoists and the Third Reich: Spanish-German Economic Relations During the Second World War] (Madrid, 1994); Jordi Catalán Vidal, *La economía Española y la segunda Guerra mundial* [The Spanish Economy and the Second World War] (Barcelona, 1995); Jordi Catalán Vidal, *Fábrica y Franquismo, 1939-1958. El modelo español de desarrollo en el marco de las economías del sur de Europa* [Industry and Franco, 1939-1958: Development of the Spanish Economic Model in the South of Europe (Doctoral Thesis, Universidad Autónoma de Barcelona, 1992)]

Prices on goods sold to German rose faster than the countervailing traffic. In addition, trade with the Allies and other neutrals remained quite strong throughout the war, notably after 1942. By comparison German-Spanish trade increasingly stagnates, suggesting only a short initial period of German success.²⁵⁹ By failing to observe these trends, *Economic Relations* is missing a crucial component of Spanish economic relations during the war.

Leonard Caruana and Hugh Rockoff have better delineated the links between the politics and economics of Allied-Spanish wartime relations. In two articles, the authors explore the 'carrot and stick' approach taken by the Allies with respect to Spain;²⁶⁰ determining that Allied economic policies were successful in changing Spanish political attitudes in August 1940 and again from August 1941 to April 1942. A third embargo event, from February to May 1944, was not deemed successful. While the Spanish economy unquestionably could not function without petroleum products, overcoming sanctions is a function of more than merely finding access to a particular good. Understanding terms of trade is important, with especial reference to petroleum shipments. This work shows that, despite being the sole provider of petroleum and consistent unhappiness with Franco's policies, America failed to increase the price of petroleum sold to Spain during the war; even when the American government threatened a large price rise in 1943, it was unable to carry it through. This was despite substantial increases in the cost of Spanish exports to the US. Therefore if sanctions and the withholding of fuel was the Allies' last resort to change Spanish attitudes, the relatively short duration of the various sanctions events and the subsequently poor economic terms obtained by the Allies suggest that the Spaniards were successful in overcoming Allied pressure. These and other

²⁵⁹ BdeE EIE.

²⁶⁰ Leonard Caruana and Hugh Rockoff, "An Elephant in the Garden: The Allies, Spain and Oil in World War II" *European Review of Economic History*, II (2007), pp.159-187; Leonard Caruana and Hugh Rockoff, "A Wolfram in Sheep's Clothing: Economic Warfare in Spain, 1940-1944," *The Journal of Economic History*, 63:1 (March 2003), pp. 100-126.

authors misinterpret this situation, because they lack comprehensive trade statistics, which are presented here for the first time.

Spanish Wartime Trade: Political Developments

This section outlines the political aspects of Spanish-belligerent relations before and during the war. As a result of the new statistics presented below, the political relations concerning Spanish-belligerent trade appear to break down into five periods. The first, a pre-war period from July 1936 to August 1939, provides some basis for wartime trade relations. The second period, from September 1939 to June 1940, covers the first Spanish blockade, when Germany was geographically isolated from Spain and therefore trade relations were largely in limbo. The period from June 1940 to December 1941 represents the apex of the Spanish-German trade relationship. During this eighteen-month period, Germany promised Spain considerable quantities of goods in exchange for Spanish entry into the war. In the third stage, between January 1942 and August 1944, the Anglo-American pre-emptive purchasing programme shifted the position of the Spanish government, enabling it to maintain a rivalry between the two belligerents, to its own greatest benefit. In the last period, after August 1944, Spain once again found itself isolated, both land and sea routes being regulated by the Allies.

The Spanish government's initial trade patterns in the Second World War are explained through the trade and capital relationships established by the Nationalists during the Spanish Civil War. From mid-1938 onwards, Germany wanted to obtain long-term, low cost access to resources. To this end, Germany provided the Spanish Nationalists with substantial military and economic aid during the Spanish Civil War. As Table 3.1 shows, with expenditures three times income levels during the Civil War, the Nationalists owed their financial existence to the generosity of Germany. From early 1937 onwards, and amid mounting

debts, Germany began to demand repayment in Spanish raw materials.²⁶¹ Specific German requisitions included iron ore, lead, mercury, zinc, copper, skins, fluorspar and wolfram.²⁶² All trade had to go via a transfer system, which ensured that any payment by a German company to Spain was credited against the Spanish government's debt to Germany.²⁶³

Table 3.1: Income and Expenditure of the Nationalist Administration, 1936 to 1939 (in millions of Pesetas)

Period		Income	Expenditure
1936	July-Dec.	396	819
1937	Jan-June	552	1,291
	July-Dec.	680	2,252
1938	Jan-June	791	2,602
	July-Dec.	847	3,258
1939	Jan-Mar.	418	1,722

Source: Leitz, *Economic Relations*, page 23.

The economic debt created by Germany's provision of weapons in the Civil War sustained Germany's supply of Spanish natural resources until at least the start of the Second World War. In 1936, many Spanish iron ore and pyrite mines were owned by British and French companies, including Rio Tinto, Orconera Tharsis and the Société Française des Pyrites. Instead of negotiating to purchase pyrites directly for cash from these companies, the German government encouraged Spain to pursue its need for credit against its Civil War debts.²⁶⁴

Spain and Germany were hardly ever closer than in early 1939. On 24 January 1939 Germany and Spain signed a cultural treaty.²⁶⁵ At the end of March 1939, the Spanish government agreed to enter the Anti-Comintern Pact;²⁶⁶ this

²⁶¹ Leitz, *Economic Relations*, p.19-22.

²⁶² NARA RG242/T-83/229/894.

²⁶³ BA-K R7/738, memo dated 15 March 1940; BA-K R121/842 report marked "Entwicklung."

²⁶⁴ NA FO371/21310-21312, in particular, a report from Rio Tinto dated 9 June 1937; Viñas et al, *Política comercial exterior*, pp.168-171; NA FO371/21316, letter dated 3 November 1937.

²⁶⁵ ADAP D/III/716/697ff, *Deutsch-Spanisches Kulturabkommen, unterzeichnet in Burgos am 24 Januar 1939* [German-Spanish Cultural Treaty, signed in Burgos on 24 January 1939].

²⁶⁶ ADAP D/III/768/750ff; ADAP D/III/776/760ff.

was followed immediately by a German-Spanish Treaty of Friendship on 31 March 1939.²⁶⁷ Yet, as so many authors have asserted, Franco never fully committed to Germany.²⁶⁸ In March 1939 discussions with Hitler and Mussolini, Franco indicated that Spain would be unable to assist Germany and Italy in a European war until its recovery was complete; he did not specify how long this might take.²⁶⁹

The second period, from September 1939 to May 1940, represented an abrupt break from the pro-German status quo. On 22 August 1939 Franco centralized the management of international currencies (and hence, international trade) under the *Instituto Espanol de Moneda Extranjera (IEME)* in the Ministry of Commerce. The IEME sought to maximize Spanish *quid pro quo* purchasing power by forcing countries to pay for Spanish goods in products or currencies desirable to the Spanish government. The IEME would not grant export permits before payment.²⁷⁰

With trade routes blocked, the first round of German-Spanish economic negotiations, which started in October 1939, proved to be largely fruitless. Without land or sea access, it was impossible for Spanish and German representatives to negotiate as if trade could resume immediately. The only agreement resulting from these negotiations was an administrative change in the method of fund transfers between the two countries, to account for the formation of the IEME.²⁷¹

British negotiations ultimately established a *quid pro quo* trading pattern between the two countries: the British demanded exports of Spanish pyrites

²⁶⁷ ADAP D/III/773/752ff.

²⁶⁸ Leitz, *Economic Relations*; Angel Viñas, *Guerra, dinero dictadura*; Rafael García Pérez, *Franquismo y Tercer Reich: Las Relaciones Económicas Hispano-Alemanas*; Jordi Catalán Vidal, *La economía Española y la segunda Guerra mundial*.

²⁶⁹ ADAP D/III/755/737ff; BoE OV6/93; NA FO371/24508; NA C7778/40/41.

²⁷⁰ BoE OV6/94, letter and enclosures dated 7 September 1939.

²⁷¹ García Pérez, *Franquismo y Tercer Reich*, p.110-11; BA-K R121/3647, various memos; ADAP D/VIII/482/446ff.

Chapter Three: Spanish-Belligerent Merchandise Trade

before approving any exports to Spain.²⁷² The British and Spanish governments ultimately concluded two separate agreements from these negotiations. The Anglo-Spanish War Trade Agreement of March 1940 established the basis for future Allied-Spanish trade, including a prohibition on the re-sale of certain Allied imports to Germany and a trade loan from the UK of £2 million (81 million Pesetas) for Spanish purchases.²⁷³ The Spanish government was slow to use this trade loan.²⁷⁴ The second agreement was a Trade and Payments Agreement, which specified the operation of a clearing system between Spain and the Empire; this was a regular commercial clearing agreement and is discussed in Chapter Five.²⁷⁵

Commercial trade between the neutral US and Spain during this early wartime period was based on staples purchased by privately-owned commercial trading companies, for example, Spanish olive oil, rabbit and lamb skins, mercury, wines and some Spanish books for export. As part of the trade process, each American Consulate certified the exports.²⁷⁶ American records suggest that these exports were paid out of existing American balances of Pesetas and earnings from imported American films.²⁷⁷

With the German victories in the west, the Spanish government more closely aligned its interests with those of Germany. With a few minor exceptions, Germany dominated Spanish foreign and trade policy during the period from May 1940 to November 1941. Franco provided considerable verbal support for the German war effort and furthered the idea of joining the Axis at some point in

²⁷² David Eccles (ed.), *By safe hand: letters of Sybil and David Eccles, 1939-42* (London, 1983), pp.19-57, 61-2, 67, 72-92; NA FO371/24496-502, letter dated 4 January 1940.

²⁷³ W.N. Medlicott, *History of the Second World War: The Economic Blockade*, vol.I (London, 1952), p.510ff; NA FO371/24496-502, War Trade Agreement, version dated 26 March 1940.

²⁷⁴ NA FO371/24501, memo from Madrid Embassy, June 1940.

²⁷⁵ BoE OV6/99, Trade and Payments Agreement, dated 18 March 1940.

²⁷⁶ NARA RG84/27/600, consulate reports dated March-April 1940; NARA RG84/52/631, import and export reports for 1940.

²⁷⁷ NARA RG84/27/600, memo dated 1 March 1940; NARA RG84/27/600, annual economic reports from various American Consulates, dated March-April 1940; NARA RG84/52/631, various economic and trade memoranda.

the near future. Considerable progress in dividing the spoils in Africa and the Mediterranean was made in anticipation of Spain's joining the war on the Axis side, but discussions were suspended when Franco refused to set a date for entry into the war. The German government guaranteed that Spain would receive Gibraltar. Germany would provide aid to strengthen Spanish defences in North Africa and the Canary Islands.²⁷⁸ They also agreed to divide all British mining and economic interests in Spain.²⁷⁹ In late October 1940, the Spanish government also claimed the right when it entered the war to take French North African possessions;²⁸⁰ and an emboldened Franco followed this by claiming the Tangier zone in North Africa on 4 November 1940.²⁸¹ However, Spanish entry into the war depended on economic and military provisions from Germany, which never materialized.

In their late 1940 trade negotiations with Germany, the Spanish government consistently returned to the German government promise to assist Spain in economic preparations for a war position.²⁸² Germany made clear its desires for raw materials at the Franco-Hitler meeting at Hendaye on 23 October 1940;²⁸³ and during Suñer's subsequent visit to the Obersalzberg on 18 November 1940.²⁸⁴ Spain requested thousands of tons of wheat, cotton, rubber, jute, tin, oil, coal, fertilizers, military goods and other such products from Germany.²⁸⁵ Food and fuel shortages were noted as being particularly acute, even if the Spaniards were net food exporters; the Spanish government was down to less than two months' supply of gasoline in August 1940.²⁸⁶ Machines

²⁷⁸ *Ibid*, points 3 and 6.

²⁷⁹ ADAP D/XI.1/126/185ff; ADAP D/XI.1/66/66; ADAP D/XI.1/70/92.

²⁸⁰ ADAP D/XI.1/222/322.

²⁸¹ ADAP D/XI.1/286/394.

²⁸² ADAP D/III/755/737ff.

²⁸³ DGFP D/XI/124; also Luis Suárez Fernández, *España, Franco y la Segunda Guerra Mundial* (Madrid, 1997), pp.246-258.

²⁸⁴ ADAP D/XI.2/352/502.

²⁸⁵ ADAP D/XI.1/67/98ff; ADAP D/XI.1/97/142; ADAP D/XI.1/124/181ff; ADAP D/XI.2/352/502.

²⁸⁶ NARA RG84/30/711.2.

and industrial equipment were also needed, for Spain to develop domestic industries.

However, Spain's refusal to enter the war meant that Spanish-German trade relations would ultimately return to the *quid pro quo* principle. The German government was unwilling to deliver *ex gratia* the manufactures, oil and agricultural items which the Spanish urgently required. The government wanted a definitive commitment for Spain to enter the war. When Franco refused to set a date for declaring war, the German government claimed that their exports were reserved for their allies and Spain had not joined as promised.²⁸⁷ On 13 November 1941, the German Foreign Ministry suspended all discussions concerning joint military action.²⁸⁸ Germany now balked at selling military equipment which Spain could not buy from any other source, including a previous Spanish order for 40 Junkers Ju-88s, 200 tanks, 2,000 trucks, howitzers, artillery and other similar items which would have dramatically modernized Spain's military and allayed Franco's principal apparent strategic concerns.²⁸⁹

With the increasingly close Spanish-German relationship, the Allies generally had little trust in Franco's regime.²⁹⁰ However, the policies were not uniform. From July to August, 1940, the US imposed stringent rules prohibiting most exports (including petrol) to Spain. It permitted international aid to reach Spain only through the International Committee of the Red Cross.²⁹¹ An agreement for the importation of oil from the US was reached in January 1941. In exchange for continued American provisions, the agreement specifically obliged Spain not to re-export the American fuel; but the mistrust and lingering doubts about the actual use/destination of the oil meant that America hesitated

²⁸⁷ ADAP D/XI.2/702/984; ADAP D/XI.2/682/962ff.

²⁸⁸ ADAP D/XIII.2/467/633.

²⁸⁹ Fundación Nacional Francisco Franco (FNFF), *Franco la historia y sus documentos*, vol.II (Madrid, 1986), pp.373-374.

²⁹⁰ NA FO837/735, memo marked "Anglo-Spanish Economic Relations," undated.

²⁹¹ Denys H.H. Smith, *Diplomacy: America and the Axis War* (London, 1942), pp.128-129; FRUS 1941/II:Europe/p.880ff.

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to fulfil the terms of the agreement.²⁹² Trade relations remained poor through late 1941 as the new American Ambassador in Madrid, Alexander Weddell, remained unaccredited in Madrid, the Spanish government refusing to receive his credentials.²⁹³

The British, however, believed that Franco could be economically enticed to remain neutral or even become pro-Allied.²⁹⁴ In December 1940, London lent an additional £2 million for trade in wheat and petroleum, in the hope of engendering Anglo-Spanish cooperation.²⁹⁵ Ultimately, the loan was spent on a variety of goods, including wheat, rice, codfish, nuts, coal, rubber, cotton, tin, jute and chemicals; all were part of normal Anglo-Spanish trade relations.²⁹⁶

In the third period, from December 1941 to August 1944, Spain became a centre of economic rivalry between the belligerents. In December 1941, the British initiated a programme to deprive Germany of access to neutral raw materials and pull Spain closer to the Allies. The squeeze on the German supply system created by the Russian campaign made materials from the European periphery, including Spain, particularly important for Germany. Spain had been expected to supply wool, skins, olive oil, pyrites, mercury and, most importantly, wolfram in vastly increased quantities.²⁹⁷ Although the initial British effort failed, due to insufficient resources, this programme became the basis for Allied-Axis economic rivalry in Spain until August 1944.²⁹⁸

²⁹² NARA RG84/57/711.2, correspondence and reports dated between 26 December 1940 and 8 January 1941.

²⁹³ NARA RG84/53-55/various, concerning Ambassador; NARA RG84/55/710/various, correspondence regarding Embassy employees summoned before tribunal; NARA RG84/56/710, memo dated 30 July 1941; NARA RG84/30/711.2, report marked "Spanish Oil Negotiations."

²⁹⁴ NA FO837/730, memos dated between 19 November and 24 December 1940.

²⁹⁵ NARA RG84/52/900, regulations established 8 July and 26 July 1940.

²⁹⁶ BdeE EIE.

²⁹⁷ NA FO837/743, memos dated 24 November and 13 December 1941; NA FO837/749, telegram dated 10 January 1942 and letter dated 13 January 1942.

²⁹⁸ NA FO837/758, memo dated 29 May 1942.

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In March 1942, the US and the UK agreed to a joint pre-emptive purchase programme for a six-month period.²⁹⁹ The £14 million budget would be used to acquire critical goods, including wool, sheepskins and wolfram.³⁰⁰ The USCC shared the costs of the programme, which was administered entirely by a British subsidiary in Spain (UKCC).³⁰¹

This change in Spanish export policy is linked to a combined Allied offer in March 1942 of increased trade and consistent access to fuel. In exchange for exerting more control over the metals markets, the US agreed to supply oil to Spain for 90 days from 20 March 1942 and to the Allies' delivering 2,000 tons of rubber to Spain in mid-1942.³⁰²

The March 1942 decree created an open market with fierce belligerent competition.³⁰³ The decree placed a Spanish government organization called the *Consejo Ordenador de Minerales Especiales de Interes Militar* [Special Military Council for Minerals] in charge of all minerals transactions, including wolfram. All transactions had to be approved by the *Consejo Ordenador* and were subject to payment for a *guias* or tax stamp.³⁰⁴ This programme changed wolfram trade patterns; whereas most of 1941 production was in mines owned by Germany or had been presold to them by others, it now went to the highest bidder. It is important to note that Spanish trade rules often caused wolfram to be purchased and stockpiled, pending export permits.³⁰⁵

The centralization of wolfram allocations under the *Consejo Ordenador* enabled the Spanish government to exact increasingly exorbitant taxes. In June 1942, the Spanish government increased the wolfram export tax to 50 Pesetas

²⁹⁹ NA T263/4, undated report, "U.K.C.C. Wolfram Purchases, Spain & Portugal, 1940-1944."

³⁰⁰ NA FO837/735, note of meetings dated 22 December 1941 and 1 January 1942.

³⁰¹ NA FO837/756, memo dated 7 April 1942; NARA RG234/16/19, History of Preclusive Operations in World War II (HOPWWII), no page numbers provided; NARA RG84/UD3162/5/631, minutes dated 25 June 1942; NA T263/4.

³⁰² NA FO837/756, memos dated 14 and 21 March 1942.

³⁰³ *Ibid.*

³⁰⁴ NARA RG234/16/19, HPOWWII; NA T263/4, UKCC purchasing report.

³⁰⁵ NARA RG84/UD3162/34, chart dated 30 March 1944.

per kilo, equivalent to approximately 27% of the minimum purchase price of 180 Pesetas per kilo.³⁰⁶ In January 1943, the Spanish government further increased the taxes on wolfram, replacing the export tax with a production tax payable by the buyer. This change allowed the Spanish government to benefit not only from the wolfram exported, but also from any wolfram stockpiled pending export. The early 1943 tax was scaled to mineral content; for a typical production value of 65% wolfram per kilo, the tax was 100 pesetas, exactly double the old tax. At April 1943 price levels, a tax of \$9,132 per ton (41%) was added to the purchase price of \$22,260.³⁰⁷ These taxes generated considerable sums for the Spanish state and gave it incentives to maintain the competition.

The Spanish government-mandated Allied imports of wolfram from Spain were subject to countervailing trade. In June 1942, America and Britain agreed to solve a shortage of counter-trade and available funds in Spain by two different methods. First, the Allies agreed to enforce price increases to match those now charged by the Spanish government for wolfram. This was reported to include a 200% increase in the price of oil, a two-fold increase in the price of sulphates, and a two-thirds increase in the price of rubber.³⁰⁸ The new statistics presented in this chapter indicate that the Allies failed to enforce these price increases.

The Americans and British also agreed to allow Spain to purchase additional goods which had no military value from Allied or third-party neutral stocks. These planned transactions included tobacco from West Africa and Brazil; and cotton from Brazil and the Congo.³⁰⁹ The US introduced additional controls on Spanish goods imported to ensure that Spain could not obtain the same goods from other sources.³¹⁰ But even with all these proposed changes, the Allies still projected an estimated deficit of \$8 million or about 17% of the purchasing

³⁰⁶ NARA RG234/16/19, HPOWWII; NA T263/4, UKCC purchasing report.

³⁰⁷ *Ibid.*

³⁰⁸ NA FO837/761, undated draft of telegram marked "T4/76."

³⁰⁹ NA FO837/761, meeting minutes dated 12 June 1942.

³¹⁰ ADAP E/II/81/144.

programme's budget in the second half of 1942.³¹¹ The debts were initially covered by temporary facilities and then eventually repaid in gold, because no corresponding imports could be agreed.³¹²

As presented in Chapter 5, from mid-1943 onwards, the US and UK were able to continue wolfram purchases using only gold. In the spring of 1943, the UKCC found itself nearly £4.5 million in debt to the Anglo-South American Bank in Madrid. In March 1943 the bank forbade the Allies to carry out any further operations and export permits were withheld by the Spanish government until the debt was cleared. The gold was transferred by ship from the UK to Spain, starting in November 1943.³¹³

Competition and higher prices also compelled Germany to increase its provision of goods for Spain so as to remain active there. In discussions from January through June 1942, Germany offered Spain 594 million Pesetas worth of military equipment in exchange for Spanish raw materials (297 million Pesetas of which had previously been included in the 1941/42 Spanish trade statistics, but had not yet been delivered).³¹⁴ In the Spanish-German Commercial Agreement, December 1942, Spain agreed to unbalance the German-Spanish trade relationship through November 1943.³¹⁵ The Spanish government allowed Germany to run a deficit of 100 million Reichsmarks until February 1943.³¹⁶ These funds were to be repaid through the delivery of long delayed military equipment.

June 1943's trade negotiations set quotas for the year starting December 1943. The German government once again offered war materiel in exchange for

³¹¹ NA FO837/764, budgets dated 17 August 1942.

³¹² NARA RG234/16/19, HPOWWII; NA T263/4, UKCC purchasing report.

³¹³ BofE, OV61/29, various.

³¹⁴ ADAP E/I/149/265; ADAP E/IV/293/519.

³¹⁵ AMAEC R2066/E4, *Das deutsch-spanisch Wirtschaftsabkommen wurde am 16 Dezember 1942* [German-Spanish Commercial Agreement of 16 December 1942] signed by Stohrer and Jordana; ADAP E/IV/293/519; ADAP E/III/158/271, telegram dated 5 August 1942; ADAP E/III/239/414, telegram dated 28 August 1942.

³¹⁶ FRUS 1943/II:Europe/639; AMAEC R2066/E4.

additional wolfram; it also sought price increases of at least 200 per cent for most goods, including the military equipment.³¹⁷ The Spanish government objected; correspondence indicates that they eventually agreed to price increases of between 71% and 125% over the previous year.³¹⁸ These increases are seen to a more limited extent in the statistics presented here.

Having expended all their available Pesetas by August 1943, the German government intended to withdraw from the wolfram market. This would have damaged Spanish interests; within the month, the price of wolfram ore declined from 243 to 130 Pesetas per kilo.³¹⁹ Three months later, the Spanish government offered Germany a 420 million Peseta payment (100 million Reichsmarks) to be credited against the existing Spanish Civil War debts.³²⁰ The Spanish Minister for Commerce allowed the funds to be used to buy strategic raw materials, including wolfram.³²¹

Once they were aware of Franco's loan payment to Germany, the Allies punished Spain. The US and UK had unsuccessfully sought an export ban on wolfram, starting in November 1943. In exchange, Britain and America offered the Spaniards membership of the United Nations, a defence arrangement and some trade enticements.³²² Now, in retaliation for the German payment and the Laurel incident, the US swiftly cut off petroleum supplies and threatened a trade embargo. The Laurel incident, when Franco sent a letter of congratulation to the Laurel government of the Japanese-occupied Philippines on 18 October 1943, immediately led America to question Franco's intentions.³²³ From January 1944 onwards, the US suspended exports of fuel oil, grain and cotton. The British also

³¹⁷ ADAP E/VI/119/207ff.

³¹⁸ Leitz, *Economic Relations*, p.164 and AMAEC R2066/E4.

³¹⁹ FRUS 1943/II:Europe/638.

³²⁰ Leitz, *Economic Relations*, pp.33 and 183.

³²¹ Medicott, *Economic Blockade*, vol.II, p.564ff.

³²² FRUS 1943/II:Europe/45-72; NA FO837/786 and FO837/787 correspondence dated between 10 November 1943 and 31 December 1943; similar offers continued through February 1944: see NARA RG84/UD3162/38/710, telegram dated 4 February 1944.

³²³ For more information on the Laurel incident, see J.W. Cortada, "Spain and the Second World War," *Journal of Contemporary History*, 5 (1971), pp.66-67.

suspended coal exports to Spain in February 1944. The American government further demanded full withdrawal of the Spanish military contribution to the Axis (the Blue Division), the repatriation of the Italian warships held in the Balearics, release of Italian merchant ships in various Spanish ports, a complete wolfram embargo and the suppression of the activities of the German Consulate in Tangier.³²⁴ The US specifically linked petroleum and wolfram, stating that only a Spanish embargo on the latter would release the former.³²⁵

The May 1944 Allied compromise with Spain resulted in partial embargo based on figures originally suggested by Britain in February 1944.³²⁶ But most importantly for bringing an end to these matters, the Allies had been short of Peseta funds since January; thus, they were forced to stop their purchases of wolfram in April 1944.³²⁷ Once pre-emptive activity was forced to stop and the market was left to Germany, these issues were quickly resolved. A wolfram quota for Germany was established in negotiations with the Spanish government which started in early April 1944. The Allies obtained a yearly export figure of 600 tons of wolfram to Germany, with only 60 tons to be exported to Germany between the date of the agreement and 30 June.³²⁸ As part of the agreement, all of the US' demands were met, with the exception of the Italian warships issue, which was submitted to arbitration; in exchange, America was to resume oil exports to Spain starting in May. Allied pre-emptive purchasing of wolfram restarted immediately.³²⁹

³²⁴ The Spanish Ambassador to the United Kingdom came to believe (apparently on the basis of sources in Whitehall) that the British were not interested in a wolfram embargo or the Italian warships. See FRUS 1944/IV:Europe/338, telegram dated 16 February 1944. There were additional conflicts between the Allies which are not discussed here; see FRUS 1944/IV:Europe/329ff; FRUS 1944/IV:Europe/331-382.

³²⁵ NARA RG84/UD3162/35/800, correspondence dated 23 February 1944; FRUS 1944/IV:Europe/297-329.

³²⁶ FRUS 1944/IV:Europe/329ff.

³²⁷ NARA RG234/16/19, HPOWWII; NA T263/4, UKCC purchasing report.

³²⁸ FRUS 1944/IV:Europe/398ff.

³²⁹ FRUS 1944/IV:Europe/410ff; NA FO115/4020-4021 Anglo-American Agreement with Spain and German Agreement with Spain.

The period between May and August 1944 marked the turning-point for German trade with Spain. Germany's purchasing slowed as it became unable to export its existing holdings of over 1,000 tons.³³⁰ Every possible attempt was made to transfer, smuggle and liquidate stocks of goods in Spain after the Allied landings in Normandy. The Allies, through both their Embassies in Madrid and consulates elsewhere in Spain, put considerable effort into tracking German supplies and ensuring that exports were limited to quotas.³³¹ The statistics presented herein confirm a steady decline in trade volumes. Regarding wolfram, the Allies were able to prove illicit wolfram smuggling at the Irún border station above the quotas agreed in May 1944. Allied governments insisted that this smuggling should stop. A Spanish order to confiscate all the remaining German wolfram and return it to Madrid for safekeeping was issued on 25 July 1944. By 25 August, all 1,031 tons of German-owned wolfram was in storage in Madrid and the entire French-Spanish border was under French military guard.³³² Very little additional Spanish wolfram made its way to Germany.

Thus, in the third period the Spanish government benefited from maintaining a belligerent rivalry for natural resources. The Spanish government could increase its imports in exchange for exports to the belligerents; it used its position to raise significant revenue through taxation. It feigned pressure for political change and adopted an attitude of pragmatic self-preservation, benefiting from its trade without jeopardizing its position with either belligerent group.

The fourth period, from September 1944 to May 1945, is marked by the increasing isolation of Spain from Germany and her Axis partners. Spanish-German trade continued, but only by a comparatively inefficient air service. For a while, the Allied governments limited Spanish-Allied diplomatic relations and

³³⁰ NA FO115/4023.

³³¹ NARA RG84/UD3162/34/711.3, correspondence dated between 19 February and 29 June 1944; NA FO115/4023.

³³² Medlicott, *Economic Blockade*, vol.II, p.581.

constricted Spanish-Allied trade in the light of a perceived continuation of Spain's bias towards Germany. This ended abruptly when the American and British governments realized that this position threatened their post-war trade interests in Spain. Consequently, Spain suffered few shortages and little economic pressure.

Almost immediately after the French-Spanish border closed, America and Britain pressed for the complete cessation of all trade between Germany and Spain. This included the remaining supply route, a Lufthansa air cargo service.³³³ It remains difficult to know exactly what was traded between Germany and Spain from September 1944 to May 1945. According to Spanish records, this airline was used to move military goods for Spain from Germany; return flights were used to export much needed controlled goods from Spain to Germany, including Allied penicillin, Spanish wolfram, iron ore, pyrites, mica, wool, leather, mercury and lead.³³⁴ Representations by the Allies to stop this trade began in September 1944 and continued through December.³³⁵ However, the Spanish allowed the route to continue (albeit sporadically) until Germany abandoned it in April 1945.³³⁶

In this period, the Spaniards acted pragmatically and treated the belligerents equally on this particular point, even at this late stage in the war. The Anglo-Americans were also given landing rights in Spain from September 1944 onwards. The British Overseas Airways Company (BOAC) had collected information on this route as early as May 1944 and started services on 3 October 1944.³³⁷ The BOAC service, initially run via Lisbon on a once-weekly basis, was limited by aircraft and crew availability, not by the Spanish government. Britain sought to augment services, given a large backlog of freight and passengers, but, due to equipment shortages, the service remained once weekly, at least until

³³³ FRUS 1944/IV:Europe/444-455.

³³⁴ AMAEC R2149/7.

³³⁵ FRUS 1944/IV:Europe/444-455; NA FO 371/39830.

³³⁶ AMAEC R2149/7.

³³⁷ BAMA AW/1/6507, letter received 30 May 1944.

early 1945.³³⁸ Thus, the Spanish government appears to have afforded each belligerent equal opportunity to run air services to/from Spain. Obviously, the Allies did not depend solely on this route for access to Spanish resources.

Starting in September 1944, the Allies reduced trade with Spain by eliminating the pre-emptive purchasing campaign.³³⁹ From the Spanish perspective, it was replaced by competition between the two Allies for post-war economic interests. Both the Allies created and maintained separate forward-looking trade policies with respect to Spain and neither was willing to sacrifice its long-term economic interests there. The division weakened their joint position in the final months of the war.³⁴⁰

Spanish-Belligerent Wartime Trade

The Second World War created stark shortages of goods. Like the discussions for Sweden and Switzerland, this section assumes that above all, the Spanish government wanted to maintain imports of goods to sustain its population. This chapter is not concerned with the resulting balance of payments flows, which are detailed in Chapter Five. With this in mind, the Spanish government should seek to maximize its trade position in two different respects. In trying to sustain its population through the war, the Spanish government should firstly maximize nominal good imports and minimize the export of goods which would damage their domestic position. Secondly, in real trade terms, the Spanish government should seek to maximize the prices of exports while minimizing the prices of imports. As previously suggested, the Spanish government did not always work in an ideal world and was faced with threats. It responded to these challenges by changing trade policies. This section demonstrates the Spanish authorities benefitted from imports and terms of

³³⁸ *Ibid* and report dated 28 October 1944.

³³⁹ NARA RG234/16/19, HPOWWII; NA T263/4, UKCC purchasing report.

³⁴⁰ NARA RG131/390, letters dated 17 January 1945 and 25 January 1945; NARA RG131/382, memorandum dated 30 January 1945; FRUS 1945/V: Europe/681-724.

trade advantages with the Germans, while providing the Allies with relative export discounts in order to ensure continued imports.

Methodology

Before the new trade statistics for German and Allied trade with Spain are examined, the methodology behind these statistics should be clarified. The methodology used for Spain is similar to that for Sweden and Switzerland, but there are some notable differences given the sources. All figures presented in Appendices 3.1-3.6 are standardized in accordance with 1948 SITC designations, allowing for cross-country comparability.

In discussing trade, this chapter's reference point is always the neutral country. Trade is reported as net exports. Therefore, a merchandise trade surplus reported in the Allied-Spanish relationship in Table 3.2 reflects a goods trade balance in favour of the Allies, with exports from Spain exceeding imports. A negative figure represents a trade deficit, where Spain imported more goods than it exported to the Allies.

Statistics include all officially reported trade, adjusted to account for Spain's use of accruals or anticipatory trade. The main sources are the records of the *Instituto Español Moneda Extranjera* [IEME - Spanish Institute of Money Exchange], which was part of the *Banco de España* [Bank of Spain];³⁴¹ these records provide a complete list of all trade in standardized, specific categories. To provide cross-country comparability, trade categories in the IEME have been consolidated in accordance with the rubric in the notes to the appendices; real prices have been calculated for each separate category, based on available Paasche price deflators. The official Spanish trade statistics published by the Spanish *Ministerio de Hacienda* [Ministry of Business] on which previous studies have been based are not used in this work because these are not available for

³⁴¹ BdeE EIE.

the entire period and are believed to have been retrospectively altered by Franco after the war.³⁴²

The Paasche price indices used herein are based on tonnage divided into currency values at the unit level. But during the war there are some potentially non-random changes in underlying goods which make up these categories. As a result, these indexes incorporate some systematic biases. For example, Spain exported increasing quantities of significantly denser and higher weight raw materials from 1938. This could artificially decrease the Paasche price indices of export goods presented in this chapter, increasing the real export statistics. Hence it is likely overall real exports reported in this chapter are in fact the upper bounds for these figures. Similarly, the Spanish imports of higher value, lower weight goods (including manufactures) increased from 1938 onwards. This would also down the import price index and provide an upper bound for the real trade figures. Further information on the systematic biases can be found in the notes to the appendices to this chapter.

As discussed further in Chapter Five, the German-Spanish trade relationship was based entirely on compensation clearing, where prices were determined not by market conditions, but by government negotiators. Despite government involvement, few individual transactions are statistically transparent. What effect this pricing system may have had remains unknown. The only changes made to the Spanish statistics concern the allocation of the ‘anticipatory’ imports and exports in 1943 to 1945.³⁴³ In the Spanish trade statistics, anticipatory trade is classified as *Convenio Especial Alemán* [German Special Agreement] or *Anticipos* [Advances]. Spanish exports in this category were ultimately wolfram and mercury; Spanish imports from Germany in this same category were mostly deferred German military goods originally promised

³⁴² Available via AMAEC R2073 series; on retrospective changes to these figures, see the previous discussion of Viñas’ work.

³⁴³ BdeE EIE, 1943-1944.

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in 1942 and 1943.³⁴⁴ A complete discussion of sources can be found in the notes to Appendices 3.1-3.6. While error terms exist and are reported as such in the statistics, the figures available represent the most accurate available and are often the first comprehensive statistics to be presented.

Overall Balance of Merchandise Trade

Superficially, the nominal trade statistics clearly support the most popular view in the current literature: German domination of Spanish trade in the Second World War.³⁴⁵ These statistics are presented by country group in Table 3.2. The Spanish Civil War set the stage for long-term growth in the nominal Spanish-German trade. Nominal growth over prior year overall trade (import and export) figures exceeded 580% in 1940 and 490% in 1941. Growth continued throughout 1943. The early increases occurred, despite being denied direct access to German markets for nine months, from September 1939 to June 1940. As Figure 3.2 indicates, at its 1941/42 peak Germany controlled more than 50% of all Spanish trade. Despite year-by-year variations, trade with the Axis-controlled countries over the entire period provided Spain with more goods than it exported; the periodization of this trade will be discussed later.

³⁴⁴ For Germany, see: BA-MA RW19/445-49 and BA-MA RW19/381, reports of OKW WStb dated between July 1943 to 14 December 1944; for Allies and US, see NA FO371/39789 and NARA RG84/UD3162/34, chart dated 30 March 1944.

³⁴⁵ Leitz, *Economic Relations*.

Table 3.2: Spain's Foreign Merchandise Trade by Country Group, 1939-1944
(in millions of nominal Pesetas)

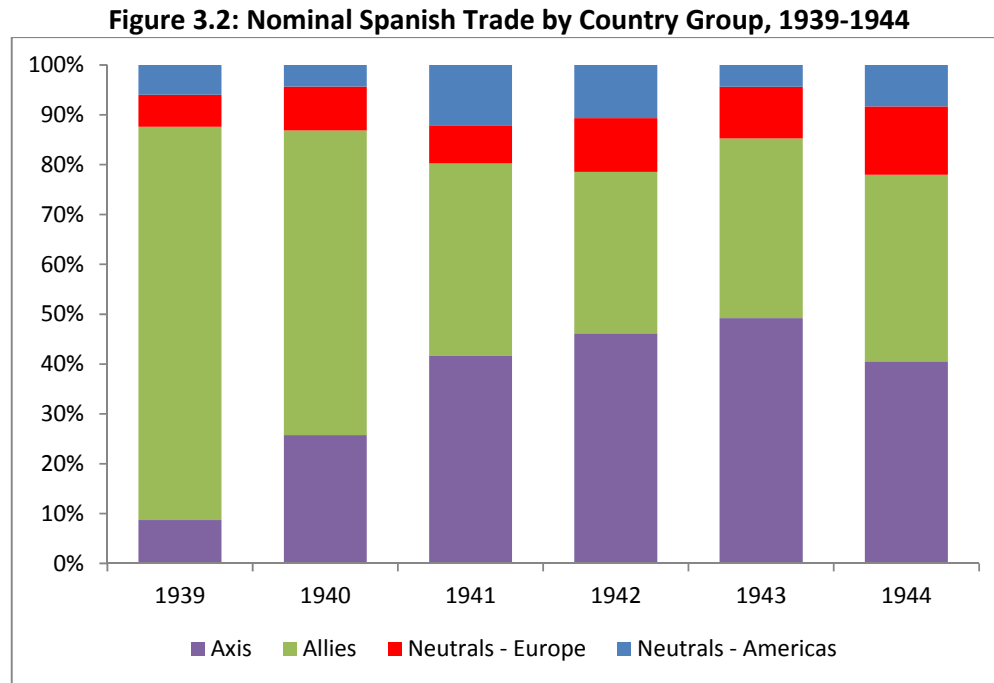
IMPORTS	1939	1940	1941	1942	1943	1944
Allies	473	769	691	692	1,137	1,024
Axis – Europe	52	324	749	977	1,551	1,105
Axis – Asia	0	0	0	9	3	4
Neutrals - Europe	38	111	137	231	326	375
Neutrals - Americas	36	54	217	228	139	227
Total	599	1,258	1,795	2,136	3,156	2,736
EXPORTS	1939	1940	1941	1942	1943	1944
Allies	308	430	385	725	1,163	1,139
Axis – Europe	17	307	955	1,151	1,601	817
Axis – Asia	0	0	0	0	0	0
Neutrals - Europe	6	41	88	167	348	348
Neutrals - Americas	10	23	33	48	88	115
Total	341	801	1,462	2,092	3,200	2,419
BALANCE OF MERCH. TRADE	1939	1940	1941	1942	1943	1944
Allies	(164)	(338)	(306)	33	26	115
Axis – Europe	(36)	(17)	206	174	50	(288)
Axis – Asia	0	0	0	(9)	(3)	(4)
Neutrals - Europe	(32)	(70)	(49)	(63)	22	(27)
Neutrals - Americas	(26)	(31)	(184)	(179)	(51)	(112)
Total	(258)	(456)	(333)	(44)	44	(316)

Source: BdeE EIE; EdCdE, 1941; figures rounded to the nearest whole number.

Notes: For definitions of the trade blocs, see notes to Appendices 3.1-3.6; balance of merchandise trade is reported as net exports: a negative figure indicates that net goods were imported by Spain and a positive figure indicates net Spanish goods exports.

Axis trade overtook Allied trade in 1941. As Figure 3.2 shows, more than 60% of 1939 nominal Spanish trade overall was with the Allies, but only 32% in 1942. Imports from the Allied countries were lower than from Axis Europe; despite starting with a nine-fold advantage in 1939, the Allies were by 1941 providing 10% less to Spain than the Axis powers. This is no doubt partially due to the various sanctions imposed by Britain and America; but even when the sanctions were removed in 1942, Germany continued to provide more imports until 1945. Table 3.2 shows that before the start of the pre-emptive purchasing

programme, the Allies consistently provided Spain with more imports than they received in exports; after 1942, Spanish-Allied trade resulted in modest net exports from Spain.



Source: See Table 3.2.

Spanish maritime trade was controlled by the Allied powers throughout the war. Trade with other neutrals was subject to Allied approval. As Table 3.2 demonstrates, overall import and export trade with both European and American neutrals increased about eleven-fold, from 80 million Pesetas in 1939 to 901 million Pesetas in 1943. This neutral-neutral trade provided Spain with excess merchandise exports. This chapter challenges the existing conceptions of Spanish-belligerent trade and shows Spain benefiting substantially from particularly favourable terms of trade, considering its position.

Spanish Nominal Trade with Germany

From 1940, the first partial year that Spain and Germany were reconnected via the French land bridge, Germany took increased exports of

Spanish raw materials in exchange for machinery, chemicals and food. As Table 3.3 shows, nominal Spanish exports to Germany were above 1939 levels for the entire war; this suggests that German efforts to penetrate the Spanish mineral products export markets succeeded in increasing the volume of trade.³⁴⁶ Nominal Spanish exports to Germany exceeded 1.3 billion Pesetas or 213 times their 1939 levels in 1943. There was a decline in Spanish-German trade after 1943, but not the total blockade sought by the Allies. As previously discussed, the Allied governments attempted to reduce Spanish-Axis trade in 1943/44; but they obtained agreement with the Spanish authorities on only limited reductions from May 1944.³⁴⁷ Limitations were imposed, as discussed above, but, as the statistics suggest, trade continued.³⁴⁸ What should otherwise have been almost a complete curtailment of trade was reduced to a restriction. Table 3.3 shows that in nominal terms there was a 42% decline in Spanish exports between 1943 and 1944, from 1.4 billion Pesetas to 765 million.

Nominal Spanish imports from Germany increased considerably, but had started from a notably higher base, making the increases seem less substantial. As Table 3.3 shows, nominal imports grew consistently until 1944; at their peak, nominal goods imported from Germany increased to 1.4 billion Pesetas, or 68 times their 1939 levels. Imports from Germany decline less than exports, with only a 24% reduction to 1.0 billion Pesetas in 1944, due almost entirely to an increase of Spanish military imports which had been deferred in the past. Although between 1940 and 1943 Spain consistently exported more than it imported, it had net imports of 271 million Pesetas in 1944. This turns what had been, until 1944, an overall wartime Spanish export surplus into a small deficit of 51 million Pesetas. The late surge in Spanish imports relative to exports demonstrates Germany's difficult position in 1944-45.

³⁴⁶ See earlier discussion of Germany's pre-war political-economic activities in Spain.

³⁴⁷ FRUS 1944/IV:Europe/329ff.

³⁴⁸ Leitz, *Economic Relations*, p.208.

**Table 3.3: Nominal Spanish Merchandise Trade with Germany, 1939-1944
in Nominal Pesetas (in millions)**

IMPORTS	1939	1940	1941	1942	1943	1944	1939-44
Goods Imported	20	92	457	705	1,366	1,036	3,676
Goods Imported Index (1939=100)	100	453	2,269	3,504	6,785	5,147	
EXPORTS	1939	1940	1941	1942	1943	1944	1939-44
Goods Exported	6	92	624	770	1,368	765	3,625
Goods Exported Index (1939=100)	100	1,422	9,673	11,941	21,218	11,863	
BALANCE OF MERCHANDISE TRADE	1939	1940	1941	1942	1943	1944	1939-44
Net Exports	(14)	0	167	65	2	(271)	(51)

Sources: see Appendices 3.1 and 3.2; figures are rounded to the nearest whole number.

Notes: see notes to Appendices 3.1 to 3.6; does not include German occupied Europe as reported in Table 3.2; balance of merchandise trade is reported as net exports: a negative figure indicates net Spanish goods imported and a positive figure indicates net exports.

Total Spanish goods exports to Germany from 1939 to 1944 amounted to 3.6 billion nominal Pesetas. Spanish imports from Germany were 3.7 billion Pesetas or 8.4% of Spain's 1939 Gross Domestic Product (GDP).³⁴⁹ Over the wartime period, Spanish net merchandise imports of 51 million Pesetas or about 0.13% of Spanish 1939 GDP.³⁵⁰ Although small, the nominal net Spanish imports from Germany refute the idea that Germany was somehow able to exploit Spain.³⁵¹

³⁴⁹ Leandro Prados De la Escosura, *El Progreso Económico de España (1850-2000)* [Economic Progress of Spain (1850-2000)] (Bilbao, 2003), p.288.

³⁵⁰ *Ibid.*

³⁵¹ Leitz, *Economic Relations*, pp.19-22 and pp.93-94; Viñas, *Política Comercial Exterior*, pp.168-171; Catalán Vidal, *La economía Española*.

**Table 3.4: Value of Certain Goods in Spain's Imports
from Germany, 1939-1944 as a Percentage of
Total Nominal Imports from Germany (by nominal value)**

Year	Minerals	Metals	Machinery	Arms	Chemicals	Food
1939	0.4%	1.1%	17.1%	0.4%	5.6%	32.3%
1940	0.9%	0.2%	48.6%	2.8%	30.7%	8.9%
1941	1.4%	0.4%	69.3%	0.4%	16.8%	4.0%
1942	1.6%	0%	42.7%	24.3%	17.4%	4.5%
1943	1.2%	0.2%	19.5%	62.4%	7.9%	2.7%
1944	0.8%	0.1%	21.7%	64.6%	7.2%	1.6%

Source: see Appendix 3.2.

The composition of exports and imports in nominal terms also changed noticeably over the war, according to the particular desires of both sides. Germany did not become the sole supplier of goods to Spain, but it did provide virtually all Spain's machinery and arms imports at the time.³⁵² As Table 3.4 suggests, the most striking change between 1939 and 1944 was the steady reduction in food as a proportion of Spanish imports from Germany; from 32.3% in 1939 to 1.6% in 1944. Chemicals and machinery showed higher levels of imports from 1940 to 1942, but lower levels thereafter. Levels of machinery were consistently high until 1942, accounting for deliveries of trucks, vehicles and other potential civilian/ military goods. After 1942, these declined in favour of military goods exchanged for Spanish wolfram exports. Demonstrating the superior Spanish position, Germany had previously denied the export of advanced military equipment, claiming that such supplies were allocated only to their Axis allies; but in 1942 the restrictions were relaxed and in 1943 completely removed in order to repay the temporary trade credits granted by the Spanish government.³⁵³

³⁵² BdeE EIE.

³⁵³ ADAP D/XI.2/450/657; AMAEC R2066/E4.

**Table 3.5: Value of Certain Goods in Spain's Exports
to Germany, 1939-1944 as a Percentage of
Total Nominal Exports from Germany (by nominal value)**

Year	Minerals	Wood	Animal Products	Metals	Textiles	Foodstuffs
1939	0%	88.4%	0%	0%	0%	0.1%
1940	8.5%	0.2%	12.5%	28.0%	6.9%	29.5%
1941	4.7%	5.0%	5.1%	7.4%	12.4%	58.3%
1942	8.0%	5.1%	3.8%	8.4%	1.8%	44.9%
1943	42.6%	3.5%	2.0%	2.1%	3.5%	37.6%
1944	50.6%	4.6%	7.9%	0.2%	4.6%	15.6%

Source: see Appendix 3.1.

Minerals and metals were only a part of the Spanish export regime to Germany. As the nominal amount of Spanish exports increased, the percentage figures for cork, the principal wood export, declined in the rather atypical export year of 1939. As Table 3.5 reveals, the most significant exports were foodstuffs, which at their peak in 1941, made up 58.3% of all Spanish exports to Germany, and remained above 40% in 1942; second came minerals, which increased dramatically from 8.5% in 1940 to 42.6% in 1943 and 50.6% in 1944. Animal skins, another item very much in demand throughout this period, declined from 12.5% of all exports in 1940 to 2.0% in 1943. Apparently the Spanish government received clear nominal terms of trade advantages in their trade with Germany.

Spanish Trade with the Germany: Real Statistics

This section will show that, despite its initially subservient political relationship, the Spanish government benefited from superior terms of trade in the German-Spanish trade relationship, notably after 1943. Despite the Civil War-era debts and control of much Spanish trade, the German government provided relative discounts on German exports to Spain.

**Table 3.6: Real Spanish Merchandise Trade with Germany, 1939-1944
in 1939 Pesetas (in millions)**

IMPORTS	1939	1940	1941	1942	1943	1944	1939-44
Goods Imported	20	102	417	617	1,309	1,026	3,491
Goods Imported Index (1939=100)	100	508	2,072	3,064	6,504	5,100	
Import Price Deflator (Index, 1939=100) [Pi]	100	89	110	114	104	101	
EXPORTS	1939	1940	1941	1942	1943	1944	1939-44
Goods Exported	6	87	525	423	370	222	1,633
Goods Exported Index (1939=100)	100	1,341	8,136	6,551	5,737	3,443	
Export Price Deflator (Index, 1939=100) [Px]	100	106	119	182	370	345	
BALANCE OF MERCHANDISE TRADE	1939	1940	1941	1942	1943	1944	1939-44
Net Exports	(14)	(15)	108	(194)	(939)	(804)	(1,858)
Terms of Trade [Px/Pi]	100	119	108	160	356	342	

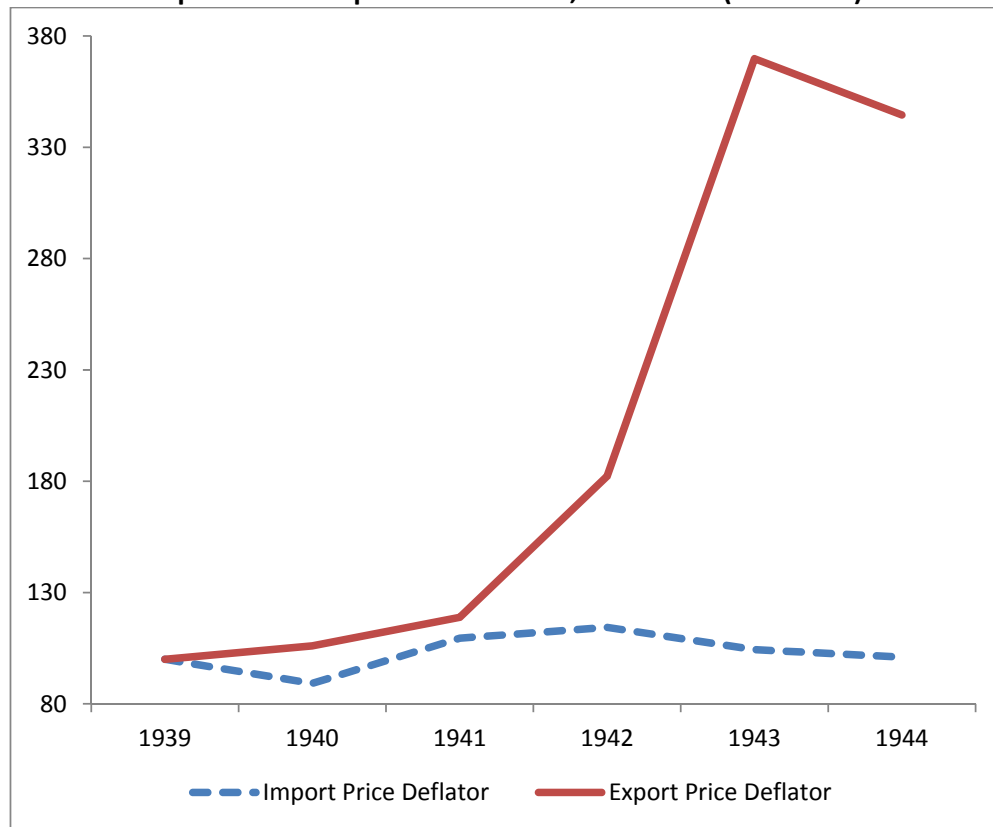
Sources: see Appendices 3.1 and 3.2; figures rounded to the nearest whole number.

Notes: see notes to Appendices 3.1 to 3.6; does not include German occupied Europe; balance of merchandise trade is reported as net exports: a negative figure indicates net Spanish goods imported and a positive figure indicates net exports. Price deflators are calculated based on value and tons basis. This causes systematic biases. See notes in the Appendix to this chapter.

When adjustments are made to bring prices into real terms, some periodization is evident. 1941, the peak year of German power in Europe, is also the peak year for Spanish exports to Germany, with 525 million 1939 Pesetas. By 1943 exports were reduced to 370 million 1939 Pesetas or about two-thirds of 1941 levels. Meanwhile, real imports remained relatively similar to nominal imports, due to price stability. These were price reductions for trade, causing an initial increase in real trade. These price reductions appear to have been informally agreed as part of the 1940 German commitments to Spain, in

exchange for joining the war.³⁵⁴ In 1941 real imports increased to 417 million Pesetas or 20 times 1939 levels. For the rest of the war, prices remained relatively stable, with imports of 1.3 billion Pesetas in 1943, equal to 65 times 1939 levels.³⁵⁵ If trade is seen in real terms, the Spanish trade advantages over Germany are even more evident.

Figure 3.3: Spanish-German Trade
Import versus Export Price Indices, 1939-1944 (1939=100)



Sources: see Appendices 3.1 and 3.2; for index construction see notes to appendices.

Spain benefited from very favourable terms of trade with Germany. As the differences between the nominal and real statistics suggest, the Spanish government extracted significant price concessions from Germany for goods sent to Spain, while charging Germany more for their Spanish exports. As the terms of

³⁵⁴ ADAP D/XI.2/414/606; ADAP D/XI.2/420/617; ADAP D/XI.2/448/653.

³⁵⁵ AMAEC R2066/E4.

trade statistics in Table 3.6 and the price deflator statistics in Figure 3.3 imply, a considerable price gap in Spain's favour developed in 1939. With the exception of 1940 and 1944, the price gap increased throughout the war. It is especially evident after the Allies begin pre-emptive purchasing operations in Spain in late 1942 and especially in 1943; the slight fall in 1944 is likely the result of one-time fall in Wolfram prices due to Allied withdrawal from the Wolfram market (see Wolfram section).

From the statistics presented herein, the Spaniards unquestionably had particularly beneficial trade dealings with Germany. While the pre-war German influence on the Spanish economy is noteworthy, it was ultimately successful only with respect to increasing volume of trade and not in promoting economic dominance over Spain. Throughout the war, the Germans had to give Spain more imports to purchase the same quantity of Spanish exports. The Germans supplied goods at reduced prices relative to Spanish exports. The Spaniards contributed much-needed primary goods to the German war effort at disproportionally high prices, in particular after 1942. Spanish relations with Germany are not just pragmatic; they are particularly self-beneficial.

Spanish Nominal Trade with the US

The Spanish government benefited from particularly favourable nominal terms of trade with the US until 1942; afterwards, although it had pricing advantages, it was exporting more goods than it was importing. Goods exported from Spain to the US from 1939 to 1940 rose only modestly, increasing to 133 million Pesetas from 74 million Pesetas; exports held virtually steady in nominal terms at 139 million Pesetas in 1941; meanwhile, imports nearly tripled from 1939 to 1940 and were still more than double 1939 levels in 1941. As described above, from 1940 until 1942, the US imposed trade sanctions on Spain which were designed to prevent Spain's importing requisites from the US, including raw materials; but, as Table 3.7 shows, through 1942 the main impact of these

Chapter Three: Spanish-Belligerent Merchandise Trade

sanctions appears to have been to limit Spanish exports to the US.³⁵⁶ Thus, in 1942, Spain was for the first time since 1939 exporting more to the US than it was importing.

After sanctions were lifted in March 1942, Spanish-American trade increased rapidly.³⁵⁷ In 1943, nominal Spanish exports rose to 701 million nominal Pesetas, or nearly 2.5 times the previous year. Not all the increases in exports were part of the joint pre-emptive purchase programme. Exports of the most prominent item in the programme, wolfram, represented about 288 million of the 426 million Peseta increase in exports during 1943 over 1942;³⁵⁸ the rest of the increase represents supply purchases for the US government.³⁵⁹

In 1943 and 1944 the US provided Spain with more goods, but, on a nominal net basis, Spain was exporting more. The US provided Spain with imports worth 614 million Pesetas in 1943 or about four times 1939 levels. There was a decline in nominal trade to 468 million Pesetas in 1944, which can be attributed to Allied sanctions early in 1944.³⁶⁰ In 1943 Spain exported about 12% more goods than it imported and in 1944, just over 20%.³⁶¹

³⁵⁶ NARA RG84/27/600, annual economic reports from various American consulates, dated March-April 1940; NARA RG74/53-55/various concerning new Ambassador.

³⁵⁷ NA FO837/756, memos dated 14 and 21 March 1942.

³⁵⁸ NARA RG84/UD3162/34, chart dated 30 March 1944.

³⁵⁹ NARA RG234/16/19, HPOWWII; NA T263/4, UKCC purchasing report; NA FO837/761.

³⁶⁰ See previous political discussion; FRUS 1944/IV:Europe/338, telegram dated 16 February 1944.

³⁶¹ BoE OV61/29, various; see Chapter Five.

Table 3.7: Nominal Spanish Merchandise Trade with the United States, 1939-1944 in Nominal Pesetas (in millions)

IMPORTS	1939	1940	1941	1942	1943	1944	1939-44
Goods Imported	147	443	351	182	614	468	2,205
Goods Imported Index (1939=100)	100	301	239	124	418	319	
EXPORTS	1939	1940	1941	1942	1943	1944	1939-44
Goods Exported	74	133	139	275	701	591	1,913
Goods Exported Index (1939=100)	100	179	188	371	948	800	
BALANCE OF MERCHANDISE TRADE	1939	1940	1941	1942	1943	1944	1939-44
Net Exports	(73)	(310)	(212)	93	87	123	(292)

Sources: see Appendices 3.3 and 3.4; figures are rounded to the nearest whole number.

Notes: see notes to Appendices 3.1 to 3.6; does not include other Allied countries or Allied occupied Europe as reported in Table 3.2; balance of merchandise trade is reported as net exports: a negative figure indicates net Spanish goods imported and a positive figure indicates net exports.

Total Spanish exports to the US from 1939 to 1944 amounted to 1.9 billion nominal Pesetas or 4.69% of Spanish 1939 GDP;³⁶² total trade flows from the US to Spain over the same period were 2.2 billion nominal Pesetas. This results in net Spanish net merchandise imports of 292 million Pesetas, equivalent to 0.68% of Spanish 1939 GDP.³⁶³

³⁶² Prados De la Escosura, *El Progreso Económico*, p.288.

³⁶³ *Ibid.*

**Table 3.8: Value of Certain Goods in Spain's Imports
from the United States, 1939-1944 as a Percentage of
Total Nominal Imports from the United States (by nominal value)**

Year	Minerals	Machinery	Fuels	Chemicals	Textiles	Food
1939	2.5%	20.1%	50.0%	4.0%	3.8%	11.5%
1940	3.5%	4.7%	54.8%	3.0%	7.5%	23.0%
1941	0.5%	8.3%	44.6%	3.0%	14.3%	23.6%
1942	0%	2.6%	38.1%	4.2%	35.3%	18.4%
1943	0%	1.3%	54.5%	13.3%	25.6%	5.0%
1944	0%	14.4%	57.0%	2.4%	22.0%	4.1%

Source: see Appendix 3.4.

**Table 3.9: Value of Certain Goods in Spain's Exports
to the United States, 1939-1944 as a Percentage of
Total Nominal Exports from the United States (by nominal value)**

Year	Minerals	Wood	Animals		Chemicals	Foodstuffs
			Products	Metals		
1939	0%	3.6%	0.2%	15.6%	0.2%	73.6%
1940	0%	8.2%	0.8%	10.5%	3.6%	65.8%
1941	2.8%	9.7%	2.5%	5.3%	14.4%	57.5%
1942	36.7%	3.4%	7.3%	19.1%	2.9%	23.5%
1943	55.5%	1.8%	8.1%	4.0%	2.1%	24.2%
1944	22.3%	3.7%	2.6%	0.1%	5.4%	63.1%

Source: see Appendix 3.3.

Finally, there was a shift during the war in the types of import from and export to the US. Nominal imports from the US consisted almost entirely of raw materials, notably after the start of the pre-emptive programme in 1942. As Table 3.8 indicates, in 1939, Spanish imports from the US consisted largely of fuels and food.³⁶⁴ By 1941 textiles were also amongst the principal imports. After 1942, imports changed to raw materials exclusively, including fuels, chemicals and textiles; machinery exports declined significantly after 1939 since Spain no longer imported heavy trucks from the US because they required disproportionately large amounts of scarce petrol, whereas similar German

³⁶⁴ NARA RG84/79/631, consular reports dated between January and December 1942.

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vehicles used more easily obtainable Diesel.³⁶⁵ The emphasis on raw materials and the lack of significant quantities of manufactures in the exported goods suggests that the American government did not provide Spain with goods and materials which might aid Spanish militarization, in keeping with Spain's stated policy throughout the period.³⁶⁶

As Table 3.9 also shows, Spanish exports to the US consisted of raw materials, mainly minerals and foodstuffs. Apart from 1942-43, foodstuffs totalled more than 50% of exports in every year of the war. No previous author has made the point that these were such an important part of Spanish exports to the US.³⁶⁷ Foodstuffs included high value goods such as almonds, wine, canned vegetables, preserved fish and many other goods for both the domestic American market and military purchasing for troops in Europe and Africa. Wolfram, which had priority as part of the pre-emptive programme, exceeded 30% of exports in 1942-44.³⁶⁸ Other exported goods throughout the war included cork (classified as a wood product), animal skins and chemicals.³⁶⁹

³⁶⁵ See section on energy for a discussion of sanctions. NARA RG84/UD3162/126/600, consular reports dated between January and December 1943; NARA RG84/UD3162/102/631, consular reports dated between January and December 1944.

³⁶⁶ For example, NARA RG84/53-55/various concerning Ambassador; FRUS 1945/V:Europe/667.

³⁶⁷ For example, in Leitz, *Economic Relations*, the only reference to food exports is Table 5.1: Foreign currency obtained from the export of principal Spanish export products, p.172. While this provides general figures it does not highlight the importance of food in the American, German or British trade relationships with Spain.

³⁶⁸ NARA RG234/16/19, HPOWWII; NA T263/4, UKCC purchasing report.

³⁶⁹ NARA RG84/UD3162/126/600, reports dated between January and December 1944; NARA RG84/UD3162/102/631, reports dated between January and December 1943; NARA RG84/77/631, purchasing reports; NARA RG84/79/631, reports dated between January and December 1942.

Spanish Trade with the US: Real Statistics

Table 3.10: Real Spanish Merchandise Trade with the United States, 1939-1944
in 1939 Pesetas (in millions)

IMPORTS	1939	1940	1941	1942	1943	1944	1939-44
Goods Imported	147	747	564	242	775	527	3,002
Goods Imported Index (1939=100)	100	508	383	164	527	359	
Import Price Deflator (Index, 1939=100) [Pi]	100	59	62	75	79	89	
EXPORTS	1939	1940	1941	1942	1943	1944	1939-44
Goods Exported	74	150	113	116	178	131	762
Goods Exported Index (1939=100)	100	203	152	156	240	177	
Export Price Deflator (Index, 1939=100) [Px]	100	88	124	237	395	452	
BALANCE OF MERCHANDISE TRADE	1939	1940	1941	1942	1943	1944	1939-44
Net Exports	(73)	(597)	(451)	(126)	(597)	(396)	(2,240)
Terms of Trade [Px/Pi]	100	149	200	316	500	507	

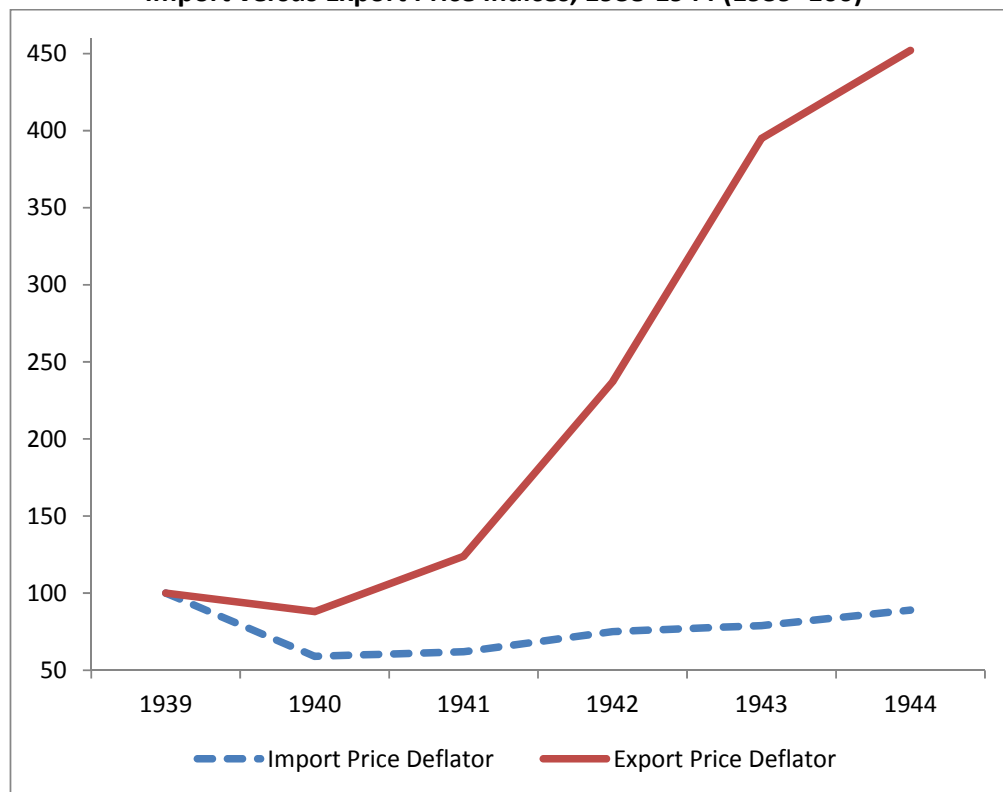
Sources: see Appendices 3.3 and 3.4; figures rounded to the nearest whole number.

Notes: see notes to Appendices 3.1 to 3.6; does not include other Allied countries or Allied occupied Europe as reported in Table 3.2; balance of merchandise trade is reported as net exports: a negative figure indicates net Spanish goods imported and a positive figure indicates net exports. Price deflators are calculated based on value and tons basis. This causes systematic biases. See notes in the Appendix to this chapter.

Expressing Spanish trade in real statistics only accentuates Spain's favourable trading position throughout the war. As Table 3.10 demonstrates, nominal Spanish imports from the US were affected by price decreases. In a highly unusual situation for wartime, prices for goods from the US were lower than their 1939 levels for the entire war. This caused their real value in 1939 Pesetas to increase. These unusual changes have been verified in both the

Spanish documents and from available American Embassy statistics.³⁷⁰ Prices for Spanish exports also declined briefly in 1940, although not nearly to the extent of the import prices for that same year. The prices of Spanish exports were consistently above their 1939 levels after 1940. The precise reasons for this fall in prices are unclear and there are clearly political motives as suggested in the previous section. Overall real exports show no discernible pattern. From 1939 to 1940, real imports from the US increased nearly five-fold. By 1942, real imports declined to 242 million 1939 Pesetas, 1.6 times 1939 levels. They increased again to over five times 1939 levels by 1943, and declined again to about 3.6 times 1939 levels in 1944.

Figure 3.4: Spanish-American Trade
Import versus Export Price Indices, 1938-1944 (1939=100)



Sources: see Appendices 3.3 and 3.4; for index construction see notes to appendices.

³⁷⁰ BdE EIE; ECEdE; NARA RG84/27/600, annual economic reports from various American Consulates, dated March-April 1940; NARA RG84/52/631, various economic and trade memoranda.

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By contrast, Spanish real exports to the US rose throughout the war. Only in 1940 were the prices of Spanish goods lower than in 1939. From 1940 to 1944, the increasing price of Spanish goods reduces their real value. Exports peak in 1940 at roughly double 1939 levels, after which time they decline slightly, only to increase again in 1943 to 178 million 1939 Pesetas, 2.4 times 1939 levels. By 1944, real trade falls again, to 1.8 times 1939 levels. As a result, in every single wartime trade year, Spain benefits from net real imports from the US.

Spain increasingly benefits from the terms of trade during the war. As seen in the statistics in Table 3.10 and in graphical form in Figure 3.4 the terms of trade are increasingly against the US. At its peak in 1944, the export price deflator is five times the import deflator (1939=100). Spain clearly acted quite rationally, exploiting the demand for its natural resources to enforce price increases in the Spanish-American trade relationship, especially after 1942. Despite attempts to do so as discussed previously, the US failed to impose price increases on exports to Spain. Consequently, a considerable term of trade gap favours Spain during the entire period.

Spanish Nominal Trade with the UK

This section shows that nominal Anglo-Spanish trade was conducted on a considerably more equal footing than Spanish trade with Germany or the US. As previously suggested, the political relationship between the UK and Spain was more stable than between the US or Germany and Spain. As this section outlines, trade and prices in Britain's relationship were also more stable: overall price increases in goods imported from the UK were met with similar price increases in exports.

As Table 3.11 reveals, nominal imports did not change significantly during the first two years of the war. Spanish imports from the UK increased in nominal terms from 227 million Pesetas in 1939 to 308 million Pesetas in 1942 (a 36%

increase). Spanish imports for the remainder of the war remained stable and within a nominal 20% band, despite the various diplomatic events between the two countries. Imports increased modestly in 1943 to a nominal value of 362 million Pesetas from a value of 308 million in 1942; they returned to 312 million Pesetas in 1944.

Table 3.11: Nominal Spanish Merchandise Trade with the United Kingdom, 1939-1944 in Nominal Pesetas (in millions)

IMPORTS	1939	1940	1941	1942	1943	1944	1939-44
Goods Imported	227	279	269	308	362	312	1,757
Goods Imported Index (1939=100)	100	123	119	136	160	137	
EXPORTS	1939	1940	1941	1942	1943	1944	1939-44
Goods Exported	192	257	211	436	432	483	2,011
Goods Exported Index (1939=100)	100	134	110	227	225	251	
BALANCE OF MERCHANDISE TRADE	1939	1940	1941	1942	1943	1944	1939-44
Net Exports	(35)	(22)	(58)	128	70	171	254

Sources: see Appendices 3.5 and 3.6.

Notes: see notes to Appendices 3.1 to 3.6; does not include other Allied countries or Allied occupied Europe as reported in Table 3.2; balance of merchandise trade is reported as net exports: a negative figure indicates net Spanish goods imported and a positive figure indicates net exports.

It was not until the pre-emptive purchasing programme began in 1942 that exports from Spain to the UK increased significantly. Previously, Spanish exports to the UK had risen slightly in nominal terms, from 192 million in 1939 to 211 million Pesetas in 1941. Spain benefited from a small import surplus of 10%-28% of exports during this period. After the pre-emptive goods purchases began, exports from Spain more than doubled, from 211 million Pesetas in 1941 to 483

million in 1944. Hence, from 1942 onwards, Spain was exporting more than it was importing.

Total Spanish exports to the UK from 1939 to 1944 amounted to 2.0 billion Pesetas, 4.95% of Spanish 1939 GDP;³⁷¹ total trade flows from the UK to Spain over the same period were 1.8 billion Pesetas. This results in net Spanish exports of 254 million Pesetas, 0.64% of Spanish 1939 GDP.³⁷² The UK was the only one of the three major belligerents reviewed in this chapter to import more from Spain than it exported, suggesting, at least in nominal terms, that it maintained relatively beneficial terms of trade vis-à-vis the Spanish government. This is possibly a function of the importance of the UK in the Spanish political situation as examined earlier.

**Table 3.12: Value of Certain Goods in Spain's Imports
from the UK, 1939-1944 as a Percentage of
Total Nominal Imports from the UK (by nominal value)**

Year	Minerals	Machinery	Fuels	Chemicals	Textiles	Food
1939	4.6%	4.9%	14.7%	24.7%	12.2%	15.5%
1940	0.7%	8.5%	11.2%	16.6%	19.4%	29.2%
1941	0.7%	12.8%	25.0%	13.0%	10.7%	23.4%
1942	0.2%	13.7%	18.1%	19.2%	14.7%	22.5%
1943	0.1%	9.8%	14.7%	18.3%	8.3%	41.6%
1944	0.2%	18.9%	7.1%	14.1%	22.9%	30.6%

Source: see Appendix 3.6.

³⁷¹ Prados De la Escosura, *El Progreso Económico*, p.288.

³⁷² *Ibid.*

Table 3.13: Value of Certain Goods in Spain's Exports to the UK, 1939-1944, as a Percentage of Total Nominal Exports to the UK (by nominal value)

Year	Minerals	Wood	Animals (Skins)	Metals	Chemicals	Foodstuffs
1939	0.0%	3.7%	0.0 %	23.6%	0.9%	55.8%
1940	0.0%	5.2%	0.1%	14.6%	2.6%	71.8%
1941	5.5%	7.3%	0.0%	27.0%	10.3%	44.7%
1942	18.4%	3.2%	27.3%	18.1%	2.8%	20.1%
1943	58.5%	1.3%	2.8%	13.5%	5.6%	14.6%
1944	47.1%	1.4%	0.0%	9.4%	12.2%	28.2%

Source: see Appendix 3.5.

As Table 3.12 suggests, Britain provided coal, chemicals and food to Spain, including all its imported potatoes, copper sulphate and coal, from 1942-44. These items were given priority by Spain, to Britain's advantage in pricing the exports.

Spanish exports to the UK during the war follow the pattern established in both the American and German cases. As Table 3.13 shows, primary Spanish exports during the war were minerals, animal skins, metals, chemicals and foodstuffs. Because of increased supply purchasing (iron and copper ore) and the pre-emptive campaign for wolfram, minerals were unquestionably the main export to Britain in 1943-44. Minerals, which included iron ore, copper and wolfram, rose in importance from no trade in 1939 to 59% of nominal exports in 1943.³⁷³ As the pre-emptive campaign changed the trade priorities, the percentage of foodstuffs exported went down, from a peak of 71.8% in 1940 to 14.6% in 1943; although they returned to 28.2% in the final year.

Spanish Trade with the UK: Real Statistics

After increasing to 1.8 times 1939 levels by 1942, Spanish imports in real terms declined from 157 in 1942 to 104 in 1944 (index values). These statistics were affected by changing prices, with a period of price deflation from 1940 to

³⁷³ ASTUK, 1945, pp.205-208.

1942. At the low point in 1941, prices for Spanish imports from the UK had fallen as low as 65% of their 1939 levels. Although unusual, these price changes are confirmed by both the Spanish and ASTUK statistics.³⁷⁴

Table 3.14: Real Spanish Merchandise Trade with the United Kingdom, 1939-1944 in Real 1939 Pesetas (in millions)

IMPORTS	1939	1940	1941	1942	1943	1944	1939-44
Goods Imported	227	303	413	357	351	236	1,887
Goods Imported Index (1939=100)	100	134	182	157	155	104	
Import Price Deflator (Index, 1939=100) [Pi]	100	92	65	86	103	132	
EXPORTS	1939	1940	1941	1942	1943	1944	1939-44
Goods Exported	192	263	229	356	200	335	1,575
Goods Exported Index (1939=100)	100	137	119	186	104	174	
Export Price Deflator (Index, 1939=100) [Px]	100	98	92	122	216	144	
BALANCE OF MERCHANDISE TRADE	1939	1940	1941	1942	1943	1944	1939-44
Net Exports	(35)	(40)	(184)	(1)	(151)	99	(312)
Terms of Trade [Px/Pi]	100	107	142	142	210	110	

Sources: see Appendices 3.5 and 3.6.

Notes: see notes to Appendices 3.1 to 3.6; does not include other Allied countries or Allied occupied Europe as reported in Table 3.2; balance of merchandise trade is reported as net exports: a negative figure indicates net Spanish goods imported and a positive figure indicates net exports. Price deflators are calculated based on value and tons basis. This causes systematic biases. See notes in the Appendix to this chapter.

Due to slight price declines, the real export values were about 10% higher than their nominal values in 1941. In real terms, export volumes reached a 1942

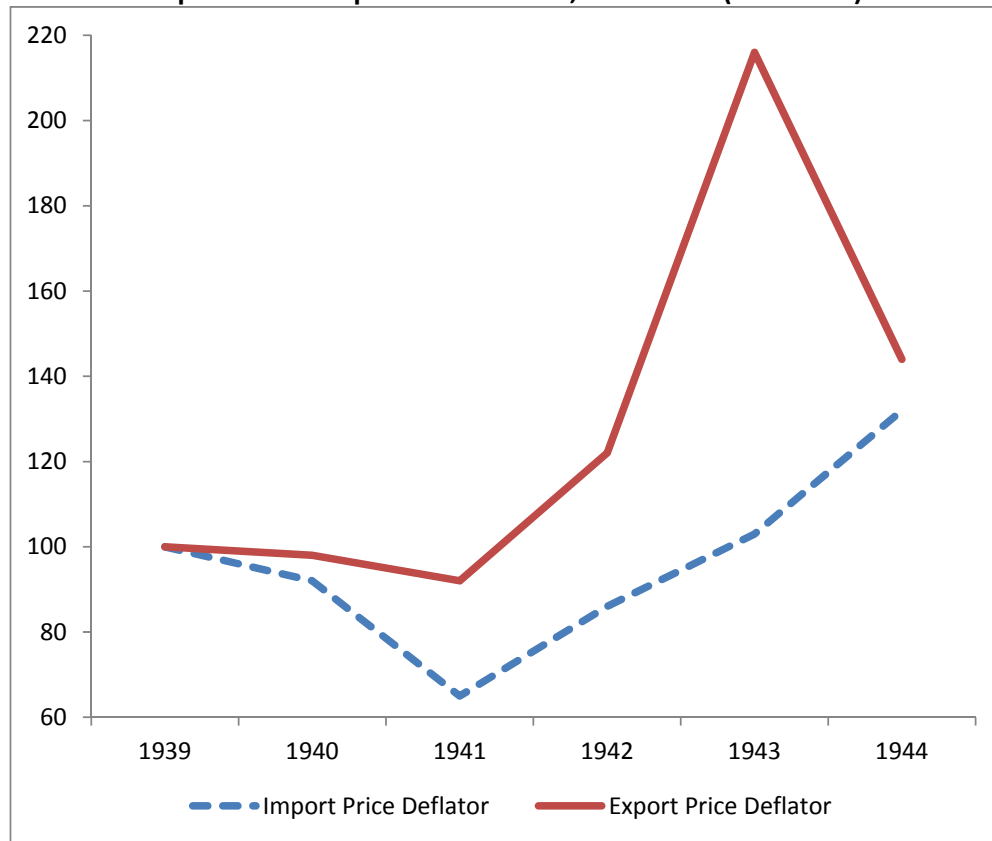
³⁷⁴ BdeE EIE; ECEdE; ASTUK, 1939-1945.

peak of almost 1.9 times 1939 levels. This reflected the price increases in various goods from March 1942, when the Spanish metals market opened to competition.³⁷⁶ In price terms, 1943 marked the peak of export price rises; meanwhile, exports were already falling from their 1943 levels. It is important to note, in real terms, that Spain benefited from an import surplus in every year except 1944.

As Figure 3.5 illustrates, the Spanish government exacted price advantages from Britain in 1941/1942; but on a relative basis these were smaller than for other belligerents. From 1942 to 1944, the effects of the pre-emptive purchasing programme gave Spain import price advantages. However, in 1944, the price gap narrowed, with a decline in export prices and a notable increase in import prices; figures almost returned to their 1939 levels.

³⁷⁶ NARA RG234/16/19, HPOWWII; NA T263/4, UKCC purchasing report; BdeE EIE.

**Figure 3.5: Spain-United Kingdom Trade
Import versus Export Price Indices, 1938-1944 (1939=100)**



Sources: see Appendices 3.5 and 3.6; for index construction see notes to appendices.

The Spanish government exercised considerably more control over its trade with the belligerents than the haphazard nature of post-Civil War trade relations seems to suggest. The withholding of export permits until such time as the requisite imports were available allowed it more easily to react to changing conditions and requirements. It had complete control over its actual trade and could deal with all belligerent demands when it chose. The Spanish government allowed the importation or exportation of more goods than agreed; or withheld exports of particular goods while insisting on additional commensurate imports. The possession of several minerals important for the war, together with much-needed food exports allowed Spain an advantage in requesting commensurate imports, typically on favourable prices.

The Pre-Emptive Purchasing Programme: Wolfram³⁷⁷

As seen in the previous section's trade statistics, the Spanish position over the two belligerent groups reached its pinnacle during the Allies' supply and pre-emptive purchasing campaign from 1942 to 1944. This finding raises the question of effectiveness: did the Allied campaign actually attain its original goal of limiting the exportation of goods to Germany? Because of the complexity of the programme, this section focuses on the pre-emptive good largest in volume, wolfram. It shows an Allied programme successful in limiting German trade, but also rivalry over Wolfram at the expense of *both Allied and German influence*. By introducing overall trade statistics and real prices, it builds on the work of Christian Leitz, who states, "The Spanish government used wolfram not only to boost its revenues, but also to force the Allies as well as Germany to grant certain concessions."³⁷⁸

Did the Allies Obtain their Objectives?

The US and UK successfully limited the Spanish-German wolfram trade; but in financial terms, not quantitatively. The rivalry among countries interested in wolfram allowed Spain to exploit available extra production capacity. It forced Germany to pay more for acquisitions and to pay in civilian and military goods, which its war effort needed.

³⁷⁷ All references to wolfram ore (price, quantity etc) in this section have been adjusted to the standard 65.6% wolfram (WO₃) content ore to account for variations in the ore sold to the belligerents. As a result, some gross wolfram tonnage figures do not directly match their original sources. However, this is a more accurate way of measuring the actual amount of wolfram provided to the belligerents.

³⁷⁸ Christian Leitz, "Nazi Germany's Struggle for Spanish Wolfram during WWII," *European Historical Quarterly*, 25:71 (1995), p.80.

Table 3.15: Spanish Wolfram Production and Purchases in Spain by and Exports to Germany and the Allies, 1939-1944 (in metric tons)

Year	Spanish Production	German Purchases	Exports to Germany	Allied Purchases	Exports to Allies
1939	228	n/a	74		
1940	296	n/a	394		
1941	504	800	318	72	20
1942	1,476	805	794	701	438
1943	3,619	1,309	834	2,795	943
1944	n/a	n/a	835	1,088	336

Sources: Letiz, *Economic Relations*, p.176; NA FO837/721; NA FO837/758; NA FO837/786, NA FO371/39654; NARA RG84/UD3162/34, chart dated 30 March 1944.

Notes: It is unclear why purchases by Germany and Allies exceed Spanish production; there were stockpiles of the metal in Spain, but figures for this are unclear.

Before proceeding, some background should be provided on wolfram purchasing in Spain between 22 March 1942, when the *Consejo Ordenador* took control of wolfram allocation, and August 1944, when the Spanish ban on wolfram exports came into force.³⁷⁹ As Table 3.15 and the chart in Figure 3.6 show, exports of Spanish wolfram to Germany and the Allies increased substantially over this period. It should be remembered that the German and Allied purchases combined sometimes exceed production. However, as Table 3.15 shows, Spanish wolfram production increased at roughly the same rate as German and Allied purchases, from the 1939 figure of 228 metric tons to 3,619 metric tons in 1944. Part of the Allied pre-emption plan had been to buy all the wolfram available, forcing a supply crunch.³⁸⁰ But, although Spain could apparently produce unlimited wolfram, the Allies could prevent Germany from accessing some through pre-emptive purchasing (see Table 3.15) Rather, the Spanish government allocated sufficient wolfram supplies to placate both Allied

³⁷⁹ NARA RG234/16/19, HPOWWII; NA T263/4, UKCC purchasing report.

³⁸⁰ *Ibid.*

and German desires. By increasing the volume and prices of sales, as well as taxing wolfram production, the Spanish government maximized its own position.

If the single goal of the pre-emptive programme was to limit Germany's wolfram purchases, it may be called successful. The supply programme did not stop the Spanish-German wolfram trade; in fact, as Table 3.15 indicates, Spanish wolfram exports to Germany increased. However, the Allies did prevent the sale to Germany of considerable additional stocks of wolfram through the pre-emptive programme. The Allied competition and control of access to other wolfram sources in East Asia meant that German wolfram stocks actually declined in 1942-1943. Consumption had to be cut to replacement levels.³⁸¹ By the end of 1943, Germany had only 10.6 months of wolfram in stock and was forced to reduce the amount of wolfram in shells.³⁸² The inability to further expand exports to Germany clearly aided the Allied war effort and to this extent the pre-emptive programme was a success.

Spain's Benefit from the Allied Purchase Programme

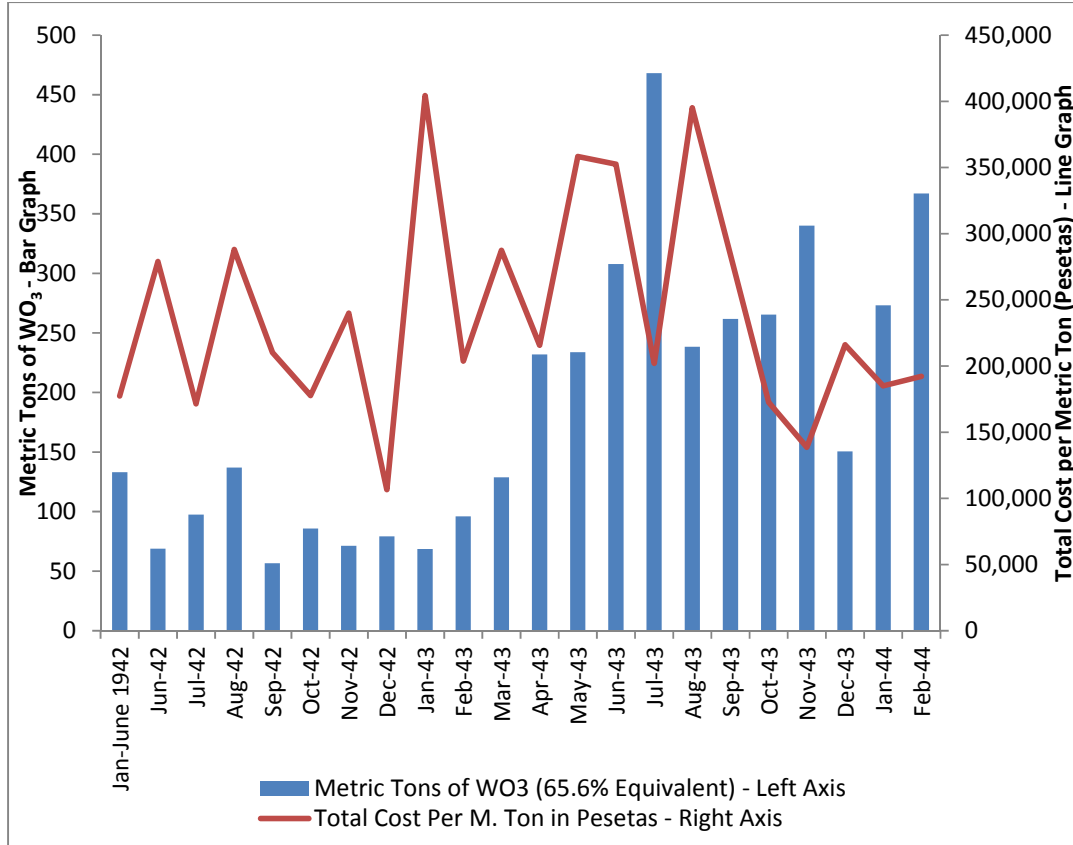
The Spanish government obtained considerable trade advantages over wolfram as a result of the belligerent competition; this allowed it to improve the general terms of trade in its favour and tax exports. From March 1942 onwards, Franco controlled the allocation of production through the *Consejo Ordenador* and the provision of export permits for transferring wolfram from Spain.³⁸³

³⁸¹ IWM-D FD3039/49/III/98, "*Statistische Schnellberichte zur Kriegsproduktion: Jahresheft 1939-1945*," [Quick Statistical Reports on War Production: Annual Issue, 1939-1945] p.23; IWM-D, FD4733/45, marked "Wolfram," p.30.

³⁸² IWM-D FD2690/45 (11), translated Speer document (Flensburg) dated 12 November 1943, p.2.

³⁸³ *Ibid.*

Figure 3.6: Allied Wolfram Purchases from Spain in Metric Tons of WO_3 and Cost per Metric Ton in Pesetas (including taxes)



Source: NARA RG84/UD3162/34, chart dated 30 March 1944.

Spain did not benefit by consistently increasing prices. Christian Leitz argues that prices increased dramatically during the war to account for the increased competition in purchasing; he cites prices of between 125,000 and 275,000 Pesetas per ton during the period, with an emphasis on increases over time.³⁸⁴ However, new statistics show there was only limited price-time dependency. As the line graph in Figure 3.6 indicates, wolfram prices ranged from 125,000 to 400,000 Pesetas per metric ton, including taxes; prices clearly did not increase according to the volume procured or necessarily show a time-

³⁸⁴ Leitz, *Economic Relations*, p.176.

dependent pattern. Rather, they were based on the artificial conditions created by the Spanish trading system.

Table 3.16: Wolfram Trade by Belligerent Group

Year	Allied Purchases (m. tons)	Total Cost (in Pesetas)	Net Taxes and Charges (in Pesetas)	Total Cost Excluding Taxes (in Pesetas)	Same Volume at January 1942 Prices (Ptas.)
1942	701	151,655,934	36,373,030	115,282,904	31,119,344
1943	2,795	715,174,430	260,758,529	454,415,901	260,305,649
1944	1,088	243,523,792	89,414,315	154,109,477	103,951,769
	Allied Total	1,110,354,155	386,545,874	723,808,281	395,376,763
Year	Axis Purchases (m. tons)	Total Cost (in Pesetas)	Net Taxes and Charges (in Pesetas)	Total Cost Excluding Taxes (in Pesetas)	Same Volume at January 1942 Prices (Ptas.)
1942	805	174,254,963	41,793,162	132,461,801	35,756,597
1943	1,309	334,966,126	122,131,428	212,834,698	121,919,313
1944	740	165,631,991	60,814,884	104,817,107	44,359,510
	Axis Total	674,853,079	224,739,473	450,113,606	202,035,420
	All Belligerents	1,785,207,235	611,285,348	1,173,921,887	597,412,183

Sources: Leitz, *Economic Relations*, p.176; NARA RG84/UD3162/34, chart dated 30 March 1944; NA 837/721; NA FO837/758; NA FO837/786, NA FO371/39654; AMAEC R2073/E4; AMAEC R2073/E5; BA-MA RW19/440; BA-MA Wi/IB2.3; BA-K R7/734-736.

Notes: Axis and Allied purchases includes only purchases in Spain; it excludes quantities smuggled from Portugal.

The main beneficiary of the pre-emptive programme was the Spanish government. Indeed, Spain pressed its direct advantage with respect to wolfram through increased volume and taxation. As noted above, in June 1942 the Spanish government initiated a wolfram export tax of 50 Pesetas per kilo, equivalent to approximately 27% of the minimum purchase price of 180 Pesetas per kilo.³⁸⁵ In January 1943, the Spanish government further increased the taxes

³⁸⁵ NARA RG234/16/19, HPOWWII; NA T263/4, UKCC purchasing report.

on wolfram, replacing the export tax with a production tax payable by the buyer. This change ensured revenue for the Spanish government from the quantities of wolfram stockpiled, regardless of whether the wolfram was eventually exported. The new tax was scaled to mineral content; for a typical production value of 65% wolfram per kilo, the tax was 100 Pesetas, or exactly double the old rate. In April 1943 price levels, a tax of 100,000 Pesetas per metric ton was added to the purchase price of 243,747 Pesetas.³⁸⁶

As Table 3.16 indicates, net taxes collected on wolfram amounted to 611.3 million Pesetas or 15.2% of Spain's 1939 GDP and 1.8 billion Pesetas on total wolfram sales, 44.2% of its 1939 GDP.³⁸⁷ Therefore, on an annual basis from 1942 to 1944, approximately 5% of annual Spanish GDP was collected in wolfram taxes and slightly less than 15% of annual GDP comprised wolfram sales. If wolfram prices are returned to the level before the pre-emptive programme began in January 1942, the total benefit to Spain exceeds 1.2 billion Pesetas or 29.4% of Spanish 1939 GDP. On this reckoning, the benefit from the Allied pre-emptive purchasing operations could be as high as 10% of Spanish GDP per year.³⁸⁸ As these GDP figures suggest, the main beneficiary of this market was Spain and its economic success was a defeat for the Allies. The Anglo-American alliance lacked adequate methods to counter the Spanish position, as demonstrated by the more favourable terms of trade for Spain than for other neutrals.

In consequence, the Allied supply and pre-emptive purchasing campaign can be classed as a success in limiting goods to Germany. However, the Allied activities handed the Spanish government an advantage over both the Allied and Axis countries. It failed to cut Spain's links with Germany, but forced Germany to ration other exports and pay for wolfram in much-needed civilian and military goods. Of course, this came at a high cost to the Allies, who paid in gold,

³⁸⁶ NARA RG234/16/19, HPOWWII; NA T263/4, UKCC purchasing report.

³⁸⁷ Prados De la Escosura, *El Progreso Económico*, p.288.

³⁸⁸ *Ibid.*

petroleum and other resources and also in disadvantageous terms of trade with Spain.

The Spanish Energy Supply Situation

Spain had to import energy products during the war to maintain its economy. This final section provides an overview of Spanish energy requirements. Although Spain, dependent on fuel imports, could not have survived as an isolationist neutral during the war, this section demonstrates the ineffectiveness of Allied sanctions in changing the terms of trade. In barter based, compensation clearing systems, the final terms of trade help to retrospectively determine the relationship between the belligerents and the neutral.

Fuel Supply Situation in Spain

Spain was, then, a net energy importer during the war. As Figure 3.7 illustrates, Spain in 1942 imported 42% of its energy products. The principal source for these imports was the US, which provided approximately 32% of total consumption. These imports were divided between gasoline, kerosene, gas oil and lubricants in proportions which can be estimated on the basis of the 1941 figures to be 9.6% gasoline, 0.5% kerosene, 7.1% gas oil, 12.4% fuel oil and 0.5% lubricants, all as percentages of total energy consumption.³⁸⁹ Coke from the UK and US totalled 3% of net consumption.³⁹⁰ In other imports, fuel wood from Sweden made up 2% of overall consumption,³⁹¹ while mineral coal from the UK provided 7% of total energy.³⁹² Germany is believed to have provided a negligible

³⁸⁹ NARA RG84/57/711.1, correspondence dated between 8 January and 16 July 1941.

³⁹⁰ NARA RG107/921/folder marked "Statistical Reports (Capt. Newmark)," report dated 25 February 1944.

³⁹¹ SAFSTA.

³⁹² NARA RG107/921/folder marked "Statistical Reports (Capt. Newmark)," report dated 25 February 1944.

quantity of aviation fuel and petrol, mostly for use in Lufthansa aircraft and for allocation by the German Embassy for German companies.³⁹³

Hydro-electricity was the sole source of domestic energy production. Approximately 3.88 billion kilowatt-hours (Kwh) were produced in 1941, the last wartime year for which statistics are available. 1941 production is assumed to be similar in 1942, for no new plants were inaugurated. When converted into equivalent mineral coal terms, this equals 58% of all energy consumption in Spain in 1942. Hydro-electricity was generated in every district, except Huelva.³⁹⁴ There are few comparable pre-war statistics for either electricity or energy imports, due to the problems created by the Spanish Civil War; the post-war statistics are clouded by autarkic periods, embargoes and generally poor relations with one or more of the Allies.

The Allies held clear advantages in imposing sanctions on Spain. Only the US supplied petroleum and together with the UK it controlled Spanish shipping and access to other international energy resources; Spain produced no crude oil and continental Spain had no refinery capacity.³⁹⁵ When Germany failed to provide requested fuels in 1940/1941, the Spanish government could not viably replace US imports.³⁹⁶ Logically, the US should have been able to exert its will on the Spanish government and benefit from particularly good terms of trade; however, as demonstrated previously, this was not the case. The remainder of this section examines why the Allies failed to obtain advantageous terms of trade and turn Spanish policy to their benefit, given this petroleum monopoly.

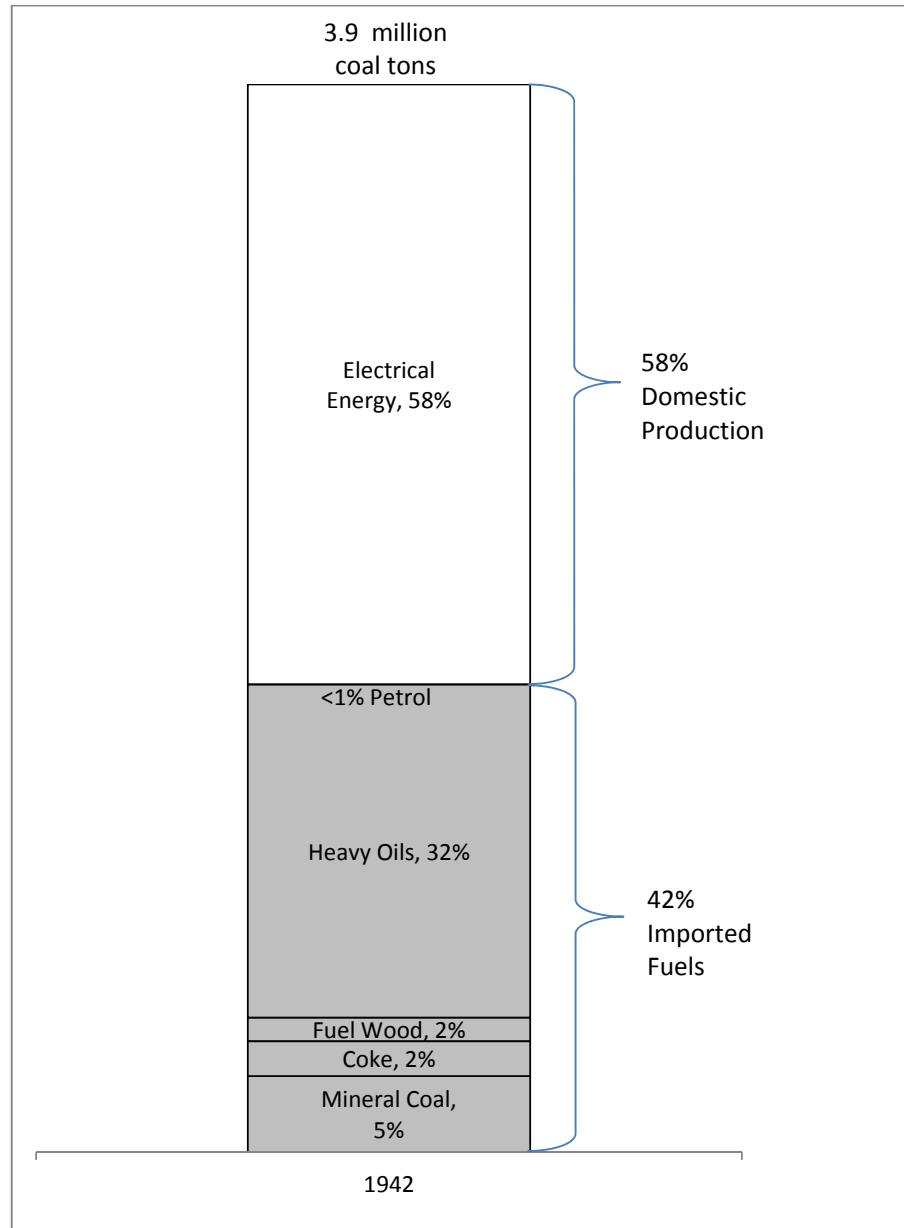
³⁹³ BdeE EIE.

³⁹⁴ AEdE, pp.643-645.

³⁹⁵ NARA RG84/57/711.1, correspondence dated between 8 January and 16 July 1941.

³⁹⁶ Caruana and Rockoff, "An Elephant in the Garden..."

Figure 3.7: Production and Origins of Energy in Spain in 1942



Sources: see Appendix 3.7.

Notes: Comparison prepared using tons of coal energy equivalence. It is not possible to provide pre- and post-war comparisons, due to the changes in consumption caused by the Spanish Civil War and the effects of fuel autarky policies in the intermediate post-war period.

The Allied Oil Embargoes: Curious Lack of Success

The US and UK attempted three times to use their near-monopoly control of Spanish fuel resources to influence Spanish policy by imposing fuel sanctions in various degrees. The sanctions by harnessing Spanish dependence on the Allies for fuels, were meant to change Spanish behaviour. Caurana and Rockoff believe that the first two set of sanctions were successful though the third was only partially so.³⁹⁷ Armed with the new price statistics, it is clear from an economic perspective that these sanctions failed. In its analysis this chapter will focus on three periods of sanctions: a total embargo on oil for Spain in August to November 1940; a second period of reduced supplies in 1941 to 1942; and a third total embargo between February and May 1944.

The first embargo began formally on 1 August 1940 when Britain and America withheld fuel exports to Spain. Both were concerned that Hitler would try to solve his fuel supply problems by purchasing US-supplied fuel from Spain. They emphasized the need to prevent the rumoured refuelling of German U-Boats in Spanish waters. They were also very concerned about the increasingly close political relationship between Spain and Germany.

In response to the embargo, Franco applied to Germany for assistance, asking *inter alia* for 400,000 tons of gasoline, 200,000 tons of fuel oil and 200,000 tons of coal.³⁹⁸ The Spanish request represented about a year's supply at 1940 consumption rates.³⁹⁹ In some cases the Spanish figures represented months of German domestic and occupied production.⁴⁰⁰ Germany, already short of fuel, was unable to provide Spain with oil. The Spanish government tried

³⁹⁷ Caruana and Rockoff, "An Elephant in the Garden...;" Leitz, *Economic Relations*; Medicott, *Economic Blockade*, vol.I.

³⁹⁸ Paul Preston, *Franco* (London, 1993), p.372.

³⁹⁹ Caruana and Rockoff, "An Elephant in the Garden...," p.169.

⁴⁰⁰ W.G. Jensen, "The Importance of Energy in the First and Second World Wars," *The Historical Journal*, 1968:II, p.551.

other sources, including Romania and South America; but trade with these countries was subject to Allied naval consent, which was withheld.⁴⁰¹

On this occasion, Spain ultimately had no choice but to agree to negotiate with the US over fuel. A lack of policy coordination between the American War Department, which was concerned with planning for the American entry into the war, the Commerce Department, which was handling trade at the time, and the State Department prevented the US from exploiting its advantages over Spain.⁴⁰² Spain's petroleum stocks were low and its needs urgent; Spain often had only one or two months of a particular fuel left. An agreement was signed on 7 September 1940, which allowed America's State Department experts to verify and monitor the levels of Spanish oil consumption.⁴⁰³ Given the on-going diplomatic disputes on other issues, it is unclear why the Allies did not pressure Spain further to secure more than monitoring. As previously demonstrated in the trade section, the US suffered from poor terms of trade with Spain in 1940 and 1941; the American Ambassador in Madrid was unaccredited and subject to harassment.⁴⁰⁴ This would suggest that, while the first period of sanctions succeeded on paper, it was actually fruitless. The US had unreasonably modest goals, considering what the Allies were facing at the time. As if to accentuate the failure of the first set of sanctions to correct the underlying problems, the second period of sanctions followed in less than a year.

The US imposed a second period of sanctions, known as the "squeeze," starting in the summer of 1941 and lasting until April 1942. The reasons for starting the squeeze were political and the solution economic. America wanted to distance the Spanish government from its increasingly close relationship with Germany. Two incidents in July 1941 caused America particular concern and led

⁴⁰¹ Caruana and Rockoff, "An Elephant in the Garden...", p.170.

⁴⁰² NARA RG84/53-55/various concerning Ambassador and relations with Spain.

⁴⁰³ NARA RG84/30/711.2, correspondence dated from 7 September to 30 September 1940; NARA RG84/57/711.2, correspondence dated between December 1940 and 22 May 1941; NARA RG84/57/711.1, correspondence dated between 8 January and 16 July 1941.

⁴⁰⁴ See previous discussion of Spanish-American trade relations.

to the start of the sanctions: Franco announced that Spain was sending the Blue Division to fight on the Eastern front and specifically demonized America for its economic encirclement of Spain.⁴⁰⁵ Many less substantive factors have also been cited as additional reasons for the squeeze, including the pro-Axis Spanish press, U-Boat refuelling in Spanish waters and further concern that Spain might aid Germany.⁴⁰⁶

Officially, the US demanded renewed access for verification to Spanish statistics on fuel use and storage facilities, masking an attempt to ensure that Spain met its commitment not to re-export fuels. Without completely limiting fuel, the squeeze reduced the amount of fuel provided to Spain from an average of about 50,000 tons per month to approximately 30,000 tons per month.⁴⁰⁷ Caruana and Rockoff maintain that the end to this dispute was linked with the re-certification of Spanish oil exports;⁴⁰⁸ however, as this work has shown, the withdrawal of the squeeze was closely connected with limiting German economic influence by instituting an Allied pre-emptive purchasing programme.

The squeeze ended after the US, UK and Spain agreed to a programme which the Allies believed would limit German exports. As previously discussed, the Allies approached Spain in February 1942 hoping to fully access Spanish markets.⁴⁰⁹ The Spanish government agreed to open these on 22 March 1942 and placed raw materials allocation under the control of the Spanish government's *Consejo Ordenador*. It broke all the existing contracts for wolfram and made ownership of the mines irrelevant to delivery.⁴¹⁰ Clearly believing that this action limited German influence in Spain, the US withdrew the petroleum squeeze two weeks later, citing certification of Spain's oil usage.⁴¹¹

⁴⁰⁵ Caruana and Rockoff, "An Elephant in the Garden...," Leitz, *Economic Relations*; Medicott, *Economic Blockade*, vol.I. For a copy of Franco's Speech of 17 July 1941, see NA PREM4/21/1.

⁴⁰⁶ Caruana and Rockoff, "An Elephant in the Garden...," pp.175-176.

⁴⁰⁷ *Ibid*, p.176.

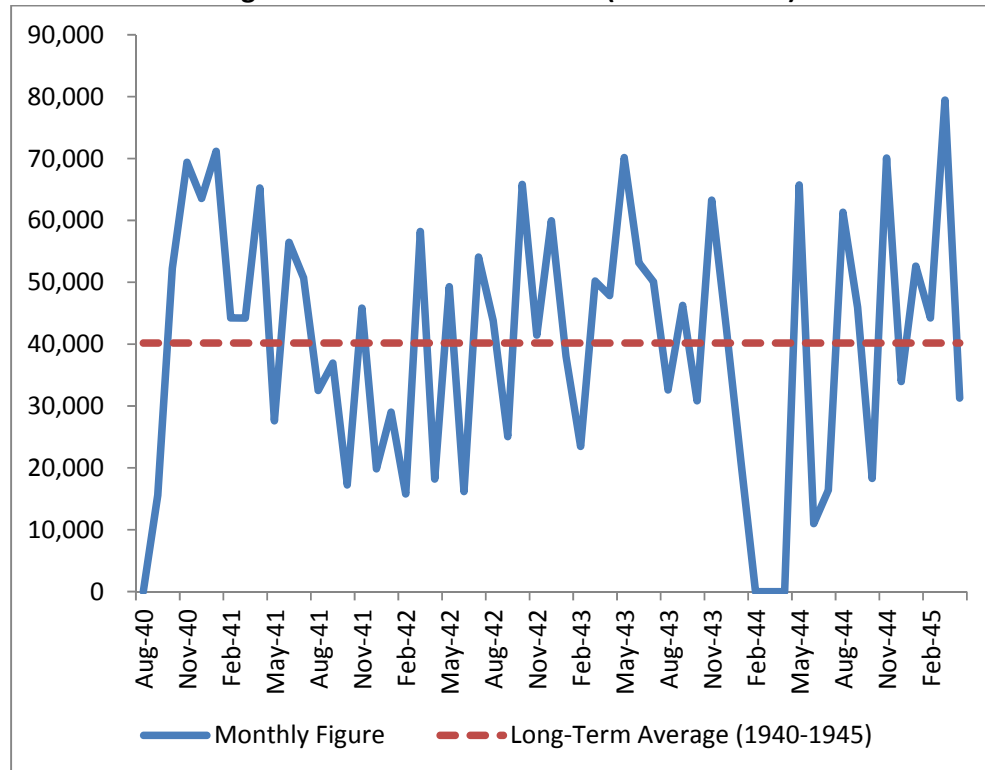
⁴⁰⁸ *Ibid*.

⁴⁰⁹ NA FO837/749; NA T263/5-6.

⁴¹⁰ NARA RG234/16/19, HPOWWII; NA T263/4, UKCC purchasing report.

⁴¹¹ Caruana and Rockoff, "An Elephant in the Garden...," pp.176-180.

Figure 3.8: Spain's Oil Imports, Monthly from August 1940 to December 1945 (in metric tons)



Source: Caruana and Rockoff, "An Elephant in the Garden...", Appendix.

Although this appeared to attain the Allied goals of limiting German influence, it was actually an incredibly poor arrangement, because the Allies had no way of controlling the *Consejo Ordenador*. With its new-found monopoly control over wolfram, the Spanish government orchestrated an increase in wolfram production to satisfy the demands of both belligerent groups; it used its *quid pro quo* trade system to exact very preferential terms of trade. Spain and Germany continued to remain close. German economic interference in Spain and exports of wolfram continued. As seen previously, Spanish nominal exports to Germany increased steadily through 1943. Meanwhile, the US terms of trade were substantially worse in 1943 than in 1941. It paid more for its Spanish exports and received less for its imports than in 1939 or 1940. Consequently, the second round of petroleum sanctions designed to wean Spain from German

influence must be called a failure, since the American trade situation did not improve.

The third period of sanctions, from February to April 1944, also proved disappointing. The US imposed a ban on petroleum exports in January 1944. Shorter than the second, it lasted three months, until April 1944. It resulted from disagreements over recognizing Japan's puppet regime in the Philippines, Italian ships held in Spanish ports, the pro-Axis press in Spain, and continued Spanish exports of wolfram to Germany despite the Allied pre-emptive purchasing programme.⁴¹² It fulfilled a long-held desire by the US' Economic Warfare office in the War Department to squeeze Spain, instead of continuing to ingratiate itself with Spain by the pre-emptive purchase programme.⁴¹³ As Figure 3.8 illustrates, this was the first complete Allied embargo, with no oil or coal shipments during the three-month period. The economic consequences for Spain were even more drastic than from the first embargo, for its stocks of fuel were lower than in 1942: car and bus journeys were banned, the fishing fleet was kept in port and mines were forced to close. This time Britain refused to provide coal.⁴¹⁴

However, the third embargo failed to achieve its objectives because it lacked pre-emptive funds. When originally established, one of the principal goals of the sanctions had been to halt Spanish-German wolfram trade; instead, this action left the market to Germany. The Allied pre-emptive purchasing programme was short of funds after borrowing substantially from the Anglo-South American bank; purchasing operations slowed to the barest essentials in January 1944 and pre-emptive purchasing stopped in early April 1944.⁴¹⁵ Oil imports resumed in April 1944 as the Allies chose to maintain the pre-emptive programme before trying to coerce Spain to change its position. Thus, despite its

⁴¹² Caruana and Rockoff,, "An Elephant in the Garden...", p.180.

⁴¹³ NARA RG107/920, documents dated January and February 1944, including Blockade Division report.

⁴¹⁴ Caruana and Rockoff,, "An Elephant in the Garden...", p.180.

⁴¹⁵ NARA RG234/16/19.

weak position on fuels, the Spanish government was able to overcome the sanctions.⁴¹⁶

Although Spain depended almost entirely on the US for fuels, the latter was consistently unable to press its advantage with the Spanish government. In the first embargo, the Allies sought too little and Spain was more than glad to acquiesce to Allied fuel inspectors while improving its own trade position. The second squeeze opened Spanish markets, but ultimately proved an impediment to Allied influence in Spain and worsened the terms of trade for the Allies; the third set of sanctions was completely ineffective, because Spain's preferential terms of trade gave it the upper hand in trade negotiations throughout this period. At no point did the US use fuel to attain wider goals, such as improving its terms of trade. As a result, Allied fuel sanctions can be said to have been largely unsuccessful.

Conclusions

This chapter has provided new statistics for Spanish-belligerent trade, both nominal and real. These statistics have altered the existing conception of Spanish neutrality in the Second World War and clearly demonstrate that Spain benefited from its wartime trade. In its relations with all three belligerents, nationalist Spain used its unique economic position for its own gain. Although initially closer to Germany, Franco was able to maximize the economic benefit to Spain by feigning political support for the Allies and stifling military support for Germany. Because it could provide much-needed food and monopoly goods, the Spanish government benefited from surpluses of imported goods, in particular in real terms. It overcame sanctions and other attempts to influence its political position. Thus, Spanish merchandise trade during the Second World War reflects pragmatic neutrality using its position to benefit from its trade with the

⁴¹⁶ Caruana and Rockoff, "An Elephant in the Garden....,"

Chapter Three: Spanish-Belligerent Merchandise Trade

belligerents. The presentation of Spanish services trade and capital account statistics in Chapter Five will further reinforce these conclusions.

Appendix 3.1: Spanish Merchandise Exports to Germany (in millions of Pesetas)

	1939	1940	1941	1942	1943	1944
Total Exports (NOMINAL TERMS)	6.4	91.7	623.8	770.1	1,368.4	765.1
Total Exports (NOMINAL), 1939=100	100	1,422	9,673	11,941	21,218	11,863
Total Exports (REAL)	6.4	86.5	524.7	422.5	370.0	222.1
Total Exports (REAL), 1939=100	100	1,341	8,136	6,551	5,737	3,443

Nominal - By Category (nominal Pesetas):	1939	1940	1941	1942	1943	1944
Animals and their products	0.0	11.4	31.8	29.6	27.4	60.4
Arms and military goods	0.0	0.0	1.8	3.7	8.1	11.3
Chemicals and their derivatives	0.0	4.4	9.9	24.9	49.7	65.7
Edible foodstuffs and drinks	0.0	27.0	363.0	345.7	514.2	119.4
Fuels	0.0	0.0	0.0	0.0	0.0	0.0
Machinery, equipment and vehicles	0.0	0.0	0.0	0.0	0.0	0.0
Metals and their alloys	0.0	25.7	46.3	64.7	28.5	1.8
Minerals, materials and their derivatives	0.0	7.8	29.5	62.0	583.5	386.8
Other consumer manufactures	0.0	0.0	0.0	0.0	0.0	0.0
Paper and paper manufactures	0.0	0.0	0.0	0.0	0.0	0.0
Textiles and their raw materials	0.0	6.3	77.5	14.1	38.9	62.1
Wood and other industrial plant materials	5.7	0.1	31.1	39.3	47.8	35.3
Sub-Total	5.7	82.8	591.0	584.0	1,298.1	742.7
Various consumer products [1]	0.7	8.9	6.9	183.4	64.7	22.6
Unclassified trade [2]	0.0	0.0	25.9	2.7	5.6	-0.2
Total Nominal Trade	6.4	91.7	623.8	770.1	1,368.4	765.1

Nominal - By Category (in percent of nominal Pesetas):	1939	1940	1941	1942	1943	1944
Animals and their products	0.0%	12.5%	5.1%	3.8%	2.0%	7.9%
Arms and military goods	0.0%	0.0%	0.3%	0.5%	0.6%	1.5%
Chemicals and their derivatives	0.1%	4.8%	1.6%	3.2%	3.6%	8.6%
Edible foodstuffs and drinks	0.1%	29.5%	58.2%	44.9%	37.6%	15.6%
Fuels	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Machinery, equipment and vehicles	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Metals and their alloys	0.0%	28.0%	7.4%	8.4%	2.1%	0.2%
Minerals, materials and their derivatives	0.0%	8.5%	4.7%	8.0%	42.6%	50.6%
Other consumer manufactures	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Paper and paper manufactures	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Textiles and their raw materials	0.0%	6.9%	12.4%	1.8%	2.8%	8.1%
Wood and other industrial plant materials	88.4%	0.2%	5.0%	5.1%	3.5%	4.6%
Various consumer products	11.5%	9.7%	1.1%	23.8%	4.7%	2.9%
Unclassified	0.0%	0.0%	4.2%	0.4%	0.4%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Real - By Category (real Pesetas, 1939 prices, 1939=100):	1939	1940	1941	1942	1943	1944
Animals and their products	0.0	16.0	33.9	10.9	4.2	12.4
Arms and military goods	0.0	0.0	2.3	4.8	7.8	2.9
Chemicals and their derivatives	0.0	4.1	5.8	9.3	17.0	18.5
Edible foodstuffs and drinks	0.0	29.6	231.8	165.1	191.2	52.9
Fuels	0.0	0.0	0.0	0.0	0.0	0.0
Machinery, equipment and vehicles	0.0	0.0	0.0	0.0	0.0	0.0
Metals and their alloys	0.0	12.7	15.6	23.8	7.8	0.4
Minerals, materials and their derivatives	0.0	7.5	30.8	60.5	59.9	29.2
Other consumer manufactures	0.0	0.0	0.0	0.0	0.0	0.0
Paper and paper manufactures	0.0	0.0	0.0	0.0	0.0	0.0
Textiles and their raw materials	0.0	8.1	155.8	29.4	42.5	79.2
Wood and other industrial plant materials	5.7	0.2	21.2	16.7	20.6	20.2
Sub-Total	5.7	78.1	497.1	320.4	351.0	215.6
Various consumer products [1]	0.7	8.4	5.8	100.6	17.5	6.5
Unclassified trade [2]	0.0	0.0	21.8	1.5	1.5	-0.1
Total Real Trade	6.4	86.5	524.7	422.5	370.0	222.1

Appendix 3.1: Spanish Merchandise Exports to Germany (in millions of Pesetas)

	1939	1940	1941	1942	1943	1944
Total Exports (NOMINAL TERMS)	6.4	91.7	623.8	770.1	1,368.4	765.1
Total Exports (NOMINAL), 1939=100	100	1,422	9,673	11,941	21,218	11,863
Total Exports (REAL)	6.4	86.5	524.7	422.5	370.0	222.1
Total Exports (REAL), 1939=100	100	1,341	8,136	6,551	5,737	3,443

Real - By Category (in percent of real Pesetas, 1939 prices, 1939=100):

	1939	1940	1941	1942	1943	1944
Animals and their products	0.0%	18.5%	6.5%	2.6%	1.1%	5.6%
Arms and military goods	0.0%	0.0%	0.4%	1.1%	2.1%	1.3%
Chemicals and their derivatives	0.1%	4.8%	1.1%	2.2%	4.6%	8.3%
Edible foodstuffs and drinks	0.1%	34.2%	44.2%	39.1%	51.7%	23.8%
Fuels	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Machinery, equipment and vehicles	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Metals and their alloys	0.0%	14.7%	3.0%	5.6%	2.1%	0.2%
Minerals, materials and their derivatives	0.0%	8.7%	5.9%	14.3%	16.2%	13.1%
Other consumer manufactures	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Paper and paper manufactures	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Textiles and their raw materials	0.0%	9.3%	29.7%	7.0%	11.5%	35.6%
Wood and other industrial plant materials	88.4%	0.2%	4.0%	3.9%	5.6%	9.1%
Various consumer products	11.5%	9.7%	1.1%	23.8%	4.7%	2.9%
Unclassified	0.0%	0.0%	4.2%	0.4%	0.4%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Price Deflators (Paasche) by Category (1939=100) - see notes

	1939	1940	1941	1942	1943	1944
Animals and their products	100	72	94	272	651	488
Arms and military goods	100	100	78	77	104	390
Chemicals and their derivatives	100	106	171	267	293	355
Edible foodstuffs and drinks	100	91	157	209	269	226
Fuels						
Machinery, equipment and vehicles						
Metals and their alloys	100	202	297	272	365	411
Minerals, materials and their derivatives	100	104	96	102	974	1,326
Other consumer manufactures						
Paper and paper manufactures						
Textiles and their raw materials	100	79	50	48	91	78
Wood and other industrial plant materials	100	73	147	236	232	175
Overall Price Deflator (Paasche), 1939=100	100	106	119	182	370	345

Sources and Notes: see attached notes.

Appendix 3.2: Spanish Merchandise Imports from Germany (in millions of Pesetas)

	1939	1940	1941	1942	1943	1944
Total Imports (NOMINAL TERMS)	20.1	91.3	456.8	705.4	1,366.1	1,036.3
Total Imports (NOMINAL), 1939=100	100	453	2,269	3,504	6,785	5,147
Total Imports (REAL)	20.1	102.3	417.1	616.9	1,309.5	1,026.7
Total Imports (REAL), 1939=100	100	508	2,072	3,064	6,504	5,100

Nominal - By Category (nominal Pesetas):

	1939	1940	1941	1942	1943	1944
Animals and their products	0.0	0.0	0.2	0.4	0.6	0.9
Arms and military goods	0.1	2.6	1.9	171.6	852.4	669.0
Chemicals and their derivatives	1.1	28.0	76.6	122.6	108.5	74.5
Edible foodstuffs and drinks	6.5	8.1	18.5	32.0	36.9	16.6
Fuels	0.0	0.6	0.2	1.8	21.0	8.9
Machinery, equipment and vehicles	3.4	44.3	316.5	301.4	265.8	225.4
Metals and their alloys	0.2	0.2	1.8	2.5	2.7	1.0
Minerals, materials and their derivatives	0.1	0.8	6.4	11.5	16.6	8.5
Other consumer manufactures	0.3	1.9	8.9	12.4	10.1	4.9
Paper and paper manufactures	0.1	0.1	12.2	28.9	29.7	14.7
Textiles and their raw materials	6.2	1.2	2.2	2.7	1.4	0.2
Wood and other industrial plant materials	1.7	0.1	0.9	2.8	3.6	1.4
Sub-Total	19.7	88.0	446.5	690.4	1,349.2	1,025.9
Various consumer products [1]	0.0	0.0	0.0	0.0	0.0	0.0
Unclassified trade [2]	0.4	3.3	10.4	15.0	16.9	10.4
Total Nominal Trade	20.1	91.3	456.8	705.4	1,366.1	1,036.3

Nominal - By Category (in percent of nominal Pesetas):

	1939	1940	1941	1942	1943	1944
Animals and their products	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%
Arms and military goods	0.4%	2.8%	0.4%	24.3%	62.4%	64.6%
Chemicals and their derivatives	5.6%	30.7%	16.8%	17.4%	7.9%	7.2%
Edible foodstuffs and drinks	32.3%	8.9%	4.0%	4.5%	2.7%	1.6%
Fuels	0.0%	0.7%	0.0%	0.3%	1.5%	0.9%
Machinery, equipment and vehicles	17.1%	48.6%	69.3%	42.7%	19.5%	21.7%
Metals and their alloys	1.1%	0.2%	0.4%	0.3%	0.2%	0.1%
Minerals, materials and their derivatives	0.4%	0.9%	1.4%	1.6%	1.2%	0.8%
Other consumer manufactures	1.6%	2.1%	2.0%	1.8%	0.7%	0.5%
Paper and paper manufactures	0.4%	0.1%	2.7%	4.1%	2.2%	1.4%
Textiles and their raw materials	30.8%	1.3%	0.5%	0.4%	0.1%	0.0%
Wood and other industrial plant materials	8.5%	0.1%	0.2%	0.4%	0.3%	0.1%
Various consumer products	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Unclassified	1.9%	3.6%	2.3%	2.1%	1.2%	1.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Real - By Category (real Pesetas, 1939 prices, 1939=100):

	1939	1940	1941	1942	1943	1944
Animals and their products	0.0	0.0	0.2	0.3	0.3	0.6
Arms and military goods	0.1	3.1	1.8	162.7	622.2	509.8
Chemicals and their derivatives	1.1	24.7	50.6	62.0	44.9	20.0
Edible foodstuffs and drinks	6.5	12.2	30.2	56.5	39.0	169.2
Fuels	0.0	1.5	0.7	5.4	283.3	133.5
Machinery, equipment and vehicles	3.4	52.7	300.8	277.2	210.8	140.7
Metals and their alloys	0.2	0.2	1.9	9.2	22.7	7.6
Minerals, materials and their derivatives	0.1	1.0	5.1	8.7	49.7	25.8
Other consumer manufactures	0.3	1.7	8.0	9.4	5.7	3.1
Paper and paper manufactures	0.1	0.0	5.7	7.2	5.1	2.8
Textiles and their raw materials	6.2	1.5	1.9	2.7	0.3	0.1
Wood and other industrial plant materials	1.7	0.1	1.0	2.4	9.3	3.2
Sub-Total	19.7	98.7	407.7	603.7	1,293.3	1,016.5
Various consumer products [1]	0.0	0.0	0.0	0.0	0.0	0.0
Unclassified trade [2]	0.4	3.7	9.5	13.1	16.2	10.3
Total Real Trade	20.1	102.3	417.1	616.9	1,309.5	1,026.7

Appendix 3.2: Spanish Merchandise Imports from Germany (in millions of Pesetas)

	1939	1940	1941	1942	1943	1944
Total Imports (NOMINAL TERMS)	20.1	91.3	456.8	705.4	1,366.1	1,036.3
Total Imports (NOMINAL), 1939=100	100	453	2,269	3,504	6,785	5,147
Total Imports (REAL)	20.1	102.3	417.1	616.9	1,309.5	1,026.7
Total Imports (REAL), 1939=100	100	508	2,072	3,064	6,504	5,100

Real - By Category (in percent of real Pesetas, 1939 prices, 1939=100):

	1939	1940	1941	1942	1943	1944
Animals and their products	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Arms and military goods	0.4%	3.0%	0.4%	26.4%	47.5%	49.7%
Chemicals and their derivatives	5.6%	24.1%	12.1%	10.1%	3.4%	1.9%
Edible foodstuffs and drinks	32.3%	11.9%	7.2%	9.2%	3.0%	16.5%
Fuels	0.0%	1.5%	0.2%	0.9%	21.6%	13.0%
Machinery, equipment and vehicles	17.1%	51.4%	72.1%	44.9%	16.1%	13.7%
Metals and their alloys	1.1%	0.2%	0.5%	1.5%	1.7%	0.7%
Minerals, materials and their derivatives	0.4%	1.0%	1.2%	1.4%	3.8%	2.5%
Other consumer manufactures	1.6%	1.7%	1.9%	1.5%	0.4%	0.3%
Paper and paper manufactures	0.4%	0.0%	1.4%	1.2%	0.4%	0.3%
Textiles and their raw materials	30.8%	1.4%	0.4%	0.4%	0.0%	0.0%
Wood and other industrial plant materials	8.5%	0.1%	0.2%	0.4%	0.7%	0.3%
Various consumer products	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Unclassified	1.9%	3.6%	2.3%	2.1%	1.2%	1.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Price Deflators (Paasche) by Category (1939=100) - see notes

	1939	1940	1941	1942	1943	1944
Animals and their products	100		136	128	177	162
Arms and military goods	100	84	108	105	137	131
Chemicals and their derivatives	100	113	151	198	241	372
Edible foodstuffs and drinks	100	67	61	57	95	10
Fuels	100	40	29	33	7	7
Machinery, equipment and vehicles	100	84	105	109	126	160
Metals and their alloys	100	106	96	27	12	13
Minerals, materials and their derivatives	100	83	126	131	33	33
Other consumer manufactures	100	112	112	132	179	157
Paper and paper manufactures	100	151	215	400	587	515
Textiles and their raw materials	100	81	119	99	480	255
Wood and other industrial plant materials	100	108	97	118	39	45
Overall Price Deflator (Paasche), 1939=100	100	89	110	114	104	101

Sources and Notes: see attached notes.

Appendix 3.3: Spanish Merchandise Exports to United States (in millions of Pesetas)

	1939	1940	1941	1942	1943	1944
Total Exports (NOMINAL TERMS)	74.0	132.5	139.2	274.7	700.9	591.4
Total Exports (NOMINAL), 1939=100	100	179	188	371	948	800
Total Exports (REAL)	74.0	150.2	112.7	115.7	177.7	130.9
Total Exports (REAL), 1939=100	100	203	152	156	240	177

Nominal - By Category (nominal Pesetas):	1939	1940	1941	1942	1943	1944
Animals and their products	0.2	1.1	3.5	20.0	57.0	15.6
Arms and military goods	0.0	0.6	0.2	0.0	0.0	0.0
Chemicals and their derivatives	0.2	4.8	20.0	7.9	14.6	32.1
Edible foodstuffs and drinks	54.4	87.2	80.0	64.5	169.9	373.4
Fuels	0.0	0.0	0.0	0.0	0.0	0.0
Machinery, equipment and vehicles	0.0	0.0	0.0	0.0	0.0	0.0
Metals and their alloys	11.5	14.0	7.4	52.4	27.7	0.6
Minerals, materials and their derivatives	0.0	0.0	3.9	100.8	388.9	131.9
Other consumer manufactures	0.0	0.0	0.0	0.0	0.0	0.0
Paper and paper manufactures	0.0	0.0	0.0	0.0	0.0	0.0
Textiles and their raw materials	0.7	0.8	0.5	12.5	14.1	3.4
Wood and other industrial plant materials	2.6	10.9	13.5	9.4	12.4	22.0
Sub-Total	69.7	119.4	129.0	267.4	684.7	579.0
Various consumer products [1]	4.2	13.1	10.1	7.3	16.2	12.5
Unclassified trade [2]	0.0	0.0	0.0	0.0	0.0	0.0
Total Nominal Trade	74.0	132.5	139.2	274.7	700.9	591.4

Nominal - By Category (in percent of nominal Pesetas):	1939	1940	1941	1942	1943	1944
Animals and their products	0.2%	0.8%	2.5%	7.3%	8.1%	2.6%
Arms and military goods	0.0%	0.4%	0.1%	0.0%	0.0%	0.0%
Chemicals and their derivatives	0.2%	3.6%	14.4%	2.9%	2.1%	5.4%
Edible foodstuffs and drinks	73.6%	65.8%	57.5%	23.5%	24.2%	63.1%
Fuels	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Machinery, equipment and vehicles	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Metals and their alloys	15.6%	10.5%	5.3%	19.1%	4.0%	0.1%
Minerals, materials and their derivatives	0.0%	0.0%	2.8%	36.7%	55.5%	22.3%
Other consumer manufactures	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Paper and paper manufactures	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Textiles and their raw materials	0.9%	0.6%	0.4%	4.5%	2.0%	0.6%
Wood and other industrial plant materials	3.6%	8.2%	9.7%	3.4%	1.8%	3.7%
Various consumer products	5.7%	9.9%	7.3%	2.7%	2.3%	2.1%
Unclassified	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Real - By Category (real Pesetas, 1939 prices, 1939=100):	1939	1940	1941	1942	1943	1944
Animals and their products	0.2	1.5	3.7	7.4	19.7	6.2
Arms and military goods	0.0	0.7	0.2	0.0	0.0	0.0
Chemicals and their derivatives	0.2	4.7	12.5	4.0	3.1	5.9
Edible foodstuffs and drinks	54.4	98.2	63.3	40.5	80.1	89.8
Fuels	0.0	0.0	0.0	0.0	0.0	0.0
Machinery, equipment and vehicles	0.0	0.0	0.0	0.0	0.0	0.0
Metals and their alloys	11.5	14.2	9.4	21.0	9.9	0.8
Minerals, materials and their derivatives	0.0	0.0	5.0	9.9	25.0	7.1
Other consumer manufactures	0.0	0.0	0.0	0.0	0.0	0.0
Paper and paper manufactures	0.0	0.0	0.0	0.0	0.0	0.0
Textiles and their raw materials	0.7	1.1	1.1	25.9	30.8	8.2
Wood and other industrial plant materials	2.6	15.0	9.2	4.0	5.1	10.2
Sub-Total	69.7	135.3	104.5	112.6	173.6	128.2
Various consumer products [1]	4.2	14.9	8.2	3.1	4.1	2.8
Unclassified trade [2]	0.0	0.0	0.0	0.0	0.0	0.0
Total Real Trade	74.0	150.2	112.7	115.7	177.7	130.9

Appendix 3.3: Spanish Merchandise Exports to United States (in millions of Pesetas)

	1939	1940	1941	1942	1943	1944
Total Exports (NOMINAL TERMS)	74.0	132.5	139.2	274.7	700.9	591.4
Total Exports (NOMINAL), 1939=100	100	179	188	371	948	800
Total Exports (REAL)	74.0	150.2	112.7	115.7	177.7	130.9
Total Exports (REAL), 1939=100	100	203	152	156	240	177

Real - By Category (in percent of real Pesetas, 1939 prices, 1939=100):

	1939	1940	1941	1942	1943	1944
Animals and their products	0.2%	1.0%	3.3%	6.4%	11.1%	4.7%
Arms and military goods	0.0%	0.5%	0.2%	0.0%	0.0%	0.0%
Chemicals and their derivatives	0.2%	3.2%	11.1%	3.5%	1.7%	4.5%
Edible foodstuffs and drinks	73.6%	65.4%	56.2%	35.0%	45.1%	68.6%
Fuels	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Machinery, equipment and vehicles	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Metals and their alloys	15.6%	9.4%	8.4%	18.1%	5.6%	0.6%
Minerals, materials and their derivatives	0.0%	0.0%	4.5%	8.6%	14.1%	5.4%
Other consumer manufactures	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Paper and paper manufactures	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Textiles and their raw materials	0.9%	0.7%	0.9%	22.4%	17.3%	6.2%
Wood and other industrial plant materials	3.6%	10.0%	8.2%	3.4%	2.8%	7.8%
Various consumer products	5.7%	9.9%	7.3%	2.7%	2.3%	2.1%
Unclassified	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Price Deflators (Paasche) by Category (1939=100) - see notes

	1939	1940	1941	1942	1943	1944
Animals and their products	100	72	94	272	289	252
Arms and military goods	100	81	78			
Chemicals and their derivatives	100	102	159	196	476	548
Edible foodstuffs and drinks	100	89	126	159	212	416
Fuels						
Machinery, equipment and vehicles						
Metals and their alloys	100	99	78	250	281	77
Minerals, materials and their derivatives	100	81	78	1,016	1,557	1,849
Other consumer manufactures						
Paper and paper manufactures						
Textiles and their raw materials	100	79	50	48	46	41
Wood and other industrial plant materials	100	73	147	236	245	215
Overall Price Deflator (Paasche), 1939=100	100	88	124	237	395	452

Sources and Notes: see attached notes.

Appendix 3.4: Spanish Merchandise Imports from the United States (in millions of Pesetas)

	1939	1940	1941	1942	1943	1944
Total Imports (NOMINAL TERMS)	147.0	443.1	351.4	181.7	613.8	468.3
Total Imports (NOMINAL), 1939=100	100	301	239	124	418	319
Total Imports (REAL)	147.0	747.2	563.5	241.6	775.2	527.0
Total Imports (REAL), 1939=100	100	508	383	164	527	359
Nominal - By Category (nominal Pesetas):	1939	1940	1941	1942	1943	1944
Animals and their products	0.1	0.5	0.6	0.4	0.2	0.6
Arms and military goods	0.0	1.6	9.4	0.1	0.0	0.0
Chemicals and their derivatives	5.8	27.5	26.6	22.6	104.9	21.0
Edible foodstuffs and drinks	16.9	114.6	84.1	34.8	21.1	14.9
Fuels	73.5	162.2	73.0	30.3	174.3	127.3
Machinery, equipment and vehicles	29.5	29.5	50.1	6.8	24.7	106.9
Metals and their alloys	0.8	1.5	3.5	0.0	0.0	0.0
Minerals, materials and their derivatives	3.7	21.5	3.8	0.0	0.0	0.0
Other consumer manufactures	0.0	0.4	2.6	0.4	0.3	0.1
Paper and paper manufactures	9.1	22.7	13.9	2.4	8.1	5.5
Textiles and their raw materials	5.6	56.1	79.1	83.3	278.6	189.1
Wood and other industrial plant materials	1.0	4.1	0.5	0.0	7.3	9.0
Sub-Total	146.0	442.1	347.4	181.0	619.6	474.5
Various consumer products [1]	0.0	0.0	0.0	0.0	0.0	0.0
Unclassified trade [2]	1.0	1.0	4.1	0.7	-5.9	-6.2
Total Nominal Trade	147.0	443.1	351.4	181.7	613.8	468.3
Nominal - By Category (in percent of nominal Pesetas):	1939	1940	1941	1942	1943	1944
Animals and their products	0.1%	0.1%	0.2%	0.2%	0.0%	0.1%
Arms and military goods	0.0%	0.4%	2.7%	0.0%	0.0%	0.0%
Chemicals and their derivatives	4.0%	6.2%	7.6%	12.5%	17.1%	4.5%
Edible foodstuffs and drinks	11.5%	25.9%	23.9%	19.1%	3.4%	3.2%
Fuels	50.0%	36.6%	20.8%	16.7%	28.4%	27.2%
Machinery, equipment and vehicles	20.1%	6.6%	14.3%	3.7%	4.0%	22.8%
Metals and their alloys	0.6%	0.3%	1.0%	0.0%	0.0%	0.0%
Minerals, materials and their derivatives	2.5%	4.8%	1.1%	0.0%	0.0%	0.0%
Other consumer manufactures	0.0%	0.1%	0.7%	0.2%	0.0%	0.0%
Paper and paper manufactures	6.2%	5.1%	4.0%	1.3%	1.3%	1.2%
Textiles and their raw materials	3.8%	12.7%	22.5%	45.9%	45.4%	40.4%
Wood and other industrial plant materials	0.7%	0.9%	0.2%	0.0%	1.2%	1.9%
Various consumer products	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Unclassified	0.7%	0.2%	1.2%	0.4%	-1.0%	-1.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Real - By Category (real Pesetas, 1939 prices, 1939=100):	1939	1940	1941	1942	1943	1944
Animals and their products	0.1	0.6	0.5	0.3	0.2	0.0
Arms and military goods	0.0	1.9	8.7	0.1	0.0	0.0
Chemicals and their derivatives	5.8	22.6	17.0	10.3	103.4	12.7
Edible foodstuffs and drinks	16.9	172.0	132.8	44.4	39.0	21.4
Fuels	73.5	409.7	251.4	92.0	422.4	300.3
Machinery, equipment and vehicles	29.5	35.0	47.0	6.2	10.4	76.1
Metals and their alloys	0.8	1.4	3.7	0.0	0.0	0.0
Minerals, materials and their derivatives	3.7	25.9	3.0	0.0	0.0	0.0
Other consumer manufactures	0.0	0.4	3.9	0.5	0.3	0.0
Paper and paper manufactures	9.1	16.3	7.7	1.7	3.2	1.4
Textiles and their raw materials	5.6	55.9	80.7	85.3	198.5	116.2
Wood and other industrial plant materials	1.0	3.8	0.6	0.0	5.3	5.7
Sub-Total	146.0	745.5	557.0	240.7	782.7	534.0
Various consumer products [1]	0.0	0.0	0.0	0.0	0.0	0.0
Unclassified trade [2]	1.0	1.7	6.5	0.9	-7.4	-6.9
Total Real Trade	147.0	747.2	563.5	241.6	775.2	527.0

Appendix 3.4: Spanish Merchandise Imports from the United States (in millions of Pesetas)

	1939	1940	1941	1942	1943	1944
Total Imports (NOMINAL TERMS)	147.0	443.1	351.4	181.7	613.8	468.3
Total Imports (NOMINAL), 1939=100	100	301	239	124	418	319
Total Imports (REAL)	147.0	747.2	563.5	241.6	775.2	527.0
Total Imports (REAL), 1939=100	100	508	383	164	527	359

Real - By Category (in percent of real Pesetas, 1939 prices, 1939=100):

	1939	1940	1941	1942	1943	1944
Animals and their products	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%
Arms and military goods	0.0%	0.3%	1.5%	0.0%	0.0%	0.0%
Chemicals and their derivatives	4.0%	3.0%	3.0%	4.2%	13.3%	2.4%
Edible foodstuffs and drinks	11.5%	23.0%	23.6%	18.4%	5.0%	4.1%
Fuels	50.0%	54.8%	44.6%	38.1%	54.5%	57.0%
Machinery, equipment and vehicles	20.1%	4.7%	8.3%	2.6%	1.3%	14.4%
Metals and their alloys	0.6%	0.2%	0.6%	0.0%	0.0%	0.0%
Minerals, materials and their derivatives	2.5%	3.5%	0.5%	0.0%	0.0%	0.0%
Other consumer manufactures	0.0%	0.1%	0.7%	0.2%	0.0%	0.0%
Paper and paper manufactures	6.2%	2.2%	1.4%	0.7%	0.4%	0.3%
Textiles and their raw materials	3.8%	7.5%	14.3%	35.3%	25.6%	22.0%
Wood and other industrial plant materials	0.7%	0.5%	0.1%	0.0%	0.7%	1.1%
Various consumer products	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Unclassified	0.7%	0.2%	1.2%	0.4%	-1.0%	-1.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Price Deflators (Paasche) by Category (1939=100) - see notes

	1939	1940	1941	1942	1943	1944
Animals and their products	100	88	118	124	93	1,540
Arms and military goods	100	84	108	105		
Chemicals and their derivatives	100	122	157	221	101	165
Edible foodstuffs and drinks	100	67	63	78	54	70
Fuels	100	40	29	33	41	42
Machinery, equipment and vehicles	100	84	107	109	239	140
Metals and their alloys	100	106	96			300
Minerals, materials and their derivatives	100	83	126		165	169
Other consumer manufactures	100	95	67	84	95	236
Paper and paper manufactures	100	139	180	138	252	377
Textiles and their raw materials	100	100	98	98	140	163
Wood and other industrial plant materials	100	108	97	118	139	158
Overall Price Deflator (Paasche), 1939=100	100	59	62	75	79	89

Sources and Notes: see attached notes.

Appendix 3.5: Spanish Merchandise Exports to United Kingdom (in millions of Pesetas)

	1939	1940	1941	1942	1943	1944
Total Exports (NOMINAL TERMS)	192.1	257.3	211.0	435.8	431.9	482.8
Total Exports (NOMINAL), 1939=100	100	134	110	227	225	251
Total Exports (REAL)	192.1	263.4	229.3	356.4	199.7	334.6
Total Exports (REAL), 1939=100	100	137	119	186	104	174

Nominal - By Category (nominal Pesetas):	1939	1940	1941	1942	1943	1944
Animals and their products	0.0	0.1	0.0	118.9	12.2	0.0
Arms and military goods	0.0	0.1	0.0	0.0	2.0	1.4
Chemicals and their derivatives	1.8	6.8	21.8	12.4	24.3	59.0
Edible foodstuffs and drinks	107.2	184.8	94.3	87.4	63.2	136.3
Fuels	0.0	0.0	0.0	0.0	0.0	0.0
Machinery, equipment and vehicles	0.0	0.0	0.0	0.1	0.1	0.0
Metals and their alloys	45.4	37.7	57.0	78.8	58.3	45.3
Minerals, materials and their derivatives	0.0	0.0	11.5	80.1	252.7	227.6
Other consumer manufactures	0.0	0.0	0.0	0.0	0.0	0.0
Paper and paper manufactures	0.0	0.0	0.0	0.0	0.0	0.0
Textiles and their raw materials	0.4	1.0	1.3	41.3	0.6	0.6
Wood and other industrial plant materials	7.1	13.3	15.3	13.9	5.7	6.8
Sub-Total	161.9	243.8	201.2	432.9	419.1	477.1
Various consumer products [1]	15.9	13.4	9.7	2.8	12.8	5.8
Unclassified trade [2]	14.3	0.1	0.1	0.0	0.0	0.0
Total Nominal Trade	192.1	257.3	211.0	435.8	431.9	482.8

Nominal - By Category (in percent of nominal Pesetas):	1939	1940	1941	1942	1943	1944
Animals and their products	0.0%	0.1%	0.0%	27.3%	2.8%	0.0%
Arms and military goods	0.0%	0.0%	0.0%	0.0%	0.5%	0.3%
Chemicals and their derivatives	0.9%	2.6%	10.3%	2.8%	5.6%	12.2%
Edible foodstuffs and drinks	55.8%	71.8%	44.7%	20.1%	14.6%	28.2%
Fuels	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Machinery, equipment and vehicles	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Metals and their alloys	23.6%	14.6%	27.0%	18.1%	13.5%	9.4%
Minerals, materials and their derivatives	0.0%	0.0%	5.5%	18.4%	58.5%	47.1%
Other consumer manufactures	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Paper and paper manufactures	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Textiles and their raw materials	0.2%	0.4%	0.6%	9.5%	0.1%	0.1%
Wood and other industrial plant materials	3.7%	5.2%	7.3%	3.2%	1.3%	1.4%
Various consumer products	8.3%	5.2%	4.6%	0.7%	3.0%	1.2%
Unclassified	7.4%	0.1%	0.0%	0.0%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Real - By Category (real Pesetas, 1939 prices, 1939=100):	1939	1940	1941	1942	1943	1944
Animals and their products	0.0	0.2	0.0	43.7	4.1	0.0
Arms and military goods	0.0	0.1	0.0	0.0	0.6	0.3
Chemicals and their derivatives	1.8	8.9	32.9	17.0	77.2	223.2
Edible foodstuffs and drinks	107.2	174.5	73.1	54.3	53.2	84.5
Fuels	0.0	0.0	0.0	0.0	0.0	0.0
Machinery, equipment and vehicles	0.0	0.0	0.0	0.0	0.0	0.0
Metals and their alloys	45.4	46.4	86.3	139.0	42.5	8.6
Minerals, materials and their derivatives	0.0	0.0	13.4	8.3	12.7	9.5
Other consumer manufactures	0.0	0.0	0.0	0.0	0.0	0.0
Paper and paper manufactures	0.0	0.0	0.0	0.0	0.0	0.0
Textiles and their raw materials	0.4	1.3	2.6	85.9	1.5	1.5
Wood and other industrial plant materials	7.1	18.2	10.4	5.9	2.0	3.1
Sub-Total	161.9	249.6	218.7	354.0	193.8	330.6
Various consumer products [1]	15.9	13.7	10.5	2.3	5.9	4.0
Unclassified trade [2]	14.3	0.1	0.1	0.0	0.0	0.0
Total Real Trade	192.1	263.4	229.3	356.4	199.7	334.6

Appendix 3.5: Spanish Merchandise Exports to United Kingdom (in millions of Pesetas)

	1939	1940	1941	1942	1943	1944
Total Exports (NOMINAL TERMS)	192.1	257.3	211.0	435.8	431.9	482.8
Total Exports (NOMINAL), 1939=100	100	134	110	227	225	251
Total Exports (REAL)	192.1	263.4	229.3	356.4	199.7	334.6
Total Exports (REAL), 1939=100	100	137	119	186	104	174

Real - By Category (in percent of real Pesetas, 1939 prices, 1939=100):

	1939	1940	1941	1942	1943	1944
Animals and their products	0.0%	0.1%	0.0%	12.2%	2.0%	0.0%
Arms and military goods	0.0%	0.0%	0.0%	0.0%	0.3%	0.1%
Chemicals and their derivatives	0.9%	3.4%	14.3%	4.8%	38.7%	66.7%
Edible foodstuffs and drinks	55.8%	66.2%	31.9%	15.2%	26.6%	25.2%
Fuels	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Machinery, equipment and vehicles	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Metals and their alloys	23.6%	17.6%	37.6%	39.0%	21.3%	2.6%
Minerals, materials and their derivatives	0.0%	0.0%	5.8%	2.3%	6.4%	2.8%
Other consumer manufactures	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Paper and paper manufactures	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Textiles and their raw materials	0.2%	0.5%	1.1%	24.1%	0.7%	0.4%
Wood and other industrial plant materials	3.7%	6.9%	4.5%	1.7%	1.0%	0.9%
Various consumer products	8.3%	5.2%	4.6%	0.7%	3.0%	1.2%
Unclassified	7.4%	0.1%	0.0%	0.0%	0.0%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Price Deflators (Paasche) by Category (1939=100) - see notes

	1939	1940	1941	1942	1943	1944
Animals and their products	100	72		272	300	
Arms and military goods	100	81			331	525
Chemicals and their derivatives	100	77	66	73	32	26
Edible foodstuffs and drinks	100	106	129	161	119	161
Fuels						
Machinery, equipment and vehicles						
Metals and their alloys	100	81	66	57	137	525
Minerals, materials and their derivatives	100	81	86	966	1,988	2,389
Other consumer manufactures						
Paper and paper manufactures						
Textiles and their raw materials	100	79	50	48	44	42
Wood and other industrial plant materials	100	73	147	236	278	221
Overall Price Deflator (Paasche), 1939=100	100	98	92	122	216	144

Sources and Notes: see attached notes.

Appendix 3.6: Spanish Merchandise Imports from the United Kingdom (in millions of Pesetas)

	1939	1940	1941	1942	1943	1944
Total Imports (NOMINAL TERMS)	226.8	278.5	269.1	308.2	362.0	311.7
Total Imports (NOMINAL), 1939=100	100	123	119	136	160	137
Total Imports (REAL)	226.8	303.2	413.4	356.8	351.5	236.5
Total Imports (REAL), 1939=100	100	134	182	157	155	104
Nominal - By Category (nominal Pesetas):	1939	1940	1941	1942	1943	1944
Animals and their products	8.1	2.0	6.3	4.1	4.0	1.5
Arms and military goods	0.3	1.2	3.3	1.2	0.8	1.4
Chemicals and their derivatives	56.1	46.3	34.9	59.2	66.2	43.9
Edible foodstuffs and drinks	35.2	81.3	62.9	69.5	150.7	95.4
Fuels	33.4	31.2	67.2	55.6	53.3	22.1
Machinery, equipment and vehicles	11.2	23.8	34.4	42.4	35.4	58.9
Metals and their alloys	15.1	9.2	9.1	0.1	0.1	1.2
Minerals, materials and their derivatives	10.5	1.9	1.8	0.6	0.3	0.6
Other consumer manufactures	0.3	0.5	2.5	1.8	4.9	2.7
Paper and paper manufactures	13.6	9.1	4.4	1.7	0.6	1.4
Textiles and their raw materials	27.7	54.1	28.9	45.3	30.2	71.5
Wood and other industrial plant materials	12.7	14.2	8.6	23.3	11.9	8.2
Sub-Total	224.2	274.7	264.2	304.9	358.3	308.7
Various consumer products [1]	0.0	0.0	0.0	0.0	0.0	0.0
Unclassified trade [2]	2.6	3.8	5.0	3.3	3.7	3.0
Total Nominal Trade	226.8	278.5	269.1	308.2	362.0	311.7
Nominal - By Category (in percent of nominal Pesetas):	1939	1940	1941	1942	1943	1944
Animals and their products	3.6%	0.7%	2.3%	1.3%	1.1%	0.5%
Arms and military goods	0.1%	0.4%	1.2%	0.4%	0.2%	0.4%
Chemicals and their derivatives	24.7%	16.6%	13.0%	19.2%	18.3%	14.1%
Edible foodstuffs and drinks	15.5%	29.2%	23.4%	22.5%	41.6%	30.6%
Fuels	14.7%	11.2%	25.0%	18.1%	14.7%	7.1%
Machinery, equipment and vehicles	4.9%	8.5%	12.8%	13.7%	9.8%	18.9%
Metals and their alloys	6.7%	3.3%	3.4%	0.0%	0.0%	0.4%
Minerals, materials and their derivatives	4.6%	0.7%	0.7%	0.2%	0.1%	0.2%
Other consumer manufactures	0.1%	0.2%	0.9%	0.6%	1.4%	0.9%
Paper and paper manufactures	6.0%	3.3%	1.6%	0.6%	0.2%	0.4%
Textiles and their raw materials	12.2%	19.4%	10.7%	14.7%	8.3%	22.9%
Wood and other industrial plant materials	5.6%	5.1%	3.2%	7.5%	3.3%	2.6%
Various consumer products	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Unclassified	1.2%	1.4%	1.8%	1.1%	1.0%	1.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Real - By Category (real Pesetas, 1939 prices, 1939=100):	1939	1940	1941	1942	1943	1944
Animals and their products	8.1	1.6	4.6	3.3	1.9	0.7
Arms and military goods	0.3	1.4	3.1	1.1	0.6	1.2
Chemicals and their derivatives	56.1	39.6	22.6	28.3	26.6	17.3
Edible foodstuffs and drinks	35.2	62.7	52.1	42.5	126.2	51.6
Fuels	33.4	78.7	231.2	169.0	117.8	40.3
Machinery, equipment and vehicles	11.2	28.2	32.4	38.0	25.8	32.3
Metals and their alloys	15.1	8.7	9.5	0.4	0.5	5.3
Minerals, materials and their derivatives	10.5	4.8	6.2	1.8	0.7	1.1
Other consumer manufactures	0.3	0.8	3.7	2.0	4.7	1.1
Paper and paper manufactures	13.6	5.9	2.4	0.4	0.2	0.5
Textiles and their raw materials	27.7	53.6	29.2	46.4	32.4	76.3
Wood and other industrial plant materials	12.7	13.1	8.8	19.7	10.6	6.6
Sub-Total	224.2	299.0	405.8	353.0	347.8	234.2
Various consumer products [1]	0.0	0.0	0.0	0.0	0.0	0.0
Unclassified trade [2]	2.6	4.2	7.6	3.8	3.6	2.3
Total Real Trade	226.8	303.2	413.4	356.8	351.5	236.5

Appendix 3.6: Spanish Merchandise Imports from the United Kingdom (in millions of Pesetas)

	1939	1940	1941	1942	1943	1944
Total Imports (NOMINAL TERMS)	226.8	278.5	269.1	308.2	362.0	311.7
Total Imports (NOMINAL), 1939=100	100	123	119	136	160	137
Total Imports (REAL)	226.8	303.2	413.4	356.8	351.5	236.5
Total Imports (REAL), 1939=100	100	134	182	157	155	104
Real - By Category (in percent of real Pesetas, 1939 prices, 1939=100):						
	1939	1940	1941	1942	1943	1944
Animals and their products	3.6%	0.5%	1.1%	0.9%	0.5%	0.3%
Arms and military goods	0.1%	0.4%	0.7%	0.3%	0.2%	0.5%
Chemicals and their derivatives	24.7%	13.1%	5.5%	7.9%	7.6%	7.3%
Edible foodstuffs and drinks	15.5%	20.7%	12.6%	11.9%	35.9%	21.8%
Fuels	14.7%	26.0%	55.9%	47.4%	33.5%	17.0%
Machinery, equipment and vehicles	4.9%	9.3%	7.8%	10.7%	7.4%	13.7%
Metals and their alloys	6.7%	2.9%	2.3%	0.1%	0.1%	2.2%
Minerals, materials and their derivatives	4.6%	1.6%	1.5%	0.5%	0.2%	0.5%
Other consumer manufactures	0.1%	0.3%	0.9%	0.6%	1.3%	0.5%
Paper and paper manufactures	6.0%	1.9%	0.6%	0.1%	0.1%	0.2%
Textiles and their raw materials	12.2%	17.7%	7.1%	13.0%	9.2%	32.3%
Wood and other industrial plant materials	5.6%	4.3%	2.1%	5.5%	3.0%	2.8%
Various consumer products	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Unclassified	1.2%	1.4%	1.8%	1.1%	1.0%	1.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Price Deflators (Paasche) by Category (1939=100) - see notes						
	1939	1940	1941	1942	1943	1944
Animals and their products	100	124	135	127	214	220
Arms and military goods	100	84	108	105	134	113
Chemicals and their derivatives	100	117	154	209	249	254
Edible foodstuffs and drinks	100	130	121	163	119	185
Fuels	100	40	29	33	45	55
Machinery, equipment and vehicles	100	84	106	111	137	183
Metals and their alloys	100	106	96	27	25	22
Minerals, materials and their derivatives	100	40	29	33	45	55
Other consumer manufactures	100	69	66	91	104	251
Paper and paper manufactures	100	155	185	408	313	289
Textiles and their raw materials	100	101	99	98	93	94
Wood and other industrial plant materials	100	108	97	118	112	125
Overall Price Deflator (Paasche), 1939=100	100	92	65	86	103	132

Sources and Notes: see attached notes.

Appendix 3.7: Spanish Energy Consumption (1943)

		1943		
	Unit of Measurement	Quantity in Units of Measurement	Equivalent in tons of mineral coal	%
Domestic Fuel				
Electrical Energy	1,000,000 kwh = 388 TC	5,856,041,320	2,272,144	58%
Total Domestic Fuel			2,272,144	58%
Imported Fuel				
Fuel Wood	1000 m ³ = 17 TC	3,500,000	59,500	2%
Mineral Coal	No conversion	190,704	190,704	5%
Coke and Briquettes	1,000 tons = 1,050 TC	83,521	87,697	2%
Petrol	1,000 tons = 1,600 TC	36,540	58,464	1%
Heavy Oils	1,000 tons = 1,500 TC	837,916	1,256,874	32%
Total Imported Fuel			1,653,239	42%
Grand Total			3,925,383	100%

Sources:

Food and Agriculture Organization of the United Nations, *Forestry and Forest Products: World Situation 1937-1946* (Stockholm, 1946), pp.19, 78-84;

Food and Agriculture Organization of the UN, *Minutes of the International Timber Conference 1947*, Czechoslovakia, April-May 1947, Document number G.2/15, in FAO/F47/Co3/CI/2;

NARA RG107/57/711.1, correspondence to/from CAMPSA dated between 8 January and 16 July 1941; NARA RG107/921/folder marked "Statistical Reports (Capt. Newmark)," Foreign Economic Administration Report "Spanish Trade" dated 25 February 1944; *Anuario Estadístico de España 1943*, p.643-645; Caruana and Rockoff, "An elephant in the garden..."

Notes:

TC = Tons of Mineral Coal Equivalent

Electricity realized at an energy equivalence of 388 tons of coal per million kwh.

Notes to Appendices 3.1-3.6

Spanish-Belligerent Merchandise Trade in the Second World War

Purpose

These notes explain how the nominal and real trade figures for Spain's trade with each belligerent bloc are calculated and reported in Chapter Three. Statistics are standardized across this work in accordance with the international standards immediately after the war. These notes provide information on the calculation of real price and trade figures, the way in which the Spanish trade statistics are standardized and the assumptions which are made as part of this process.

Overview of Steps for Calculations

1. Develop nominal trade statistics to comply with 1948 SITC standards (14 categories of trade) from BdeE records (59 categories of trade).
2. Calculate price deflators from AEdE and ECEdE trade statistics (yields price deflators for 27 general categories of trade, including 55 of the 59 reported BdeE trade categories).
3. Determine real trade by depreciating the BdeE categories by their relevant price deflators, report in accordance with 1948 SITC standards.

Methodology

The best period for evaluating Spanish trade during the Second World War begins in 1939 and continues through December 1944. These appendices use the lowest level figures possible to develop nominal and real trade statistics for Spanish trade. As a result of the Spanish Civil War, no trade data are available to use for comparable purposes on the period from 1936 to 1939. Therefore, the 1939 figures are used as the base year against which the wartime years are compared. Unfortunately, it is impossible to divide the yearly figures into shorter

periods to account for the changes in control by countries and the fractional first and last years of the war. Finally, it should be recalled that the levels of illicit trade and smuggling with Spain are not well known. Despite extensive auditing, there is no particular evidence to suggest that the reported figures are incorrect; in any case, any such analysis is limited by the availability and sometimes conflicting nature of the Spanish statistics.

Sources

There are three principal sources for the trade statistics, all official Spanish government publications.

1. The Bank of Spain (BdeE), IEME files are considered the most accurate trade statistics for Spain. They are based on actual payments. The *Importacion y Exportacion* files provide the following statistics for 1939 to 1944 used in these appendices:
 - a. Imports and Exports by Country (in Sterling Pounds)
 - b. Imports and Exports of Goods by Country (in Sterling Pounds)
2. Unfortunately the IEME files do not give statistics on volume or prices, necessitating the use of two further sources. The Spanish Ministry of Commerce produced the *Anuario Estadístico de España*, a comprehensive statistical annual. This is used to establish the 'Overall Import and Export Price Indices' covering the period 1939 to 1942.
 - c. Imports and Exports by Class of Good in weight and value measurements for 1939 to 1942.

Notes to Appendices 3.1-3.6

3. The Spanish Ministry of Agriculture produced an annual volume 'Statistics on Exterior Commerce] (ECEdE), which is used to establish the 'German Import and Export Price Indices,' the 'United States Import and Export Price Indices' and the 'United Kingdom Import and Export Price Indices' covering the period 1942 to 1944.
 - d. Imports and Exports by Country and by Class of Good, in weight and value measurements, using the following statistics:
 1. Calendar Year 1942
 2. Half-Year, January to June 1943
 3. Half-Year, January to June 1944

Notes to Appendices 3.1-3.6

BdE Imports and Exports by Country and Good (example: German exports, 10 categories)

INSTITUTO ESPAÑOL
DE
MONEDA EXTRANJERA
ESTADÍSTICA

Nación: ALEMANIA.-

PRODUCTOS.

CONCEPTO	EXPORTACIÓN Año <u>1940.</u> Libras	EXPORTACIÓN Año <u>1941.</u> "Clearing"	"Extra-Clearing"
<u>ACEBITES.</u>			
Aceite de oliva	-	67	-
Aceites vegetales	10.692	-	-
<u>ACIDOS.</u>			
Acido tartárico	25.077	32.087	-
AQUARRAS.	7.515	-	-
<u>ARMAS.</u>			
Pistolas.	-	41.112	-
<u>COLORANTES, TINTAS Y BARNICES.</u>			
Cochinilla.	-	333	-
Celofonia	13.877	7.300	-
<u>COMBUSTIBLES SOLIDOS.</u>			
Carbón.	434	-	-
<u>CONSERVAS DE PESCADO.</u>			
Anchoas.	44.634	456.301	-
Atún.	-	141.509	-
Diversos.	-	137	-
Sardinas.	21.365	-	-
<u>CONSERVAS VEGETALES.</u>			
Alcaparras.	-	23.469	-
Cáscara de limón.	-	1.130	-
Cáscara de naranja.	-	24.380	-
Pulpa de albaricoque.	129.432	467.060	-
CORCHO.	48.248	767.332	-
<u>ESPECIAS.</u>			
Anafrán.	60.824	31.528	- 95
Pimentón.	23.750	21.750	-
<u>FIBRAS ANIMALES.</u>			
Capullón de gusanos de seda	635	2.088	-
Lanas	119.974	204.031	-
Pelo de conejo.	-	16.925	-
<u>FIBRAS VEGETALES.</u>			
Esparto	-	1.627	-
Suma y sigue.....			

ARCHIVO HISTÓRICO
BANCO DE ESPAÑA
I.E.M.E.
Calendario (A. 1975)

For each imported and exported Spanish good reported in the BdE statistics, only the total amount of trade in Spanish Pesetas is provided (no volume or price).

Spanish Ministry of Commerce Statistics (AEde)

Comercio exterior

Comercio especial de Importación de las principales mercancías (Continuación)

MERCANCIAS IMPORTADAS	Cantidad.	Valor.	MERCANCIAS IMPORTADAS	Cantidad.	Valor.
Años.	—	En miles de	Años.	—	En miles de
Principales países de procedencia	Qm.	pesetas oro.	Principales países de procedencia.	Qm.	pesetas oro
Vidrio o cristal de precisión (kilogramos):			Distribución para 1942:		
1934.....	27 637	167	Andorra.....	402	28
1935.....	20 101	121	Brasil.....	166	10
1939 (abril-diciembre).....	24 575	92	E. U. América.....	132	14
1940.....	11 366	28	Francia.....	5 022	137
1941.....	17 963	77	Canadá.....	61	4
1942.....	48 505	233	Portugal.....	2 618	150
Distribución para 1942:			Yugoslavia.....	5	2
Alemania.....	37 965	215	Otros países.....	138	10
Francia.....	8 135	9	Territorio español de Guinea.	61 621	6 295
Gran Bretaña y N. Irlanda.....	927	3	Combustibles vegetales:		
Italia-Albania.....	1 310	3	Carbón vegetal (toneladas):		
Otros países.....	168	3	1934.....	13 545	1 648
CLASE II			1935.....	5 671	791
MADERAS Y OTRAS MATERIAS VEGETALES EMPLEADAS EN LA INDUSTRIA Y SUS MANUFACTURAS			1939 (abril-diciembre).....	19	18
Duelas:			1940.....	29	25
1934.....	172 884	2 333	1941.....	202	183
1935.....	164 839	2 063	1942.....	69	114
1939 (abril-diciembre).....	158 344	2 830	Distribución para 1942:		
1940.....	222 801	4 375	Alemania.....	37	53
1941.....	123 953	2 511	Gran Bretaña y N. Irlanda.....	10	8
1942.....	54 885	1 553	Holanda.....	18	52
Distribución para 1942:			Otros países.....	1	
E. U. América.....	14 082	464	Canarias.....	1	0
Italia-Albania.....	40 805	1 089	Territorio español de Guinea.	2	1
Postes y palos de madera ordinaria:			Caña, bambú, roten, junco, mimbre, materias análogas sin labrar:		
1934.....	208 011	1 443	1934.....	39 692	898
1935.....	127 034	1 028	1935.....	35 103	845
1939 (abril-diciembre).....	18 539	57	1939 (abril-diciembre).....	437	11
1940.....	3 836	14	1940.....	4 288	104
1941.....	12 222	64	1941.....	5 986	151
1942.....	214 903	608	1942.....	8 708	401
Distribución para 1942:			Distribución para 1942:		
Alemania.....	6 227	132	Alemania.....	77	2
Portugal.....	208 676	476	Ecuador.....	2 557	76
Madera ordinaria, en tablas (metros cúbicos):			Gran Bretaña y N. Irlanda.....	1 209	148
1934.....	533 670	26 586	India.....	23	2
1935.....	577 359	25 855	Portugal.....	130	11
1939 (abril-diciembre).....	15 568	1 251	Canarias.....	40	2
1940.....	63 270	5 505	Ceuta.....	700	18
1941.....	82 306	6 427	Protectorado esp. Marruecos.	1 304	20
1942.....	70 165	6 650	Territorio español de Guinea.	2 668	122

The AEde figures show imports by class of good in weight and Peseta measurements for 1939 to 1942.

Spanish Ministry of Agriculture Statistics (ECEdE)

COMERCIO ESPECIAL DE ESPAÑA (Península e Islas Baleares)					
Sigue Clase V.—Maquinaria, aparatos y vehículos.					
NOMENCLATURA	Unidad	ENERO A JUNIO DE 1943			
		IMPORTACION		EXPORTACION	
		Cantidad Unidades	Valor Pesetas oro	Cantidad Unidades	Valor Pesetas oro
(Continuación)					
Suecia	Q. M.	18	7 607		
Suiza-Liechtenstein (U. A.)		0,1	11		
		66,3	35 520	1	334
Ceuta				1	144
Melilla				4	3 633
Protectorado esp. Marruecos				0,2	103
				5,2	3 880
1943		66,3	35 520	6,2	4 214
1942		64	37 244	31	9 635
Hilos o cables metálicos aislados con fibras o barnices, de diámetro inferior a 0,5 milímetros, con destino al bobinado de motores y aparatos eléctricos.	Q. M.				
Alemania		8	22 223		
E. U. de N. América		0,4	572		
Gran Bretaña y N. Irlanda		0,1	19		
		8,5	22 814		
Ceuta				10	4 946
1943		8,5	22 814	10	4 946
1942		101,1	28 870	3	432
Aparatos telegráficos y telefónicos, cuadros para sus centrales y partes componentes y piezas sueltas.	Kg.				
Alemania		41 175	1 286 135		
Andorra		—	—	63	713
Argentina		141	3 057	202	1 642
Bélgica		319	31 676		
China		40	734		
Dinamarca		1	43		
E. U. de N. América		507	14 562		
Francia		304	7 029		
Gran Bretaña y N. Irlanda		210	11 396		
Canadá		5	137		
Holanda		1 855	36 752		
Hungría		1 396	22 714		
Italia-Albania (U. A.)		5 633	190 029		
Portugal		110	2 034	2	20
Suecia		5 304	205 018		
Suiza-Liechtenstein (U. A.)		546	34 310		
Indeterminado		84	1 696		
		57 630	1 847 322	267	2 384
Canarias				179	3 586
Ceuta		19	247	8 335	5 928
Melilla				303	3 020
Terr. esp. del G. de Guinea				402	2 939
		19	247	9 219	15 473
1943		57 649	1 847 569	9 486	17 857
1942		65 322	312 199	3 007	32 604

The ECEdE statistics show imports by class of good in weight and Peseta measurements for January to June 1943.

Standardization

1. The following standards are applied in Table 3.2, Chapter Three (which differ from those in the appendices):
 - a. Countries: The countries in each belligerent bloc are standardized in Table 3.2.
 - b. Any amounts reported in Sterling Pounds are converted to Pesetas at the standard rate listed in the currency notes at the front of this work.
2. The following standards are applied in Appendices 3.1-3.6:
 - a. Countries: Spanish trade is presented separately by country. Trade with Spain is reported by individual trading country - Germany, America and Britain - without any other Allied or Axis bloc constituents or dependencies.
 - b. Categories: trade reported in Appendices 3.1-3.6 is categorized on the basis of the 1948 SITC standards for ease of use and comparability.
 - c. Any amounts reported in Sterling Pounds are converted to Pesetas at the standard rate listed in the currency notes at the beginning of this work.

Standardization: Countries in each belligerent bloc

For Table 3.2: German controlled Europe includes states from the first year in which they either joined the Tripartite Pact or were occupied by Germany. The German bloc includes Germany, Denmark (1940-1944), Finland (1940-1944), Norway (1940-1944), Belgium (1940-1944), Bulgaria (1941-1944), Danzig (1939-1944), Estonia (1941-1944), France (1940-1944), Greece (1941-1944), Italy (1940-1944), Yugoslavia (1941-1944), Latvia (1941-1944), Lithuania (1941-1944), Luxembourg (1940-1944), the Netherlands (1940-1944), Poland

(1939-1944), Rumania (1939-1944), Austria (1938-1944), Czechoslovakia (1939-1944) and Hungary (1940-1944).

For Table 3.2: Allied territories include Great Britain, Australia, Canada, India, China, France (1938-1940), Brazil (1942-1944), United States (1942-1944), Cuba (1942-1944), Haiti (1942-1944), Dominican Republic (1942-1944), Iran, Iraq, India, Palestine, Netherlands Antilles (1940-1944) and Egypt.

Standardization: Categories of Goods

This paper standardizes the Spanish categories of goods as reported in the BdeE import and export statistics. Trade is reported in the BdeE statistics in 59 categories; the Commerce and Agriculture Ministry statistical tables have 27 separate categories, leading some price deflators to be used for multiple goods, as seen in the table. Each is consolidated into twelve master categories based on the 1948 SITC statistical guide, plus separate categories for arms and unknown trade. The trade categories are consolidated to provide easy comparability across neutrals. The following is a guide to the way in which the Spanish statistics were consolidated:

The BdeE records are reported in more specific categories listed in the categories table below; the equivalent master categories for each BdeE category are listed, together with the price index used for the real prices.

Table 3A.1: Standardization of Categories of Spanish Imports

Spanish Imports BdE Category (in Spanish)	SITC Category	Depreciated by Commerce Category (in Spanish)
CUEROS Y CURIENTES	ANIMALS	Peletria, curtidos y sus manufacturas
GRASES ANIMALES	ANIMALS	(no trade)
ARMAS	ARMS	Vehiculos para transportes terrestres
BUQUES Y ACCESORIOS	ARMS	Vehiculos para transportes terrestres
ASFALTO Y BREAS	CHEMICALS	Derivados de los carbones minerales
COLORANTES	CHEMICALS	Materias colorantes tintas y barnices
EXPLOSIVOS	CHEMICALS	Productos quimicos y farmaceuticos
FERTILIZANTES	CHEMICALS	Productos quimicos y farmaceuticos
PRODUCTOS FARMACEUTICOS	CHEMICALS	Productos quimicos y farmaceuticos
PRODUCTOS QUIMICOS	CHEMICALS	Productos quimicos y farmaceuticos
ACEITES	FOOD	Granos, legumbres y harinas
CARNE	FOOD	(no trade)
CONSERVAS VEGETALES	FOOD	(no trade)
GRANADOS	FOOD	(no trade)
GRANOS	FOOD	Granos, legumbres y harinas
LEGUMBRES SECAS	FOOD	(no trade)
PESCADO SECO	FOOD	(no trade)
PINEOS	FOOD	(no trade)
PRODUCTOS ALIMENTOS	FOOD	Granos, legumbres y harinas
RELOJAS Y SUS ACCESORIOS	FOOD	Granos, legumbres y harinas
SEMILLAS	FOOD	Granos, legumbres y harinas
TABACOS	FOOD	Granos, legumbres y harinas
COMBUSTIBLES LIQUIDOS	FUELS	Combustibles minerals solidos
COMBUSTIBLES SOLIDOS	FUELS	Combustibles minerals solidos
LICORES	FUELS	(no trade)
VASELINA Y PARAFINA	FUELS	Combustibles minerals solidos
LUBRICANTES	FUELS	Combustibles minerals solidos
APARATOS E INSTRUMENTOS	MACHINES	Aparatos
ATRASOS	MACHINES	Maquinaria

Spanish Imports BdE Category (in Spanish)	SITC Category	Depreciated by Commerce Category (in Spanish)
AUTOMOBILES	MACHINES	Vehiculos para transportes terrestres
AVIONES	MACHINES	Maquinaria
MANUFACTURAS HIERRO Y ACERO	MACHINES	Maquinaria
MAQUINAS	MACHINES	Maquinaria
MATERIALES DIVERSOS	MACHINES	Maquinaria
NEUMATICOS	MACHINES	Maquinaria
TRACTORES	MACHINES	Vehiculos para transportes terrestres
TRANVIAS	MACHINES	Maquinaria
METALES	METALS	Los demas metales y sus aleaciones
ACERO Y MINERO	MINERALS	Minerals
MINERALES	MINERALS	Minerals
CRISTAL Y VIDRIO	OTHER CONSUMER	Cristal y vidrio
LIBROS	OTHER CONSUMER	Papel en rama
PELICULAS CINE	OTHER CONSUMER	Aparatos
PORCELANA Y CERAMICA	OTHER CONSUMER	Cristal y vidrio
ARTICULOS VARIOS	OTHER VARIOUS	N/A
BILLETES DEL BANCO DE ESPANA	OTHER VARIOUS	N/A
ENVASES	PAPER	Papel en rama
PAPELS Y CARTONES	PAPER	Papel en rama
PRIMERAS MATERIAS FABRICACION PAPEL	PAPER	Primeras materias
AMIENTOS Y FIBRAS VULCANTINADAS	TEXTILES	Hilados
DESPERDICIOS	TEXTILES	Hilados
FIBRAS	TEXTILES	Hilados
TEJIDOS	TEXTILES	Tejidos y pasamaneria
UNKNOWN	UNKNOWN	N/A
SUMINISTROS ESPECIALES	VARIOUS	(no trade)
CAUCHO Y GOMA	WOOD	Maderas
MATERIAL DE CONSTRUCCION	WOOD	Maderas

Table 3A.2: Standardization of Categories of Spanish Exports

Spanish Exports BdE Category (in Spanish)	SITC Category	Depreciated by Commerce Category (in Spanish)
PIELES	ANIMAL	Pieles sin curtir
PIENSOS	ANIMAL	Pieles sin curtir
ARMAS	ARMS	Mineral de hierro
MATERIAL DE GUERRA	ARMS	Mineral de hierro
ACIDOS	CHEMICALS	Acidos tartaricos
COLORANTES, TINTAS Y BARNICOS	CHEMICALS	Sulfatos y cloruro
EXPLOSIVOS	CHEMICALS	Sulfatos y cloruro
PERFUMERIA Y ACEITES ESENCIALES	CHEMICALS	Perfumeria y escencias
PRODUCTOS ALIMENTICIOS	CHEMICALS	Acidos tartaricos
PRODUCTOS FARMACEUTICOS	CHEMICALS	Sulfatos y cloruro
PRODUCTOS QUIMICOS	CHEMICALS	Sulfatos y cloruro
ACETES	FOOD	Aceitunas verdes
CONSERVAS DE PESCADO	FOOD	Conservas de pescados
CONSERVAS VEGETALES	FOOD	Convervas de legumbres
ESPECIAS	FOOD	Almendra en pepita
FRUTAS	FOOD	Naranjas
FRUTAS DE CONSERVA	FOOD	Pulpa de frutas
FRUTAS SECAS	FOOD	Frutas secas
GRANOS	FOOD	Cebollas
HORTALIZAS	FOOD	Hortalizas
VINOS Y LICORES	FOOD	Vinos generosos y licor
METALS (Bronze)	METALS	Mercurio
MERCURIO	METALS	Mercurio
WOLFRAM - ANTICIPOS		
CONVENIO HISPANO ALEMAN	MINERALS	WOLFRAM
WOLFRAM - COVENIO ESPECIAL DE 100MIL RM	MINERALS	WOLFRAM
MINERAL DE HIERRO	MINERALS	Mineral de hierro
MINERAL DE WOLFRAM	MINERALS	WOLFRAM
OTHER MINERALS	MINERALS	Mineral de hierro
FIBRAS ANIMALES	TEXTILES	Lanas en rama
FIBRAS VEGETALES	TEXTILES	Lanas en rama
TEJIDOS	TEXTILES	Lanas en rama
INDETERMINADOS	UNKNOWN	N/A
FUEL-OILS	VARIOUS	(no trade)
MAQUINARIA DIVERSA	VARIOUS	(no trade)

Spanish Exports BdE Category (in Spanish)	SITC Category	Depreciated by Commerce Category (in Spanish)
CELULOSA	VARIOUS	(no trade)
PAPELES Y CARTONES	VARIOUS	(no trade)
PRODUCTOS VARIOS	VARIOUS	(no trade)
Suministros Especiales	VARIOUS	(no trade)
VARIOS	VARIOUS	(no trade)
MATERIAL DE CONSTRUCCION	WOOD	Corcho manufacturado
CORCHO	WOOD	Corcho manufacturado

Notes: Where (no trade) for an item indicates that there was no trade in that category, it is not necessary to assign a price index value.

N/A means that no price index is available for this good, so it is reported in the Various Consumer Product category, which is later depreciated by the overall price deflator.

Calculating trade

There are three steps to calculating nominal and real imports and exports for each Spanish-belligerent trade relationship: the reckoning of nominal trade, price deflators and the real trade.

Step 1: Nominal trade for each belligerent trading partner

Construction

- Overall nominal trade by country includes both goods in non-clearing and clearing trade.
- Nominal trade by category is constructed by adding the relevant BdeE categories for each country into the standardized 1948 SITC categories for each trading partner, according to the above rubric.
- The BdE categories reported as “COVENIO ESPECIAL DE 100MIL RM” and “ANTICIPOS CONVENIO HISPANO ALEMAN” are accounting accruals of owed amounts reported as wolfram in their respective years of accrual (which represents the date of purchase and not necessarily of export). Because it is difficult to determine the precise date of export, the date of purchase is used. This results in some differences, as discussed in the assumptions and sensitivity analysis.

- d. The master category Various Consumer Products (with note [1] in the appendices) includes items which are known, but for which there is no available price deflator. These are mostly small items, which have little impact on the overall trade statistics.
- e. The unknown category (with note [2]) is the error term, representing the difference between available unit level statistics and the total reported for the country by the Spanish authorities.

Assumptions in the construction of the SITC-standardized nominal trade statistics

The following assumptions are used in the calculation of the nominal trade statistics:

- a. The nominal statistics assume that the underlying per unit values of identical goods in the clearing and extra-clearing trade groups are the same. The prices for the same good could have differed substantially since the non-monetary extra clearing prices would have depended on offering the countervailing trade. This could lead to mis-evaluation when the two trade groups are added together. No statistics are available which would make it possible to elaborate on these differences.
- b. The actual delivery of the eventual military goods represented by the BdE categories of “COVENIO ESPECIAL DE 100MIL RM” and “ANTICIPOS CONVENIO HISPANO ALEMAN” are assumed to have taken place to the full value of both accrual categories. In 1943/1944. See discussion of the December 1942 Spanish-German Commercial Agreement in the text and R2066/E4. For clarity, the differences between the trade reported in the IEME statistics and this chapter can be summarized as follows:

**Table 3A.3: Comparison of Trade Statistics, IEME and Golson
Spanish-German Trade: Imports from Germany**

Year	IEME Reported (000£)	Golson (appendix 3.1 converted to 000£)	Difference (000£)
1940	2,190	2,254	64
1941	9,753	11,279	1,526
1942	13,990	17,417	3,427
1943	25,822	33,731	7,909
1944	28,884	25,588	-3,296

**Table 3A.4: Comparison of Trade Statistics, IEME and Golson
Spanish-German Trade: Exports to Germany**

Year	IEME Reported (000£)	Golson (Appendix 3.2 converted to 000£)	Difference (000£)
1940	2,310	2,264	-46
1941	15,799	15,402	-397
1942	19,557	19,015	-542
1943	34,568	33,788	-780
1944	26,488	18,891	-7,597

**Table 3A.5: Comparison of Trade Statistics, IEME and Golson
Spanish-United States Trade: Imports from the United States**

Year	IEME Reported (000£)	Golson (Appendix 3.3 converted to 000£)	Difference (000£)
1940	3,273	3,272	1
1941	3,443	3,437	7
1942	6,799	6,783	16
1943	17,330	17,306	24
1944	11,575	14,602	3,027

**Table 3A.6: Comparison of Trade Statistics, IEME and Golson
Spanish-United States Trade: Exports to the United States**

Year	IEME Reported (000£)	Golson (appendix 3.4 converted to 000£)	Difference (000£)
1940	10,941	10,941	0
1941	8,678	8,677	-1
1942	4,486	4,486	0
1943	15,155	15,156	1
1944	11,564	11,563	-1

**Table 3A.7: Comparison of Trade Statistics, IEME and Golson
Spanish-United Kingdom Trade: Imports from the United Kingdom**

Year	IEME Reported (000£)	Golson (Appendix 3.5 converted to 000£)	Difference (000£)
1940	6,352	6,353	1
1941	5,212	5,210	-2
1942	10,760	10,760	0
1943	10,668	10,664	-4
1944	11,939	11,921	-18

**Table 3A.8: Comparison of Trade Statistics, IEME and Golson
Spanish-United Kingdom Trade: Exports to the United Kingdom**

Year	IEME Reported (000£)	Golson (Appendix 3.6 converted to 000£)	Difference (000£)
1940	6,877	7,486	609
1941	6,645	10,207	3,562
1942	7,609	8,810	1,201
1943	8,957	8,679	-278
1944	7,697	5,840	-1,857

Step 2: Price deflators for the BdeE price categories

Construction

- a. Price indices for Spanish-belligerent trade for the entire period are compiled from two separate statistical sources. The first consists of the import/export price per ton values which originate from the Ministry of Commerce's AEdE report. These are used to create index values from 1939 to 1942; the second consists of import/export prices per kilo and by country from the Agriculture Ministry for the full year 1942, January-June 1943 and 1944 of these are used to create the full year index periods for 1942 to 1944. 1942 is used as the overlapping year in which the Agriculture Ministry's prices are rebased to act as a continuation of the Ministry of Commerce's figures. The combination of these statistics results in 26 categories for which price indices can be created for the entire period 1939 to 1944; considerably lower than the 59 categories of imports/exports presented in the BdeE statistics. However, all 59 categories can be depreciated by the 26 price deflators. The 26 price deflators plus wolfram, include goods in all 59 BdeE reported categories. Because the 1942 to 1944 statistics are by country, three separate sets of 26 price deflators, each are created, one for each evaluated belligerent country (Germany, the UK and the US). An exception is made for wolfram, which is the 27th category, as detailed below.
- b. Given the importance of the trade in wolfram, particularly accurate statistics were developed for wolfram prices. Because the Spanish government sought to limit the availability of these statistics after 1942, to hide the price increases from the belligerents, Allied reports must be used to create an accurate price index. The import/export price per ton values originate from the Ministry of Commerce's AEdE reports, which are used to create index values from 1939 to 1942;

prices for the 1942 to 1944 period originate from the American and British reports on wolfram purchasing.⁴²⁰

- c. The 27 categories include all the components of the 59 categories in the BdeE statistics for which price statistics are available. Some BdeE price categories are covered by two or three price deflators. In each case when a price deflator is applied there is a relevant component in the BdeE statistics. For example, the motor vehicles index (*Vehículos para transportes terrestres*) is used to depreciate the BdeE's category for tractors (*Tractores*); machinery is used to depreciate the category for arms because weapons are included in the relevant machinery price deflator category. Vigorous attempts have been made to properly align the categories on the basis of the underlying components. Trade in the four categories for which there are no underlying components has been included in the various consumer products category and is not depreciated by any particular price deflator.

Step 3: Real trade by type and group Construction

- a. Real trade by BdeE category is constructed by taking the BdeE reported category of nominal trade by country and depreciating it according to the relevant constructed price deflator for the category.
- b. Real trade by SITC category is then calculated by adding the relevant BdeE categories for each country to the standardized SITC categories for each country.

⁴²⁰ See Table 3.13; Christian Leitz, *Economic Relations*, p.176; NARA RG234/16/19; NA T264/4; NARA RG84/UD3162/34, chart dated 30 March 1944.

- c. In order to obtain an overall real price deflator by country, the total nominal trade in a given year is divided by the total real trade (excluding trade in both the unclassified and the various categories).
- d. For price deflators for categories of individual goods: The total nominal trade in an SITC category is divided by the total of real trade in the same category in any given year.
- e. Real unclassified trade represents the nominal unclassified trade depreciated on the assumed basis that this unclassified trade inflated at the same rates as the overall trade for which price deflators are known.
- f. Real various trade represents the nominal various trade depreciated under the assumption that this unclassified trade inflated at the same rates as the overall trade for which price deflators are known.

Assumptions in constructing the SITC-standardized real trade statistics and sensitivity analysis (where possible):

1. Using the available figures, reported price indices are based on tonnage divided into currency values at the unit level. This approach is subject to faults. It ignores potentially non-random changes in underlying goods which make up the categories and so incorporates some systematic biases. It is possible to comment on some of these biases as they relate to the construction of price indices:
 - a. Based on the changes in composition in exports reported in Appendices 3.1, 3.3 and 3.5, Spain exported increasing quantities of significantly denser and higher weight raw materials from 1938. This could artificially decrease the Paasche price indices of export goods presented in this chapter, increasing the real export statistics. Hence it is likely overall real exports reported in this chapter are in fact the upper bounds for these figures.

- b. Similarly, the Spanish imports of higher value, lower weight goods (including manufactures) increased from 1938 onwards. This would also down the import price index and provide an upper bound for the real trade figures.
2. Some biases are created by the use of Paasche as opposed to Laspeyres price indices. As there are large variations in the underlying quantity components of some goods, Paasche indices are more appropriate. This privileges the most recent quantities of goods over those from the pre-war consumption basket. However, in order to increase transparency, Laspeyres are also presented in Tables 3A.9-3.A.14 as follows:

Table 3A.9: Paasche and Laspeyres Price Indices for Spanish Exports to Germany, 1939=100

Period	Paasche Index as Reported in Appendix 3.1	Laspeyres Index
1939	100	100
1940	106	108
1941	119	127
1942	182	156
1943	370	396
1944	345	378

Table 3A.10: Paasche and Laspeyres Price Indices for Spanish Imports from Germany, 1939=100

Period	Paasche Index as Reported in Appendix 3.2	Laspeyres Index
1939	100	100
1940	89	87
1941	110	109
1942	114	114
1943	104	105
1944	101	102

Table 3A.11: Paasche and Laspeyres Price Indices for Spanish Exports to the United States, 1939=100

Period	Paasche Index as Reported in Appendix 3.3	Laspeyres Index
1938	100	100
1940	88	84
1941	124	122
1942	237	245
1943	395	409
1944	452	469

Table 3A.12: Paasche and Laspeyres Price Indices for Spanish Imports from the United States, 1939=100

Period	Paasche Index as Reported in Appendix 3.4	Laspeyres Index
1939	100	100
1940	59	60
1941	62	62
1942	75	76
1943	79	81
1944	89	91

Table 3A.13: Paasche and Laspeyres Price Indices for Spanish Exports to the United Kingdom, 1939=100

Period	Paasche Index as Reported in Appendix 3.5	Laspeyres Index
1938	100	100
1940	98	110
1941	92	104
1942	122	144
1943	216	249
1944	144	169

Table 3A.14: Paasche and Laspeyres Price Indices for Spanish Imports from the United Kingdom, 1939=100

Period	Paasche Index as Reported in Appendix 3.6	Laspeyres Index
1939	100	100
1940	92	92
1941	65	65
1942	86	86
1943	103	104
1944	132	131

3. In addition, there are also problems related to the lack of country specific data.
 - a. In an ideal scenario, specific country unit prices would be available for the entire period and for each BdeE category. Unfortunately such statistics do not exist. Instead, this analysis depends on statistics from outside the BdeE. Spanish trade statistics outside the BdeE are known to be problematic at best, inaccurate at worst. It must be emphasized that the figures in AEdE and the Ministry of Commerce statistics for the total reported value of exports do not correspond to those reported by the BdeE. Unfortunately, there is no other way of constructing price deflators which precisely match the BdeE categories. The information necessary to create 59 price indices to match the 59 categories of goods reported by the BdeE does not exist. This work has to assume that the effects of using the 27 price indices on the 59 categories of goods are negligible; given the lack of available data, it is difficult to determine the precise effects, if any, of these assumptions.
 - b. In an ideal scenario, the 1942 to 1944 price indices would not depend on half-yearly price statistics. The Ministry of Agriculture's statistics

report only the January to June trade figures; however, this work uses these half-yearly figures to estimate whole-year inflation. Some agricultural exports are seasonal and therefore some distortion of the price to weight ratios of some of the 1943 and 1944 statistics – and hence, the price indices – is likely. Given the lack of any July to December volume or price figures for 1943 to 1944, it is difficult to determine the precise effects of this assumption.

- c. There are better ways of calculating the wolfram price indices for the American and British cases; however, consistency dictates using the previously described methods. The wolfram-specific price indices use American and British statistics and estimates of German purchases (note: not exports). Wolfram prices are calculated on the basis of purchases; but given the large quantities of wolfram stored in Spain during this period compared to actual exports, this methodology increases the average price of the exports. A FIFO (first-in-first-out) method would be better at reflecting the delays in deliveries; but with no monthly purchase figures available for Germany, it is impossible to make a similar calculation for both the Allies and the Axis. The net change caused by substituting a FIFO method for the United States wolfram purchases is a decrease in the metals and materials price deflator in 1943 and 1944, as follows:

**Table 3A.15: Spanish Exports to the United States:
Mineral Price Deflator, 1938=100**

	1942	1943	1944
Average Sales Method (reported in Appendix 3.3)	1,106	1,557	1,849
FIFO Method	1,106	1,420	1,488

Source: Appendix 3.3.

Chapter Four

Swiss-Belligerent Merchandise Trade in the Second World War

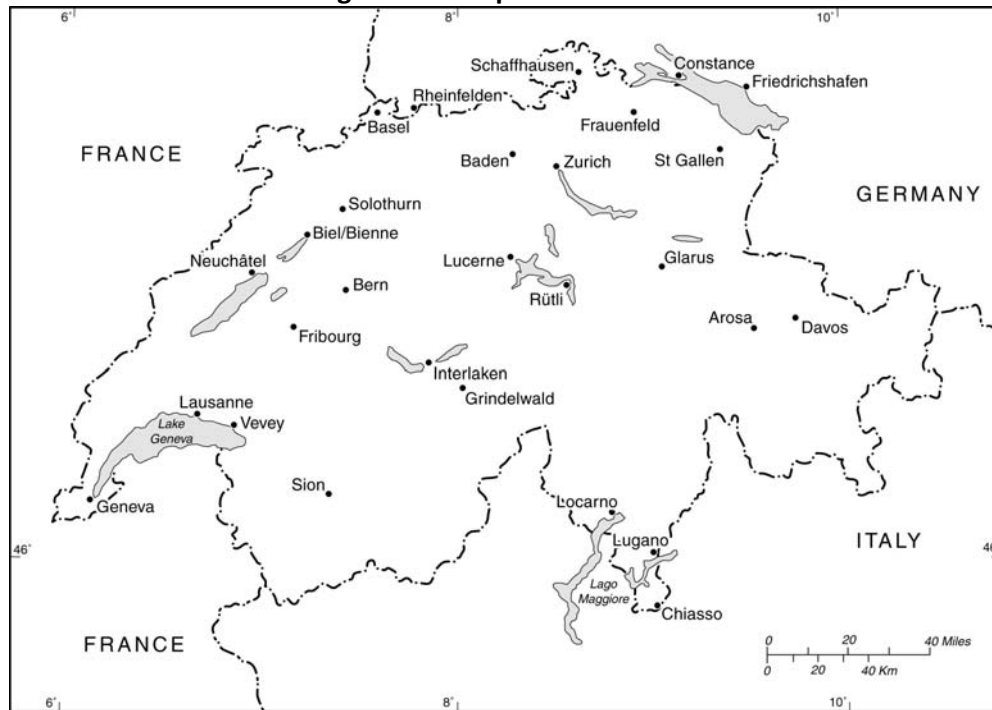
Abstract

This chapter shows that to maintain its position the Swiss government offered Germany concessions when necessary. The German position is mixed: Switzerland provided large trade credits, in particular during the period of increased German military strength from 1940 to 1942; but Germany also continued to provide Switzerland with excess imports while paying higher prices for Swiss goods. It demonstrates that Switzerland gave the Allies favourable terms of merchandise trade, in particular after 1943, in exchange for the continued recognition of Swiss independence.

Introduction

Much of the literature on Swiss trade in the Second World War assumes that Switzerland acted at the behest of Germany and was therefore under German control. Beyond question, Swiss trade with Germany was important for both countries. To accede to German military pressure and to maintain vital supplies, Switzerland increased its speciality exports, often on credit. Such quantities of metals, machines and precision instruments were important to the German war effort. However, the relationship was not entirely one-sided: the Swiss government managed to extract trading advantages from Germany, including an import surplus and favourable export prices. This suggests that Germany was at a disadvantage against Switzerland, even though German actions determined Switzerland's survival as a country.

Figure 4.1: Map of Switzerland



Source: Author

Though surrounded by the Axis powers from 1940 to 1945, Switzerland's trade relationship with the Allies was just as important for its survival. The Allies exerted financial and diplomatic pressure on Switzerland, which, although engulfed by the German bloc and its customs regime, maintained trade with the Allies such that exports were priced favourably relative to imports. Exports included much-needed military goods – watches, guns and industrial diamonds. With Germany's collapse increasingly imminent by 1944, an export surplus developed in the Allies' favour.

Many of the recent examinations of Switzerland's role castigate Switzerland for "abetting genocide, by refusing to offer sanctuary to Hitler's victims, bankrolling the Nazi war economy and callously profiting from Hitler's murderous actions."⁴²¹ Writers argue that Switzerland was a de-facto member of

⁴²¹ Neville Wylie, *Britain, Switzerland and the Second World War* (Oxford, 2003), p.2; the most significant books representing the revisionist position are Jean Ziegler, *Switzerland the Gold and the Dead: How Swiss Bankers Helped Finance the Nazi War Machine* (London, 1998) and Adam

the German Reich and was therefore largely complicit in its crimes; Switzerland therefore remained independent only by favouring Germany with beneficial balances of trade and banking services. This revisionist argument depends on selective use of the nominal economic statistics and the pro-German diplomatic messages broadcast by some Switzerland Federal Council Ministers after the Allies were routed from Europe. Although sensational in their findings, these revisionist works typically exclude all other trading partners.

Two volumes in the official Swiss twenty-five volume series, the *Commission of Independent Experts for the Second World War* are particularly useful in this context. Swiss trade relations during the Second World War are reviewed in *Schweizerische Aussenwirtschaftspolitik 1930-1948* [Swiss Foreign Trade Politics 1930-1948].⁴²² Highlighting the wartime changes in Switzerland's relationships with Germany, the Allies and other neutrals, this study provides a detailed overview of long-term Swiss foreign trade policy. Because the Commission was formed in response to American criticism of Switzerland's wartime role, it particularly scrutinises Swiss-German and Swiss-Italian trade. For example, it asserts:

“The Axis partners benefited mainly from three commercial services by Switzerland: first, it provided goods vital to the war effort and electricity, for which it paid a clearing credit of billions; second, it provided direct transit between the Axis partners, Germany and Italy; and third, it received benefits from the free movement of capital, serving the international gold and foreign exchange needs of the Axis.”⁴²³

LeBor, *Hitler's Secret Bankers: The Myth of Swiss Neutrality During the Holocaust* (Secaucus, 1997).

⁴²² Martin Meier, Stefan Frech, Thomas Gees, and Blaise Kropf, *Schweizerische Aussenwirtschaftspolitik 1930-1948* [Swiss Foreign Trade Politics 1930-1948] (Zurich, 2002). A third volume, *Clearing: Der Zahlungsverkehr der Schweiz mit den Achsenmächten* [Clearing: Swiss Payments to the Axis] (Zurich, 2001) by Stefan Frech examines the financing of the trade relationships.

⁴²³ Meier et al, *Schweizerische Aussenwirtschaftspolitik*, p.304.

It does not provide similar conclusions for Allied-Swiss trade, and to some extent sees the different trade relationships as separate. The present study builds directly on this work by examining the import and export prices in these relationships; it also juxtaposes the German and Allied relationships to emphasize the periodization in Swiss decision-making.

Another volume in this series, *Electricité Suisse et Troisième Reich* [Swiss Electricity and the Third Reich] examines Swiss energy exports to Germany.⁴²⁴ Traditionally, electricity has not been counted as a Swiss export.⁴²⁵ When it has, the discussion has been limited to direct exports. Using a different methodological approach, whereby all production is counted so long as it depended on Swiss cooperation, this chapter demonstrates that Swiss electricity mattered more to Germany's war effort than the CIE study had suggested. Even so, it reveals that the net contribution of Swiss electricity to Germany was still less in energy equivalents than the coal from Germany to Switzerland.

Historian Neville Wylie published the first English-language book on British-Swiss relations.⁴²⁶ His thematic analysis of the diplomatic warfare between the Allies and Switzerland and the war-trade agreements, transit rights, violations of airspace, financial matters, espionage activities and Swiss policy in the pre-war period is very detailed. Wylie also provides detailed accounting for the illicit purchase of much-needed watches and other items, known as *Danegeld*. Despite being the most detailed historical work on Anglo-Swiss relations so far, Wylie's work can still be augmented by providing both nominal and real trade statistics in a standardized and comparable format for the first time, as in this chapter. This highlights the strategic aspects of the trade relationships by discussing the products provided and gives price indices for

⁴²⁴ Jean-Daniel Kleisl, *Electricité Suisse et Troisième Reich* [Swiss Electricity and the Third Reich] (Zurich, 2001).

⁴²⁵ SJS, 1939-1945.

⁴²⁶ Wylie, *Britain, Switzerland*.

these goods. In so doing, it defines four new periods which frame Wylie's diplomatic arguments and incorporate the actions of Germany.

Swiss Wartime Trade: Political Developments

This section outlines the political aspects of Swiss-German and Swiss-Allied trade relations during the Second World War in four distinct periods. It establishes that both belligerent groups sought to control Swiss trade patterns during the war. With a country long reliant on its neighbours for food, fuel and basic materials, the Swiss government had to ensure continued trade in order to maintain both its own economy and its population.

Germany and France were Switzerland's largest pre-war trading partners by turnover, with approximately 19.8% and 12.0% respectively of Swiss trade overall. Distance limited Anglo-Swiss trade to 8.4% and American-Swiss to only 7.3% of all its pre-war trade.⁴²⁷ The fall of France on 25 June 1940 changed Switzerland's geostrategic position. The country was now surrounded by German-controlled territory and subject to German government demands. From the Allied perspective, the test of Switzerland's independence was whether or not it could export war materials outside the German bloc.⁴²⁸

War trade agreements and lesser diplomatic notes established for some time a legal basis for commercial relations between the belligerents and Switzerland. Actual trade volumes differed from the agreed terms, being affected by wartime conditions and changes by the Swiss government. To reach an agreement, the Trade Department of Switzerland's Foreign Ministry negotiated with the belligerents' representatives; including, for the Allies, the British Ministry of Economic Warfare and Board of Trade, the French Foreign Ministry (before June 1940), and later the United States State Department. For the Axis, negotiations were centralized through the *Auswärtiges Amt* [German Foreign Ministry]. These negotiations were not always held in parallel, but the Swiss

⁴²⁷ SIdS, 1945.

⁴²⁸ NA FO837/960-962.

government made reference agreements with other neutral countries when trying to establish quotas.⁴²⁹ Each scenario was dependent on current military and economic circumstances, with Germany using military pressure and the US and UK using economic influence.

For analysis, the four discrete periods into which Swiss trade relations fall are, first, nine months (September 1939 to June 1940) during which the pre-war status quo was maintained, while individual belligerents did their utmost to ensure access to Swiss manufacturing; Switzerland continued to trade on pre-war terms for contra-trade and payment; second, from June 1940 to the end of 1942, marked by overt dependence on Germany for imports and the granting of export credits, when exports to the Allies continued, but war materials were shipped covertly; third, from the end of 1942 until January 1944, extending the status quo: despite still being surrounded by Germany, the Swiss government was then increasingly willing to defer to Allied requirements to suggest its independence from Germany, but was reluctant to codify these Allied arrangements formally; and fourth (January 1944 until the end of the war), with Swiss deference to the Allies and an end to the trade loans to and limits on trade with Germany. There is no single war trade agreement which establishes a test for neutrality over the entire period. These periods are successively described in detail below.

From September 1939 to June 1940, the pre-war situation prevailed. Each belligerent sought to obtain war materiel from Switzerland and their agreements were finalized on Swiss government terms. The October 1939 German-Swiss War Trade Agreement maintained pre-war trade relations. Swiss exports were limited to half the value of the import traffic. The positive balance of merchandise trade was to be devoted to repaying German debts in Switzerland. Germany would continue to provide raw materials and food in a two-to-one ratio to its imports

⁴²⁹ W.N. Medlicott, *History of the Second World War: The Economic Blockade*, vol. I (London, 1952), p.206ff.

from Switzerland.⁴³⁰ The Swiss government assured the British that it expected exports to Germany to decline as the German military consumed resources which would otherwise have been used to purchase goods from Switzerland.⁴³¹

Formal war trade negotiations with the United Kingdom and France were initiated in November 1939. Priority was given to orders for watches, machine tools, fuses and Oerlikon guns. On 2 September Britain ordered 20 million Swiss Francs of war materiel; France followed three weeks later.⁴³² In exchange, Switzerland was expected to receive allocations of coal and coke from the UK and allowances for transportation through French ports.⁴³³ The British government held extended, but ultimately unsuccessful negotiations with some Swiss bankers for a credit facility of one to two hundred million Swiss Francs to cover these purchases.⁴³⁴

Six months after the Swiss-German agreement, France, the UK and Switzerland signed the Allied-Swiss War Trade Agreement.⁴³⁵ In addition to confirming the September 1939 orders, the April 1940 agreement included several addenda, which guaranteed additional weapons. Although ordering remained an overriding consideration in the negotiations leading to the agreement, Britain also included a prohibition on the re-export of Allied rubber, copper, hides, nickel and other goods to the Axis.⁴³⁶ The re-export of other goods, including iron ore, textiles, iron scrap and aluminium were restricted, subject to the control of a new "Mixed Commission" of Swiss, French and British representatives. In exchange, the Allies would continue to supply Switzerland with goods and allow the free transit of all Swiss goods over their territory

⁴³⁰ DDS 13/218/512ff, memo dated December 1939.

⁴³¹ W.N. Medlicott, *History of the Second World War: The Economic Blockade*, vol. I (London, 1952), p.226.

⁴³² DDS 13/208/482ff, undated memo from November 1939; Medlicott, *Economic Blockade*, vol.I, p.225.

⁴³³ DDS 13/210/491, memo dated 6 December 1939.

⁴³⁴ DDS 13/215/503, memo dated 19 December 1939; BAr E2001/1000/1152/231, correspondence and draft agreements dated between 5 March and 29 March 1940

⁴³⁵ NA FO371/24532, notes from War Trade Agreement, dated 25 April 1940.

⁴³⁶ NA BT 11/1164, correspondence dated between October 1939 and April 1940.

(subject to normal anti-enemy trade rules).⁴³⁷ The new system took effect on 10 May 1940, the day of the Battle of France and the first day's occupation of the Low Countries

Unquestionably, the fall of France in June 1940 significantly impacted on Switzerland's foreign relations. Switzerland now completely depended on the German-led Axis alliance for its territorial integrity and merchandise trade. The Germans withheld coal deliveries in mid-1940 to enforce their point and the threat of a German invasion of Switzerland was countered by an increased delivery of goods and services.⁴³⁸ Germany was eager to exploit Switzerland's perceived weaknesses and the Swiss government was quick to acquiesce.

From June 1940 to the end of 1942, the Swiss government offered goods and credits to both sides in order to maintain imports and to continue trading outside the German bloc. Reflecting the new situation, Switzerland's Federal Council endorsed a closer economic relationship with Germany. The 9 August 1940 German-Swiss War Trade Agreement met key German demands: it eliminated the 2:1 ratio of German to Swiss exports and limited Swiss exports outside the Axis bloc to 1937-1938 levels.⁴³⁹ This agreement also included a trade credit of 150 million Swiss Francs (of which 122 million was new credit, 28 million being converted credit from other sources). In exchange, Germany agreed to provide 380,000 tons of coal and coke and to let Switzerland trade outside the German sphere.⁴⁴⁰ This was a more one-sided agreement than the previous version (October 1939) version, which clearly reflected Germany's new control of Switzerland's economic position.

Anglo-Swiss relations deteriorated rapidly after the collapse of France. In June 1940, Britain established its own test for continued recognition of

⁴³⁷ NA BT 11/1308, War Trade Agreement, dated 24 April 1940.

⁴³⁸ BA-MA RH2/465:Switzerland/C, BA-MA RH19III/141 and 129, documents dated between June and August 1940; also see Klaus Urner, *Let's Swallow Switzerland* (Oxford, 2002).

⁴³⁹ DDS 13/351/855, memo dated 30 July 1940.

⁴⁴⁰ DDS 13/363/885, note dated 13 August 1940; see also Robert Vogler, *Die Wirtschaftsverhandlungen zwischen der Schweiz und Deutschland 1940 und 1941* [The Business of Trade between Switzerland and Germany, 1940 and 1941] (Zurich, 1983).

Chapter Four: Swiss-Belligerent Merchandise Trade

Switzerland's independence: continued Swiss *quid pro quo* exports to the rest of the world. However, even before the trade factor, Anglo-Swiss relations were poisoned by a series of events which made Switzerland seem pro-Axis.⁴⁴¹ Switzerland used anti-aircraft guns and fighters to defend its airspace after British over-flights, damaging several British aircraft.⁴⁴² The Swiss government also denied Britain landing rights for civilian aircraft collecting purchased war materiel. Meanwhile, the gun manufacturer Oerlikon, which had accepted British orders for hundreds of anti-aircraft weapons, suggested allocating the Allied deliveries entirely towards German backorders, given the transportation problems to the UK.⁴⁴³ In response to these incidents, Britain's Admiralty began to hold Swiss trade at British ports until Swiss intentions were clear.⁴⁴⁴

⁴⁴¹ NA FO371/24533, memo dated 16 June 1940.

⁴⁴² DDS 13/399/976, note dated 22 October 1940; FO837/945, correspondence dated between September 1940 and March 1941.

⁴⁴³ NA FO371/24532-4, various; see also Peter Hug, *Schweizer Rüstungsindustrie und Kriegsmaterialhandel zur Zeit des Nationalsozialismus* [Swiss Machine and War Material industry during the Time of National Socialism], vol.II (Zurich, 2002).

⁴⁴⁴ Wylie, *Britain, Switzerland*, p.133.

Figure 4.2: Swiss-Belligerent War Trade Agreements

	from 1 September 1939	1940	1941	1942	1943	1944	to May 1945
USSR			24 FEBRUARY 1941 COMPENSATION AGREEMENT				
UK		25 APRIL 1940 WAR TRADE AGREEMENT	15 OCTOBER 1940 WAR TRADE AGREEMENT		14 DECEMBER 1942 COMPENSATION AGREEMENT	19 DECEMBER 1943 WAR TRADE AGREEMENT	8 MARCH 1944 TRADE AGREEMENT
USA							
GERMANY	24 OCTOBER 1939 WAR TRADE AGREEMENT	9 AUGUST 1940 WAR TRADE AGREEMENT	22 JUNE 1941 WAR TRADE AGREEMENT		(1)	3 JANUARY 1944 WAR TRADE AGREEMENT	

Notes:

(1) - 22 JUNE 1941 WAR TRADE AGREEMENT CONTINUES TO OPERATE DURING 1943 BUT LEGALLY EXPIRED ON 15 JANUARY 1943, LAST QUARTER OF 1943 COVERED BY TEMPORARY AGREEMENT OF 1 OCTOBER 1943 (GOOD UNTIL 31 DECEMBER 1943).

Sources:

Documents Diplomatiques Suisses, 1848-1945 (Bern: Benteli Verlag, 1992), Volumes 13, 14 and 15
 Foreign Relations of the United States (Washington DC: Department of State, various)
 NARA RG107/160/925-928, Files of Harold H. Neff, Office of the Secretary of War
 NA FO837/972-991, Switzerland Foreign Office files
 BAr E7110/1973/120/9

Switzerland's determination to maintain its export trade, in particular the illicit *Danegeld* purchases (including watches, diamonds and fuses), was an important factor in renewing Anglo-Swiss relations. After withdrawing their objections, the Allies established a two-month rationing principle as part of the October 1940 War Trade Agreement; Switzerland was allowed to request a good from the Allied sphere only if domestic reserves had fallen below two months. On this basis, an immediate request was made for coal, barley, oats, cars and other goods held on ships in British ports.⁴⁴⁵ Other requests for oil, various foodstuffs, lead, zinc, tin and mercury were denied on the basis of Switzerland's still large stocks.⁴⁴⁶ Approval of these requests depended on countervailing traffic. On this basis, Britain continued to monitor Swiss trade through the summer of 1941.⁴⁴⁷

Seeking to diversify its trade patterns, on 25 February 1941 the Swiss government signed a trade agreement with the Soviet Union.⁴⁴⁸ The two countries needed each other, despite their political differences: Switzerland wanted access to raw materials outside the German sphere, while the Soviets were particularly interested in buying Swiss machine tools. Switzerland was also committed to providing technical assistance to the Soviet watch industry. The agreement did not provide for trade credits or other similar facilities. Switzerland believed that the trade could be worth up to 200 million Swiss Francs annually; this was nearly the annual value of pre-war Swiss exports to Germany.⁴⁴⁹ Soviet orders worth approximately 75 million Swiss Francs were held after the June 1941 German invasion of the Soviet Union. Most were never delivered.⁴⁵⁰

The June 1941 German-Swiss War Trade and Credit Agreement followed the August 1940 Agreement and codified the new German position of strength.

⁴⁴⁵ DDS 13/396/969, report dated 15 October 1940.

⁴⁴⁶ Medicott, *Economic Blockade*, vol.I, p.590.

⁴⁴⁷ NA FO837/960-962, various

⁴⁴⁸ DDS 14/21/67/annex, note dated 6 March 1941

⁴⁴⁹ DDS 14/21/66, report of conference dated 25 March 1941.

⁴⁵⁰ DDS 14/65/203, verbal note dated 23 June 1941; DDS 14/71/235, telegram dated 18 July 1941.

This agreement pledged much of Switzerland's economic output in exchange for guaranteed levels of raw materials, including German coal, steel, petroleum and agricultural products. In exchange Switzerland was to provide machine tools, besides dairy and agricultural products; Switzerland also pledged 450 million Swiss Francs credit to Germany, equalling about two years of Swiss exports at 1939 levels.⁴⁵¹ By virtue of amending notes, the credit amount had risen to 850 million Swiss Francs when the agreement expired on 15 January 1943.⁴⁵² Moreover, Germany tightened control over Switzerland, taking over all border and customs controls for shipments via unoccupied France; this closed the last efficient smuggling routes for Allied goods.⁴⁵³ In terms of impact, the agreement formalized Switzerland's new position solidly within the German economic sphere.

Britain found it difficult to punish the Swiss government for this move towards Germany. Correspondence suggests that the greatest barrier to trade for Britain remained geography. Swiss imports from the Allied bloc had already declined to a point where few additional goods could be withheld for coercive purposes. Britain launched diplomatic protests and limited external Swiss imports to foodstuffs, fodders, oil and fats.⁴⁵⁴ It continued to require specialized Swiss goods. Machinery, chemicals, watches, detonators and other goods continued to flow as part of the *Danegeld* programme through the blockade by courier and airplane via Lisbon.⁴⁵⁵ But apart from the *Danegeld* Britain could not flout German prohibitions on importing Swiss goods via normal routes. In late

⁴⁵¹ Medlicott, *Economic Blockade*, vol.II, p.206-209; Vogler, *Die Wirtschaftsverhandlungen*, p.158-219; appendix 4.1; for status of German-Swiss trade at this time see DDS 14/82/248, memo dated 24 July 1941.

⁴⁵² BAr E7110/1973/120/9, memo dated 11 December 1942; DDS 14/379/1207, telegram dated 24 June 1943.

⁴⁵³ NA PREM3/419/1, memo dated 9 October 1941.

⁴⁵⁴ Medlicott, *Economic Blockade*, vol.II, p.212; DDS 14/78/237, notice dated 21 July 1941; DDS 14/100/296, memo dated 10 September 1941.

⁴⁵⁵ Wylie, *Britain, Switzerland*, p.350; BAMA AW1/6458, correspondence from 1941 and 1943; for prior correspondence (October 1940 to January 1941), see BAr E2001D/1000/1553/540.

1941, it discussed using BOAC aircraft in a direct link; but Switzerland decided that this risked its neutrality too far.⁴⁵⁶

The most effective Allied policy against Switzerland was the prevention of Swiss exports. But the Allies found this self-defeating, since it limited their supply of Swiss goods. Britain instituted a 'listing campaign' which blacklisted Swiss companies from trading with Allied countries if they were also selling to Germany. Among the companies added to the list by the end of 1941 were arms manufacturers Oerlikon Buehrle and machine manufacturer Hispano-Suiza. These companies were threatened with permanent exclusion from Allied markets.⁴⁵⁷ For several, the listing campaign was merely an annoying formality; they were willing to sell to the Allies, but the size and nature of their goods prevented their exporting them to the Allied zone, in any case.⁴⁵⁸ For others, such as machine manufacturer Escher Wyss, the restrictions interfered with contracts in Allied territories which had already obtained Swiss and German export approval;⁴⁵⁹ in these cases the requirements of Britain's Board of Trade were overruled by the Ministry of Economic Warfare for tactical reasons. This is explored in a later discussion of the listing campaign.

From the end of 1942 to the beginning of 1944, the Swiss government increasingly deferred to Allied demands, but also managed to maintain status quo relations with Germany. The December 1942 Swiss-Anglo-American Compensation Agreement was particularly favourable to the Allies, given that Switzerland was still surrounded by German forces and Allied armies had not yet

⁴⁵⁶ BAMA AW1/6516.

⁴⁵⁷ For a complete tally of the companies affected by the listing campaign, see Oswald Inglin, *Der Stille Krieg: Der Wirtschaftskrieg zwischen Großbritannien und der Schweiz im Zweiten Weltkrieg* [The Still War: The Economic Warfare between Great Britain and Switzerland in the Second World War] (Zurich, 1991).

⁴⁵⁸ See discussion of the Oerlikon gun (below).

⁴⁵⁹ BA Ar E2001D/1000/1552/258/folder marked "Escher Wyss."

reached the Continent.⁴⁶⁰ Britain and America needed specialized goods from Switzerland.⁴⁶¹

With this December 1942 agreement, legal trade links were renewed: Switzerland obtained German approval for monthly exports to the Allies, including the Russians, worth 2.5 million Swiss Francs.⁴⁶² Not all of this amount was used.⁴⁶³ In addition, the Swiss government also provided Britain with a trade loan of two million Pounds Sterling (about 37 million Swiss Francs) after the Allies rejected an earlier, more generous loan of two hundred million Swiss Francs, on what they claimed were unfavourable terms. In exchange, Switzerland received continued Allied recognition of its independence and vital raw materials imports from the expanded Allied zone. The Mixed Commission, previously charged with handling questions of Swiss-German trade in May-June 1940, was also renewed with Swiss, British and American representation instead of the previous Anglo-French leadership; Switzerland agreed to some Allied demands to limit exports to Germany.⁴⁶⁴

By this point, Swiss-German relations had become increasingly problematic; but Switzerland, still dependent on Germany, was unwilling to upset it by reducing trade to comply with Allied demands.⁴⁶⁵ At the end of 1942, Germany was several months behind on deliveries, of coal and steel in particular; Switzerland was awaiting 75% and 68% respectively of the expected 1941/42 deliveries.⁴⁶⁶ Germany had indicated that it would continue sending coal until 1943, to fulfil the 1941/42 quotas, on condition that Switzerland supplied

⁴⁶⁰ DDS 14/179/561, memo dated 30 March 1942; DDS 14/200/632, memo dated 1 June 1942; DDS 14/204/644, memo dated 23 June 1942; DDS 14/206/653, memo dated 26 June 1942; DDS14/243/796, memo dated 28 September 1942; DDS 14/244/801, memo dated 28 September 1942; also see NA FO837/968, NA FO837/972, NA FO837/975, and especially NA FO837/972, memo dated 5 August 1942.

⁴⁶¹ NA FO837/972, memo dated 22 October 1942.

⁴⁶² NA FO837/972, see memo "Swiss Exports for Russia," undated.

⁴⁶³ See Table 4.6 and discussion following.

⁴⁶⁴ NA FO837/972, annex to letter dated 31 July 1942.

⁴⁶⁵ NA FO837/972, letters dated 14 December 1942.

⁴⁶⁶ DDS 14/277/919ff, annex to letter dated 12 December 1942.

additional goods on credit.⁴⁶⁷ However, because Swiss deliveries to Germany had continued uninterrupted, the negative clearing balance exceeded expectation.⁴⁶⁸

Although negotiations started in December 1942, the June 1941 German-Swiss Agreement was not formally replaced.⁴⁶⁹ Switzerland arrived at a temporary, accommodative position within the technical boundaries of the 1942 Swiss-Allied Compensation Agreement, Germany's desires and Switzerland's need to maintain imports. In the first instance, the Swiss government renewed the existing Swiss-German June 1941 Agreement for 15 more days, until 15 January 1943.⁴⁷⁰ This allowed Germany to order Swiss equipment under the 1941 Swiss-German agreement, which placed few limitations on such exports. Thanks to this extension, Germany was able to use the remaining 350 million of its 850 million Swiss Franc credit facility with no corresponding requirement for payment or countervailing trade. Deliveries under this old agreement had to be made by 31 July 1943, leading to an immediate spike in Swiss exports to Germany against the spirit of the December 1942 Allied-Swiss Agreement.⁴⁷¹ When the Allies objected to this accommodation and the lack of a new, more restrictive agreement, the Swiss government claimed to be unable to fully implement the 1942 Allied-Swiss Agreement, being still bound by the 1941 German-Swiss Agreement.⁴⁷² Germany continued to receive Swiss export orders and provide Switzerland with levels of commodities in line with figures established in January 1943.

In the first half of 1943, Swiss-German negotiations for a new trade agreement quickly turned into a three-way discussion, with the two belligerent groups negotiating with Switzerland. For its part, Switzerland realized that it could not fulfil all the belligerents' requirements and therefore continued to stall

⁴⁶⁷ Medlicott, *Economic Blockade*, vol.II, p.499.

⁴⁶⁸ See Chapter Five.

⁴⁶⁹ DDS 14/277/916, letter dated 12 December 1942.

⁴⁷⁰ BA Ar E7110/1973/120/9, dated 11 December 1942

⁴⁷¹ See Table 4.2.

⁴⁷² Medlicott, *Economic Blockade*, vol.II, p.500

in an attempt to please everyone, without having to promise anything in writing. In the face of the increase under the old agreement in German orders and deliveries before the July 1943 deadline, both Britain and America became particularly aggressive over setting quotas for Swiss exports to Germany; internal American correspondence from February 1943 reveals that the War Department considered abandoning exports to Switzerland altogether if it did not agree to limit its exports to Germany.⁴⁷³ If it could not get what it wanted through trade, the United States seemed happy to let Switzerland engage in extended trade with Germany, even though it acknowledged that Switzerland was providing strategic intelligence as a listening post and services as a protecting power.⁴⁷⁴

Diplomatic correspondence indicates increasing scepticism from the US State Department and British Foreign Office over Swiss pleas to recognize their difficult position.⁴⁷⁵ Adopting a strong line just short of the American War Department's suggestions, from 22 April 1943 the Americans and British reduced exports to Switzerland and withdrew Navicerts for neutral shipping.⁴⁷⁶ The two Allies provided parallel diplomatic notes to the Swiss government on 26 May 1943, objecting to continued levels of German political influence on, and trade with Switzerland.⁴⁷⁷ The President of the Federal Council, Marcel Pilet-Golaz replied by framing Switzerland's problems in domestic terms. He indicated that his people would rather go hungry than not work; he asserted they had to trade with Germany for coal.⁴⁷⁸ The Ministry of Economic Warfare also threatened to

⁴⁷³ NARA RG107/160/926, folder marked "Export and Priority Assistance," memo dated 13 February 1943.

⁴⁷⁴ *Ibid*, point IV.

⁴⁷⁵ FRUS 1943/II:Europe/824-827, telegrams dated February 1943

⁴⁷⁶ DDS 14/363/1150, memo dated 1 June 1943

⁴⁷⁷ NA FO371/34876, correspondence dated May 1943; for the text of the 26 May 1943 note, see DDS 14/363/1153, annex of the same date; FRUS 1943/II: Europe/830ff, telegram dated 27 April 1943; FRUS 1943/II:Europe/834, telegram dated 6 May 1943; DDS 14/368/1166, telegram dated 3 June 1943; FRUS 1943/II:Europe/830ff; FRUS 1943/II:Europe/835ff, telegram dated 17 May 1943.

⁴⁷⁸ FRUS 1943/II:Europe/842, telegram dated 27 May 1943.

pressure Swiss businesses.⁴⁷⁹ Switzerland's Federal Council ultimately agreed to some Allied demands; but, in the meantime, the Allies refused to receive a Swiss trade delegation and consider additional export requests until embassy channels progressively resolved outstanding issues.⁴⁸⁰

The parallel Allied notes of May 1943 and the withholding of all imports outside the German bloc led Switzerland to make some *prima facie* changes its relations with Germany. On 1 July 1943, the Swiss government unilaterally announced that all exports to Germany would immediately drop to 80% of 1942 levels.⁴⁸¹ The available Swiss credit facility to Germany was to be capped at 850 million Swiss Francs, requiring Germany to provide countervailing goods in order to maintain exports.⁴⁸² These restrictions were conditional on continued Allied food exports to Switzerland.⁴⁸³ The Allies agreed to resume exports and restart long-stalled trade negotiations.⁴⁸⁴

Although Switzerland's announcement of 1 July 1943 signalled a major political victory for the Allies, it is not certain that Switzerland limited exports to Germany as promised.⁴⁸⁵ Evidence obtained by America and Britain suggests that exports to Germany did not slow to 80% of 1942 levels in summer 1943.⁴⁸⁶ This is consistent with the figures presented in this chapter.⁴⁸⁷ German debts to Switzerland now exceeded 940 million Swiss Francs, not 850 million as Switzerland had suggested.⁴⁸⁸ A temporary German-Swiss Trade Agreement signed on 1 October 1943 formalized further loans to Germany of 100 million

⁴⁷⁹ FRUS 1943/II:Europe/839ff, telegram dated 22 May 1943.

⁴⁸⁰ FRUS 1943/II:Europe/846, telegram dated 15 June 1943.

⁴⁸¹ DDS 14/376/1199, telegram dated 22 June 1943; FRUS 1943/II:Europe/848ff, telegram dated 21 June 1943.

⁴⁸² DDS 14/379/1207, telegram dated 24 June 1943.

⁴⁸³ FRUS 1943/II:Europe/856, telegram dated 15 July 1943.

⁴⁸⁴ FRUS 1943/II:Europe/863ff, telegram dated 17 August 1943.

⁴⁸⁵ FRUS 1943/II:Europe/866ff, telegram dated 22 August 1943.

⁴⁸⁶ NA FO371/34877, memo dated 25 August 1943; NA FO115/3940-3941, various reports on German-Swiss trade.

⁴⁸⁷ See Table 4.2.

⁴⁸⁸ DDS 14/406/1285, annexe dated 10 August 1943.

Swiss Francs.⁴⁸⁹ The former British Commercial Councillor for Switzerland, John Lomax and Harold Neff of the American War Department urged a hard-line policy.⁴⁹⁰ Swiss companies with German interests and high level political connections were targeted, to put pressure on the Swiss government for a new trade agreement.⁴⁹¹

The Allies' threat was fulfilled through the 'listing campaign' of autumn 1943 targeting Swiss companies to escalate Allied sanctions. The effort was two-tiered: the Allied governments wanted the targeted companies to suspend trade with Germany, but also to persuade the Swiss government to make and implement a long-term trade deal beneficial to the Allies. For this, a company's political connections within Switzerland were quite as important as its actual trade with Germany.⁴⁹² The machine tool, engineering and heavy industrial sectors were particularly hard hit; whereas most on the blacklist had been individuals and companies punished for specific incidents, companies were now added if they could bring political pressure to bear on the Swiss government. The number of names on the statutory list now doubled within a year to nearly 1,130 by autumn 1943.⁴⁹³ Amongst the most notable cases was Hans Sulzer, the former Swiss Ambassador to Washington, and his Sulzer Brother's motor manufacturing business. The Sulzer business dealings were thoroughly scrutinized and Hans was publically humiliated as an example of what would happen to other Swiss firms; on 19 November 1943, at the end of the overtly public process, the Allied governments froze assets of his which they controlled.⁴⁹⁴ The result of this targeted effort was a clear victory for the Allies.

⁴⁸⁹ NA FO837/991, memo dated 8 February 1944.

⁴⁹⁰ NARA RG107/160/928, folder marked "Statistical Reports," report marked "The Anglo-American War Trade Agreement with Switzerland," undated; NA FO837/980, correspondence dated between May and July 1943.

⁴⁹¹ *Ibid.*

⁴⁹² NA FO837/977, memos dated 24 August and 22 October 1943.

⁴⁹³ Wylie, *Switzerland, Britain*, p.351.

⁴⁹⁴ Wylie, *Switzerland, Britain*, p.151; NARA RG107/160/928, folder marked "Statistical Reports," report marked "The Anglo-American War Trade Agreement with Switzerland;" Medicott, *Economic Blockade*, vol.II, p.514ff

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Trade negotiations started days after the Sulzer firm had been listed and within a month had ended, quite swiftly compared to the multi-month negotiations for other treaties.⁴⁹⁵

The fourth and final period is marked by a decisive shift towards the Allies. Although still surrounded by and dependent on Germany's benevolence for both imports and access to international markets, the December 1943 Anglo-American War Trade Agreement and the January 1944 Swiss-German War Trade Agreement reduced 1944 exports to Germany by about 50% of 1942 levels. Specific quotas were set for January 1944 and all remaining deliveries were subject to the Allies' Mixed Commission control.⁴⁹⁶ The most strategic goods, including machine tools, bearings, arms, ammunition and fuses, would be reduced by about 60%. Switzerland was allowed to sell more textile machinery to supply losses in other machine tool categories. Trade with occupied Italy would cease altogether and Switzerland withheld exports of dairy products to all countries. It also agreed to reduce trade proportionally, should Axis territory be occupied by the Allies.⁴⁹⁷ Switzerland made this situation more palatable for Germany by agreeing to provide 10 million Swiss Francs in credit beyond the nearly 1 billion Swiss Francs owed; the Allies rejected additional credits beyond this amount.⁴⁹⁸

In exchange Britain and America were to delist Sulzer Brothers and other industrial firms, restoring their rights in Allied territories. The Allies guaranteed to provide a few added items to Switzerland and (when they were reduced to nearly nil) restored the issuance of Navicerts for neutral-Swiss trade to pre-April 1943-quota levels. However, they offered no specific guarantees for the delivery

⁴⁹⁵ NA FO115/3943; NA FO837/989.

⁴⁹⁶ DDS 15/61/156, memo dated 29 December 1943.

⁴⁹⁷ FRUS 1943/II:Europe/888ff, telegram dated 19 December 1943.

⁴⁹⁸ NA FO837/991, memo dated 8 February 1944; FRUS 1944/IV:Europe/708, telegram dated 15 February 1944.

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of this trade to Switzerland.⁴⁹⁹ Throughout the first half of 1944, the Allies continued to press Switzerland to reduce trade with Germany. While it is clear from the correspondence that the Swiss government considered the Allied requests at length, it took no action until August 1944.

The final reductions in Swiss-German trade coincided with the collapse of Swiss imports from Germany. Although the Allies pressed Switzerland throughout the first half of 1944, the Swiss government made only minimal reductions in quotas for Germany.⁵⁰⁰ On 14 August the Allied governments exchanged letters with a Swiss trade delegation in London, extending the December 1943 Agreement.⁵⁰¹ The first significant post-December 1943 reductions in exports to Germany came as the French and American armies approached Switzerland's border. From 1 October 1944, the Swiss government banned exports of arms, ammunition, aircraft parts, bearings, fuses and similar military equipment.⁵⁰² From mid-November 1944, transit between Germany and Italy across Swiss territory was at Switzerland's request substantially reduced;⁵⁰³ it also insisted on the delivery of Swiss consignments which had fallen into Allied hands.⁵⁰⁴ The Allies continued to demand a total trade embargo and an end to the transfers of electricity to Germany.⁵⁰⁵

Events on the ground were moving faster than the negotiations to end Swiss-German trade. When the final wartime trade negotiations between the Allies and Switzerland, the so-called "Currie Mission," were under way in late February 1945, the Allied armies were already curtailing Swiss-German trade.

⁴⁹⁹ NARA RG107/160/928, folder marked "Statistical Reports," report marked "The Anglo-American War Trade Agreement with Switzerland."

⁵⁰⁰ FRUS 1944/IV:Europe/706-777, memos dated between 11 January and 7 October 1944.

⁵⁰¹ DDS 15/216/576, memo dated 23 August 1944.

⁵⁰² DDS 15/240/630, memo dated 23 September 1944.

⁵⁰³ DDS 15/362/898, memo dated 12 February 1945.

⁵⁰⁴ NARA RG107/160/927, unmarked file, memo dated 10 January 1945.

⁵⁰⁵ NARA RG107/160/927, unmarked file, memo dated 2 December 1944 and file marked "HHN Notes," memo dated 11 October 1944.

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The Currie negotiations were ultimately more concerned with post-war supplies than war-time deliveries.⁵⁰⁶

Swiss-Belligerent Wartime Trade

The Second World War created stark shortages of goods. As with the Spanish and Swedish studies before, this section assumes that above all, the Swiss government wanted to maintain imports of goods to sustain its population. This chapter is not concerned with the resulting balance of payments flows, which are detailed in Chapter Five. With this in mind, the Swiss government should seek to maximize its trade position in two different respects. In trying to sustain its population through the war, the Swiss government should firstly maximize nominal good imports and minimize the export of goods which would damage their domestic position. Secondly, in real trade terms, the Swiss government should seek to maximize the prices of exports while minimizing the prices of imports. As previously suggested, the Swiss government did not always work in an ideal world and was faced with threats. It responded to these challenges by changing trade policies. In particular, the Swiss benefitted from imports and terms of merchandise trade advantages with the Germans, while providing the Allies with relative export discounts in order to ensure continued imports.

Methodology

Before the new merchandise trade statistics for German and Allied trade with Switzerland are presented, some information should be given about the methodology behind these statistics. The methodology used for Switzerland is similar to that for Spain and Sweden. All the figures presented in Appendices 4.1-

⁵⁰⁶ NARA RG107/160/928, file marked "Currie Mission," correspondence dated March 1945; NARA RG107/160/927, unmarked file, memo dated 20 February 1945; DDS 15/358/883, memo dated 5 February 1945; DDS 15/360/891, memo dated 9 February 1945; DDS 15/371-372/920ff, dated February 1945; DDS 15/386/967, memo dated 6 March 1945

4.4 are standardized in accordance with the 1948 SITC designations, allowing for cross-country comparability.

It is also necessary to take note of the national accounting conventions used. In discussing trade, this chapter's reference point is always the neutral country. Trade is reported as net exports. Therefore, a trade surplus reported in the Allied-Swiss relationship in Table 4.1 reflects a goods trade balance in favour of the Allies, with exports from Switzerland exceeding imports. A negative figure represents a merchandise trade deficit, where Switzerland imported more goods than it exported to the Allies.

Examining Swiss trade is subject to some shortcomings, including data availability. Statistics include officially reported trade, as well as all known smuggling and payments for electricity transmitted to Germany. A variety of sources have been used, including the official Swiss trade statistics (monthly basis) reported in the *Statistisches Jahrbuch der Schweiz* [Swiss Statistical Yearbooks - SJdS].⁵⁰⁹ Trade categories reported in the SJdS have been consolidated in accordance with the rubric indicated in the notes to the appendices, to provide cross-country comparability; real prices have been calculated for each separate category based on price deflators. As far as possible, smuggling and illicit exports to the Allies, (*Danegeld*), are examined through the files of the American, British and Swiss sources.⁵¹⁰ Electricity exports to Germany, normally excluded from the trade statistics, are also analysed below.⁵¹¹ Precise figures for smuggling activities are often difficult to come by. For Allied-Swiss smuggling, this work relies on the research of Neville Wylie;⁵¹² no such research or documentation exists for German-Swiss statistics. Given the German control of Swiss trade, it is counterintuitive to believe that nothing was smuggled across

⁵⁰⁹ SJdS, 1945; SHvD.

⁵¹⁰ NA FO837, CAB66, and PREM115 series; BAMA AW/1 series; BAr E7110 and E7220/Washington series; NARA RG107/160/926-929.

⁵¹¹ *Ibid*; Kleisl, *Electricité Suisse*.

⁵¹² Neville Wylie, "British Smuggling Operations from Switzerland, 1940-1944," *The Historical Journal*, 48:4 (2005) as reported in Table 4.6.

the German-Swiss border. Where possible, this study presents all data at the lowest available level, to maximize the quantity of detail.

The Paasche price indices used herein are based on tonnage divided into currency values at the unit level. But during the war there are some potentially non-random changes in underlying goods which make up these categories. As a result, these indexes incorporate some systematic biases. For example, Switzerland exported increasing quantities of high value, lower weight manufactures from 1938. This could artificially increase the Paasche price indices of export goods reported, lowering the reported real export statistics. Hence it is likely overall real exports reported in this chapter are in fact the lower bounds for these figures. Similarly, the Swiss imports of lower value, higher weight goods (including coal and grains) increased from 1938 onwards. This would push down the import price index and provide an upper bound for the real import trade statistics. Further information on the systematic biases can be found in the notes to the appendices to this chapter.

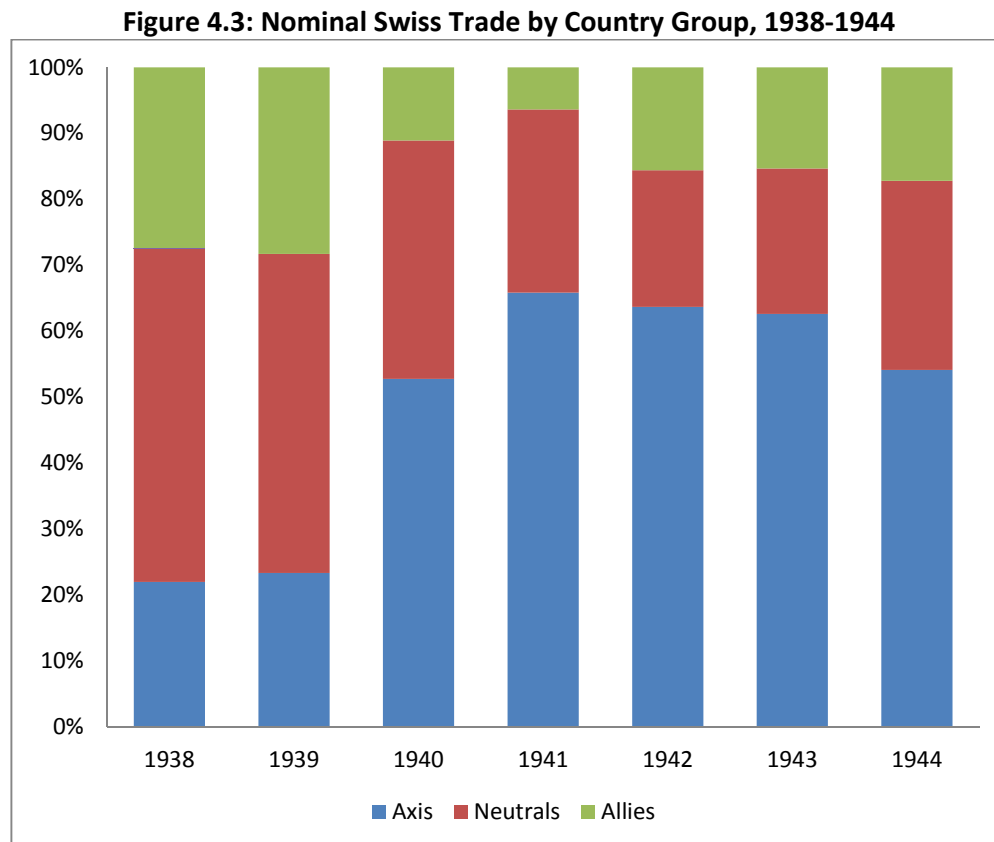
As discussed further in Chapter Five, the German-Swiss trade relationship involved some compensation clearing, where prices were not entirely determined by internal market forces, but rather by government negotiators. Despite the government involvement, few individual transactions are statistically transparent. There can be large month-to-month variations when the SJdS reports are compared to those of the Swiss clearing office, the *Schweizerische Verrechnungsstelle*.⁵¹⁷ This suggests that prices often had no relationship at all and deviated from those charged in domestic markets for particular goods. Nonetheless, despite the lack of precise reconciliation, the effect of these price deviations cannot be statistically investigated, due to a lack of available data. A complete discussion of sources can be found in the notes to Appendices 4.1-4.4; and while error terms exist and are reported as such in the statistics, the figures

⁵¹⁷ BAr E7160-01/1976-58/28-29, file marked "Gesamt Rekapitulationen, Statistischer Anhang Jahresbericht [Overall Recapitulation and Addendum Statistics]."

available represent the most accurate available and are often the first presented that comply with the 1948 SITC standards.

Overall Balance of Merchandise Trade

There is little question of increasing Axis influence in Swiss trade on a nominal basis. As seen in Figure 4.3, from an overall perspective, trade with the Axis increased from 21% of overall trade in 1938 to a peak of about 66% in 1941; despite all the Allied efforts to reduce Swiss trade with the German bloc, it declined only to about 53% of overall trade by 1944. These levels no doubt reflect the geographic position of Switzerland and its restricted access to international markets in this period.



Source: See Table 4.1

Swiss dependency on the Axis for imports was increasing. Switzerland was a net importer for some time before the war. But the shift in trade patterns meant their increasing reliance on Axis Europe for their imports; exports did not grow to the same extent. The result was consistent deficits, whereby Switzerland while the war lasted was importing more from the Axis than it was exporting. As seen in the balance of merchandise trade in Table 4.1, deficits of some 248 million Swiss Francs or 105% of exports in 1939 and 219 million Swiss Francs or 21% of exports in 1941 provide clear evidence that Switzerland received more goods from the Axis war machine than it provided. Over the wartime period, the net merchandise trade surplus from Germany amounted to 1.2 billion Swiss Francs.⁵¹⁸ The Swiss government also provided a total of 960 million Swiss Francs in trade loans to countries in the German bloc in order to maintain this trade.⁵¹⁹

The geographic isolation of Switzerland results in changes in the relationships with those outside the German bloc. Surrounded by Axis territory (see map in Figure 7.1), Switzerland was immediately denied access to the west: landlocked and virtually without merchant marine to transport its goods, it was completely reliant on other countries' ability to ship goods on its behalf. As Figure 4.3 shows, much of the increase in German trade comes at the expense of trade with the Allies, which had declined by 1941 from 27% to a mere 6% of overall trade. From these low levels and reflecting the Allied demands for exports, in exchange for continued recognition of neutrality, real exports to the Allies tripled between 1941 and 1944, in percentage terms, to 15% of overall trade. The Allies also benefited from a positive balance of merchandise trade with Switzerland. Overall, Switzerland exported more to the Allies than they imported, with a net benefit of 121 million Swiss Francs from 1939 to 1944 or 8.2% of Swiss exports to the Allies; however, 248 million Swiss Francs of this export surplus was recorded in 1944. With the 1944 figures excluded,

⁵¹⁸ See Table 4.1.

⁵¹⁹ See Table 5.5.

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Switzerland would have imported more than 163 million Swiss Francs from the Allies. Only 37 million Swiss Francs of Allied exports were supplied on credit.⁵²⁰ These examples suggest that the Allies extracted overall terms of merchandise trade advantages from Switzerland, mostly in the last full year of the war.

⁵²⁰ NA FO837/972, annex to letter dated 31 July 1942.

**Table 4.1: Switzerland's Foreign Merchandise Trade
by Country Group, 1939-1945
(in millions of nominal Swiss Francs)**

IMPORTS	1938	1939	1940	1941	1942	1943	1944
Allies	428	508	166	115	358	219	97
Axis - Europe	373	483	994	1,252	1,176	1,090	769
Axis - Asia	12	12	10	10	2	1	0
Neutrals - Europe	540	587	254	300	310	293	196
Neutrals - Americas	228	272	394	292	139	95	91
Neutrals - Africa	27	28	36	54	65	29	32
Total	1,607	1,889	1,854	2,024	2,049	1,727	1,186
EXPORTS	1938	1939	1940	1941	1942	1943	1944
Allies	373	393	185	107	207	295	301
Axis - Europe	224	235	657	1,033	1,106	1,009	484
Axis - Asia	33	13	14	5	22	3	0
Neutrals - Europe	475	402	216	127	165	226	225
Neutrals - Americas	177	219	230	185	69	86	77
Neutrals - Asia	34	35	17	12	3	12	44
Total	1,316	1,297	1,320	1,469	1,572	1,632	1,132
BALANCE OF MERCHANDISE TRADE	1938	1939	1940	1941	1942	1943	1944
Allies	(65)	(115)	19	(8)	(152)	76	204
Axis - Europe	(149)	(248)	(277)	(219)	(70)	(81)	(285)
Axis - Asia	21	2	4	(6)	21	2	0
Neutrals - Europe	(73)	(193)	(105)	(176)	(165)	(103)	(16)
Neutrals - Americas	(51)	(53)	(164)	(107)	(70)	(9)	(14)
Total	(317)	(607)	(523)	(516)	(436)	(115)	(111)

Sources: SJDs, 1945, p.308-349; Keisl, *Electricité Suisse*; NA PREM3/115; rounded to the nearest whole number.

Notes: For definition of the trade blocs, see notes to Appendices 4.1-4.4; balance of merchandise trade is reported net exports; a negative figure indicates net Swiss goods imports and a positive figure indicates net Swiss goods exports.

Swiss trade with countries other than the German and Allied blocs kept up throughout the period, despite Allied threats to withhold Navicerts. From June 1940 through 1945, this trade required the consent of Germany (overall Axis economic control), the Italians (the port of Genoa) and the Allies (control of the seas). As Figure 4.3 shows, trade with neutrals declined from about 52% of overall trade in 1938 to 28% in 1941. Owing to the periodic Allied withholding of

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permits, by 1944 neutral-Swiss trade had increased only slightly from this level, to about 32% of overall trade. Even if it formed a small part of the trade from 1940, the importance of maintaining access to the non-German markets should not be underestimated, since these countries provided Switzerland with considerable amounts of foodstuffs and other basic consumer goods free of many of the political considerations of the Allies and Axis.

This chapter now examines Swiss trade with the German and Allied blocs in detail. Nominal and real trade statistics, including illicit trade, are reported for each belligerent group, along with selected information on price movements and the composition of the Swiss imports and exports. These figures challenge the existing conception of Swiss-belligerent trade, by showing that Switzerland acted within a realist framework.

Swiss Nominal Trade with the German Bloc

This section reviews Swiss trade with Germany and the German bloc. Switzerland undeniably depended on Germany for its survival and provided war materials to Germany, including machines, chemicals, watches and aluminium, much of them on credit. But on a nominal basis Germany provided more goods to Switzerland than the countervailing trade, including fuels, raw materials and increasing quantities of foodstuffs which were already in short supply in Germany. Swiss provisions were sold to Germany at relatively higher prices than the countervailing trade. At no point did Germany exploit Switzerland, in strictly trading terms.

Starting in 1940, the first year during which Switzerland was encircled by the Axis powers, it imported increased amounts from Germany. Nominal imports from Germany topped 934 million Swiss Francs in 1941, rising to a peak of 1.25 billion in 1941; this was 2.5 times their 1938 levels. By 1944, imports had declined to 769 million Swiss Francs, below 1940 levels, but still just over twice those of 1938. It should be noted that no obvious decline in imports occurred in

1943; this suggests that the lack of a formal trade agreement and increased Allied restrictions did not affect Switzerland's provision during the period, despite the December 1942 Allied-Swiss Compensation Agreement (see Figure 4.2).⁵²¹ The operation of a month-to-month system and continued Allied interference in Swiss-German trade relations had some impact on imports during 1944,⁵²² but these changes in trade patterns can also be attributed to the difficult economic conditions in Germany at the time.

Swiss exports to Germany in nominal terms increased rapidly until June 1942, but exports never exceeded imports from the German bloc. In the first full year of the war, exports increased nearly three-fold, from 224 million in 1938 Swiss Francs to 657 million in 1940; exports rose further as German consolidated its domination of Switzerland, reaching 1.0 billion Swiss Francs in 1941 and 1.1 billion in 1942, nearly five times the 1938 levels. In 1943, there was a modest decline to 1.0 billion from the 1942 peak.

⁵²¹ NA FO837/972, letters dated 14 December 1942.

⁵²² NARA RG107/160/928, folder marked "Statistical Reports," report marked, "The Anglo-American War Trade Agreement with Switzerland;" NA FO837/980, correspondence dated between May and July 1943; NARA RG107/160/927, unmarked file, memos dated between December 1944 and January 1945.

**Table 4.2: Nominal Swiss Merchandise Trade with the German Bloc, 1938-1944
in Nominal Swiss Francs (in millions)**

IMPORTS	1938	1939	1940	1941	1942	1943	1944	1939-44
Goods Imported	373	483	934	1,252	1,176	1,090	769	5,704
Goods Imported Index (1938=100)	100	129	250	336	315	292	206	
EXPORTS	1938	1939	1940	1941	1942	1943	1944	1939-44
Goods Exported	224	235	657	1,033	1,106	1,009	484	4,524
Goods Exported Index (1938=100)	100	105	293	461	493	450	216	
BALANCE OF MERCH. TRADE	1938	1939	1940	1941	1942	1943	1944	1939-44
Net Exports	(149)	(248)	(277)	(219)	(70)	(81)	(285)	(1,180)

Sources: see Appendices 4.1 and 4.2; rounded to the nearest whole number.

Notes: see notes to Appendices 4.1 to 4.4; the balance of merchandise trade is reported as net exports: a negative figure indicates net Swiss goods imported and a positive figure indicates net exports.

Although previous efforts had failed, it is clear that the June 1943 Allied push to reduce Swiss-German trade signalled a turning point. According to the statistics in Table 4.2, Swiss government promises to reduce trade with Germany were honoured from the second half of 1943 onwards.⁵²³ Overall trade declined in line with the expected 20% for the half-year equivalent, assuming that the first half of 1943 was static (from the diplomatic correspondence, it was actually higher).⁵²⁴ Amongst specific goods, there were year-over-year nominal decreases: metals exports to Germany fell from 61 Swiss Francs to 35 million (42%). There was a smaller decline in machinery from 593 Swiss Francs to 552 million (7%), probably reflecting the increased export of textile machines to replace machines diverted to weapons manufacturing.⁵²⁵ These statistics suggest

⁵²³ DDS 14/379/1207, telegram dated 24 June 1943; NA FO371/34877, memo dated 25 August 1943; NA FO115/3940-3941, undated reports on German-Swiss trade.

⁵²⁴ NA FO837/980, correspondence dated between May and July 1943.

⁵²⁵ See Appendix 4.1.

that, despite the diplomatic correspondence, the Swiss government was sincere in reducing nominal Swiss-German trade in accordance with Allied-Swiss agreements from June 1943 onwards, consistent with the previous organisation of the diplomatic history.

Total Swiss exports to Germany from 1939 through 1944 amount to 4.5 billion Swiss Francs; Swiss imports from Germany during the same period total 5.7 billion Swiss Francs, equivalent in total to 65.4% of Switzerland's 1939 Net National Product (NNP), or 10.9% annually.⁵²⁶ Over the wartime period, nominal Swiss imports exceeded exports by some 1.2 billion Swiss Francs or about 13.8% of Swiss 1939 NNP.⁵²⁷

**Table 4.3: Value of Certain Goods in Swiss Imports
from the German Bloc, 1938-1944, as a Percentage of
Total Imports from the German Bloc (by nominal value)**

Year	Fuels	Minerals	Machinery	Foodstuffs	Chemicals	Textiles
1938	18.1%	18.2%	18.5%	4.5%	12.3%	11.8%
1939	15.2%	16.7%	14.1%	4.5%	13.0%	8.2%
1940	18.4%	13.7%	7.5%	13.5%	8.6%	7.6%
1941	20.4%	11.6%	6.1%	12.8%	9.4%	8.0%
1942	19.1%	15.7%	6.4%	13.5%	9.7%	3.9%
1943	20.7%	10.6%	6.4%	13.0%	9.8%	3.6%
1944	22.0%	10.3%	6.4%	16.0%	9.5%	2.7%

Source: see Appendix 4.2.

The composition of exports and imports in nominal terms remained similar throughout the war. There was a Swiss Franc increase in Swiss imports of foodstuffs from the German bloc, resulting in declines in other trade categories. As suggested in Table 4.3, the imports of foodstuffs increased from 4.5% in 1938 to 16.0% in 1944; they rose despite severe food rationing in the Axis bloc. During the same period, Swiss imports of fuels, which were also rationed in the Axis bloc, increased by about 20%. Machinery imports underwent a particularly large decline, from 18.5% of trade in 1938 to 6.4% in 1944, including planes and other

⁵²⁶ Meier et al, *Schweizerische Aussenwirtschaftspolitik*, p.409.

⁵²⁷ *Ibid.*

war materiel sold by Germany to Switzerland.⁵²⁸ Despite rising in nominal terms, minerals, chemicals and textiles imports, as percentages of overall imports, all declined over the period.

Table 4.4: Value of Certain Goods in Swiss Exports to the German Bloc, 1938-1944 as a Percentage of Total Exports to the German bloc (by nominal value)

Year	Machinery	Chemicals	Textiles	Energy	Metals	Foodstuffs
1938	44.8%	11.2%	27.4%	8.1%	3.5%	3.3%
1939	34.8%	8.5%	21.0%	9.4%	1.4%	3.7%
1940	38.2%	16.9%	6.3%	4.1%	7.8%	6.4%
1941	41.9%	16.8%	8.0%	2.8%	6.0%	4.4%
1942	53.6%	11.8%	7.3%	2.6%	5.5%	0.3%
1943	54.7%	14.8%	6.7%	3.1%	3.5%	0.4%
1944	42.3%	9.8%	11.0%	6.6%	4.5%	0.0%

Source: see Appendix 4.1.

The wartime Allied governments and the subsequent official histories have focused mostly on war materiel exported to Germany;⁵²⁹ from the statistics presented in Table 4.4, combined exports of chemicals, metals and energy (electricity) indicate that over three-quarters of Swiss exports were likely war related. The statistics in Table 4.4 further confirm that the principal Swiss export to Germany was machinery, a category composed of both industrial machinery and war manufactures, such as watches and detonators. In the other categories, Switzerland provided particularly khaki paint and aluminium. Regarding the last, Switzerland provided a significant proportion of German production, as discussed below.

⁵²⁸ SIdS, 1945; see notes to appendices for classification.

⁵²⁹ Medicott, *Economic Blockade*, vol.II, pp.226ff; Meier et al, *Schweizerische Aussenwirtschaftspolitik*, p.304.

Swiss Trade with the German Bloc: Real Statistics

Table 4.5: Real Swiss Merchandise Trade with Germany and the German Bloc, 1938-1944 in 1938 Swiss Francs (in millions)

IMPORTS	1938	1939	1940	1941	1942	1943	1944	1939-44
Goods Imported (1938 Swiss Francs)	373	481	715	707	567	520	362	3,352
Goods Imported Index (1938=100)	100	129	192	189	152	139	97	
Import Price Deflator (Index, 1938=100) [Pi]	100	100	139	177	207	210	212	
EXPORTS	1938	1939	1940	1941	1942	1943	1944	1939-44
Goods Exported (1938 Swiss Francs)	224	215	418	520	430	360	202	2,145
Goods Exported Index (1938=100)	100	96	186	232	192	161	90	
Export Price Deflator (Index, 1938=100) [Px]	100	109	157	199	257	280	239	
BALANCE OF MERCHANDISE TRADE	1938	1939	1940	1941	1942	1943	1944	1939-44
Net Exports	(149)	(266)	(297)	(187)	(137)	(160)	(160)	(1,207)
Terms of Trade [Px/Pi]	100	109	113	112	124	133	112	

Sources: see Appendices 4.1 and 4.2; rounded to the nearest whole number.

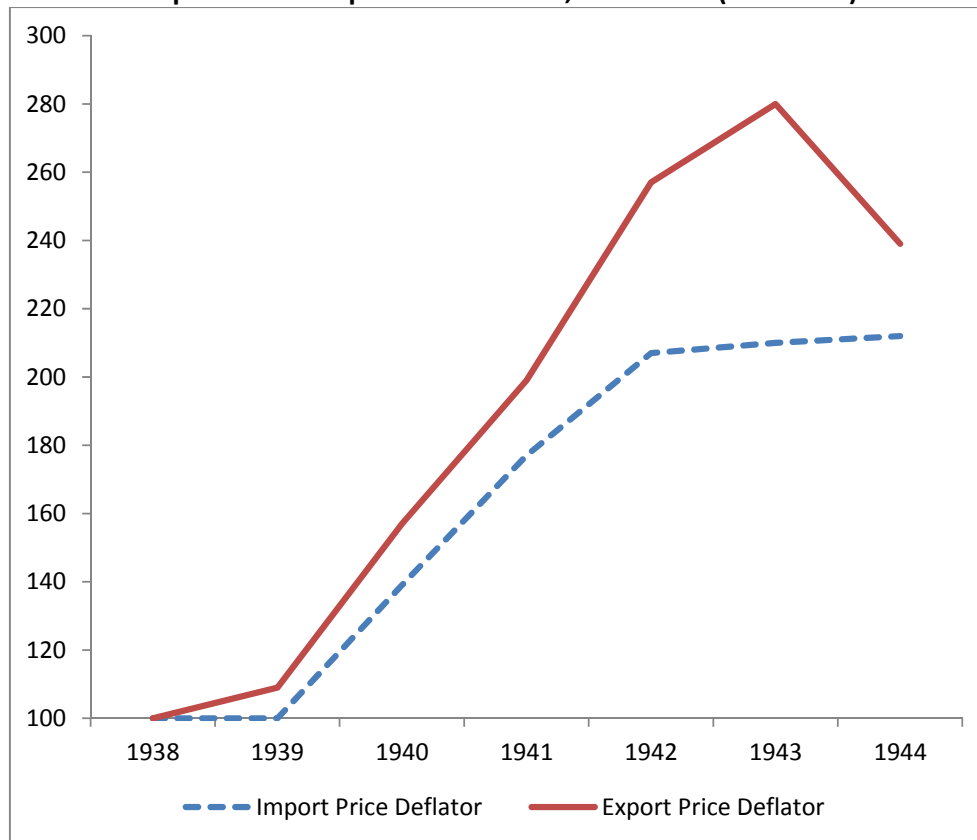
Notes: see notes to Appendices 4.1 to 4.4; balance of merchandise trade is reported as net exports: a negative figure indicates net Swiss goods imported and a positive figure indicates net exports. Price deflators are calculated based on value and ton basis. This causes systematic biases. See notes in the Appendix to this chapter.

Switzerland benefited from particularly good terms of merchandise trade. One of the most notable contributions of this work is the development of real prices, base year 1938, on a trade weighted basis using information available from the SJDs.⁵³⁰ The price index values are reported in Table 4.5 and in graph form in Figure 4.4. As seen in Figure 4.4, apart from 1944, Switzerland benefited from a strong price gap, in particular during the period 1941-1943. Despite increasing German control over Swiss trade, by 1943 the prices for Swiss exports

⁵³⁰ See Appendix 4.1 and notes attached thereto.

to Germany had risen to nearly three times the 1938 levels, while imports from Germany were only twice as expensive.⁵³¹ The subsequent decline in export prices in 1944 is probably the result of Swiss attempts to maintain favourable trade relations with Germany, given the restrictions now agreed to with the Allies.⁵³²

**Figure 4.4: German-Swiss Trade,
Import versus Export Price Indices, 1938-1944 (1938=100)**



Sources: see Appendices 4.1 and 4.2; for index construction, see notes to appendices.

The changes in nominal Swiss exports mask the effects of large price increases. Swiss price increases were higher than those imposed by Germany, resulting in a wider trade gap in real terms. By 1940, real exports increased to

⁵³¹ BAr E7110/1973/120/9, letter dated 11 December 1942; Medicott, *Economic Blockade*, vol.II, p.500ff.

⁵³² FRUS 1944/IV:Europe/708, telegram dated 15 February 1944.

Chapter Four: Swiss-Belligerent Merchandise Trade

418 million Swiss Francs (1938 prices) or almost 1.9 times their 1938 levels; in 1941, Swiss exports to Germany peaked at 2.3 times their 1938 levels. They declined steadily thereafter to 90% of 1938 levels in 1944. The second half of 1943 witnesses a decline in shipments to Germany of nearly 21% in real terms. The higher prices charged by Switzerland for their exports relative to Germany indicate a larger trade deficit in real terms, with Germany contributing even more to Switzerland's economy than had previously been thought.

Reporting trade statistics in 1938 real prices reduces overall Swiss nominal imports by about half. As seen in Table 4.5, in real terms, the 1941 export peak declined by about 40%, to 707 million 1938 Swiss Francs or approximately 1.9 times 1938 levels. It declined steadily thereafter to just under 1938 levels in 1944. When compared with the gains in Swiss export prices, these statistics suggest that Switzerland obtained favourable terms of merchandise trade.

On a strictly trade basis, Switzerland's trade with Germany was certainly beneficial to the Swiss. Despite the shortages in Germany, it provided Switzerland with fuel, raw materials and food relatively cheaply. Switzerland sold machinery, chemicals, electricity, aluminium and other war materiel to Germany at higher prices than its own imports from Germany, in particular during the 1942-1943 period of peak German power. The introduction of trade loans, presented in detail in Chapter Five, suggest that Switzerland's position was more nuanced. Thus, although Switzerland may have been surrounded by German forces and at their mercy, the excess imports and preferential prices for the Swiss refute the idea the German-controlled Axis bloc economically exploited Switzerland from a strictly trade perspective.

Swiss Nominal Trade with the Allied Bloc

The terms of Allied-Swiss trade were considerably more to the advantage of the Allies than of Switzerland. Continued Swiss exports to the Allied bloc

remained the Allied test for Swiss neutrality. Apart from one year, a consistent balance of merchandise trade deficit favoured the Allies. Every year, in particular between 1942 and 1943, the Allies were able to charge higher prices for their goods than Switzerland could for the countervailing traffic. Switzerland also gave the Allies access to illicit military goods, estimates of which are included in this section.

Table 4.6: Nominal Swiss Merchandise Trade with the Allied Bloc, 1938-1944
in Nominal Swiss Francs (in millions)

IMPORTS	1938	1939	1940	1941	1942	1943	1944	1939-44
Goods Imported	428	508	166	115	358	219	97	1,463
Goods Imported Index (1938=100)	100	119	39	27	84	51	23	
EXPORTS	1938	1939	1940	1941	1942	1943	1944	1939-44
Goods Exported	373	393	185	107	206	295	301	1,487
Goods Exported Index (1938=100)	100	105	50	29	55	79	81	
BALANCE OF MERCHANDISE TRADE	1938	1939	1940	1941	1942	1943	1944	1939-44
Net Exports	(65)	(115)	19	(8)	(152)	76	204	24

Sources: see Appendices 4.3 and 4.4; rounded to the nearest whole number.

Notes: see notes to Appendices 4.1 to 4.4; balance of merchandise trade is reported as net exports: a negative figure indicates net Swiss goods imported and a positive figure indicates net exports.

The Second World War saw a great reduction in Swiss-Allied nominal trade, with exports from Switzerland surviving better than imports. As seen in Table 4.6, during the first half of the war exports from Switzerland to the Allies declined. However, from 1942 onwards Switzerland exported more than it imported.⁵³³ Exports increased consistently during the period of Allied trade pressure, rising from 206 million nominal Swiss Francs in 1942, to 295 million in

⁵³³ NA FO371/24533, memo dated 16 June 1940.

1943 and finally 301 million in 1944. The balance of nominal trade in these last two years indicates the intense effort made by Switzerland to placate the Allies, with exports of 295 million Swiss Francs in 1943 (26% above imports); the 1944 trade deficit was 204 million Swiss Francs, or over twice the imports from the Allies. The Swiss government was clearly trying to meet the conditions of a nominal trade surplus in favour of the Allies, thus maintaining access to international markets. Reinforcing Switzerland's commitment to providing the Allies with exports, it allowed illicit trade and overlooked the theft of some intellectual property, which might otherwise have been traded.

Exports to the Allies included consistent quantities of this illicit trade, which is difficult to value accurately. Its underlying statistics, based on the work of Neville Wylie, are presented separately in Table 4.7 (illicit trade is already incorporated in the figures in Table 4.6).⁵³⁴ Swiss exports included highly specialized equipment, such as callipers, chronometers, diamond dies, fine drills, jewelled bearings, levels, micrometers, theodolites, pocket and wrist watches, taps and dies for screw manufacture and stopwatches.⁵³⁵ The Allies had few other sources for these items. Smuggling via Spain, Portugal and France by a network of couriers and various air transport options organized by the British Embassy in Berne proved to be the only way to bring these items to the UK.⁵³⁶

Illicit trade was a large proportion of the Allied-Swiss trade relationship in the first years of the war, but less so during the years, including 1943 and 1944, when the Allies became increasingly powerful. Between July 1940 and January 1943, Germany forbade Switzerland to export these materials legally; starting in January 1943, however, it permitted Switzerland to export 2.5 million Swiss Francs of these goods per month.⁵³⁷ It is possible to account for the illicit imports

⁵³⁴ Wylie, "British Smuggling Operations from Switzerland, 1940-1944."

⁵³⁵ NA PREM3/115, memo dated 16 December 1944.

⁵³⁶ BAMA AW1/6458, correspondence from 1941 and 1943; BAMA AW1/6516; John Lomax, *The Diplomatic Smuggler* (London, 1965), pp.53-229.

⁵³⁷ NARA RG107/160/927, folder marked "Switzerland General 1942-1944," Economic Review dated 19 December 1942.

because they were state organized and therefore the precise value of the shipments was recorded and preserved.⁵³⁸ Other illicit trade activities which are not documented through this system and remain unknown are not included in the export statistics.

Table 4.7: Illicit Swiss Trade with the Allies versus Regular Trade, 1940-1944 (in millions of nominal Swiss Francs)

EXPORTS	1940	1941	1942	1943	1944
Illicit Exports	12.6	5.9	7.3	4.8	1.1
Overall Exports	185	107	207	295	301
Illicit Trade as a percentage of Overall Swiss Exports to the Allies	6.8%	5.5%	3.5%	1.6%	0.3%

Sources: Neville Wylie, "British Smuggling Operations from Switzerland, 1940-1944," *The Historical Journal*, 48:4 (2005), p.1099; NA PREM3/115, memo dated 16 December 1944; Appendix 4.3

Notes: Illicit trade included in trade reported in Table 4.6

Unfortunately, there are limitations to the measurement of Allied-Swiss trade; in addition to other possible illicit trade, the Allies also benefited from Swiss technology for which they did not pay. As a result, the present statistics probably under-report the value of Swiss war-time trade. One such known case of an export which could alter the statistics is the Oerlikon gun.⁵³⁹ This gun, manufactured by Buehrle & Co., was the premier marine anti-aircraft gun of the period.⁵⁴⁰ Britain's Admiralty ordered hundreds of them just before September 1939, but was prevented from taking delivery after the German encirclement of Switzerland. As part of the same deal, the Admiralty also acquired the technology and rights to manufacture the Oerlikon gun within the British Empire.⁵⁴¹

⁵³⁸ NA PREM3/115, memo dated 16 December 1944.

⁵³⁹ For a full discussion of Buehrle & Co's Oerlikon enterprise, see Hug, *Schweizer Rüstungsindustrie und Kriegsmaterialhandel zur Zeit des Nationalsozialismus*, vol.II.

⁵⁴⁰ John Campbell, *Naval Weapons of World War Two* (Annapolis, 1985)

⁵⁴¹ NA FO371/24532, draft agreement confirming order, undated 1940; NA ADM1/28912, various.

In 1941, when the Allies blacklisted Buehrle for also selling weapons to Germany, the British government decided not to follow the terms of the original agreement; it produced thousands of the guns without paying for the rights. Moreover, when the US wanted to begin mass production in late 1940, it also used the technology in Britain's hands without Buehrle's permission.⁵⁴² Being blacklisted, the company was not allowed to appeal legally against this decision. Had the Allied governments not purloined these gun designs, they would have been part of Switzerland's export regime and hence of Swiss export statistics.

To give an idea of figures, after the war, Oerlikon sued both Allied governments for breach of contract. Britain's settlement with Oerlikon was about 65 million Swiss Francs, or about 5% of total Swiss wartime exports to the combined Allied bloc.⁵⁴³ The American settlement is unknown (the case appears to have been sealed), but given that the US Navy produced approximately 120 times the number of weapons produced by Britain, the settlement may well have amounted to more than all Switzerland's wartime exports to the Allies.⁵⁴⁴ Although the transfers are classified as compensation for confiscation, the payment suggests that Switzerland could have supplied even more to the Allies than the trade statistics record. Unfortunately insufficient data prevent the study from measuring the potential effects of these confiscation payments on Switzerland's trade position.

In so far as trade can be measured, Swiss exports to the Allied Bloc from 1939 to 1944 amounted altogether to 1.5 billion Swiss Francs or 15.4% of Swiss 1939 NNP.⁵⁴⁵ Imports from the Allied bloc amounted to 1.4 billion Swiss Francs. This resulted in net exports of 141 million Swiss Francs in favour of the Allies, equivalent to 1.6% of Swiss 1939 NNP.⁵⁴⁶ Had the 1944 figures been excluded, the opposite would be true, with net imports worth 163 million Swiss Francs

⁵⁴² NA TS32/462, United States Court Claim dated 4 April 1951.

⁵⁴³ NA FO371/1197, various; TS32/462-463, various; Appendix 4.1.

⁵⁴⁴ NA TS32/462-463, various.

⁵⁴⁵ Meier et al, *Schweizerische Aussenwirtschaftspolitik*, p.409

⁵⁴⁶ *Ibid.*

from the Allies. The overall export surplus for the entire period is not apparent in the current literature, including the Independent Commission reports.⁵⁴⁷

**Table 4.8: Value of Certain Goods in Swiss Imports
from the Allied Bloc, 1938-1944 as a Percentage of
Total Imports from the Allied Bloc (by nominal value)**

Year	Fuels	Textiles	Machinery	Foodstuffs	Chemicals
1938	9.8%	20.0%	4.6%	19.7%	6.6%
1939	15.3%	22.0%	4.4%	20.8%	6.1%
1940	26.2%	16.4%	1.9%	33.5%	3.9%
1941	0.4%	25.6%	0.7%	62.4%	1.0%
1942	0.2%	7.2%	1.7%	65.2%	1.2%
1943	0.7%	0.4%	1.3%	72.0%	1.0%
1944	0.1%	0.2%	1.6%	60.8%	1.3%

Source: See Appendix 4.4

**Table 4.9: Value of Certain Goods in Swiss Exports
to the Allied Bloc, 1938-1944 as a Percentage of
Total Exports to the Allied Bloc (by nominal value)**

Year	Machinery	Chemicals	Textiles	Metals	Foodstuffs
1938	37.9%	11.0%	5.3%	7.0%	3.2%
1939	38.3%	20.9%	4.4%	10.1%	2.0%
1940	39.6%	27.1%	1.6%	4.6%	0%
1941	50.2%	31.2%	0.4%	0%	0%
1942	62.8%	16.1%	5.8%	0%	0.1%
1943	79.1%	8.7%	5.6%	0%	0.1%
1944	67.8%	9.1%	14.6%	0%	0%

Source: See Appendix 4.3.

There were clear shifts in the types of Swiss imports from and exports to the Allied bloc. Before 1940, nominal imports from the Allied bloc included a balance of textiles, foodstuffs, fuels, chemicals and machinery, no constituent exceeding 20% of trade. As seen in Table 4.8, trade in 1940 and 1941 varied widely, with deliveries of fuels comprising 26.2% of imports in 1940 and textiles at 25.6% in 1941. After 1941, nominal imports consisted almost entirely of foodstuffs. The emphasis on foodstuffs is consistent with the policy in the US and the UK of preventing the delivery of goods which might be used to aid the

⁵⁴⁷ *Ibid.*

German war effort; this included fuels which could be used to reduce the German burden of caring for Switzerland.⁵⁴⁸

As Table 4.9 shows, Swiss exports to the Allies always included high levels of machinery and machine tools. Before 1941, exports comprised a variety of items, including machinery, chemicals textiles, metals and foodstuffs. Machinery, including watches and detonators, was the principal export throughout; for example, in 1940 it made up just under half of all exports, with chemicals just over a quarter. Once Switzerland was surrounded, the limitations on exports and shortages of Swiss Francs, as well as problems with shipping and smuggling capacity meant that only priority items were purchased, eliminating metals and foodstuffs and limiting textile exports. By 1943 this resulted in levels of machinery exports reaching 79% of the total. Combined with chemicals at 9% and textiles at nearly 6% of trade, these three categories made up virtually all the nominal wartime exports.

Swiss Trade with the Allied Bloc: Real Statistics

This study also examines Swiss trade with the Allies in real terms. As the terms of merchandise trade statistics in Table 4.10 suggest and as seen in Figure 4.5, import prices rose faster than export prices (with the exception of 1942). As a result, imports from the Allies in real terms show a remarkable decline. The aggressive trade tactics and trade sanctions first imposed by the Allies in 1941 were clearly effective in limiting nominal Swiss imports.⁵⁴⁹

In 1941 and after 1942, higher import prices (compared to exports) are noted in the price deflator index in Table 4.10. By 1944, prices of Allied imports rose to nearly three-and-a-half times the 1938 levels, while Allied exports were

⁵⁴⁸ Medicott, *Economic Blockade*, vol.II, p.212.

⁵⁴⁹ See earlier discussion of 1942 to 1943 Allied-Swiss trade relations; NARA RG107/160/928, folder marked "Statistical Reports," report marked "The Anglo-American War Trade Agreement with Switzerland;" NA FO837/977; NA FO837/980.

only two-and-a-half times as expensive.⁵⁵⁰ Compared to 1938, real imports declined to less than a quarter in 1940 and to one-tenth by 1941. The inclusion of the US and its other allies did not alter this trend and imports in real terms were by 1944 a mere 6% of their 1938 figures. It is important to note that, with the exception of 1942, Switzerland was a net exporter of goods to the Allies in real terms from 1940 onwards.

Table 4.10: Real Swiss Merchandise Trade with the Allies and the Allied Bloc, 1938-1944 in 1938 Swiss Francs (in millions)

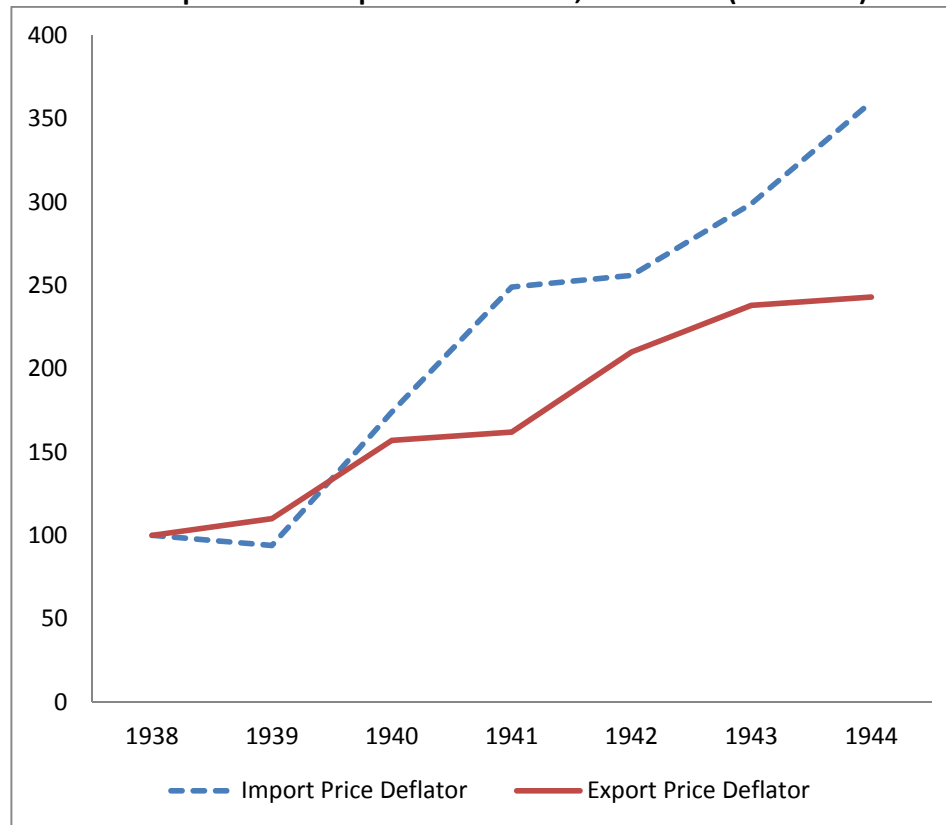
IMPORTS	1938	1939	1940	1941	1942	1943	1944	1939-44
Goods Imported (1938 Prices)	428	540	96	46	137	73	27	919
Goods Imported Index (1938=100)	100	126	22	11	33	17	6	
Import Price Deflator (Index, 1938=100) [Pi]	100	94	174	249	256	299	360	
EXPORTS	1938	1939	1940	1941	1942	1943	1944	1939-44
Goods Exported (1938 Prices)	373	257	118	66	98	124	124	787
Goods Exported Index (1938=100)	100	96	32	18	26	33	33	
Export Price Deflator (Index, 1938=100) [Px]	100	110	157	162	210	238	243	
BALANCE OF MERCHANDISE TRADE	1938	1939	1940	1941	1942	1943	1944	1939-44
Net Exports	(65)	(283)	22	20	(39)	51	97	(132)
Terms of Trade [Px/Pi]	100	117	90	65	82	80	68	

Sources: see Appendices 4.3 and 4.4; rounded to the nearest whole number.

Notes: see notes to Appendices 4.1 to 4.4; balance of merchandise trade is reported as net exports: a negative figure indicates net Swiss goods imported and a positive figure indicates net exports. Price deflators are calculated based on value and ton basis. This causes systematic biases. See notes in the Appendix to this chapter.

⁵⁵⁰ BA R E7110/1973/120/9, letter dated 11 December 1942; Medicott, *Economic Blockade*, vol.II, p.500ff.

**Figure 4.5: Allied-Swiss Trade,
Import versus Export Price Indices, 1938-1944 (1938=100)**



Sources: See Appendices 4.3 and 4.4

Switzerland's trade with Allies allowed them to maintain relations with countries outside the German blockade. The Swiss depended on the Allies not only for the foodstuffs they provided, but also for recognition of their neutral position. As a result, the Allied-Swiss trade relationship shifted in favour of the Allies, with increasing net Swiss exports and terms of merchandise trade preferential to the Allies. The last three sections of this chapter examine three specific areas of Swiss economic relations during the war: metals, watches and energy.

Swiss Supply of Metals: Aluminium

Aluminium is crucial to war production. During the Second World War, aluminium alloy production was used in the manufacture of aircraft, motor-cars,

tanks and many similar goods; it was also used in the explosive ammonium nitrate. Aluminium was the principal metal supplied by Switzerland to Germany during the war.⁵⁵¹ This section suggests that Swiss-related production overall amounted to a significant 15.7% of German aluminium consumption.⁵⁵² There are two levels of Swiss supply to Germany: direct Swiss exports and Swiss-controlled German production. Most of the Swiss aluminium sold to Germany was from Swiss-controlled production in Germany, where Switzerland provided key inputs for production at facilities along the German-Swiss border.⁵⁵³

Direct Swiss exports of aluminium were delineated in the War Trade Agreements. Before the war, Switzerland provided aluminium to both the Allies and the Axis powers. After June 1940, aluminium supplies were exported solely to Germany. As seen in Table 4.9, direct Swiss contributions steadily declined after 1941, from both Allied pressure and Swiss domestic demand. On average Swiss exports for the entire war (1939 to 1945) amounted to approximately 2% of annual German consumption. At no point did direct Swiss exports exceed 4% of total German consumption, with 1941 representing the peak year of exports.

⁵⁵¹ NA FO837/972, letters dated 14 December 1942.

⁵⁵² See Table 4.9.

⁵⁵³ See also Cornelia Rauh, *Schweizer Aluminium für Hitlers Krieg?* [Swiss Aluminium for Hitler's War] (Munich, 2009)

Table 4.11: ALAG: Importance of Switzerland in the Provision of Aluminium to Germany

Year	ALAG Production in Germany (1,000 tons)	ALAG production as % of German aluminium Production	Swiss exports of aluminium to Germany (1,000 tons)	Total Swiss origin aluminium (1,000 tons)	Total Swiss related aluminium % of German production ^a
1940	25,235	11.9%	10,308	35,543	13.9%
1941	30,900	13.2%	14,752	45,652	16.9%
1942	33,618	12.7%	9,350	42,968	15.7%
1943	31,150	12.5%	6,262	37,412	13.7%
1944	34,500	14.1%	4,304	38,804	14.9%

Sources: ALAG PVCA, dated 20 December 1941, p. 4; ALAG PVCA dated 21 December 1943, p. 12ff; ALAG PVCA dated 21 December 1944, p. 11; Frech, *Kriegswirtschaft*, p. 98; SHvD, p. 293; Rauch, *Geschichte*, 1962, p. 295.

Notes: ^aIt is important to note this position is only rhetorical. ALAG production would normally be counted as part of German GDP. It cannot be counted as part of Swiss GNP. This table is only meant to demonstrate the importance of Swiss-related aluminium production to Germany.

Swiss-controlled production in the border region supplied to Germany over six times the quantity of direct Swiss exports. The Aluminium AG (ALAG) Company's Rheinfelden production facilities were just on the German side of the border. They were responsible for about 13% of total German aluminium production. As well as being protected by virtue of their location on the Swiss border, these facilities relied completely on key inputs from Switzerland, including capital, highly-skilled workers and energy imports (hydro-electricity, equal to one-half of Swiss exports).⁵⁵⁴ Key management decisions were also taken in Switzerland; the 1 October 1944 ban on Swiss exports of war materiel was applied to the Rheinfelden plant's production. For the last seven months of the war, the facility was converted to a research centre under the diplomatic

⁵⁵⁴ See Table 4.11; see Chapter Seven of this work describing Swiss labour transfers in the border regions.

protection of the Swiss Consulate in Baden-Baden.⁵⁵⁵ The facility also benefited from post-war protection from confiscation; diplomatic protection by the same Consulate ensured that the Allies could not liquidate the company, as was the normal procedure immediately after the war.⁵⁵⁶ As a result, the German ALAG facilities were clearly dependent on and controlled by the Swiss corporate body of ALAG and protected by the Swiss government, even if the factories were located in Germany. Their production should be counted as Swiss-related production.

Production from the ALAG facilities in Germany totalled on average about 31 million metric tons of aluminium; it ranged from 25 million metric tons in 1940 to 35 million metric tons in 1944. At its highest point this equalled 14% of the annual German production of aluminium, which was over three times the level of exports from Switzerland. The capacity of the Rheinfelden plant increased in 1941, but it operated at less than 60% of capacity throughout the war, due to electricity cuts by the Swiss government.⁵⁵⁷ Had it operated at full capacity, it could have produced more than 24% of Germany's aluminium consumption. Swiss government efforts to limit electricity exports to Germany (discussed below) clearly affected Germany's ability to expand production at this plant to its desired levels.⁵⁵⁸

As seen in Table 4.11, the aluminium production controlled by and imported from Switzerland amounted altogether to between 14% and 15% of all German aluminium consumption in any given year.⁵⁵⁹ If 15% of aluminium had been withheld from the German war effort, it would have equalled the amount

⁵⁵⁵ BA R E2200.37/1967/51, folder marked "ALUMINUM GmbH, dossier I," correspondence dated between 23 September 1944 and 19 July 1945.

⁵⁵⁶ BA R E2200.37/1967/51, folder marked "ALUMINUM GmbH, dossier I," correspondence dated between July 1945 to 1951.

⁵⁵⁷ ALAG PVCA, memo dated 21 October 1941; Laufer, *Industrie und Energiewirtschaft*.

⁵⁵⁸ See discussion in following section; also NA FO837/972, letters dated 14 December 1942.

⁵⁵⁹ It is important to note this is position is only rhetorical. ALAG production would normally be counted as part of German GDP. It cannot be counted as part of Swiss GNP. This table is only meant to demonstrate the importance of Swiss-related aluminium production to Germany.

of aluminium in every automobile and tank produced in Germany during the war or about 28,000 of the nearly 192,000 aircraft produced by the Axis war effort.⁵⁶⁰ The Allies were clearly right in believing that aluminium was a principal Swiss contribution to the German war effort; but the Swiss government maintained production at pre-war levels by rationing electricity, as the final section discusses.

Watches, Timepieces and Detonators for the Allies

No previous studies have resolved the importance of Swiss precision timepieces for the US and the Allies. Whether for Army, Navy, Air Force or even Special Forces, watches and timepieces allow for the accurate coordination and synchronization of units; they also provide precise timing for navigation and devices such as detonators. During the Second World War, the American and British watch industries were not sufficiently developed to offer such precision in the mass quantities required by their war effort. The principal source for such precision timepieces was Switzerland. Allied watch requirements versus availability demanded the rationing of timepieces, with allocations of military supplies typically only to officers and enlisted men, who needed watches to perform their duties.⁵⁶¹ This rationing was a direct result of shortages of accurate and precision timepieces in the Allied sphere; acquiring extra precision timepieces was a priority amongst Allied economic planners.

Correspondence from the Swiss Embassy in Washington DC indicates that the US authorities were confiscating Swiss watches destined for other North and South American countries, including other Allies, in order to boost their own supplies. They did this despite American and British complaints about similar

⁵⁶⁰ Mark Harrison, "The Economics of World War II: an overview," in Mark Harrison (ed.), *The Economics of World War II: Six Great Powers in International Comparison* (Cambridge, 1998), p.15.

⁵⁶¹ United States War Department, TM9-1575 *Ordnance Maintenance – Wrist Watches, Pocket Watches, Stop Watches and Clocks* (Washington DC, 1945); NARA RG107/160/929, folder marked "Watches for Post Exchange," memo dated 3 May 1944.

German tactics throughout this period.⁵⁶² Swiss watches purchased by the United States and other American countries were considered priority exports. They were typically taken to Portugal or the UK. From there, they were flown to the East Coast of the US for onward shipment in the Americas.⁵⁶³ Available correspondence suggests that, during 1943 and 1944, watches destined for other American countries, both Allies and neutrals, were confiscated at the US ports while awaiting onward shipment.⁵⁶⁴

Table 4.12: United States Imports of Swiss Watches and Movements, 1942-1944 (in thousands)

Year	Total Swiss Exports	Net	As a % of total Swiss Exports
		United States Imports	
1942	13,958	5,293	38%
1943	14,533	7,994	55%
1944	11,838	6,500	54%

Sources: NARA RG107/160/929, folder marked "Watches for Post Exchange," memo dated 3 May 1945.

Notes: includes both finished watches and movements.

A 1944 memo quoting the Chief of the Clock and Watch Unit of the War Production Board provides new statistics for the number of Swiss watches that actually reached the US. Whereas official Swiss statistics indicate that the Americans purchased 28% of Swiss watch exports in 1942, American import figures put the levels considerably higher.⁵⁶⁵ As seen in Table 4.12, at the peak of Swiss wartime export production in 1943, the US was absorbing nearly 8 million of the 14.5 million watches and movements produced; this equates to just over 55% of Swiss exports, compared with the official figure of 35%. Similar differences were recorded in 1942 and 1944. Switzerland was the main American

⁵⁶² See Wylie, *Britain, Switzerland*.

⁵⁶³ E2001D/1000/1552/225, *Internationale Luftverkehrslinien* [International Air Transportation Network], files dated between 1939 and 1944.

⁵⁶⁴ E2220.36/1000/1746/5, folder marked "*Zoll auf Uhren* [Customs on Watches]", radiogram dated January 1944, telegram dated 24 July 1943 and letter dated 13 July 1945.

⁵⁶⁵ SJS, 1945, p.202.

supplier, with an estimated 33 million watches sent to the United States during the war, over two-thirds of American supplies.⁵⁶⁶ But even after diverting Swiss watches from other destinations, the rate of imports could not satisfy American demand. Army correspondence indicates annual shortages in millions throughout 1942-1944.⁵⁶⁷ Unfortunately, because of a lack of specific data it is difficult to know exactly how many watches the United States expropriated from third-party neutrals.

Switzerland Energy Supply Situation

During the Second World War, Switzerland was both an exporter and importer of energy; it exported electricity to France and Germany and imported carbon-based fuels for Swiss industry and household heating. This final section reviews the Swiss energy supply. It divides the analysis of Switzerland's electricity exports and Switzerland's overall energy position into two parts. The first examines electricity exports from Switzerland, including for the first time all the energy from the joint production on the Swiss-German border; the second discusses Switzerland's overall energy position. The former is important for understanding the Allies' diplomatic pressure to withhold electricity exports and the link to aluminium production in Germany; the latter demonstrates that, even when accounting for the exported electrical energy, it would have been impossible for Switzerland to survive as an isolationist neutral during the war since it depended on petroleum and fuel imports.

Electricity and Electrical Exports

Much like aluminium exports, Switzerland's electricity exports should be examined in two parts: actual domestic Swiss generation exported to Germany and joint German-Swiss generation from shared Rhein River facilities (the river forms the border). Production from both the Rhein and Swiss domestic sources

⁵⁶⁶ NARA RG107/160/929, folder marked "Watches for Post Exchange," memo dated 3 May 1945.

⁵⁶⁷ NARA RG107/160/929, folder marked "Watches for Post Exchange," various memos.

was almost exclusively hydro-electric.⁵⁶⁸ In the former case, exporting was a conscious decision on Switzerland's part, largely halted after 1944 at the request of the Allies; the latter refers to production from the joint facilities on the Rhein where part of the electricity was Swiss and the rest German.

Previous studies have discounted the non-Swiss part of the joint production, counting it as German supplies over which Switzerland had no control; however, this paper presents it as under Swiss protection and includes it in the statistics, with qualifications.⁵⁶⁹ Whereas the CIE studies were specifically designed to quantify support in terms of minimum quantities, this study seeks to include all production for which Switzerland provided protection. Continued German wartime production by these plants was possible only because they were protected by being partially Swiss. The Allies could not target the German-Swiss border because of Swiss neutrality.⁵⁷⁰ Despite the joint control, these facilities were effectively protected, as was the border area, under de-facto neutral protection; any bomb would have destroyed half-neutral property. However, joint control also meant that Switzerland could not in late 1944 simply open the floodgates as the Allies suggested to prevent German power production.⁵⁷¹ All the Rhein River production should, therefore, be included in the statistics presented in this section. The exports were used for a variety of wartime applications, including the production of weapons, chemicals and metals

⁵⁶⁸ Heiner Ritzmann-Blickenstorfer (ed.), *Statistique historique de la Suisse* (Zurich, 1996), p.598; BA Ar E8190(A)/1985/118/33-34, *Ausfuhrstatistik* [Export Statistics] and *Einfuhrstatistik* [Import Statistics].

⁵⁶⁹ Kleisl, *Electricité Suisse*

⁵⁷⁰ NARA RG107/160/929, file marked "Legality of Swiss..."

⁵⁷¹ NARA RG107/160/928, file marked, "Switzerland - Electric Power," memos dated between 2 December and 14 December 1944.

Table 4.13: Swiss Energy Exports to Germany, 1939 to 1945
(in millions of kilowatt hours [KWh], except as noted)

Year	Net Swiss Exports to Germany	German Portion of Joint Rhein River Production	Total Swiss-Controlled Exports	Exports as % of Swiss-Controlled Production	Swiss-Controlled Energy Exports as a % of German Supply
1939	946	1,287	2,233	52%	3.6%
1940	1,108	1,287	2,395	48%	3.8%
1941	1,109	1,319	2,428	46%	3.5%
1942	1,032	1,392	2,425	45%	3.4%
1943	975	1,375	2,350	43%	3.2%
1944	1,024	1,401	2,425	31%	
1945	118	1,287	1,405		

Sources: BAr E8190(A)/1985/118/33-34, *Ausfuhrstatistik* [Export Statistics] and *Einfuhrstatistik* [Import Statistics]; GLA Baden, 33176/237/5-7, "Die öffentliche Elektrizitätsversorgung im Wirtschaftsgebiet Baden [Electricity production in Business Area Baden]," Badenwerk, November 1937; Ritzmann, *Statistisches historisches* (Zurich, 1996), p. 598; SHvD, pp.470-471.

Note: Exports to Alsace are included as German from June 1940 to December 1944.

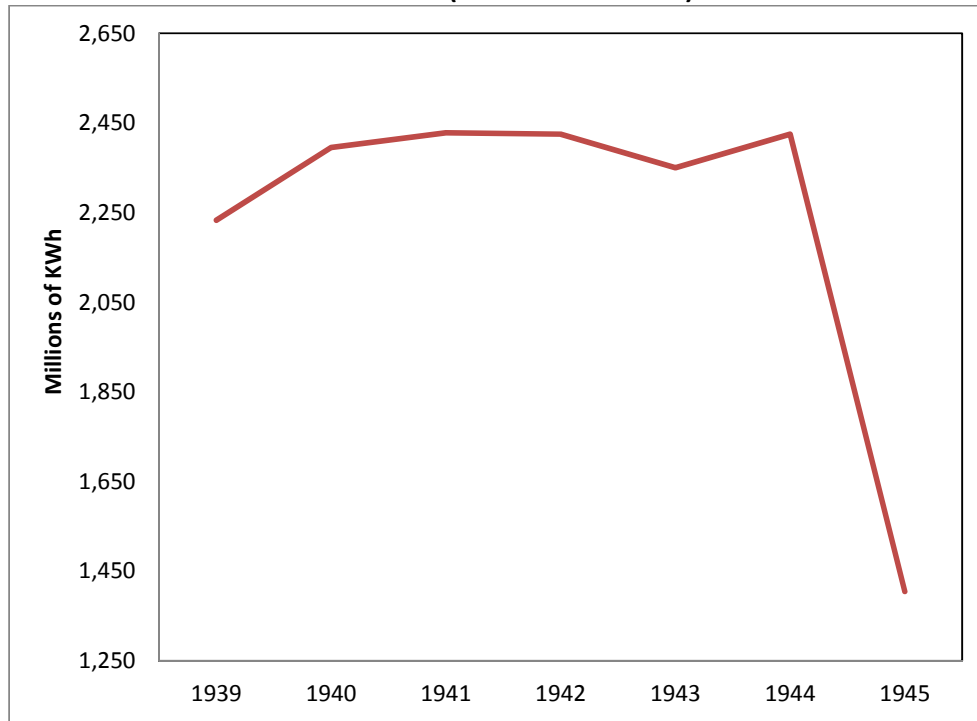
Switzerland directly exported to Germany between 943 million and 1.1 billion KWh of electricity. As seen in Table 4.11, from 1939 to 1944, Switzerland exported to Germany. These Swiss-controlled exports were equivalent to 44% of Swiss production and approximately 3.5% of German production.⁵⁷² At the end of 1944, the Americans and British sought to obtain sizeable reductions in exports to Germany, in order to cripple industry in the southern German state of Baden.⁵⁷³ As suggested in the statistics shown in Table 4.13 and Figure 4.6, Switzerland acquiesced in this aim in January/February 1945 when the area became an active military zone.⁵⁷⁴

⁵⁷² NARA RG107/160/928, file marked, "Switzerland - Electric Power," memos dated between 2 December and 14 December 1944.

⁵⁷³ *Ibid.*

⁵⁷⁴ BAr E8190(A)/1985/118/33-34, *Ausfuhrstatistik* and *Einfuhrstatistik*.

Figure 4.6: Swiss Exports of Electrical Power to Germany, 1939-1945 (in millions of KWh)



Sources: See Table 4.13.

Note: Includes both direct Swiss exports and the German portion of joint production from the Rhein River facilities.

It should be noted that German efforts to increase these exports generally failed. From 1939, Germany wanted additional electricity exports from Switzerland and increased electrical production to maximum levels in certain plants. These efforts appear to have been largely rebuffed by Switzerland, which was by this time under substantial pressure from the Americans and British to limit exports to Germany, including electricity.⁵⁷⁵ For example, Germany pursued aggressively the development of another hydro-electric facility at Säkingen, but the Swiss government resisted the start of construction throughout the war and started building it afterwards.⁵⁷⁶ Swiss exports allowed Germany to maintain a vast network of Swiss factories, metal smelting operations and other important

⁵⁷⁵ NA FO837/972, letters dated 14 December 1942.

⁵⁷⁶ NARA RG242/T-71/38, chart entitled "*Gestehungskosten* [Costs]."

wartime facilities throughout the border area (see the discussion of aluminium production in Chapter Seven); but the failure to increase energy exports limited production and prevented the expansion of these facilities.

Table 4.14: Swiss Coal Imports from Germany versus Swiss Electricity Exports to Germany, Converted into 1,000s of tons of Mineral Coal Equivalents

Year	Electrical Energy Exports - Equivalent in 1,000s Tons of Mineral Coal	Imports of Mineral Coal from Germany (1,000s of Tons)	Difference in 1,000s of Metric Tons Equivalent
1939	867	1,744	877
1940	929	1,566	636
1941	942	1,986	1,044
1942	941	1,826	885
1943	912	1,781	869
1944	941	1,332	391
1945	545	33	-512
Total	6,077	10,267	4,190

Sources: See appendix 4.5; coal imports: BAr E7110/1967/32/245/371; for 1941 to 1943: BAr E7389/1967/33/191; 1944 to 1945: BAr E7389/1967/33/192.

However, for its energy, Switzerland was at the mercy of Germany. The Allies refused to send fuels to Switzerland, on the basis that Germany might expropriate them. Switzerland remained a net energy importer from Germany, largely of mineral coal. As seen in Table 4.14, apart from 1945, mineral coal imports from Germany (in thousands of tons equivalents) always exceeded the equivalent value of electricity exports. On average, Switzerland was importing 41% more energy than it was exporting; at the 1941 peak, the difference reached 53%. Thus, although Switzerland was a large electricity exporter to Germany, it was actually a net energy importer from there. This meant that Switzerland relied on Germany to continue supplying these fuels. This reinforces the extent to which Switzerland could not end the export of electricity, lest Germany reciprocate.

Fuel Supply in Switzerland

Switzerland had long been an energy importer, although slightly less so on a percentage basis during the war. As Figure 4.7 shows, in 1943 Switzerland imported 41% of its energy products. This compares to 66% before the war (1938) and 50% in the first normalized post-war year (1948). In the pre-war and wartime periods, imports originated primarily from Germany, which provided virtually all of Switzerland's mineral coal; these coal imports represented 55% and 39% of Switzerland's net 1938 and 1942 energy consumption.⁵⁷⁷ During the war, rationing and Allied restrictions led to reductions in the availability of petrol and heavy oils; only German-controlled sources of these products, including Czechoslovakia and Romania, were available to Switzerland.⁵⁷⁸ After the war, all imports were controlled by American and British sources. During the war, heavy oil and petrol were no more than 3% of total net consumption; in 1937, these two fuels had comprised 11% of use and in 1948, 16%.

Hydro-electricity (net of exports) and fuel wood were the main constituents of domestic energy production. New domestic consumption of electrical energy increased throughout the period. From 5.5 billion KWh in 1937, net consumption increased to 7.4 billion KWh in 1942 and 10.0 billion in 1948.⁵⁷⁹ When converted into equivalent mineral coal terms, this represents 33% of total Swiss energy consumption in 1937, 58% in 1943 and 50% in 1948.⁵⁸⁰ Domestic fuel wood, scarcely found in Switzerland, represented less than 1% of its energy consumption in all three periods.⁵⁸¹

⁵⁷⁷ BAr E7110/1967/32/371, BAr E7389/1967/33/191, BAr E7389/1967/33/192.

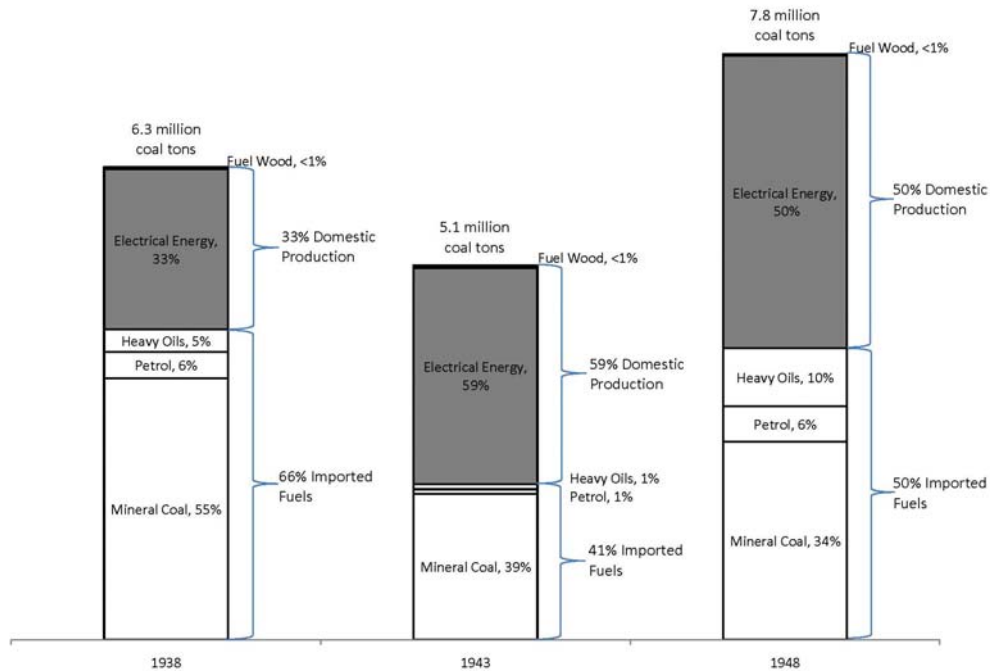
⁵⁷⁸ SJdS 1945, pp.322-324.

⁵⁷⁹ SJdS 1949, p.146.

⁵⁸⁰ Electrical energy converted at 388 tons of mineral coal per million KWh.

⁵⁸¹ See Appendix 4.5.

Figure 4.7: Production and Origins of Energy Supply in Switzerland, 1938, 1943 and 1948



Sources: See Appendix 4.5

Notes: Comparison prepared using tons of coal energy equivalence; some assumptions are made as to the energy values of these materials; see Appendix 4.5.

As these statistics suggest, Switzerland could not have survived without energy imports. With only 58% of its energy produced domestically and already having reduced consumption from pre-war levels by approximately 21%, Switzerland was subject to German decisions for its long-term fuel supplies. Virtually all Switzerland's wartime fuel imports came from Germany or countries under German control. Consequently, Germany can be said to have significantly controlled Switzerland's economy. Any withholding of imports would have resulted in a substantial net energy deficit, even if the Swiss government had limited exports in retaliation.

Conclusions

This chapter has provided new statistics for Swiss-belligerent trade during the Second World War, including nominal and real trade figures. These new statistics alter the existing conception of Swiss neutrality. They clearly demonstrate that Switzerland acted pragmatically with regard to its wartime trade. In its relations with the two belligerent groups, Switzerland chose to appease each one enough to maintain its position. Although it remained closer to Germany throughout the war by virtue of geography, the Swiss government continued to import more from Germany than it exported; it also charged Germany more for the war material that it exported to them. However, it also offered Germany substantial trade credits. The opposite terms of the trade gap manifested itself vis-à-vis the Allies. After 1942, exports to the Allied bloc consistently exceeded imports, meeting the principal Allied test for Swiss independence. The prices charged for exports did not keep pace with rises in Allied imports. The presentation of Swiss services trade and capital account statistics in Chapter Five will further reinforce these preliminary conclusions.

Appendix 4.1: Swiss Merchandise Exports to Germany and the German Bloc (in millions of Swiss Francs)

Overall Figures:	1938	1939	1940	1941	1942	1943	1944
Total Exports (NOMINAL TERMS)	224.2	234.9	656.7	1,032.9	1,105.9	1,009.3	483.8
Total Exports (NOMINAL), 1939=100	100	105	293	461	493	450	216
 Total Exports (REAL)	 224.2	 215.5	 417.7	 519.7	 430.1	 360.1	 202.0
Total Exports (REAL), 1939=100	100	96	186	232	192	161	90

Nominal - By Category (Nominal Swiss Francs):	1938	1939	1940	1941	1942	1943	1944
Animals and their products	0.3	3.6	13.2	21.8	11.6	7.7	5.4
Chemicals and their derivatives	25.2	20.0	110.7	174.0	130.1	149.8	47.5
Edible foodstuffs and drinks	7.4	8.7	42.0	45.2	2.9	4.5	0.2
Fuels and electrical energy	18.1	22.8	26.7	29.3	29.2	31.4	32.0
Machinery, equipment and vehicles	100.5	81.8	251.0	433.3	592.5	551.8	204.8
Metals and their alloys	7.8	3.3	51.0	62.1	60.9	35.3	22.0
Minerals, materials and their derivatives	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other consumer manufactures	2.9	2.7	4.4	6.2	15.8	8.6	5.7
Paper and paper manufactures	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Textiles and their raw materials	61.5	49.3	41.3	82.2	80.6	67.9	53.2
Wood and other industrial plant materials	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sub-Total	223.7	192.2	540.3	854.1	923.6	857.0	370.8
Unclassified trade [1]	0.5	42.7	116.4	178.8	182.3	152.3	113.0
Total Nominal Trade	224.2	234.9	656.7	1,032.9	1,105.9	1,009.3	483.8

Nominal - By Category (in Percent of Nominal Swiss Francs):	1938	1939	1940	1941	1942	1943	1944
Animals and their products	0.1%	1.5%	2.0%	2.1%	1.0%	0.8%	1.1%
Chemicals and their derivatives	11.2%	8.5%	16.9%	16.8%	11.8%	14.8%	9.8%
Edible foodstuffs and drinks	3.3%	3.7%	6.4%	4.4%	0.3%	0.4%	0.0%
Fuels and electrical energy	8.1%	9.7%	4.1%	2.8%	2.6%	3.1%	6.6%
Machinery, equipment and vehicles	44.8%	34.8%	38.2%	41.9%	53.6%	54.7%	42.3%
Metals and their alloys	3.5%	1.4%	7.8%	6.0%	5.5%	3.5%	4.5%
Minerals, materials and their derivatives	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other consumer manufactures	1.3%	1.1%	0.7%	0.6%	1.4%	0.9%	1.2%
Paper and paper manufactures	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Textiles and their raw materials	27.4%	21.0%	6.3%	8.0%	7.3%	6.7%	11.0%
Wood and other industrial plant materials	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Unclassified	0.2%	18.2%	17.7%	17.3%	16.5%	15.1%	23.4%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Real - By Category (Real Swiss Francs, 1938 Prices):	1938	1939	1940	1941	1942	1943	1944
Animals and their products	0.3	3.3	11.6	15.5	5.5	3.2	2.3
Chemicals and their derivatives	25.2	18.1	50.4	50.9	31.4	28.5	19.2
Edible foodstuffs and drinks	7.4	8.1	31.1	25.9	1.5	1.8	0.1
Fuels and Electricity	18.1	19.8	20.8	18.4	17.6	16.3	13.7
Machinery, equipment and vehicles	100.5	73.8	156.2	230.6	223.4	198.1	76.3
Metals and their alloys	7.8	3.2	40.0	37.1	34.7	21.7	10.5
Minerals, materials and their derivatives	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other consumer manufactures	2.9	2.7	3.8	4.3	8.4	4.5	3.2
Paper and paper manufactures	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Textiles and their raw materials	61.5	47.3	29.7	46.9	36.8	31.8	29.6
Wood and other industrial plant materials	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sub-Total	223.7	176.3	343.7	429.7	359.2	305.8	154.8
Unclassified trade [1]	0.5	39.2	74.0	90.0	70.9	54.3	47.2
Total Real Trade	224.2	215.5	417.7	519.7	430.1	360.1	202.0

Appendix 4.1: Swiss Merchandise Exports to Germany and the German Bloc (in millions of Swiss Francs)

Overall Figures:	1938	1939	1940	1941	1942	1943	1944
Total Exports (NOMINAL TERMS)	224.2	234.9	656.7	1,032.9	1,105.9	1,009.3	483.8
Total Exports (NOMINAL), 1939=100	100	105	293	461	493	450	216
 Total Exports (REAL)	 224.2	 215.5	 417.7	 519.7	 430.1	 360.1	 202.0
Total Exports (REAL), 1939=100	100	96	186	232	192	161	90

Real - By Category (in Percent of Real Swiss Francs, 1938 Prices, 1938=100):

	1938	1939	1940	1941	1942	1943	1944
Animals and their products	0.1%	1.5%	2.8%	3.0%	1.3%	0.9%	1.1%
Chemicals and their derivatives	11.2%	8.4%	12.1%	9.8%	7.3%	7.9%	9.5%
Edible foodstuffs and drinks	3.3%	3.8%	7.4%	5.0%	0.3%	0.5%	0.1%
Fuels and electrical energy	8.1%	9.2%	5.0%	3.5%	4.1%	4.5%	6.8%
Machinery, equipment and vehicles	44.8%	34.3%	37.4%	44.4%	51.9%	55.0%	37.8%
Metals and their alloys	3.5%	1.5%	9.6%	7.1%	8.1%	6.0%	5.2%
Minerals, materials and their derivatives	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other consumer manufactures	1.3%	1.2%	0.9%	0.8%	2.0%	1.2%	1.6%
Paper and paper manufactures	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Textiles and their raw materials	27.4%	22.0%	7.1%	9.0%	8.6%	8.8%	14.6%
Wood and other industrial plant materials	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Unclassified	0.2%	18.2%	17.7%	17.3%	16.5%	15.1%	23.4%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Price Deflators (Paasche) by Category (1938=100) - See Notes

	1938	1939	1940	1941	1942	1943	1944
Animals and their products	100	110	114	140	212	242	235
Chemicals and their derivatives	100	110	220	342	415	526	248
Edible foodstuffs and drinks	100	107	135	175	198	255	184
Fuels and electrical energy	100	115	128	159	166	192	234
Machinery, equipment and vehicles	100	111	161	188	265	279	269
Metals and their alloys	100	104	128	167	176	163	210
Minerals, materials and their derivatives							
Other consumer manufactures	100	101	116	143	187	193	176
Paper and paper manufactures							
Textiles and their raw materials	100	104	139	175	219	214	180
Wood and other industrial plant materials							

Overall Price Deflator (Paasche), 1938=100	100	109	157	199	257	280	239
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Sources and Notes: See attached notes.

Appendix 4.2: Swiss Merchandise Imports from Germany and the German Bloc (in millions of Swiss Francs)

Overall Figures:	1938	1939	1940	1941	1942	1943	1944
Total Imports (NOMINAL TERMS)	373.1	482.9	993.7	1,252.0	1,175.9	1,089.9	769.3
Total Imports (NOMINAL), 1938=100	100	129	266	336	315	292	206
 Total Imports (REAL)	 373.1	 480.9	 714.6	 706.7	 567.0	 519.9	 362.4
Total Imports (REAL), 1938=100	100	129	192	189	152	139	97

Nominal - By Category (Nominal Swiss Francs):	1938	1939	1940	1941	1942	1943	1944
Animals and their products	0.0	0.0	12.6	22.9	22.9	49.0	16.9
Chemicals and their derivatives	46.0	62.8	85.9	117.5	114.6	107.1	72.9
Edible foodstuffs and drinks	16.9	21.8	134.4	159.8	159.0	141.7	122.8
Fuels	67.7	73.5	183.1	254.8	225.0	225.9	169.4
Machinery, equipment and vehicles	69.1	67.9	74.1	76.7	75.8	70.2	49.4
Metals and their alloys	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minerals, materials and their derivatives	68.0	80.8	136.3	144.9	185.2	115.0	79.3
Other consumer manufactures	19.7	24.0	28.5	42.0	45.2	41.4	36.9
Paper and paper manufactures	0.0	0.0	0.7	3.3	1.7	3.0	0.0
Textiles and their raw materials	43.9	39.8	75.2	100.5	45.8	39.4	20.6
Wood and other industrial plant materials	0.4	0.3	6.7	26.0	19.9	20.5	11.0
Sub-Total	331.7	370.9	737.5	948.4	895.1	813.2	579.2
Unclassified trade [1]	41.4	112.0	256.2	303.6	280.8	276.7	190.1
Total Nominal Trade	373.1	482.9	993.7	1,252.0	1,175.9	1,089.9	769.3

Nominal - By Category (in Percent of Nominal Swiss Francs):	1938	1939	1940	1941	1942	1943	1944
Animals and their products	0.0%	0.0%	1.3%	1.8%	1.9%	4.5%	2.2%
Chemicals and their derivatives	12.3%	13.0%	8.6%	9.4%	9.7%	9.8%	9.5%
Edible foodstuffs and drinks	4.5%	4.5%	13.5%	12.8%	13.5%	13.0%	16.0%
Fuels	18.1%	15.2%	18.4%	20.4%	19.1%	20.7%	22.0%
Machinery, equipment and vehicles	18.5%	14.1%	7.5%	6.1%	6.4%	6.4%	6.4%
Metals and their alloys	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Minerals, materials and their derivatives	18.2%	16.7%	13.7%	11.6%	15.7%	10.6%	10.3%
Other consumer manufactures	5.3%	5.0%	2.9%	3.4%	3.8%	3.8%	4.8%
Paper and paper manufactures	0.0%	0.0%	0.1%	0.3%	0.1%	0.3%	0.0%
Textiles and their raw materials	11.8%	8.2%	7.6%	8.0%	3.9%	3.6%	2.7%
Wood and other industrial plant materials	0.1%	0.1%	0.7%	2.1%	1.7%	1.9%	1.4%
Unclassified	11.1%	23.2%	25.8%	24.2%	23.9%	25.4%	24.7%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Real - By Category (Real Swiss Francs, 1938 Prices):	1938	1939	1940	1941	1942	1943	1944
Animals and their products	0.0	0.0	9.8	10.7	7.1	13.4	5.4
Chemicals and their derivatives	46.0	59.6	64.9	68.7	62.9	84.0	48.8
Edible foodstuffs and drinks	16.9	21.0	110.6	87.0	53.4	45.9	37.8
Fuels	67.7	66.9	83.0	97.2	85.4	83.3	59.1
Machinery, equipment and vehicles	69.1	70.2	72.6	69.9	60.0	55.2	47.2
Metals and their alloys	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minerals, materials and their derivatives	68.0	86.8	99.5	87.8	101.3	50.5	34.5
Other consumer manufactures	19.7	23.6	25.9	27.8	29.8	26.4	17.5
Paper and paper manufactures	0.0	0.0	0.5	1.7	0.7	0.5	0.0
Textiles and their raw materials	43.9	41.0	58.5	70.9	24.6	21.7	19.1
Wood and other industrial plant materials	0.4	0.2	5.0	13.6	6.6	6.9	3.3
Sub-Total	331.7	369.4	530.3	535.3	431.6	387.9	272.9
Unclassified trade [1]	41.4	111.5	184.2	171.4	135.4	132.0	89.6
Total Real Trade	373.1	480.9	714.6	706.7	567.0	519.9	362.4

Appendix 4.2: Swiss Merchandise Imports from Germany and the German Bloc (in millions of Swiss Francs)

Overall Figures:	1938	1939	1940	1941	1942	1943	1944
Total Imports (NOMINAL TERMS)	373.1	482.9	993.7	1,252.0	1,175.9	1,089.9	769.3
Total Imports (NOMINAL), 1938=100	100	129	266	336	315	292	206
Total Imports (REAL)	373.1	480.9	714.6	706.7	567.0	519.9	362.4
Total Imports (REAL), 1938=100	100	129	192	189	152	139	97

Real - By Category (in Percent of Real Swiss Francs, 1938 Prices, 1938=100):

	1938	1939	1940	1941	1942	1943	1944
Animals and their products	0.0%	0.0%	1.4%	1.5%	1.2%	2.6%	1.5%
Chemicals and their derivatives	12.3%	12.4%	9.1%	9.7%	11.1%	16.2%	13.5%
Edible foodstuffs and drinks	4.5%	4.4%	15.5%	12.3%	9.4%	8.8%	10.4%
Fuels	18.1%	13.9%	11.6%	13.8%	15.1%	16.0%	16.3%
Machinery, equipment and vehicles	18.5%	14.6%	10.2%	9.9%	10.6%	10.6%	13.0%
Metals and their alloys	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Minerals, materials and their derivatives	18.2%	18.1%	13.9%	12.4%	17.9%	9.7%	9.5%
Other consumer manufactures	5.3%	4.9%	3.6%	3.9%	5.2%	5.1%	4.8%
Paper and paper manufactures	0.0%	0.0%	0.1%	0.2%	0.1%	0.1%	0.0%
Textiles and their raw materials	11.8%	8.5%	8.2%	10.0%	4.3%	4.2%	5.3%
Wood and other industrial plant materials	0.1%	0.1%	0.7%	1.9%	1.2%	1.3%	0.9%
Unclassified	11.1%	23.2%	25.8%	24.2%	23.9%	25.4%	24.7%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Price Deflators (Paasche) by Category (1938=100) - See Notes

	1938	1939	1940	1941	1942	1943	1944
Animals and their products	100		129	214	324	365	310
Chemicals and their derivatives	100	105	132	171	182	128	149
Edible foodstuffs and drinks	100	104	121	184	298	309	325
Fuels	100	110	221	262	263	271	287
Machinery, equipment and vehicles	100	97	102	110	126	127	105
Metals and their alloys	100						
Minerals, materials and their derivatives	100	93	137	165	183	228	230
Other consumer manufactures	100	102	110	151	152	157	211
Paper and paper manufactures	100		141	192	242	551	
Textiles and their raw materials	100	97	129	142	186	182	108
Wood and other industrial plant materials	100	122	133	191	304	296	333
Overall Price Deflator (Paasche), 1938=100	100	100	139	177	207	210	212

Sources and Notes: See attached notes.

Appendix 4.3: Swiss Merchandise Exports to the Allied Bloc (in millions of Swiss Francs)

Overall Figures:	1938	1939	1940	1941	1942	1943	1944
Total Exports (NOMINAL TERMS)	373.4	393.4	185.2	107.0	206.5	295.2	301.2
Total Exports (NOMINAL), 1938=100	100	105	50	29	55	79	81
 Total Exports (REAL)	 373.4	 357.0	 117.8	 66.2	 98.4	 123.9	 124.0
Total Exports (REAL), 1938=100	100	96	32	18	26	33	33

Nominal - By Category (Nominal Swiss Francs):	1938	1939	1940	1941	1942	1943	1944
Animals and their products	0.9	0.0	0.0	0.0	0.0	0.0	0.0
Chemicals and their derivatives	40.9	82.2	50.2	33.4	33.3	25.8	27.5
Edible foodstuffs and drinks	11.9	7.8	0.0	0.0	0.2	0.4	0.0
Fuels	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Machinery, equipment and vehicles	141.5	150.8	73.3	53.7	129.6	233.4	204.1
Metals and their alloys	26.3	39.6	8.5	0.0	0.0	0.0	0.0
Minerals, materials and their derivatives	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other consumer manufactures	11.2	9.1	0.2	0.0	2.0	10.1	7.9
Paper and paper manufactures	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Textiles and their raw materials	19.8	17.2	2.9	0.4	11.9	16.6	43.9
Wood and other industrial plant materials	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sub-Total	252.5	306.7	135.1	87.5	177.0	286.3	283.4
Unclassified trade [1]	120.9	86.7	50.1	19.5	29.5	8.9	17.8
Total Nominal Trade	373.4	393.4	185.2	107.0	206.5	295.2	301.2

Nominal - By Category (in Percent of Nominal Swiss Francs):	1938	1939	1940	1941	1942	1943	1944
Animals and their products	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Chemicals and their derivatives	11.0%	20.9%	27.1%	31.2%	16.1%	8.7%	9.1%
Edible foodstuffs and drinks	3.2%	2.0%	0.0%	0.0%	0.1%	0.1%	0.0%
Fuels	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Machinery, equipment and vehicles	37.9%	38.3%	39.6%	50.2%	62.8%	79.1%	67.8%
Metals and their alloys	7.0%	10.1%	4.6%	0.0%	0.0%	0.0%	0.0%
Minerals, materials and their derivatives	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other consumer manufactures	3.0%	2.3%	0.1%	0.0%	1.0%	3.4%	2.6%
Paper and paper manufactures	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Textiles and their raw materials	5.3%	4.4%	1.6%	0.4%	5.8%	5.6%	14.6%
Wood and other industrial plant materials	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Unclassified	32.4%	22.0%	27.0%	18.2%	14.3%	3.0%	5.9%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Real - By Category (Real Swiss Francs, 1938 Prices):	1938	1939	1940	1941	1942	1943	1944
Animals and their products	0.9	0.0	0.0	0.0	0.0	0.0	0.0
Chemicals and their derivatives	40.9	71.8	31.8	21.6	18.3	11.9	13.4
Edible foodstuffs and drinks	11.9	7.3	0.0	0.0	0.1	0.2	0.0
Fuels	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Machinery, equipment and vehicles	141.5	134.5	44.7	32.4	59.9	94.6	72.1
Metals and their alloys	26.3	38.1	6.7	0.0	0.0	0.0	0.0
Minerals, materials and their derivatives	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other consumer manufactures	11.2	8.5	0.2	0.0	1.1	6.0	4.6
Paper and paper manufactures	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Textiles and their raw materials	19.8	18.2	2.6	0.2	4.9	7.6	26.5
Wood and other industrial plant materials	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sub-Total	252.5	278.4	86.0	54.2	84.4	120.2	116.7
Unclassified trade [1]	120.9	78.7	31.9	12.1	14.1	3.8	7.3
Total Real Trade	373.4	357.0	117.8	66.2	98.4	123.9	124.0

Appendix 4.3: Swiss Merchandise Exports to the Allied Bloc (in millions of Swiss Francs)

Overall Figures:	1938	1939	1940	1941	1942	1943	1944
Total Exports (NOMINAL TERMS)	373.4	393.4	185.2	107.0	206.5	295.2	301.2
Total Exports (NOMINAL), 1938=100	100	105	50	29	55	79	81
Total Exports (REAL)	373.4	357.0	117.8	66.2	98.4	123.9	124.0
Total Exports (REAL), 1938=100	100	96	32	18	26	33	33

Real - By Category (in Percent of Real Swiss Francs, 1938 Prices, 1938=100):	1938	1939	1940	1941	1942	1943	1944
Animals and their products	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Chemicals and their derivatives	11.0%	20.1%	27.0%	32.6%	18.6%	9.6%	10.8%
Edible foodstuffs and drinks	3.2%	2.0%	0.0%	0.0%	0.1%	0.1%	0.0%
Fuels	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Machinery, equipment and vehicles	37.9%	37.7%	38.0%	48.9%	60.8%	76.3%	58.1%
Metals and their alloys	7.0%	10.7%	5.7%	0.0%	0.0%	0.0%	0.0%
Minerals, materials and their derivatives	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other consumer manufactures	3.0%	2.4%	0.2%	0.0%	1.1%	4.8%	3.7%
Paper and paper manufactures	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Textiles and their raw materials	5.3%	5.1%	2.2%	0.3%	5.0%	6.1%	21.4%
Wood and other industrial plant materials	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Unclassified	32.4%	22.0%	27.0%	18.2%	14.3%	3.0%	5.9%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Price Deflators (Paasche) by Category (1938=100) - See Notes	1938	1939	1940	1941	1942	1943	1944
Animals and their products							
Chemicals and their derivatives	100	114	158	155	182	218	205
Edible foodstuffs and drinks	100	107			198	255	
Fuels							
Machinery, equipment and vehicles	100	112	164	166	216	247	283
Metals and their alloys	100	104	128				
Minerals, materials and their derivatives							
Other consumer manufactures	100	107	109		177	169	171
Paper and paper manufactures							
Textiles and their raw materials	100	94	111	191	241	219	166
Wood and other industrial plant materials							

Overall Price Deflator (Paasche), 1938=100	100	110	157	162	210	238	243
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Sources and Notes: See attached notes.

Appendix 4.4: Swiss Merchandise Imports from the Allied Bloc (in millions of Swiss Francs)

Overall Figures:	1938	1939	1940	1941	1942	1943	1944
Total Imports (NOMINAL TERMS)	428.2	508.3	166.1	115.2	357.9	219.3	97.4
Total Imports (NOMINAL), 1938=100	100	119	39	27	84	51	23
 Total Imports (REAL)	 428.2	 540.4	 95.5	 46.3	 139.6	 73.4	 27.1
Total Imports (REAL), 1938=100	100	126	22	11	33	17	6

Nominal - By Category (Nominal Swiss Francs):	1938	1939	1940	1941	1942	1943	1944
Animals and their products	2.7	3.7	0.0	0.0	0.0	0.0	0.0
Chemicals and their derivatives	28.1	31.2	6.5	1.2	4.4	2.1	1.3
Edible foodstuffs and drinks	84.3	105.6	55.7	71.9	233.5	157.8	59.2
Fuels	42.1	77.8	43.6	0.5	0.6	1.6	0.1
Machinery, equipment and vehicles	19.6	22.5	3.2	0.8	6.1	2.8	1.6
Metals and their alloys	50.6	83.9	3.4	0.2	3.5	0.0	0.4
Minerals, materials and their derivatives	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other consumer manufactures	12.1	13.5	3.4	0.3	1.4	1.1	0.0
Paper and paper manufactures	0.6	0.9	0.0	0.0	0.0	0.0	2.3
Textiles and their raw materials	85.8	111.8	27.3	29.5	25.8	0.9	0.2
Wood and other industrial plant materials	5.7	6.2	0.0	4.5	0.0	0.0	0.0
Sub-Total	331.6	457.1	143.1	108.9	275.3	166.3	65.1
Unclassified trade [1]	96.6	51.2	23.0	6.3	82.6	53.0	32.3
Total Nominal Trade	428.2	508.3	166.1	115.2	357.9	219.3	97.4

Nominal - By Category (in Percent of Nominal Swiss Francs):	1938	1939	1940	1941	1942	1943	1944
Animals and their products	0.6%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Chemicals and their derivatives	6.6%	6.1%	3.9%	1.0%	1.2%	1.0%	1.3%
Edible foodstuffs and drinks	19.7%	20.8%	33.5%	62.4%	65.2%	72.0%	60.8%
Fuels	9.8%	15.3%	26.2%	0.4%	0.2%	0.7%	0.1%
Machinery, equipment and vehicles	4.6%	4.4%	1.9%	0.7%	1.7%	1.3%	1.6%
Metals and their alloys	11.8%	16.5%	2.0%	0.2%	1.0%	0.0%	0.4%
Minerals, materials and their derivatives	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other consumer manufactures	2.8%	2.7%	2.0%	0.3%	0.4%	0.5%	0.0%
Paper and paper manufactures	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	2.4%
Textiles and their raw materials	20.0%	22.0%	16.4%	25.6%	7.2%	0.4%	0.2%
Wood and other industrial plant materials	1.3%	1.2%	0.0%	3.9%	0.0%	0.0%	0.0%
Unclassified	22.6%	10.1%	13.8%	5.5%	23.1%	24.2%	33.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Real - By Category (Real Swiss Francs, 1938 Prices):	1938	1939	1940	1941	1942	1943	1944
Animals and their products	2.7	4.3	0.0	0.0	0.0	0.0	0.0
Chemicals and their derivatives	28.1	46.8	6.2	0.8	2.4	1.2	0.9
Edible foodstuffs and drinks	84.3	109.6	35.0	23.4	85.6	51.5	15.0
Fuels	42.1	79.4	8.6	0.1	0.2	0.1	0.0
Machinery, equipment and vehicles	19.6	23.6	3.2	0.8	4.4	2.2	1.5
Metals and their alloys	50.6	86.6	2.3	0.1	1.8	0.0	0.1
Minerals, materials and their derivatives	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other consumer manufactures	12.1	14.4	3.5	0.2	0.6	0.3	0.0
Paper and paper manufactures	0.6	1.0	0.0	0.0	0.0	0.0	0.4
Textiles and their raw materials	85.8	115.2	23.5	16.0	12.4	0.4	0.1
Wood and other industrial plant materials	5.7	5.1	0.0	2.4	0.0	0.0	0.0
Sub-Total	331.6	486.0	82.3	43.7	107.4	55.7	18.1
Unclassified trade [1]	96.6	54.4	13.2	2.5	32.2	17.7	9.0
Total Real Trade	428.2	540.4	95.5	46.3	139.6	73.4	27.1

Appendix 4.4: Swiss Merchandise Imports from the Allied Bloc (in millions of Swiss Francs)

Overall Figures:	1938	1939	1940	1941	1942	1943	1944
Total Imports (NOMINAL TERMS)	428.2	508.3	166.1	115.2	357.9	219.3	97.4
Total Imports (NOMINAL), 1938=100	100	119	39	27	84	51	23
 Total Imports (REAL)	 428.2	 540.4	 95.5	 46.3	 139.6	 73.4	 27.1
Total Imports (REAL), 1938=100	100	126	22	11	33	17	6

Real - By Category (in Percent of Real Swiss Francs, 1938 Prices, 1938=100):

	1938	1939	1940	1941	1942	1943	1944
Animals and their products	0.6%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%
Chemicals and their derivatives	6.6%	8.7%	6.5%	1.8%	1.7%	1.7%	3.5%
Edible foodstuffs and drinks	19.7%	20.3%	36.6%	50.6%	61.3%	70.1%	55.4%
Fuels	9.8%	14.7%	9.0%	0.3%	0.2%	0.2%	0.1%
Machinery, equipment and vehicles	4.6%	4.4%	3.3%	1.7%	3.2%	3.0%	5.7%
Metals and their alloys	11.8%	16.0%	2.4%	0.2%	1.3%	0.0%	0.4%
Minerals, materials and their derivatives	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other consumer manufactures	2.8%	2.7%	3.6%	0.4%	0.4%	0.4%	0.0%
Paper and paper manufactures	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	1.4%
Textiles and their raw materials	20.0%	21.3%	24.6%	34.6%	8.9%	0.5%	0.3%
Wood and other industrial plant materials	1.3%	0.9%	0.0%	5.1%	0.0%	0.0%	0.0%
Unclassified	22.6%	10.1%	13.8%	5.5%	23.1%	24.2%	33.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Price Deflators (Paasche) by Category (1938=100) - See Notes

	1938	1939	1940	1941	1942	1943	1944
Animals and their products	100	85					
Chemicals and their derivatives	100	67	104	146	183	173	137
Edible foodstuffs and drinks	100	96	159	307	273	306	395
Fuels	100	98	507	378	253	1,383	353
Machinery, equipment and vehicles	100	95	100	104	138	128	104
Metals and their alloys	100	97	149	207	199		372
Minerals, materials and their derivatives	100						
Other consumer manufactures	100	94	98	182	239	389	
Paper and paper manufactures	100	89					595
Textiles and their raw materials	100	97	116	185	208	227	222
Wood and other industrial plant materials	100	122		191			
 Overall Price Deflator (Paasche), 1938=100	 100	 94	 174	 249	 256	 299	 360

Sources and Notes: See attached notes.

Appendix 4.5: Swiss Energy Consumption (1938, 1943 and 1948)

		1938			1943			1948		
	Unit of Measurement	Quantity in Units of Measurement	Equivalent in 1,000s of Tons of Mineral Coal	%	Quantity in Units of Measurement	Equivalent in 1,000s of Tons of Mineral Coal	%	Quantity in Units of Measurement	Equivalent in 1,000s of Tons of Mineral Coal	%
Domestic Fuel										
Electrical Energy	1,000,000 kwh = 388 TC	7,054,000,000	2,736,952	43%	8,583,000,000	3,330,204	66%	10,480,000,000	4,066,240	52%
Electrical Exports	1,000,000 kwh = 388 TC	-1,548,000,000	-600,624	-10%	-975,213,000	-378,383	-7%	-442,000,000	-171,496	-2%
Fuel Wood	1,000 m ³ = 17 TC	1,700,000	28,900	0%	1,900,000	32,300	1%	1,500,000	25,500	0%
Total Domestic Fuel			2,165,228	34%		2,984,121	59%		3,920,244	50%
Imported Fuel										
Mineral Coal	No conversion	3,486,310	3,486,310	55%	1,945,450	1,945,450	38%	2,638,480	2,638,480	34%
Petrol	1,000 tons = 1,600 TC	218,710	349,936	6%	36,540	58,464	1%	295,560	472,896	6%
Heavy Oils	1,000 tons = 1,500 TC	199,530	299,295	5%	46,320	69,480	1%	517,210	775,815	10%
Total Imported Fuel			4,135,541	66%		2,073,394	41%		3,887,191	50%
Grand Total			6,300,769	100%		5,057,515	100%		7,807,435	100%

Sources:

Food and Agriculture Organization of the United Nations, *Forestry and Forest Products: World Situation 1937-1946* (Stockholm, 1946), pp.19, 78-84;

Food and Agriculture Organization of the UN, Minutes of the International Timber Conference 1947, Czechoslovakia, April-May 1947, Document number G.2/15, in FAO/F47/Co3/CI/2;

Statistisches Jahrbuch der Schweiz, 1945 (Basel: E. Birkhaeuser & Cie, 1945), Aussenhandel and Zahlungsabkommen

Notes:

TC = Tons of Mineral Coal Equivalent

Electricity realized at an energy equivalence of 388 tons of coal per million kwh.

Notes to Appendices 4.1-4.4

Swiss-Belligerent Merchandise Trade in the Second World War

Purpose

These notes explain how the nominal and real trade figures and the price statistics for Switzerland's trade with each belligerent bloc are calculated and reported in Chapter 4. Statistics are standardized across this work in accordance with the international standards immediately after the war. These notes provide information on the calculation of real price and trade figures, the standardization of Swiss trade statistics and the assumptions which form part of this process.

Overview of Steps for Calculations

1. Develop nominal trade statistics to comply with 1948 SITC standards (14 categories of trade) from the SJDs standards (36 categories of imports, 22 categories of exports).
2. Calculate price deflators from the SJDs figures for the 36 import categories and 22 export categories.
3. Depreciate the SJDs categories by their relevant price deflators, report in accordance with the SITC standards.

Methodology

The best period for evaluating Swiss trade during the Second World War begins in January 1941 and ends in December 1944. These appendices use the lowest level figures available to develop nominal and real trade statistics for Swiss trade. Although there are no particular limitations on the availability of data, the dramatic shifts in control of the European map make it difficult to evaluate the 1939 to 1940 wartime period; however, statistics for these two years, along with those for 1938, are provided as comparisons. Unfortunately, it is not possible to divide the yearly figures into shorter periods to account for the changes and fractional first and last year of the war.

Finally, it is important to note that the illicit trade with the Allies is reported in the Allied section on a 'where-known' basis as indicated;⁵⁸² electricity exports to Germany are also included.⁵⁸³ There are no smuggling figures for German-Swiss trade, although the proximity of the border would suggest that smuggling in the traditional sense would not have been difficult.⁵⁸⁴ Despite extensive auditing, there is no evidence to suggest other manipulations of the trade statistics and therefore all other figures are taken from the available statistics without change.⁵⁸⁵

Sources

There are three principal sources for the trade statistics, two from official Swiss government publications and the third from an article.

1. The Swiss Statistical Yearbook or SJdS (*Statistisches Jahrbuch der Schweiz*) provides the following statistics:
 - a. Imports and Exports by Country and Value
 - b. Tonnage of Imports and Exports by Good
 - c. Imports and Exports by Good and Value
 - d. Imports and Exports by Country and Value
2. Jean-Daniel Kleisl, *Electricité Suisse et Troisième Reich* (Zurich, 2001):
 - a. Electricity exports by value
 - b. Electricity exports by Kwh

⁵⁸² See Tables 4.5 and 4.6.

⁵⁸³ Jean-Daniel Kleisl, *Electricité Suisse et Troisième Reich* [Swiss Electricity and the Third Reich] (Zurich, 2001).

⁵⁸⁴ See BAMA, AW1/6516; John Lomax, *The Diplomatic Smuggler* (London, 1965), pp.53-229; Neville Wylie, "British Smuggling Operations from Switzerland, 1940-1944," *The Historical Journal*, 48:4 (2005), p.1099ff, NA PREM/115, memo dated 16 December 1944.

⁵⁸⁵ *Statistisches Jahrbuch der Schweiz*, 1939-1945.

Notes to Appendices 4.1-4.4

3. Neville Wylie, "British Smuggling Operations from Switzerland, 1940-1944," *The Historical Journal*, 48:4 (2005), p.1099:

- a. Illicit Swiss Exports to the Allies by Value (as reported in Table 4.6)

These notes discuss the transfer of these statistics from the Statistical Yearbook to the appendices. In the inclusion of each source and the conversion of each table in the appendices, the following standards were applied, assumptions used and limitations encountered.

Archival Sources:

SjDS Imports and Exports by Country

Einfuhrwerte nach Ursprungsländern seit 1926¹⁾
 Valeur des marchandises importées, d'après le pays de production, depuis 1926¹⁾
 In Millionen Franken — En millions de francs

Jahre Années	Deutsch- land ²⁾ Alle- magne ²⁾	Öster- reich Autriche	Frank- reich France	Italien Italie	Belgien Belgique	Nieder- lande Pays- Bas	Großbri- tannien ³⁾ Grande- Bretagne ³⁾	Spanien Espagne	Portugal Portugal	Däne- mark ⁴⁾ Dane- mark ⁴⁾	Norwe- gen Norvège
1926	465,1	39,6	495,5	251,8	71,2	49,6	150,4	39,9	1,5	25,3	2,1
1927	511,7	45,6	474,7	225,5	88,7	48,0	191,6	42,2	1,7	24,2	2,9
1928	623,9	57,1	490,8	199,9	94,3	53,4	203,3	50,4	2,1	24,7	2,6
1929	698,1	55,0	489,5	202,7	90,0	60,3	168,5	43,7	1,8	24,2	2,7
1930	709,1	50,5	446,9	185,2	85,0	59,3	139,1	37,7	2,1	20,9	3,4
1931	659,9	43,3	362,2	180,0	80,6	47,1	99,1	35,3	2,1	21,3	3,8
1932	499,5	28,3	272,3	143,1	71,4	53,0	80,2	34,3	2,2	7,3	2,4
1933	460,7	35,8	243,7	133,8	63,5	45,1	92,4	31,2	2,3	6,8	4,0
1934	388,5	35,9	230,4	116,1	50,8	38,6	92,5	31,0	1,8	9,9	6,0
1935	338,4	29,0	207,9	91,3	40,2	37,1	77,8	26,2	2,0	11,1	4,5
1936	314,1	26,9	186,8	83,5	46,7	39,4	79,1	19,3	3,8	15,2	7,8
1937	402,7	44,2	245,3	117,4	76,3	62,6	114,6	8,5	3,9	21,4	9,0
1938	373,1	33,4	229,2	116,7	68,9	55,5	97,2	5,4	4,5	12,0	8,3
1939	440,4	e)	275,3	135,2	138,6	70,4	111,7	6,4	8,1	24,9	12,6
1940	411,3	e)	138,9	164,5	115,9	33,4	89,6	17,5	11,0	21,5	5,4
1941	656,2	e)	75,5	244,5	15,9	13,1	14,3	26,4	103,1	14,2	1,9
1942	660,3	e)	77,3	154,4	15,7	12,6	20,0	61,7	112,9	14,3	1,0
1943	532,2	e)	78,4	131,3	15,7	8,3	3,6	106,4	56,8	24,8	0,3
1944	433,4	e)	51,8	28,6	7,1	4,8	1,6	94,2	13,3	28,4	1,4
1945	2)54,3	e)2,2	129,8	47,1	66,6	9,0	22,6	93,5	31,5	18,9	1,2

Jahre Années	Schwe- den Suède	Balti- kum ⁵⁾ Etats baltes ⁵⁾	Polen Pologne	Tschecho- slowakei Tchéco- slovaquie	Ungarn Hongrie	Jugo- slawien Yougo- slavie	Griechen- land Grèce	Bul- garien Bul- garie	Ru- mänien Rouma- nie	Ruß- land Russie	Türkei Turquie
1926	8,3	1,8	31,5	79,0	29,1	19,8	4,3	3,7	10,7	8,4	11,7
1927	10,5	2,6	28,1	78,3	23,2	15,6	6,5	4,5	9,8	8,8	9,9
1928	11,3	2,2	22,9	95,3	19,0	15,5	5,7	4,7	13,9	6,7	5,7
1929	10,8	3,7	28,9	84,7	36,9	14,6	4,9	6,2	11,0	13,1	6,3
1930	12,1	3,7	31,5	79,4	41,5	15,0	4,5	7,3	20,6	18,7	5,6
1931	10,8	5,1	28,7	76,0	39,5	12,6	3,9	11,7	25,9	27,8	5,0
1932	10,3	2,7	20,5	56,3	16,5	9,6	3,6	10,3	21,6	14,0	3,9
1933	9,8	3,5	15,6	45,6	24,0	11,8	3,5	7,9	21,8	14,1	3,9
1934	12,4	3,8	15,0	44,6	22,7	13,4	2,8	7,2	26,1	10,4	4,3
1935	10,7	6,2	16,7	39,9	17,5	10,1	2,7	4,5	36,2	10,1	5,0
1936	12,3	6,3	15,5	45,9	35,8	8,7	2,5	4,7	35,0	11,3	3,7
1937	19,3	10,2	24,3	75,2	38,2	13,9	3,5	7,7	44,8	13,7	8,2
1938	18,5	6,9	25,8	57,2	25,6	11,1	4,8	5,1	25,0	29,0	6,3
1939	21,9	11,8	22,0	42,5	34,2	19,0	5,4	5,0	29,0	9,1	6,7
1940	37,9	13,5	e)0,6	60,1	48,5	37,6	3,9	13,2	42,1	10,5	11,9
1941	78,7	7)7,0	0,3	e)38,9	65,3	35,7	3,3	13,9	80,2	50,7	52,7
1942	101,4	5,9	0,0	e)37,4	67,1	10,5	3,9	15,8	99,7	1,7	52,7
1943	123,0	7,8	0,0	e)54,5	105,5	15,2	1,9	10,7	103,3	0,1	38,6
1944	98,9	6,1	0,4	e)56,8	73,1	6,0	1,5	4,5	65,4	0,0	30,1
1945	50,4	1,4	0,0	e)25,4	5,6	0,7	1,1	4,0	10,0	0,9	53,0

¹⁾ Ergebnisse von 1886 bis 1925 siehe Jahrbuch 1935, Seiten 256 bis 258

²⁾ Inbegriffen Österreich 1939 bis 30. Juni 1945 und Böhmen-Mähren 1941 bis 30. Juni 1945

³⁾ Inbegriffen Irischer Freistaat

⁴⁾ Inbegriffen Island

⁵⁾ Finnland, Lettland, Estland und Litauen

⁶⁾ 1939 bis 30. Juni 1945 unter Deutschland ausgewiesen

⁷⁾ Nur Finnland. Die übrigen Länder sind unter Rußland ausgewiesen

⁸⁾ 1940 bis 1944 Generalgouvernement Polen

⁹⁾ 1941 bis 30. Juni 1945 nur Slowakei

¹⁾ Résultats de 1886 à 1925, voir l'Annuaire 1935, pages 256 à 258

²⁾ Y compris l'Autriche de 1939 au 30 juin 1945 et la Bohême-Moravie de 1941 au 30 juin 1945

³⁾ Y compris l'Etat libre d'Irlande

⁴⁾ Y compris l'Islande

⁵⁾ Finlande, Lettonie, Estonie et Lituanie

⁶⁾ De 1939 au 30 juin 1945, est repris sous l'Allemagne

⁷⁾ Finlande seulement. Les autres pays sont repris sous la Russie

⁸⁾ De 1940 à 1944, Gouvernement général de Pologne

⁹⁾ De 1941 au 30 juin 1945, seulement la Slovaquie

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The 1945 SjDS presents imports by country and value for the entire wartime period.

SjDs Imports and Exports by Country and Value

Ausfuhrwerte wichtiger Waren nach Verbrauchsländern seit 1936¹⁾
Valeur de certaines marchandises exportées, d'après le pays de consommation, depuis 1936¹⁾

Fortsetzung In Millionen Franken — En millions de francs Suite

Waren Verbrauchsländer	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	Marchandises Pays de consommation
Maschinen²⁾ Pos. 185, 602, 627-628b, 879-893b, MDy-M9, 899-904											Machines²⁾ Pos. 185, 602, 627-628b, 879-893b, MDy-M9, 899-904
Schweden	2,1	4,2	5,4	7,0	4,4	7,3	9,8	10,5	15,1	15,1	Suède
Belgien	3,8	7,1	7,7	7,5	2,4	6,9	5,0	2,6	1,0	10,7	Belgique
Türkei	0,9	0,7	1,1	0,4	0,4	1,5	1,9	3,7	2,1	6,1	Turquie
Vereinigte Staaten	1,8	4,2	3,1	3,2	4,4	1,7	0,8	1,2	1,4	5,9	Etats-Unis
Großbritannien	14,0	18,9	16,9	21,4	12,4	0,5	0,5	0,9	2,8	5,1	Grande-Bretagne
Niederlande	2,8	8,6	15,9	15,1	8,5	11,3	5,8	2,4	0,5	4,7	Pays-Bas
Britisch Indien ³⁾	⁴⁾ 3,1	⁴⁾ 3,9	⁴⁾ 4,7	⁴⁾ 3,3	2,2	1,4	0,6	0,4	0,4	3,6	Inde britannique
Kolumbien	0,1	0,4	1,0	1,6	1,2	0,4	0,1	0,9	0,1	3,1	Colombie
Ägypten	⁵⁾ 1,5	⁵⁾ 2,8	⁵⁾ 4,8	⁵⁾ 3,5	1,3	0,2	0,2	0,2	0,0	2,6	Egypte
Italien	9,8	13,2	16,5	12,5	16,8	24,4	24,2	16,2	0,5	1,2	Italie
Tschechoslowakei	2,5	5,3	4,7	2,5	4,9	⁶⁾ 4,7	⁶⁾ 4,0	⁶⁾ 10,8	⁶⁾ 6,8	⁶⁾ 0,8	Tchécoslovaquie
Deutschland ³⁾	15,6	19,5	26,0	25,3	33,6	80,2	125,6	156,6	56,7	0,2	Allemagne ³⁾
Ungarn	1,3	0,3	1,7	2,5	1,9	3,9	11,3	19,2	6,3	0,2	Hongrie
Norwegen	1,4	2,0	2,9	3,9	3,6	5,0	9,5	6,7	0,3	0,0	Norvège
Rumänien	2,2	4,6	5,2	7,2	3,2	1,8	6,9	16,8	4,3	0,0	Roumanie
Rußland	5,0	4,3	6,5	11,3	16,8	12,3	—	—	—	0,0	Russie
Japan	3,3	5,4	7,4	5,4	8,6	2,0	7,0	1,7	—	—	Japon
Niederl. Indien	0,7	1,4	3,6	2,3	3,2	0,6	0,0	—	—	—	Indes néerland.
Polen	1,9	2,6	4,6	3,4	⁷⁾ 0,2	⁷⁾ 0,0	⁷⁾ 0,7	⁷⁾ 0,2	⁷⁾ 0,0	—	Pologne
Übrige Länder	14,1	26,4	32,9	24,4	20,4	11,0	12,1	10,9	5,5	17,5	Autres pays
Fahrzeuge Pos. 905-924d	18,5	21,6	31,0	24,8	21,5	20,7	27,9	35,5	17,9	11,9	Véhicules Pos. 905-924d
Vereinigte Staaten	0,2	0,2	0,2	0,1	0,1	0,0	—	—	0,0	3,2	Etats-Unis
Schweden	0,2	0,3	0,3	0,4	1,4	0,8	1,1	1,8	3,7	1,4	Suède
Frankreich	2,5	2,4	2,3	1,7	4,7	2,1	0,2	0,3	0,1	0,4	France
Tschechoslowakei	2,4	3,0	2,4	1,6	1,8	⁶⁾ 0,1	⁶⁾ 3,2	⁶⁾ 1,1	⁶⁾ 0,3	⁶⁾ 0,4	Tchécoslovaquie
Niederlande	0,7	1,2	8,2	6,7	0,6	0,6	0,1	0,1	0,0	0,2	Pays-Bas
Deutschland ³⁾	7,0	7,7	8,8	6,5	5,8	10,7	15,3	25,9	10,0	0,1	Allemagne ³⁾
Übrige Länder	5,5	6,8	8,8	7,8	7,1	6,4	8,0	6,3	3,8	6,2	Autres pays
Aluminium, Aluminiumwaren Pos. 862-867	36,0	57,6	73,2	69,2	76,9	67,0	63,4	44,4	31,7	5,5	Aluminium, articles d'aluminium Pos. 862-867
Schweden	0,5	1,0	1,1	1,3	4,3	2,0	1,1	3,6	2,1	1,1	Suède
Deutschland ³⁾	3,5	4,5	5,6	2,0	24,5	56,0	42,5	22,5	20,3	0,4	Allemagne ³⁾
Niederlande	1,6	3,1	2,6	4,1	3,1	0,7	0,1	0,0	0,0	0,3	Pays-Bas
Frankreich	1,0	2,2	1,8	2,7	10,0	0,1	0,2	0,1	0,1	0,2	France
Vereinigte Staaten	7,0	9,3	6,1	6,4	2,1	0,3	0,0	0,0	—	0,2	Etats-Unis
Belgien	3,7	4,4	4,9	3,0	1,0	0,4	0,2	0,0	0,1	0,1	Belgique
Italien	0,5	2,6	0,4	0,3	7,3	4,8	17,6	11,8	1,0	0,1	Italie
Großbritannien	10,2	17,0	24,5	36,9	8,5	0,0	0,0	—	0,0	0,0	Grande-Bretagne
Tschechoslowakei	2,4	2,7	2,2	1,3	5,1	⁶⁾ 0,1	⁶⁾ 0,3	⁶⁾ 0,9	⁶⁾ 0,5	⁶⁾ 0,0	Tchécoslovaquie
Übrige Länder	5,6	10,8	24,0	11,2	11,0	2,6	1,4	5,5	7,6	3,1	Autres pays

¹⁾ Siehe Fußnote ¹⁾ auf Seite 334

²⁾ Inbegriffen Maschinenbestandteile

³⁾ Inbegriffen Österreich und von 1941 bis 30. Juni 1945 Böhmen-Mähren

⁴⁾ Inbegriffen Ceylon und Maldiven

⁵⁾ Inbegriffen Engl. Ägyptischer Sudan

⁶⁾ 1941 bis 30. Juni 1945 ohne Böhmen-Mähren

⁷⁾ Generalgouvernement

¹⁾ Voir la note ¹⁾ à la page 334

²⁾ Y compris les pièces de machines

³⁾ Y compris l'Autriche et, de 1941 au 30 juin 1945, la Bohême-Moravie

⁴⁾ Y compris Ceylan et Maldives

⁵⁾ Y compris le Soudan anglo-égyptien

⁶⁾ De 1941 au 30 juin 1945, sans la Bohême-Moravie

⁷⁾ Gouvernement général

Fortsetzung folgende Seite

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For each exported good reported in the SjDs 1945 statistics, the major trading partners are reported along with other lands. No volume or price is reported. For a discussion of the problems caused by the amalgamation of the remaining countries into other lands, see the sensitivity analysis at the end of these notes.

Notes to Appendices 4.1-4.4

SJDs Tonnage of Exports by Good

Einfuhrmengen wichtiger Waren seit 1892									
In 10 Tonnen									
Waren	1892	1913	1920	1929	1932	1933	1934	1935	1936
Weizen	30 804	52 923	32 939	46 673	52 139	50 978	46 100	48 011	46 394
Andere Getreidearten ¹⁾	10 912	36 389	10 459	38 520	58 477	46 059	47 836	46 378	39 829
Viehfutter	2 420	16 290	5 772	21 302	26 824	10 760	14 258	13 492	4 235
Ölsamen	96	213	1 498	3 024	4 092	4 110	4 078	4 208	4 544
Gemüse, Kartoffeln	4 481	15 925	5 884	11 260	13 235	10 767	8 451	9 130	12 860
Obst	622	4 751	1 344	2 600	3 366	4 955	3 356	3 200	8 918
Südfrüchte	797	3 081	3 558	5 006	6 819	8 085	6 991	6 560	7 156
Wein (In 1000 hl) ..	1 152	1 670	1 468	1 155	1 193	1 367	1 134	860	804
Geflügel, Wildbret ²⁾	262	663	329	588	835	757	709	626	628
Eier	488	1 378	541	1 225	1 684	1 498	1 495	1 399	1 363
Butter	150	506	828	755	371	53	31	15	148
Kaffee	881	1 155	1 033	1 339	2 011	1 179	1 399	1 866	1 516
Zucker	4 784	12 099	12 977	15 281	16 855	16 000	17 758	15 363	13 889
Malz, Hopfen	3 987	5 144	1 613	4 719	3 636	3 981	4 591	3 467	3 235
Rohtabak	461	838	1 316	766	734	854	818	879	847
Kohlen	114 296	337 901	263 850	346 247	327 960	316 466	311 824	308 782	317 797
Benzin, Benzol	*	1 609	3 492	14 002	20 426	19 543	21 855	20 669	19 381
Petroleum ³⁾	4 796	7 163	3 426	9 978	16 260	18 508	19 886	21 095	20 637
Mineralschmieröle ..	*	1 389	1 220	2 021	2 141	1 952	2 070	2 224	1 681
Eisen, Stahl ⁴⁾	15 358	41 242	34 132	54 047	44 548	48 016	47 056	36 588	40 620
Kupfer ⁴⁾	296	1 257	1 767	2 419	2 118	2 467	2 426	2 279	1 824
Eisen-, Stahlwaren ..	2 107	5 878	4 674	7 324	6 305	6 034	5 432	5 050	4 734
Instr., Apparate ⁵⁾ ..	32	174	242	418	419	288	219	184	143
Maschinen ⁶⁾	1 518	4 423	5 421	5 335	3 547	3 896	3 338	2 343	2 014
Motorfahrzeuge	*	109	1 219	1 513	1 286	1 330	1 339	1 107	991
Rohseide	490	665	478	423	188	213	308	277	208
Kunstseide	—	27	49	152	245	300	288	245	200
Seidenstoffe	12	26	30	72	82	147	158	134	152
Rohbaumwolle	2 537	3 130	2 348	3 219	2 883	3 392	3 210	2 924	2 953
Baumwollgewebe	371	774	593	334	270	645	544	450	465
Rohwolle ⁷⁾	493	648	570	955	1 151	1 113	1 204	1 176	1 152
Wollgarne	74	163	104	217	237	266	192	162	153
Wollgewebe	274	253	196	189	225	179	159	150	148
Wirkwaren, Konfektion	174	355	293	219	223	197	166	140	120
Leder	260	517	174	205	287	368	256	301	260
Schuhwaren	76	154	124	186	166	117	101	71	80
Chem. Industrie ⁸⁾ ..	6 355	15 940	17 752	22 353	17 218	17 109	17 470	19 669	18 241
Ton-, Glaswaren	5 643	7 070	5 279	6 977	7 054	6 390	6 510	4 062	3 429
Holz, roh u. gesägt ..	25 385	39 968	35 896	75 885	58 499	59 024	50 546	38 647	22 551
Holzwaren ⁹⁾	576	1 051	1 422	1 207	1 186	1 244	944	573	445
Papier, Kartonnagen ..	424	1 838	3 170	1 350	1 514	1 284	1 274	1 178	1 072
Bücher, Bilder	152	481	386	403	441	469	454	438	426

¹⁾ Inbegriffen Hülsenfrüchte

²⁾ Inbegriffen Würstwaren

³⁾ Inbegriffen Petroleumrückstände, Petroleumrückgute, Mineral- und Teeröle

⁴⁾ Roh, gewalzt, geschmiedet

⁵⁾ Ohne Musikwerke und -instrumente

⁶⁾ Inbegriffen Maschinenbestandteile

⁷⁾ Inbegriffen Kämmlinge, Kammzug und Reißwolle

⁸⁾ (Rohstoffe und Fabrikate) inbegriffen Tran, Wachs, Lein- und Rüböl

⁹⁾ Inbegriffen Kleinmöbel und Holzschnitzereien, aber ohne Korb- und Bürstenbinderwaren

For each good, the 1945 SJDs reports Swiss exports in tens of tons (continues on next page through 1945)

Sjds Imports and Exports by Good and Value

Einfuhr — Importation														
Einfuhrwerte wichtiger Waren seit 1892														
Valeur de certaines marchandises importées, depuis 1892														
In Millionen Franken — En millions de francs														
Jahre Années	Nahrungs-, Genuß-, Futtermittel — Produits alimentaires, boissons, fourrages												Total	Übrige landw. Grund- stoffe Autres matières premières agric.
	Weizen Froment	Gemüse, Obst ¹⁾ , Légumes, fruits ¹⁾	Wein Vin	Tiere, Fleisch ²⁾ , Ani- maux, viande ²⁾	Eier Oeufs	Butter Beurre	Kaffee Café	Zucker Sucre	Kakao Cacao	Malz, Hopfen Malt, houblon	Übrige Nahrungs- mittel Autres produits aliment.	Vieh- futter ³⁾ , Four- rages ³⁾		
1892	72,4	9,3	34,9	40,1	5,9	2,9	17,4	20,0	2,1	9,1	36,5	22,7	273,3	16,6
1900	69,7	13,4	31,0	56,5	11,0	4,4	11,7	23,5	7,7	13,8	36,7	28,0	307,4	18,5
1904	91,9	18,0	35,5	78,1	12,9	7,2	11,4	25,8	10,0	14,7	45,7	37,3	388,5	24,6
1905	83,2	21,3	56,1	79,2	13,6	8,1	11,1	33,7	6,9	15,8	49,6	40,4	419,0	25,2
1906	87,7	24,8	18,2	76,5	14,9	9,4	13,8	27,2	15,4	15,5	50,5	47,1	401,0	27,5
1907	107,4	26,6	32,6	80,4	15,6	10,0	13,0	31,0	21,9	16,9	59,3	59,1	473,8	30,9
1908	78,5	24,2	34,0	81,9	16,4	10,2	12,6	31,8	12,4	16,1	67,4	58,0	443,5	31,7
1909	103,6	28,5	38,6	85,1	17,0	11,8	13,4	32,5	12,2	16,3	67,6	63,0	489,6	33,4
1910	96,8	37,8	60,1	105,0	16,3	14,4	15,0	38,8	15,9	16,9	74,1	66,1	557,2	33,5
1911	110,1	41,4	48,8	117,2	19,6	16,2	18,1	40,0	18,4	23,6	77,5	79,9	610,8	32,8
1912	120,7	41,9	49,4	123,7	20,3	16,2	20,5	50,9	21,1	25,4	80,7	84,8	655,6	32,8
1913	129,2	49,5	52,8	101,3	20,0	14,4	18,8	40,2	23,6	20,8	76,2	77,2	624,0	30,1
1914	118,7	44,5	36,1	56,5	17,3	11,8	15,6	43,8	23,1	17,8	59,5	65,1	509,8	23,0
1915	176,1	32,2	36,0	23,1	10,4	8,0	18,9	43,7	41,0	15,4	68,0	70,7	543,5	16,3
1916	302,5	42,9	56,9	29,9	9,3	1,8	32,0	84,6	41,3	13,6	95,4	101,9	812,1	14,6
1917	168,0	27,8	83,1	21,8	8,5	1,0	19,7	95,6	33,0	13,7	106,5	87,9	666,6	15,5
1918	46,4	30,1	82,0	16,4	7,0	0,2	25,2	79,6	41,2	0,6	262,9	47,1	638,7	24,7
1919	246,3	59,1	133,8	41,5	15,2	48,4	29,7	130,3	54,7	10,7	289,8	180,1	1239,6	38,0
1920	260,1	58,3	141,7	92,3	24,1	55,1	28,3	191,3	41,0	13,8	159,3	61,2	1126,5	64,3
1921	218,5	60,2	104,6	96,1	30,0	41,4	25,9	115,1	14,4	15,0	87,7	94,1	903,0	46,0
1922	116,4	59,4	74,8	35,7	24,6	32,0	24,1	46,5	7,7	9,5	67,1	101,3	599,1	36,3
1923	135,0	57,9	55,8	60,6	27,4	31,5	24,3	69,2	11,2	11,9	77,5	116,8	679,1	44,8
1924	116,0	71,5	61,3	98,7	29,0	43,6	33,8	85,0	13,7	15,9	85,3	122,6	776,4	40,9
1925	147,8	77,9	63,6	74,3	28,8	40,9	29,5	65,1	14,2	27,0	82,0	131,9	783,0	38,0
1926	145,9	82,7	63,9	69,4	27,7	34,2	34,6	49,0	13,9	21,7	81,1	96,1	720,2	39,8
1927	149,1	81,5	64,8	57,3	25,4	35,9	31,5	57,0	20,6	19,5	81,4	114,9	738,9	40,3
1928	141,8	93,7	68,0	53,4	26,4	35,3	30,8	58,8	20,7	23,1	85,5	129,0	766,5	41,0
1929	134,7	90,1	62,5	49,1	28,7	32,7	32,4	50,7	16,6	25,1	87,2	125,7	735,5	42,5
1930	119,4	103,8	55,9	81,5	27,9	30,3	25,2	41,3	13,3	22,9	90,5	96,6	708,6	43,9
1931	88,1	96,2	48,9	72,6	28,6	30,4	23,0	35,2	11,7	24,8	76,2	94,0	629,7	42,5
1932	70,6	83,4	43,7	37,9	23,1	7,3	28,0	28,7	4,7	13,9	61,2	93,1	495,6	35,3
1933	62,7	79,8	48,4	29,1	17,1	0,9	14,0	24,0	5,1	13,9	52,6	52,8	400,4	30,5
1934	52,9	65,7	40,1	26,6	14,7	0,5	14,4	21,5	4,3	14,8	44,2	54,5	354,2	28,4
1935	54,2	64,3	26,7	23,1	14,1	0,4	15,7	16,1	4,5	11,4	43,1	54,0	327,6	29,0
1936	66,7	82,4	22,3	30,2	14,7	2,8	12,1	15,8	5,3	9,6	48,3	44,7	354,9	27,1
1937	99,5	76,9	28,8	47,7	17,8	5,1	14,2	24,0	9,8	11,6	63,3	85,9	484,6	31,5
1938	82,3	82,2	33,1	28,6	19,2	0,5	14,5	25,3	7,9	16,7	62,7	72,9	445,9	30,4
1939	66,8	103,2	35,5	30,2	17,2	3,5	19,1	47,1	9,0	18,2	75,9	83,7	509,4	37,9
1940	73,1	84,9	37,4	26,5	21,3	8,8	15,1	53,6	9,8	19,2	84,9	81,3	515,9	31,3
1941	105,5	102,9	57,2	45,8	22,7	0,1	11,3	33,0	7,4	5,1	159,0	120,5	670,5	31,9
1942	179,3	106,7	91,4	47,2	9,1	0,1	21,1	69,7	14,9	4,6	151,1	106,8	802,0	36,6
1943	115,2	111,1	102,7	17,6	9,7	0,0	25,6	65,9	10,5	8,3	112,1	78,3	657,0	35,4
1944	38,3	86,8	42,8	18,3	1,7	0,1	14,1	64,2	11,4	18,9	68,9	45,2	410,7	28,6
1945	86,9	121,6	90,0	21,8	0,1	2,7	31,8	36,2	10,8	4,5	115,0	47,6	569,0	26,0

1) Inbegriffen Südfrüchte, Kartoffeln, Saatkartoffeln

1) Y compris les fruits du midi, les pommes de terre et les

pommes de terre pour semence

2) Inbegriffen Fische, Schattiere

2) Y compris les poissons et crustacés

3) Inbegriffen Hafer, Gerste, Mais

3) Y compris avoine, orge, maïs

Fortsetzung folgende Seite

Suite à la page suivante

In this example, Sjds reports imports by value.

Standardization

The following standards are applied in the tables in Chapter 4, Appendices 4.1-4.4:

- a. Countries: The countries in each belligerent bloc are standardized across this work.
- b. Categories of goods: trade reported in Appendices 4.1-4.4 use the 1948 SITC categories for ease of use and comparability.

Standardization: Countries in each belligerent bloc

For Appendices 4.1 and 4.2: German-controlled Europe includes states from the first year in which they either joined the Tripartite Pact or were occupied by Germany. The German bloc includes Germany, Denmark (1940-1944), Finland (1940-1944), Norway (1940-1944), Belgium (1940-1944), Bulgaria (1941-1944), Danzig (1939-1944), Estonia (1941-1944)¹, France (1940-1944), Greece (1941-1944), Italy (1940-1944), Yugoslavia (1941-1944), Latvia (1941-1944)¹, Lithuania (1941-1944)¹, Luxembourg (1940-1944), the Netherlands (1940-1944), Poland (1939-1944), Rumania (1939-1944), Austria (1938-1944), Czechoslovakia (1939-1944), Hungary (1940-1944).

Note: ¹as Baltic Countries in Swiss Statistics

For Appendices 4.3 and 4.4: Allied territories include Great Britain, Australia, Canada, India, China, France (1938-1940), Brazil (1942-1944), United States (1942-1944), Cuba (1942-1944)², Haiti (1942-1944)², Dominican Republic (1942-1944)², Iran, Iraq, India, Palestine, Netherlands Antilles (1940-1944) and Egypt.

Note: ²As Other American Countries in Swiss Statistics

Standardization: Goods

This paper standardizes the Swiss categories of goods as reported in the import and export statistics. 35 categories reported in the Swiss Annual import statistics; and 19 categories of exports are reported in the Swiss Annual export statistics. Each is consolidated into 11 categories based on the 1948 SITC statistical guide. The consolidation of trade categories is undertaken to provide easy comparability across neutrals. The following is a guide to the way in which the Swiss statistics were consolidated:

Table 4A.1: Standardization of Categories of Swiss Imports

Swiss Imports English Translation of SJdS Category	SITC Category
Chemicals	Chemicals and their derivatives
Coal	Energy
Copper	Minerals, materials and their derivatives
Cotton Fabric	Textiles and their raw materials
Fish	Animals and their products
Fodder	Animals and their products
Fruit	Edible Foodstuffs and Drinks
Gasoline and Oil	Energy
Instruments and Apparatus	Machines
Iron and Steel Wares	Minerals, materials and their derivatives
Iron Steel	Minerals, materials and their derivatives
Knitwear	Textiles and their raw materials
Leather	Other Consumer Products
Lubricants	Energy
Machines	Machines
Malt and Hops	Edible Foodstuffs and Drinks
Motor Vehicles	Machines
Other Cereals	Edible Foodstuffs and Drinks
Paper	Paper and Paper Manufactures

Swiss Imports	
English Translation of SJdS Category	SITC Category
Petroleum	Energy
Pottery, Glassware	Other Consumer Products
Poultry	Animals and their products
Raw Silk	Textiles and their raw materials
Raw Wool	Textiles and their raw materials
Rayon	Textiles and their raw materials
Rough sawn timber	Wood
Silk Fabrics	Textiles and their raw materials
Southern Fruits	Edible Foodstuffs and Drinks
Cooking Oils	Edible Foodstuffs and Drinks
Sugar	Edible Foodstuffs and Drinks
Tobacco	Edible Foodstuffs and Drinks
Vegetables, Potatoes	Edible Foodstuffs and Drinks
Wheat	Edible Foodstuffs and Drinks
Wine	Edible Foodstuffs and Drinks
Wool Fabric	Textiles and their raw materials
Wool	Textiles and their raw materials

Table 4A.2: Standardization of Categories of Swiss Exports

Swiss Export Goods	
English Translation of SJdS Category	SITC Category
Aluminium (raw and wares)	Metals and their alloys
Cheese	Edible foodstuffs and drinks
Cotton Fabric	Textiles and their raw materials
Cotton Yarn	Textiles and their raw materials
Embroidery	Textiles and their raw materials
Electricity	Energy and Fuels
Hosiery and Confection	Other Consumer Manufactures
Instruments and Apparatus	Machinery, equipment and vehicles
Iron and Steel Wares	Machinery, equipment and vehicles
Livestock of the Farm	Animals and their products
Machines	Machinery, equipment and vehicles
Other Chemical Products	Chemicals and their derivatives
Paints	Chemicals and their derivatives
Perfumes and Scents	Chemicals and their derivatives
Pharmaceuticals	Chemicals and their derivatives

Swiss Export Goods	
English Translation of	
SJdS Category	SITC Category
Rayon	Textiles and their raw materials
Rolling Stock	Machinery, equipment and vehicles
Silk Fabrics	Textiles and their raw materials
Straw wares	Other Consumer Manufactures
Watches	Machinery, equipment and vehicles

For each imported and exported Swiss good (except fish) reported in the Swiss trade statistics, both the total volume (in kilos) and the total Swiss Franc amount of trade is provided in the Statistical Yearbooks. In addition, imports and exports are also reported by trading partner (when significant).

Calculating trade

There are three steps to calculating nominal and real imports and exports for each belligerent bloc: the calculation of nominal trade, price deflator and finally real trade.

Step 1: Nominal trade for each belligerent group

Construction

- a. Nominal trade by category is constructed by adding the relevant SJdS categories for each country into the standardized 1948 SITC categories for each trade bloc according to the rubric above; the illicit trade figures as reported by Wylie are added to the relevant Allied SITC categories by year.
- b. SJdS figures by country do not necessarily add up to 100% of the total figure, since only the major trading partners are reported by country and good. This unclassified trade results from smaller trading partner are reported in the 'by country' figures. This results in a proportion of

trade by good which cannot be assigned to a source in any particular country, for example, aluminium exports from 1939 to 1944.⁵⁸⁶

Table 4A.3: Swiss Aluminium Exports as reported in the SJdS, 1939-44

Country	1939	1940	1941	1942	1943	1944
Sweden	1.3	4.3	2.0	1.1	3.6	2.1
Germany	2.0	24.5	56.0	42.5	22.5	20.3
Netherlands	4.1	3.1	0.7	0.1	0	0
France	2.7	10.0	0.1	0.2	0.1	0.1
USA	6.4	2.1	0.3	0	0	0
Belgium	3.0	1.0	0.4	0.2	0	0.1
Italy	0.3	7.3	4.8	17.6	11.8	1.0
Great Britain	36.9	8.5	0	0	0	0
Czechoslovakia	1.3	5.1	0.1	0.3	0.9	0.5
Other lands	11.2	11.0	2.6	1.4	5.5	7.6

As reported in the appendices, “other lands” represents as much as 24% (1944) of all trade. The inability to account for this trade by country results in the figures for unclassified trade (with note [1]) as reported in Appendices 4.1-4.4.

- c. Unclassified trade [1] is the result of subtracting the total nominal trade by country bloc from the known trade by good with this bloc. The net figure represents the error term for trade by country and good for which the figures are not reported in the SJdS statistics. There is no other way to obtain a more accurate result, because the Swiss do not provide additional statistics by good for these “other lands.”

Step 2: Price deflators for SJdS categories

Construction

- a. Price indices for Swiss-belligerent trade are assembled from the overall import/export statistics for each of the 36 import and 22

⁵⁸⁶ SJS 1945, p.337.

export categories. The SJdS reports trade by overall value, but only by overall tonnes. The overall value is divided by the overall tonnage, providing a price per ton. There is only one set of price statistics covering all 58 categories (not individual blocs) for the entire period from 1938 to 1944. The base year for the 58 SJdS-based price deflators is 1938.

Step 3: Real trade by type and group

Construction

- a. Real trade by SJdS category is constructed by taking the SJdS reported category of trade by country and depreciating it according to the price index for the SJdS category.
- b. Real trade by SITC category is then calculated by adding the relevant SJdS categories for each country to the standardized SITC categories for each trade bloc.
- c. In order to obtain an overall real price deflator, the total nominal trade in a given year is divided by real trade (both excluding unclassified trade).
- d. For price deflators for categories of individual goods, the total nominal trade in an SITC category is divided by the total of real trade in the same category in any given year.
- e. Real unclassified trade [2] represents the nominal unclassified trade [1] depreciated on the basis of the assumption that this unclassified trade inflated at the same rate as the overall trade for which price deflators are known.

Assumptions in constructing SITC-standardized real trade statistics and sensitivity analysis (where possible)

1. Using the available figures, reported price indices are based on tonnage divided into currency values at the unit level. This approach is subject to faults. It ignores potentially non-random changes in underlying goods which make up the categories and so incorporates some systematic biases. It is possible to comment on some of these biases as they relate to the construction of price indices:
 - a. Based on the change in composition in exports reported in Appendices 4.1 and 4.3, Switzerland exported higher value, lower weight goods during the war than before. This could artificially increase the overall price index reported and lead to lower real exports. It is likely overall real exports reported in this chapter are in fact the lower bounds for these figures.
 - b. Similarly, the Swiss imports of lower value, higher weight goods (including coal and foodstuffs) increased relative to before the war. These statistics are included in Appendices 4.2 and 4.4. This would push down the price index. Therefore, it is likely reported Swiss real imports provide an upper bound for the real trade figures.
- a. Some biases are created by the use of Paasche as opposed to Laspeyres price indices. As there are large variations in the underlying quantity components of some goods, Paasche indices are more appropriate. This privileges the most recent quantities of goods over those from the pre-war consumption basket. However, in order to increase transparency, Laspeyres are also presented in Tables 4A.4-4.A.7 as follows:

Table 4A.4: Paasche and Laspeyres Price Indices for Swiss Exports to Germany, 1938=100

Period	Paasche Index as Reported in Appendix 4.1	Laspeyres Index
1938	100	100
1939	109	89
1940	157	130
1941	199	165
1942	257	215
1943	280	239
1944	239	184

Table 4A.5: Paasche and Laspeyres Price Indices for Swiss Imports from Germany, 1938=100

Period	Paasche Index as Reported in Appendix 4.2	Laspeyres Index
1938	100	100
1939	100	87
1940	139	116
1941	177	151
1942	207	178
1943	210	176
1944	212	180

Table 4A.6: Paasche and Laspeyres Price Indices for Swiss Exports to the Allies, 1938=100

Period	Paasche Index as Reported in Appendix 4.3	Laspeyres Index
1938	100	100
1939	110	127
1940	157	170
1941	162	196
1942	210	267
1943	238	343
1944	243	339

Table 4A.7: Paasche and Laspeyres Price Indices for Swiss Imports from the Allies, 1938=100

Period	Paasche Index as Reported in Appendix 4.4	Laspeyres Index
1938	100	100
1939	94	109
1940	174	193
1941	249	304
1942	256	255
1943	299	293
1944	360	311

3. In addition, there are also problems related to the lack of country specific data.
 - a. Use of non-country specific price indices: the use of non-specific price indices cannot be avoided. The SJdS does not present tonnage figures for exports to specific countries. As a result, the same price indices for each country presented must be used. In the case of Switzerland, this probably has a smoothing effect. Swings in the prices of particular goods which have been made scarce for one group are reduced if the price of goods is aggregated across all belligerents, as shown in the Swedish example.
 - b. Omitted goods: The Swiss Statistical Yearbooks (SJdS) present statistics for each major trading partner by good; the minor goods are omitted. Unfortunately, the way in which the SJdS consolidates its statistics provides only the principal trading partners and leaves some countries out, placing the balance in a category called "other lands," as discussed above. Given that the countries which are not reported are smaller trade partners, they would probably be charged higher prices for the same goods, suffer from currency convertibility issues, be subject to increases in freight rates and interrupted deliveries. The

Notes to Appendices 4.1-4.4

unclassified trade category could suppress the increase in real prices on the basis of this assumption; however, the magnitude of this difference remains unknown.

Part Three:
Neutral Capital Transfers
in the Second World War

Chapter Five

Spanish, Swedish and Swiss Balance of Payments in the Second World War

Abstract

The literature on the neutrals' balance of payments in the Second World War remains unduly influenced by the issue of gold seized by the Germans. To understand the neutral-belligerent payments relationships, the mechanics of the system, the underlying flows of services and capital and neutrality more generally must first be considered. This chapter shows that, despite the different political situations and two unique payment systems, actual neutral-belligerent payments were substantially similar. Apart from speciality trade, belligerents relied on neutrals for services including transportation, insurance, etc. Capital flows consistently favoured the neutrals. To determine what constituted the neutral-belligerent balance of payments, this chapter first outlines the political agreements and the payment clearing procedures during the Second World War. It then presents standardized statistics for balance of payments, services and capital flows between the principal belligerents and three neutrals: Spain, Sweden and Switzerland.

Introduction

Historians, politicians and forensic accountants have spent much time delving into European neutrals' capital flows during the Second World War. The Swiss government's role has been particularly scrutinized, with accusations of guilt over the laundering of gold seized by the Germans; but no single study has attempted to reconstruct the balance of payments for any neutral, let alone compared them. This study surveys all aspects of the balance of payments. It particularly emphasises previously overlooked payments for services and capital flows between the three principal belligerents and Spain, Sweden and Switzerland.

Chapter Five: Neutral-Belligerent Balance of Payments

As suggested in Chapters Two through Four (above), the neutrals traded extensively with the belligerents, reflecting sometimes positively, sometimes negatively in the neutrals' balance of payments. This discussion of trade is not repeated here; however, these new trade statistics are incorporated herein and the effect of merchandise trade on the balance of payments is reviewed.

In their relations with the belligerents, the Swiss, Swedes and Spanish provided significant numbers of services. The belligerents turned to each neutral for services, above all, transportation, insurance, diplomacy and power protection (the Red Cross). For these so-called trade "invisibles", which included diplomatic, freight, insurance, tourism, patents and other services, the belligerents paid the neutrals. This chapter provides some statistics on these services for six neutral-belligerent relationships. It shows that Sweden provided the Allies and Axis powers with diplomatic, shipping and insurance services; the Swiss provided diplomatic, protecting power, banking and insurance services; and, although Spain was generally less service-oriented, it was still paid to provide shipping to the Allies and diplomatic representation in countries hostile to the Germans.

The neutrals were also heavily engaged in capital transactions with the belligerents. This research will also examine private capital flows. It demonstrates that over the years these consistently favoured the neutrals in six relationships. Government transfers were driven partially by politics and starting points, varying widely between countries. Generally Spain, Switzerland and Sweden allowed Germany to run clearing deficits. Germany also demanded payment from Spain for pre-war loans. Various loans and short-term clearing agreements were provided, but ultimately many capital account balances had to be settled in gold. Both the Allied and Axis powers transferred gold to the neutrals to pay deficits, despite significant shortages. This chapter first reviews these government transactions, examining the different clearing processes; it

then discusses the services, providing statistics for six neutral-belligerent balance of payments relationships.

This study revises the current negative stigma regarding neutral-belligerent wartime payments. Academic and political interest in capital transfers between the neutrals and belligerents has been overshadowed by accusations against the neutrals and their collective guilt for accepting looted German gold.⁵⁸⁷ Almost all the literature on capital transfers and the balance of payments focuses on this issue. One of the foremost Swiss historians on the period, Jean Ziegler, goes so far as to charge the Swiss Government, and specifically President Marcel Pilet-Golaz, of being more docile than the Vichy government when it came to opposing Germany.⁵⁸⁸ A well-recognized problem with Professor Ziegler's work, and indeed many of the others, is their overt emphasis on morality.⁵⁸⁹ The present study does not address these moral arguments, focusing rather on developing accurate balance of payments statistics for the neutrals in order to understand how and why the belligerents paid them. It demonstrates where identical gold transfers occurred in the other neutral-belligerent relationships, which were as important to the Allies as to the Axis powers.

Philippe Marguerat also criticises Swiss actions on the gold issue. Marguerat argues that, while the Swiss National Bank was unquestionably making prudent efforts to support the Franc with gold, its acceptance of such large sums from the Germans without clear verification of their origins suggests

⁵⁸⁷ See amongst others: Mark Aarons and John Loftus, *Unholy Trinity: The Vatican, the Nazis, and the Swiss Banks* (New York, 1998); Tom Bower, *Blood Money: The Swiss, the Nazis and the Looted Billions* (London: Macmillan, 1997); Adam LeBor, *Hitler's Secret Bankers* (New Jersey, 1997); Warner Rings, *Raubgold aus Deutschland: die Golddrehscheibe Schweiz in Zweiten Weltkrieg* [The Robbery of German Gold: The Revolving Door of Gold in Switzerland in the Second World War] (Ascona, 1990); Philipp Sarasin and Regina Wecker, *Raubgold Réduit Flüchtlinge: Zur Geschichte der Schweiz im Zweiten Weltkrieg* [The Robbery of Gold from the Refugees: The History of Switzerland in the Second World War] (Zurich, 1998); Jakob Tanner, "Hand in Hand mit den Nazis" *Bilanz*, 10 (1989) pp.346-352; and Isabel Vincent, *Swiss Banks, Nazi Gold, and the Pursuit of Justice* (New York, 1997).

⁵⁸⁸ Jean Ziegler, *The Swiss, the Gold and the Dead* (New York, 1997), p.163.

⁵⁸⁹ Jurg Gerber, "Review of The Swiss, the Gold, and the Dead: How Swiss Bankers Helped Finance the Nazi War Machine by Jean Ziegler" *Social Forces*, 77:4 (June 1999), p.1655-1656.

that Switzerland turned a blind eye to proper procedures in exchange for security.⁵⁹⁰ As this section shows, because of their surpluses from merchandise trade, services and capital flows, the neutrals had to accept some form of payment. Gold was the only internationally accepted standard form of payment for such transfers. These neutrals accepted this gold from both the Allies and the Axis powers. With their few comparative statistics, Marguerat and other realists cannot see these gold sales within the framework of an established international pattern.

Recent studies provide most of the widely cited figures for the gold transactions mentioned elsewhere. *The United States Inter-Agency Report on the Allied Wartime and Postwar Relations and Negotiations* with the neutrals specifically covers “not only the fate of monetary gold looted by Nazi Germany from the wartime captive nations of conquered Europe, but also the gold and other valuables stolen from individual victims.”⁵⁹¹ The implicit assumption in this report is that all German-monetary gold transactions were somehow tainted by the illicit sources from which *some* of the gold might have come. Large compensation funds have been set up by the countries involved, to expiate this guilt.⁵⁹²

In fact, gold was the primary mechanism for monetary clearing at the time. Gold was the only trusted way for the belligerents to clear negative balances in goods and services and to transfer capital to and from the neutrals. The neutrals were generally unwilling to take anything but gold to clear these debts. Under pre-war international conventions, receiving countries were not

⁵⁹⁰ Philippe Marguerat. *La Suisse face au IIIe Reich: Réduit nationale et dissuasion économique 1940-1945* [Switzerland against the Third Reich : The National Reduit and Economic dissuasion, 1940-1945] (Lausanne, 1991).

⁵⁹¹ William Z. Slany, “United States Interagency Report on U.S. and Allied Wartime and Postwar Relations and Negotiations with Argentina, Portugal, Spain, Sweden and Turkey on Looted Gold and German External Assets. (Washington DC, 1998).

⁵⁹² Stuart Eizenstat (ed.), *Proceedings of the Washington Conference on Holocaust-Era Assets* (Washington DC, 1999).

obliged to consider the source of the gold.⁵⁹³ The Allies created this rule only to allow stolen gold to be transferred and applied it to the neutrals *ex post facto* in January 1943. It is questionable whether it can legally be applied to transactions before this date. Nothing more will be said here about the morality of the gold transfers.

This chapter also expands the knowledge presented in official country specific publications. Stefan Frech of the Swiss *Commission of Independent Experts for the Second World War* focuses primarily on the German-Swiss balance of payments relationship, both pre-war and in wartime.⁵⁹⁴ The CIE study provides the first bilateral clearing balances between Switzerland and Germany in 1938-1940; however, the volume stops at 1940. By completing the wartime statistics for this relationship through 1944, this chapter extends these CIE studies.

It also updates the Spanish balance of payments presented in Elena Martinez Ruiz's reconstruction for the period 1940-1958 by presenting data on individual countries to supplement her overall figures; it also further updates the Bank of Spain statistics to correct for delayed deliveries in trade, as explained in the notes to Appendices 5.1 to 5.3.⁵⁹⁵ By augmenting the available statistics, this study increases the existing store of statistical knowledge.

The official British civil history of the Second World War series overviews British financial relations with the neutrals. Regarding financial relations, the

⁵⁹³ The only declaration on the origins of monetary assets was promulgated after the start of the war, and included the January 5, 1943 "Inter-Allied Declaration Against Acts of Dispossession" and the "Allied Declaration on Gold Purchases" of February 22, 1944. See Eizenstat, *Proceedings of the Washington Conference*.

⁵⁹⁴ Stefan Frech, *Clearing: Der Zahlungsverkehr der Schweiz mit den Achsenmächten* [Clearing: Swiss Payments with the Axis] (Zurich, 2001); see also Martin Meier, Stefan Frech, Thomas Gees, and Blaise Kropf, *Schweizerische Aussenwirtschaftspolitik 1930-1948* [Swiss Foreign Trade Politics 1930-1948] (Zurich, 2002).

⁵⁹⁵ Elena Martinez Ruiz, "El Sector Exterior Durante la Autarquía: Una Reconstrucción de las Balanzas (1940-1958)" [The Export Sector during Autarky: A Reconstruction of the Balance of Payments (1940-1958)] (Madrid, 2003).

presentation is largely in terms of abstractions, with a number of errors.⁵⁹⁶ This history provides no figures for Anglo-Spanish financial relations, indicating that Spain, left almost destitute by its Civil War “never threatened to place [itself] ... among Britain’s post-war creditors.”⁵⁹⁷ However, as Chapter Three on Spanish trade maintains, the United Kingdom owed Spain for its increased wolfram exports. As this chapter shows, the British had to settle this nominal debt by transferring £4.5 million in gold.

This chapter now examines the systems used for clearing settlement and the political relations between the belligerents and neutrals; it highlights the many differences between these systems, including gold payments and loans. It then provides balance of payments statistics for several of them, discussing the relevant invisibles and capital flows. This section demonstrates the many statistical similarities between the different neutral relationships, despite the significant differences in the underlying political relationships, before drawing conclusions.

Clearing Systems

The Second World War saw two principal methods of settling balance of payments transactions: either through a bilateral compensation system or through monetary clearing. Regardless of the system used, the balance of payments, that is the sum of the current account and the capital account has to be zero. If it is not zero, there is an error term. The principal difference between them is in the compensation clearing system for bilateral relationships which countervailing trade had to provide unless any deficits were covered by loans; in a monetary clearing system, however, the countries resolved surpluses by transferring gold or currency (part of the government capital account). The general system of clearing and nine balance of payments relationships are examined below: between Germany, the UK and the US as belligerents and

⁵⁹⁶ R.S. Sayers, *History of the Second World War: Financial Policy, 1939-1945* (London, 1956).

⁵⁹⁷ Sayers, *Financial Policy*, p.448.

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Spain, Sweden and Switzerland as neutrals. It also gives details of loans from the neutrals to the belligerents. As seen in Table 5.1, of those nine relationships, five used the compensation clearing system and four were settled in gold or currency.

Table 5.1: Bilateral Clearing Relationships by Type

Compensation Clearing	Monetary Clearing
Spain-Germany	Sweden-United Kingdom
Spain-United States	Sweden-United States
Spain-United Kingdom [1]	Switzerland-United States
Switzerland-Germany [1]	Switzerland-United Kingdom [2]
Sweden-Germany	

Sources: ADAP D/VIII/482/446ff; BoE OV6/99, Trade and Payments Agreement dated 18 March 1940; NARA RG84/52/900, regulations established 8 July and 26 July 1940; NA FO837/851, Anglo-Swedish War Trade Agreement of 19 December 1941; BoE OV6/145, Agreement dated 19 December 1939; DDS 13/218/512ff; BAr 7160-01/1976/58/28-29, *Schweizerische Verrechnungsstelle*; OV6/270, draft Agreement dated 3 October 1942.

Notes: [1] Although compensation clearing was the primary system for clearing balance of payments, some settlement of deficits with gold payments did occur;

[2] Switzerland and the United Kingdom retained a system of monetary clearing throughout the war, but from at least June 1940 to mid-1942 there was no settlement in gold. The relationship at this time can be described as compensation clearing.

Figure 5.1: Schematic of Monetary Clearing Scheme

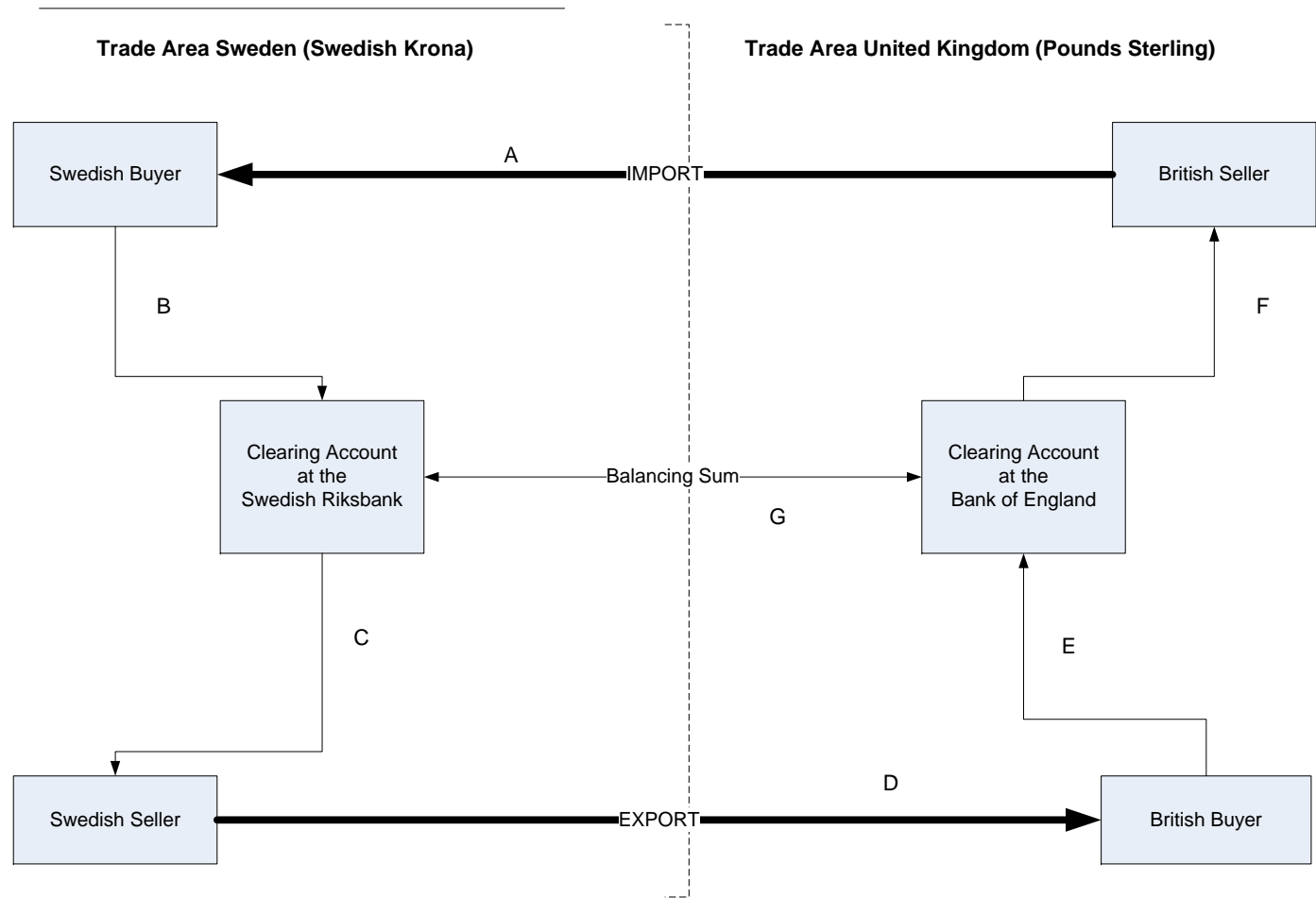
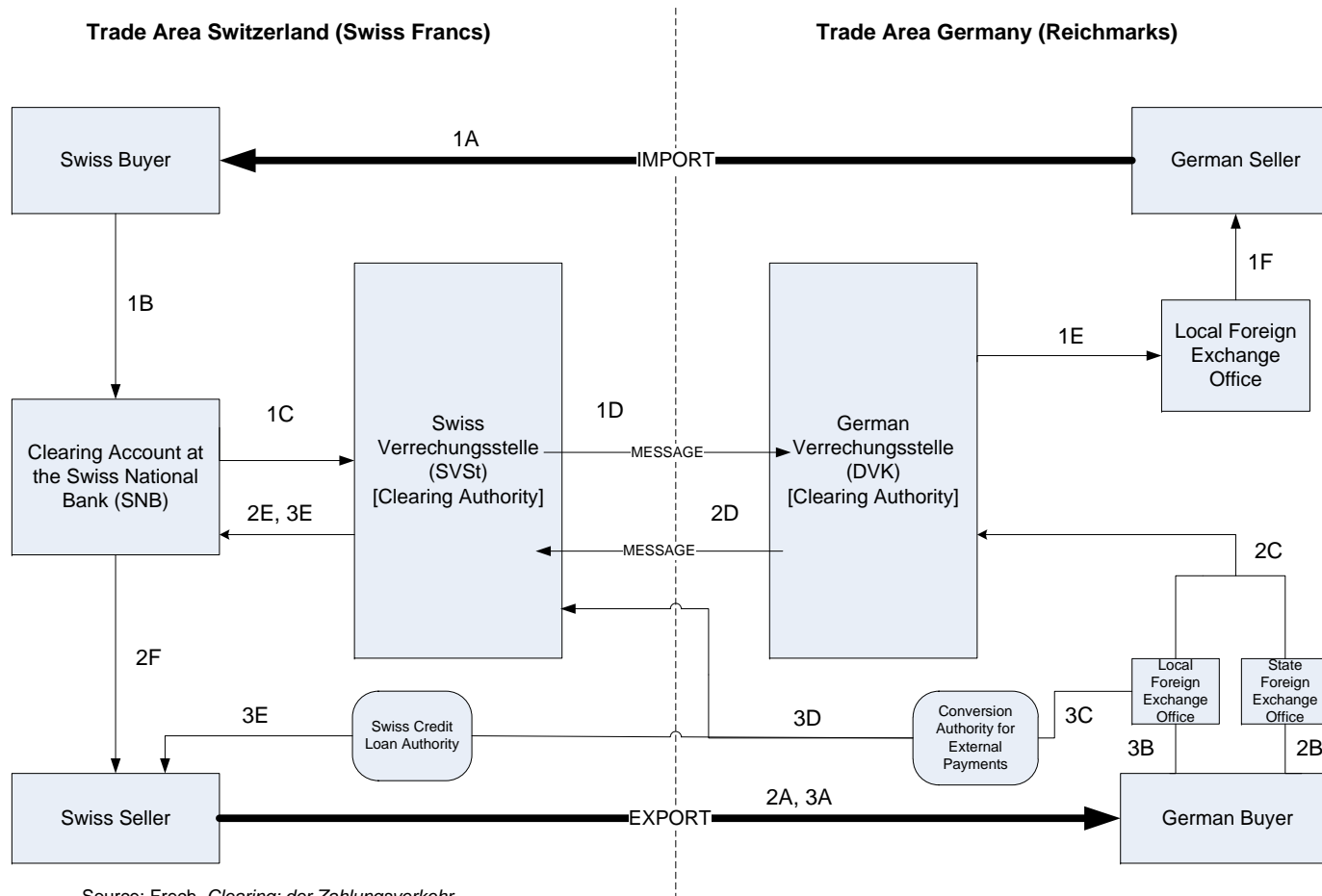


Figure 5.2: Schematic of Compensation Clearing Scheme



Monetary Clearing Systems with Settlement in Gold or Currency

Monetary clearing means exactly what the phrase suggests, clearing any excess balance of payments or payment in monetary terms by the central banks representing the two trading countries. Figure 5.1 presents a standard monetary clearing system, here exemplifying Sweden and the UK.⁶⁰¹ According to this figure, at point A, a Swedish buyer imports a good from the UK; in exchange the Swedish buyer pays a pre-arranged amount in Swedish Krona to the Swedish Riksbank (B) and the British seller is paid a similar amount in British Pounds by the Bank of England (F). In countervailing trade, a Swedish seller is paid by the Swedish Riksbank (C) while a British buyer pays the Bank of England an equivalent sum in British Pounds (E). Any excess funds on account resulting from trade, services or capital imbalances are settled through the transfer of so-called balancing sums (G); these can be paid in gold, although currencies (including Sterling and Dollars) were sometimes used. Physical transfers were unnecessary and rare; transfers could involve transfers of title at the sending bank, which retained the gold in its vaults.

Limits on monetary clearing transfers were often imposed within wartime clearing agreements, to maintain stability. For example, in the case of Sweden and the UK, Sweden could convert up to £650,000 per week of its surplus earnings into gold until 1943.⁶⁰² As discussed below, for some time the UK suspended convertibility with Switzerland, reducing its own consumption to those items it could afford, with British Swiss Francs held on deposit at the Swiss National Bank or earned from either imports or the sale of assets in Switzerland.⁶⁰³

⁶⁰¹ BoE OV6/99, Trade and Payments Agreement dated 18 March 1940, based on chart found in Frech, *Clearing*, p.34.

⁶⁰² *Ibid.*

⁶⁰³ BoE EC4/178, memo dated 9 October 1940.

Compensation Clearing System with Settlement in Goods and Services

Compensation clearing is a non-cash transfer system which clears deficits or surpluses with goods or private transfers; there is no government financing with gold flows. Central banks do not typically monitor transactions in such systems; instead, the clearing authorities balance the trade and pay the buyers and sellers when cash is available. Such a system is chiefly used to let a country or central bank maintain an even balance of payments by forcing trading partners and debtors to accept goods instead of gold or foreign currencies; this helps to protect gold or foreign currency by maximizing exports and minimizing imports.

Figure 5.2 shows a standard compensation clearing relationship, such as that between Switzerland and Germany from 1936-1945.⁶⁰⁴ There are three particular scenarios to note, using Switzerland as the base of the relationship. First comes imports into Switzerland (or German exports to Switzerland). In this scenario, a Swiss buyer purchases a Swiss German product (1A) and pays Swiss Francs to a clearing account at the Swiss National Bank (1B); the Swiss National Bank transfers these funds to the SVSt, the Swiss Clearing Authority (1C). The SVSt credits the account of the DVK, the German Clearing Authority, in Swiss Francs, without sending any funds to Germany (transfer accomplished by message (1D)). The DVK credits the same amount to the SVSt's account, in Reichsmarks. The DVK then issues a credit to the local foreign exchange office (1E), which pays the seller according to the pre-authorized terms of the transaction (1F).

A Swiss export to Germany follows a similar pattern. As also seen in Figure 5.2, the Swiss company approved by the state payments office exports a product to Germany (2A). The German buyer transfers funds to the state payments office (2B), which in turn transfers them to the DVK. The DVK credits these funds to the account of the SVSt in Reichsmarks and sends a message to its

⁶⁰⁴ Frech, *Clearing*, p.32.

Swiss counterparts, which in turn credit the DVK account in Swiss Francs. (2D). The SVSt then pays the SNB a compensating number of Swiss Francs (2E) and it in turn pays them to the seller. It could take anything from a few days to months to get approval for purchases and sales under this system, depending on the priority of the materials required.

The transfer of capital from Germany to Switzerland followed a similarly complex path. As Figure 5.2 shows, the sale of a security to a German buyer (3A) triggered a capital transfer from Germany, which was paid to the conversion authority for foreign payments (3C), which in turn would pay funds into the SVSt or, if they were state payments for loans, to the Swiss Credit Authority (3D). The SVSt would then pass the funds to the clearing account at the SNB or directly to the creditor (3E).

Two countries using monetary clearing were able to trade freely in goods and services and move capital between them as needed; they compensated for any unbalanced flows using state gold and currency transfers. Prior clearing permission for trade was not typically required; only wartime rationing was problematic. Political relations were less strained by not needing to find additional exports or imports to reconcile the balance of payments.

Wartime Financial Developments

This section reviews the Spanish, Swedish and Swiss clearing relationships with Britain and Germany and those between the US and Spain and Switzerland. Each of these political-economic relationships is unique: the problems encountered were as diverse as the geographical locations of the countries and the resulting pressures which could be brought to bear on each neutral. Notwithstanding these differences, the belligerent-neutral relationships covered below can generally be divided into two groups, monetary clearing and compensation clearing. Relationships between countries adhering to compensation clearing, those involving Germany in particular, usually involved

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temporary trade loans of large sums and capital restrictions; this system witnessed frequent political haggling over the *quid pro quo* trade terms. Relations with Germany typically change in June 1940, with neutrals beforehand being less likely than afterwards to comply with German requests. Economic relations between countries adhering to monetary clearing typically involved neutrals seeking to limit their accumulation of Pounds Sterling or Dollars, meanwhile belligerents were unwilling to transfer gold.

Political Relations – Clearing: Germany-Spain

Close German-Spanish political relations pre-dated the war. A compensation clearing system was established between these two at the end of the Spanish Civil War in early 1939. Spain remained in Germany's debt after its Civil War loans. Before the Second World War began, Spain centralized the management of its international currency reserves under the *Instituto Español de Moneda Extranjera* (IEME) in the Ministry of Commerce. The IEME was designed to maximize Spanish purchasing power by forcing countries to pay for goods in the products or currencies which Spain preferred. The IEME withheld export permits until the payments were made. The IEME assumed authority for German payments to and from Spain as part of the 22 December 1939 Agreement.⁶⁰⁵

⁶⁰⁵ BA-K R121/3647, various memos.

Table 5.2: Spanish Civil War Debt Owed to Germany (in thousands)

Date	Debt Development	Amount in Reichsmarks	Amount in Pounds Sterling
28 Feb 1941	Spanish Civil War debts (with 4% interest to March 1940)	371,819	37,557
During Civil War	Less credit of 27.8% on the capital cost of war supplies	-75,000	-7,575
March 1940 to March 1944	Interest calculated at 1.7%	22,000	2,222
During Civil War	Plus 50% of cost of damage to German civilian property	22,500	2,272
During Civil War	Cash payments by Spain	-35,000	-3,535
From Nov. 1943	Cash payment by Spain	-100,000	-10,101
March 1944	Credit for Austrian loan taken over by Spain	-11,000	-1,111
After 1941	German reimbursement for Spanish Labour (see Chapter Five)	-20,000	-2,020
During Second World War	Credit for Spanish shipping losses	-800	-81
May 1948	Credit for trade clearing debt	-70,000	-7,071
Total at the end of the war		100,000	10,101

Sources: Christian Leitz, *Economic Relations Between Nazi Germany and Franco's Spain, 1936-1945* (Oxford, 1996), pp.133-134.

Table 5.3: Germany's Clearing Deficit with Spain (in millions)

Date	Clearing Deficit in Reichsmarks	Clearing Deficit in Pounds
31 December 1941	122.1	12.3
30 June 1942	140.0	14.1
31 December 1942	144.0	14.5
30 June 1943	248.8	25.1
30 September 1943	239.9	24.2
31 December 1943	160.6	16.2
31 March 1944	109.9	11.1
29 April 1944	106.5	10.8

Sources: BA-MA RW45/18-19; NARA RG242/T-77/556869, memo dated 10 June 1944; Appendix 3.2.

By September 1939 Spain owed Germany some £37.6 million as fixed by the 28 February 1941 Agreement;⁶⁰⁶ the rough equivalent of 3.7% of Spain's 1939 GNP.⁶⁰⁷ Spain was expected to make steady payments to Germany in goods.⁶⁰⁸ During the war a consistently favourable balance of payments allowed Spain to reduce this debt to £10.1 million.⁶⁰⁹ Table 5.2 reveals that positive offsets included cash payments of £13.6 million, in part nearly £10.1 million credit in November 1943, which allowed the Germans to overcome a shortage of Pesetas and continue trading with Spain. Payments also included funds paid in by Spanish workers, credits for Spanish shipping losses during the war and credit for the capital cost of German equipment for Spain.⁶¹⁰

As part of the net debt position of Spain, it should be remembered that Germany was running substantial trade clearing deficits throughout 1941-1943. Germany was known to be slow delivering Spain's promised goods and sometimes cancelled military goods orders altogether. These cancellations included the January 1941 annulment of military goods for Spain, despite continued contra-flow deliveries of Spanish raw materials. This produced the clearing balance's first large deficit, which increased as the balance of trade deteriorated by late 1943.⁶¹¹ Table 5.3 displays the clearing deficit at about £25.1 million by June 1943,⁶¹² equalling approximately 2.5% of Spain's 1939 GNP.⁶¹³

Despite the Civil War-era debts and large accumulated clearing deficit by mid-1943, Spain managed to use the compensation clearing system to obtain goods. The Germans wanted to maintain access to Spanish metals and raw

⁶⁰⁶ BA-MA R2/26, Protocol dated 28 February 1941; FFNF, *Documentos*, vol.II, p.455-470; SHvD, pp.470-471.

⁶⁰⁷ Leandro Prados de la Escosura, *El Progreso Económico de España (1850-2000)* (Bilbao, 2003), p.447.

⁶⁰⁸ FFNF, Volume II, pp.373-374.

⁶⁰⁹ Leitz, *Economic Relations*, pp.133-134.

⁶¹⁰ *Ibid.*

⁶¹¹ See Chapter Three.

⁶¹² BA-MA RW45/18 and BA-MA RW45/19, memos dated 1941-1943.

⁶¹³ Prados de la Escosura, *El Progreso Económico de España*, p.447.

materials and wolfram as evidenced by the decline in the clearing deficit and Germany's payment in military goods starting in June 1943, despite the poor economic situation and its own high demand for military goods.⁶¹⁴ Spain could thus demand payment in order to maintain exports under the compensation clearing system. Table 5.3 shows the decline of the clearing deficit, from £16.2 million in December 1943 to £10.6 million by April 1944.⁶¹⁵ In their May 1948 post-war agreement with the Allied Control Council, Spain agreed to clear credit of £7.1 million in May 1945 in its favour; this reflects Germany's delivery of military goods in late 1943 and early 1944.⁶¹⁶ The reduction is particularly noteworthy given Germany's poverty in late 1943 and early 1944 and its own high demand for military goods.

Because Spain was a net debtor to Germany and Pesetas were inconvertible and therefore not particularly useful on international markets, the German government sold no gold directly to Spain during the Second World War.⁶¹⁷ Spain acquired some 'German' gold through transactions with the Swiss National Bank, Bank of Portugal and *Banco Alemán Transatlántico*, part of which was later designated as loot from the Netherlands.⁶¹⁸

Political Relations – Clearing: UK-Spain

The Spanish Civil War left Spain almost destitute. The balance of payments became important in the context of Britain's seeking to continue Spain's neutrality; the British Treasury always tried to give it enough support to prevent total German seduction.⁶¹⁹ In this context, the British as quickly as possible integrated Spanish external payments in the Sterling bloc, ensuring that

⁶¹⁴ BA-MA RW45/18; BA-MA RW45/19, memos dated 1941-1943; ADAP E/VI/119/207ff, telegram dated 28 June 1943; AMAEC R2066/E4; see Chapter Three.

⁶¹⁵ NARA RG242/T-77/556869, memo dated 10 June 1944.

⁶¹⁶ ADAP E/VI/119/207ff, telegram dated 28 June 1943; AMAEC R2066/E4.

⁶¹⁷ William Z. Slany, "U.S. And Allied Efforts to Recover and Restore Gold and Other Assets Stolen or Hidden by Germany During World War II," United States State Department Report, May 1997, pp.140-142.

⁶¹⁸ *Ibid.*

⁶¹⁹ Sayers, *Financial Policy*, pp.447-448.

Spain would find it hard to join the war effort since it would lose access to its other main trade partner. The Treasury also allowed the transfer of gold to Spain in 1942/1943 to maintain the Allied pre-emptive purchasing programme there and satisfy Spain's desire to accumulate gold, further encouraging it to trade more with the Allies than Germany.

As part of the British-Spanish trade negotiations, the two sides concluded the Trade and Payments Agreement of 18 March 1940, which specified a compensation clearing system operating between them. Typically for British payments treaties of the period, the UK (proper) and the Empire were separated, to prevent economic dislocation in any particular area of the Empire. Sterling bloc payments to Spain were made into three separate accounts, A-C, at the Bank of England; sums deposited in A came from trade with the UK and could be used to purchase goods from anywhere in the Empire. B was for colonial trade and any funds could be used to purchase goods only from the colonies; C was for all other Sterling bloc trade. This was designed to be a compensation clearing system, in that no cash or gold was expected to affect the account balances; and both sides assumed that in due course the balances would be cleared through compensatory trade.⁶²⁰

The March 1940 compensation clearing system proved flexible enough to withstand the test of war. Before 1943, Spain ran consistent clearing deficits, which were partially solved by a £2 million Sterling loan from Britain.⁶²¹ The Anglo-American pre-emptive purchase programme, which started in 1942, reversed the deficits and generated consistent export surpluses in Spain's favour. The 1940 Anglo-Spanish Trade and Clearing Agreement prevented the UK from running large deficits but did not force Spain to accept more Pounds Sterling than it wanted, as temporary reserves pending additional exports.⁶²² As noted in Appendix 5.3, this was not an issue in 1940 and 1941, for Spain was still incurring

⁶²⁰ BoE OV6/99, Anglo-Spanish Trade and Payments Agreement, dated 18 March 1940.

⁶²¹ NA FO837/735, memo marked "Anglo-Spanish Economic Relations," undated.

⁶²² *Ibid.*

a net trade deficit and a modest services surplus with Britain, resulting in small balance of payments deficits. Spain let the UK borrow funds from the Anglo-South American bank in Madrid to cover these deficits and continue its purchases of Spanish goods pending the agreement of imports.

By 1942 and the start of the pre-emptive purchase programme, Spain was generating a large net trade surplus from its trade and services earnings. Fearing a post-war devaluation, Spain hesitated to accept anything but gold in Allied payments of Peseta deficits. Unable to continue supplying goods to Spain to keep up with purchasing, Britain was forbidden by the Anglo-South American bank to operate further in Spain until it cleared its debt. Meanwhile, Spain withheld export permits because it refused to accept Sterling. The Bank of England strictly rationed monetary gold reserves during the war. It was not a Britain's practice to use them for compensation clearing trade relationships; but here it could not balance the trade by selling goods, leading to a crisis requiring payment in gold.⁶²³

Due to the deficit created by the pre-emptive purchasing programmes, the UK had a £4 million clearing deficit with Spain by spring, 1943; though very small (0.2%) in Spanish 1943 GNP terms, Spain insisted on repayment before resuming exports.⁶²⁴ It eventually agreed to accept £4.5 million Sterling in gold in exchange for Pesetas. The gold travelled by ship from London starting in November 1943 and arriving early in 1944.⁶²⁵ Apart from this incident, British-Spanish financial relations operated within the terms of the 1940 Anglo-Spanish Payments Agreement, with no further wartime negotiations or revisions.

Political Relations – Clearing: US-Spain

Without any specific agreement, the US' financial relationship with Spain continued on much the same basis as Britain's. As seen in Appendix 5.2, until the

⁶²³ BoE OV61/29, various; FRUS 1943/II:Europe/641, telegrams dated 14 and 21 August 1943.

⁶²⁴ Prados de la Escosura, *El Progreso Económico de España*, p.447, Table A.6.7.

⁶²⁵ BoE OV61/29, various.

1942 start of the purchase programme, Spain suffered from a deficit and a shortage of dollars; given their poor diplomatic relations, the US was unwilling to alleviate these problems. After the start of the Allied purchase programme, the US had a shortage of Pesetas, leading to payments in gold and the cancellation of pre-existing debts.

When Spain imposed a blockade on the export of Pesetas after the end of the Civil War, an informal commercial clearing arrangement developed and was sustained through 1942. The US government was not interested at the time in promoting any increase in Spanish trade or investment, with all transactions negotiated between private parties who had to obtain the necessary Pesetas.⁶²⁶ Every transaction was private, with records in America suggesting that the deficit in its favour led to an accumulation in Spain of blocked Pesetas. American owners of blocked Pesetas received US Dollar equivalents of their Pesetas from those who wanted to transfer funds and investment to Spain.⁶²⁷ The American government refused to provide trade loans to let Spain buy goods from the US unless countervailing Spanish exports were found.⁶²⁸

The Anglo-American purchasing programme changed this situation, starting in 1942; unable to maintain the provision of goods to Spain as part of the compensation clearing system, the US transferred £3.7 million Sterling altogether to Spain from late 1942 through the end of the war, equivalent to 0.3% of Spain's 1939 GNP.⁶²⁹ The transfers included both gold and dollars, which were used by Spain to make purchases elsewhere in the Allied bloc.

As Appendix 5.2 shows, in late 1942, the US transferred to Spain £1.5 million Sterling in gold.⁶³⁰ From 1943 onwards the US made payments in Dollars, including £297,000-worth in 1943, the equivalent of £1.9 million in 1944 and a

⁶²⁶ BoE OV61/29, various.

⁶²⁷ NARA RG84/27/600, memo dated 1 March 1940; NARA RG84/27/600, Annual Economic Reports from various American Consulates, dated March-April 1940; NARA RG84/52/631, various economic and trade memoranda.

⁶²⁸ NA FO837/735, memo marked "Anglo-Spanish Economic Relations," undated.

⁶²⁹ Prados de la Escosura, *El Progreso Económico de España*, p.447, Table A.6.7.

⁶³⁰ BdeE EIE.

further equivalent of £12,000 in 1944. The free dollars were used to cancel existing pre-war Allied bloc debts and for purchases by Spain in South America and elsewhere.⁶³¹ Presumably these sums went towards purchases from neutrals and third parties. Apart from these transfers, American-Spanish financial relations were conducted as typical compensation clearing, goods being withheld until countervailing trade was completed.

Political Relations – Clearing: Germany-Sweden

Before the Second World War, Sweden had been a member of the British led Sterling bloc of trading countries. Most of its trade and investment was conducted within this system, but the invasion of Norway and the blockade of the Skagerrak substantially changed the arrangement. The Swedish government was forced to accept Germany as its main trading partner. But, unlike the Swiss government, it furnished the Germans with substantial clearing credits only for a short period during 1941-1942, not the entire wartime. The Swedish government had been unwilling to recognize German economic hegemony and refused to join the German economic sphere; from 1942 it insisted on deliveries of countervailing traffic. The German-Swedish financial relationship closely followed the commercial clearing system, with no actual cash transfers throughout the war.⁶³² Meanwhile, Germany ran consistent current account deficits in its relationship with Sweden, but after 1942 these deficits were ultimately quite small compared with Sweden's NNI.

⁶³¹ BdeE EIE.

⁶³² See Chapter Two.

Table 5.4: Germany's Clearing Deficit with Sweden (in millions)

Date	Clearing Deficit in Reichsmarks	Clearing Deficit in Pounds
31 December 1941	290	29.2
31 December 1943	99	11.0
31 March 1944	21	2.1
29 April 1944	17	1.7
30 June 1944	4	0.4

Sources: NARA RG242/T-77/556869, memo dated 10 June 1944; *Germany and the Second World War*, vol.5, part 2, page 549; Appendix 4.2.

Despite being surrounded by German-allied countries, Sweden was particularly successful at using the compensation clearing system to its advantage. The Germans were allowed to accrue an initially large deficit, which peaked in 1941 and declined consistently thereafter. Unlike those of the other two neutrals in this study, these credits were meant to be short-term in nature and never became a long-term part of the balance of payments relationship. As Table 5.4 indicates, after the collapse of France in June 1940, the Swedes provided Germany with £29.2 million worth of credit, equalling approximately 4.6% of Swedish NNI and over half the 1940 imports from Germany.⁶³³ The amount rose further, although precise figures are unavailable, as Germany failed to keep up with promised deliveries in early 1942.

However, the deficit declined rapidly thereafter as Sweden moved to limit Germany's ability to run clearing deficits. After Anglo-American pressure mounted over its large loans to Germany, Sweden agreed to lend less and forced Germany to increase its provision of goods for maintaining Swedish exports.⁶³⁴ Table 5.4 shows that, by the end of December 1943, the clearing deficit was £11

⁶³³ Östen Johansson, *The Gross Domestic Product of Sweden and its Composition 1861-1955* (Stockholm, 1967), Table 57; Appendix 4.2.

⁶³⁴ NA FO837/851, see correspondence related to Anglo-Swedish War Trade Agreement of 19 December 1941.

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million, 1.7% of Swedish 1938 NNI.⁶³⁵ By 30 June 1944, the deficit had declined to a mere £404,000, equivalent to less than one-tenth of 1% of Sweden's 1938 NNI.⁶³⁶

The Swedish Riksbank accepted 59.6 metric tonnes of monetary gold from Germany during the war to pay off these clearing debts.⁶³⁷ At the Swedish Krona value of 4,725 Krona per Kilogramme, the total value of this gold transfer would have been some £16 million.⁶³⁸ Subsequent reports determined that some of this gold had previously been looted from Belgium and the Netherlands.⁶³⁹

Political Relations – Clearing: UK-Sweden

At the outbreak of war, the expectation that Sweden would be a large supplier of materials to the UK weakened Britain's bargaining position. Despite Britain's desire to ration gold, the Swedish government expected the existing system of monetary clearing to continue. The payments agreement signed in December 1939 permitted conversion of clearing balances into gold every week, apart from existing Sterling assets held by the Riksbank.⁶⁴⁰ Britain had expected no more than £10 million to be converted in the first year; but within seven months, with the French surrender imminent, the British had transferred nearly £11 million in gold to Sweden.⁶⁴¹ Demand for goods, including Swedish iron ore and ball bearings, was unprecedentedly high before the outbreak of the wider European fighting in April-May 1944. Of course, the Skagerrak blockade reduced natural flows of trade between the two parties; as detailed in Chapter Two, Swedish exports to Britain consisted only of items which could be smuggled through the blockade.

⁶³⁵ Johansson, *The Gross Domestic Product of Sweden*, Table 57.

⁶³⁶ *Ibid.*

⁶³⁷ Harry Flam (ed.), *Sweden's Financial Dealings with Germany during World War II* (Stockholm, 1997).

⁶³⁸ Sveriges Riksbank, *Penning- och kreditväsen 1951* (Stockholm, 1951), p.95, Table 95.

⁶³⁹ Slany, "U.S. And Allied Efforts to Recover and Restore Gold", pp.121-127.

⁶⁴⁰ BoE OV6/145, Agreement dated 19 December 1939.

⁶⁴¹ BoE OV6/147, memo dated 26 July 1940.

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Nonetheless, despite the reduction in trade, monetary clearing with Sweden remained throughout the war. Clearing deficits in favour of the Swedes continued, since Sweden provided many goods and services to the Allies, the UK in particular. Services included shipping and insurance services, payments for which in 1941 substantially outstripped those for trade, by a ratio of approximately 20:1.⁶⁴² Diplomatic payments for Swedish diplomatic services, on behalf of other Allied governments were also substantial throughout the period. Correspondence indicates that Britain paid on behalf of the Norwegian, Dutch, Polish and Belgian governments in exile to maintain their Embassies and Consulates in Sweden and for Sweden to act as protecting power on their behalf.⁶⁴³

In order to limit gold transfers due to the shortages in London, the renewal agreement which came into effect in March 1941 limited transfers of gold to £650,000 in any given month;⁶⁴⁴ although by April 1941 the Bank of England had decided that this could be cumulative; if the full sum was not used in any particular month the remainder could roll over for later use.⁶⁴⁵ This ended in March 1943, when, on its third renewal, the provision was changed to allow the immediate conversion of Swedish Sterling balances over £3.6 million.⁶⁴⁶ In the period December 1939-March 1943, over £29.1 million in gold was remitted to the Swedish Riksbank, delivered in either London or South Africa and equivalent to 4.6% of Sweden's 1938 NNI.⁶⁴⁷

Political Relations – Clearing: Germany-Switzerland

The Swiss-German clearing relationship remains one of the most controversial aspects of Swiss-belligerent relations. Throughout the Second

⁶⁴² BoE OV6/150-154, various dated from 1940-1945.

⁶⁴³ *Ibid.*

⁶⁴⁴ Agreement not available in BoE files; see Sayers, *Financial Policy*, p.450.

⁶⁴⁵ BoE OV6/150, report dated 13 May 1941.

⁶⁴⁶ BoE OV6/150-154, various.

⁶⁴⁷ Johansson, *The Gross Domestic Product of Sweden*, Table 57.

World War, the Germans had net commercial clearing deficits with Switzerland, with the overall balance rising to nearly one billion Swiss Francs by May 1945. But from 1939-1943, the Germans also provided Switzerland with more imports than Switzerland sent in exports, indicating that this was not a structural deficit caused by a withholding of German products, but rather an active choice by the Swiss government to provide aid. The Swiss National Bank also accepted large quantities of German gold during this period, much of it confiscated from occupied countries. Throughout the war, Switzerland took few steps to limit its financial dealings with Germany.

Table 5.5: Germany's Clearing Deficit with Switzerland (in millions)

Date	Clearing Deficit in Swiss Francs	Clearing Deficit in Pounds
October 1940	20	1.2
May 1941	78	4.5
July 1941	150	8.6
December 1941	150	8.6
June 1942	300	17.3
December 1942	410	23.6
31 January 1943	444	25.6
1 March 1943	498	28.7
31 March 1943	570	32.9
June 1943	620	35.7
August 1943	647	37.3
September 1943	850	49.0
31 January 1944	960	55.3
June 1944	990	57.1

Sources: NARA RG107/160/929, folder marked "Swiss Credit to Germans," report dated 22 February 1945; appendix 5.2.

Notes: The clearing deficit is compared to German imports in 1941, as this is the peak year of German-Swiss trade.

The German-Swiss commercial clearing deficit resulted from pressure from the expansion of the Axis after Italy's entry into the war and the fall of

France in June 1940. As part of the first Swiss-German War Trade Agreement dated 24 October 1939, the Swiss were to have used the expected positive balance of payments vis-à-vis Germany to play down Germany's debts to Switzerland.⁶⁴⁸ However, this was quickly replaced by the August 1940 Trade Agreement, in which the Swiss provided a credit line equivalent to £8.6 million (£7 million was new credit and £1.6 million converted credit from other sources).⁶⁴⁹ As seen in Table 5.5, the German clearing indebtedness to Switzerland was only £1.2 million in October 1940; but within six months, it rose to £4.5 million; and by July 1941 had increased to a full £8.6 million Swiss Francs. This was about 30% of Swiss 1940 exports to Germany or 2.0% of Switzerland's 1938 NNI.⁶⁵⁰

On 22 June 1941 the Swiss agreed to increase the credit to the equivalent of £25.9 million Sterling or about two years of annual Swiss pre-war exports to Germany;⁶⁵¹ the amount of German borrowing rose steadily under this system, reaching this figure sometime in February 1943. Switzerland's allowance was further increased to nearly £49 million on 15 January 1943 when the War Trade Agreement was extended.⁶⁵² Table 5.5 shows that the borrowings rose to this level by the end of September 1943. This was equivalent to a considerable 10.3% of Switzerland's 1938 NNI.⁶⁵³

The agreed sum was set to rise in the final eighteen months of the war by 6 million Swiss Francs per month, although Switzerland stated that Allied protests ended this arrangement after only one month of operation.⁶⁵⁴ However,

⁶⁴⁸ *Documents Diplomatiques Suisses, 1848-1945* (DDS) (Bern, 1991), vol.13, document 218, p.512ff.

⁶⁴⁹ DDS 13/363/885, noted 13 August 1940.

⁶⁵⁰ NARA RG107/160/929, folded marked "Swiss Credit to Germans," report dated 22 February 1945; Meier et al, *Schweizerische Aussenwirtschaftspolitik*, p.490.

⁶⁵¹ DDS 14/82/248, memo dated 24 July 1941.

⁶⁵² BAr E7110/1973/120/9, memo dated 11 December 1942; DDS 14/379/1207, telegram dated 24 June 1943.

⁶⁵³ Meier et al, *Schweizerische Aussenwirtschaftspolitik*, p.490.

⁶⁵⁴ NA FO837/991, memo dated 8 February 1944; FRUS 1944/IV:Europe/708, telegram dated 15 February 1944.

statistics obtained by the American economic intelligence authorities indicate that the German clearing deficit ultimately rose to 990 million Swiss Francs, equivalent to £57 million or 12.0% of Switzerland's 1938 NNI by June 1944.⁶⁵⁵ These credits remained unpaid at the end of the war. Switzerland did not provide so many clearing credits to the Allies until the years immediately after the Second World War.⁶⁵⁶

Table 5.6: Swiss National Bank Gold Purchases from Germany (in millions)

Year	Purchases (Swiss Francs)	Sales (Swiss Francs)	Net Purchases (Swiss Francs)	Net Purchases (Pounds Sterling)
From Sept. 1939	0	0	0	0
1940	85.9	19.5	66.4	3.8
1941	141.2	0	141.2	8.1
1942	424.0	0	424.0	24.4
1943	370.4	0	370.4	21.3
1944	180.2	0	180.2	10.4
To June 1945	29.5	0	29.5	1.7
Total	1,231.1	19.5	1,211.6	69.8

Source: Jean-François Bergier et al (Independent Commission of Experts Switzerland – Second World War), *Switzerland and Gold Transactions in the Second World War: Interim Report* (Bern, 1998), Appendix 2.

In addition to sizeable clearing credits, the Swiss National Bank also accepted large quantities of German gold in exchange for Swiss Francs. These free Swiss Francs were used, *inter alia*, to pay for priority trade items and to make payments against the clearing credit. Table 5.6 reveals that Switzerland bought from Germany a net total of 1.2 billion Swiss Francs, or £69 million in gold bars and coins. This is equivalent to 14.5% of Switzerland's 1938 NNI.⁶⁵⁷ The peak year of purchasing came in 1942, before the doubling of the German clearing loans in January 1943; but Swiss acquisitions of German gold continued

⁶⁵⁵ NARA RG107/160/929, folder marked "Swiss Credit to Germans," report dated 22 February 1945; Meier et al, *Schweizerische Aussenwirtschaftspolitik*, p.490.

⁶⁵⁶ Meier et al, *Schweizerische Aussenwirtschaftspolitik*, p.293.

⁶⁵⁷ *Ibid*, p.490.

until the surrender in May 1945. Much of this gold was sold on to other neutrals for goods and services which the Swiss could not supply in countervailing trade because of their position. It was subsequently determined that much of this gold was acquired from the National Banks of Nazi-occupied countries.⁶⁵⁸

Political Relations – Clearing: United States-Switzerland

**Table 5.7: Swiss National Bank Gold Purchases from the United States
(in millions)**

Year	Purchases (Swiss Francs)	Sales (Swiss Francs)	Net Purchases (Swiss Francs)	Net Purchases (Pounds Sterling)
From Sept. 1939	0	216.4	-216.4	-12.5
1940	0	497.9	-497.9	-28.7
1941	831.2	0	831.2	47.9
1942	669.1	0	669.1	38.6
1943	168.4	0	168.4	9.7
1944	341.0	0	341.0	19.7
To June 1945	233.2	0	233.2	13.4
Total	2,242.9	714.3	1,528.6	88.1

Source: Bergier, *Switzerland and Gold Transactions*, Appendix 2.

During the war, Switzerland and the United States maintained the same monetary clearing relationship as before. In addition to normal trade and services, the US relied on Switzerland to perform Red Cross and other protecting power duties, requiring substantial Swiss Franc funds. Throughout the war, the US sold the Swiss gold in exchange for Swiss Francs with which to make purchases and also funded its protecting power requirements. As seen in Table 5.7, the volume of these gold sales from 1941-1945 was nearly twice that of parallel Swiss transactions with Germany, amounting to 2.2 billion Swiss Francs or approximately £126.8 million. This is equivalent to a notable 26.5% of Switzerland's 1938 NNI.⁶⁵⁹ Due to American purchases of Swiss gold in the first

⁶⁵⁸ Slany, "U.S. And Allied Efforts to Recover and Restore Gold," Appendix 2.

⁶⁵⁹ Meier et al, *Schweizerische Aussenwirtschaftspolitik*, p.490.

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eighteen months of the war, the net Swiss acquisition of American gold was £88.1 million, or 18.3% of Switzerland's 1938 NNI.⁶⁶⁰

Political Relations – Clearing: UK-Switzerland

British financial relations with Switzerland went through three notable phases. Throughout all three, Britain nominally operated a system of monetary clearing. In the first, the UK sought to maintain trade relations with Switzerland through the provision of Sterling alone to avoid the total convertibility of Sterling into Swiss Francs. The British also sought a Swiss Franc loan, repayable in British Pounds, on favourable terms; a loan was initially agreed, but then withdrawn after the defeat of France. The second period, beginning in June 1940, is marked by Britain's shortage of Swiss Francs, with the Bank of England buying Swiss Francs for gold in Ottawa without any formal agreement. The British and Swiss formalized this arrangement at the end of 1943, when, marking the start of the final period, the Swiss agreed to accept unlimited quantities of monetary gold in London for Swiss Francs, as Britain asked.

Switzerland ultimately provided no credits to the British in the Second World War. In parallel with trade negotiations, Britain had initially sought a 100 million Swiss Franc (£5.8 million) trade loan from private Swiss sources in November 1939; its goal had been to fund British purchases in Switzerland for 18 months.⁶⁶¹ After four months of negotiations, the interest rate was set at 1.5% above the official rate of the Swiss National Bank, but not less than 3% (after having been negotiated down to 2.75%).⁶⁶² The offer of this facility became interlinked with trade offers which could not be reconciled. The Swiss wanted the British to continue to import high value items with this loan, an undertaking which the British opposed. This unwillingness meant that the loan offer was

⁶⁶⁰ Meier et al, *Schweizerische Aussenwirtschaftspolitik*, p.490.

⁶⁶¹ DDS 13/215/503, memo dated 19 December 1939.

⁶⁶² DDS 13/237/560ff, memo dated 13 February 1940; DDS 13/261/621ff, memo dated 4 April 1940.

eventually withdrawn.⁶⁶³ Instead, in order to overcome its structural balance of payments problems, Britain sought to ration Swiss Francs, using only those available to them; to this end they severely limited the convertibility of Sterling Area capital to Swiss Francs from June 1940 until mid-1942.⁶⁶⁴ Ultimately, Britain's desire for Swiss Francs exceeded its Swiss Franc earnings; they had to use gold to acquire more.

Table 5.8: Swiss National Bank Gold Purchases from the Bank of England (in millions)

Year	Net Purchases (Swiss Francs)	Net Purchases (Pounds Sterling)
From		
Sept. 1939	0	0
1940	0.2	>0.0
1941	0.1	>0.0
1942	111.1	6.4
1943	164.0	9.4
1944	206.4	11.3
To		
June 1945	186.7	10.8
Total	668.6	37.9

Source: Bergier, *Switzerland and Gold Transactions*, appendix 2.

In order to make good their monetary clearing deficits, from 1942 onwards, the British transferred increasing quantities of gold to Switzerland. Before mid-1942, the British government had had to limit gold transfers to Switzerland. As seen in Table 5.8, it restricted net transfers to very small amounts, relying on existing Swiss Franc assets to cover deficits. Once the Treasury went back to exchanging Swiss Francs for gold in June 1942, steady flows of gold totalling £37.9 million continued until June 1945; the peak year for the transfers was 1944, with £11.3 million. The total sum transferred equals 8.0% of Switzerland's 1938 NNI, although much of the gold transferred was in the

⁶⁶³ BAr E2001/1000/1152/231, correspondence and draft agreements dated between 5 March and 29 March 1940; DDS 13/261/621ff, memo dated 4 April 1940.

⁶⁶⁴ BoE EC4/178, memo dated 9 October 1940.

form of blocked gold, held in New York, London and Ottawa, which could not be readily exchanged for other currencies on international markets. This was favourable to the Swiss in so far as it moved gold out of the country and therefore reduced the potential benefits of invasion to the Germans.⁶⁶⁵

As this section confirms, in terms of the politics surrounding the various clearing mechanisms and the resulting problems, each neutral-belligerent relationship is unique. The items traded, the services provided, the methods of payment and whether deficits were allowed varied according to the relationship. Despite these many differences, the next section shows the notable similarities in the underlying balance of payments statistics.

Overall Balance of Payments Statistics

Methodology

Before establishing the first balance of payment statistics for the six bilateral neutral-belligerent relationships during the Second World War the methodology behind the statistics should be discussed. The balance of payment statistics elaborated in Appendices 5.1 to 5.6 include current account items, such as goods and services, as well as capital account transfers, including private and government transfers. Figures for merchandise trade (goods) originate from Chapters Two to Four. To the extent allowed by the available statistics, services include freight and insurance, other transportation expenses, tourism, investment income, government services and a remaining other services category. Government transfers include loans provided, gold and any payments made in government owned in foreign currency, as detailed previously.

It is also necessary to note the national accounting conventions used in this chapter. As seen in Table 5.9, for current account items such as services and merchandise trade, the importation of a good or service is represented as a debit; the exportation of a good or service is represented as a credit for

⁶⁶⁵ Meier, *Schweizerische Aussenwirtschaftspolitik*, p.490.

accounting purposes. Similarly, for both private and government capital movements, transfers out are represented as debits and transfers in are credits for accounting purposes. Government reserve balance movements are included in the government capital transfers. Because of the use of compensation clearing, this is where we draw the line: the current account and capital account credits and debits are added together to obtain a 'final' balance of payments. However, frequently this section will refer to the sum of the current account and private transfers (so excluding the government capital account movement). The sum of the current and capital accounts should be zero. However, the quality of the data available and in particular, the anomalies created by non-convertibility of the Peseta and Reichsmark mean there is also an error term reported for each year and in each relationship.

**Table 5.9: Example Balance of Payments Relationship
Germany-Switzerland, 1939 in thousands of Sterling Pounds**

		1939		
		+	-	Net
Current Account	I. Goods	10,988	-21,140	-10,152
	I.1 Exports	10,988		
	I.2 Imports		-21,140	
	II. Services	8,450	-3,693	4,756
	II.1 Freight and Insurance	3,920	-949	
	II.2 Other Transport Expenses	454	-516	
	II.3 Tourism and Travel	1,940	-196	
Capital Account	II.4 Investment Income	1,444	-237	
	II.5 Government Transactions	52	-1,795	
	II.6 Other Services	640		
	III. Private Transfers	4,808	-165	4,643
	IV. Government Capital Account	2,363	-464	1,898
	V. Errors and Omissions		-1,145	-1,145

Source: See Appendix 5.5.

Examining the neutral-belligerent balance of payments is subject to substantial shortcomings, not the least of which is data availability. As they were considered less important than trade during this period, precise figures for non-trade items, such as services transfers, are often difficult to come by. Services statistics were often not recorded except by clearing organisations or in the reconciliation of gold figures. German records for these statistics were maintained at the *Deutsche Verrechnungskasse* and were destroyed in the war. American records of their balance of payment dealings with the neutrals seem not to have been preserved. This means that, with the exception of the trade statistics taken from Chapters Two through Four, all statistics in this study originate from either the Bank of England or the neutrals' central banks and clearing authorities. The views of the latter could bias the results in same way as in the ways trade was reported.

For example, figures for Spanish relationships originate from the Spanish Central Bank, the *Banco de España*;⁶⁶⁶ Swiss statistics from the Swiss clearing office, the *Schweizerische Verrechnungsstelle*.⁶⁶⁷ Despite the official nature of the sources, problems remain. In booking services and capital transactions, the prices reported by one state were not necessarily the prices used by the corresponding state; indeed, comparisons of archival records suggest they had no relationship at all and also deviated from figures charged in domestic markets. Although the sum of the current and capital accounts should be zero, these factors prevent this reconciliation and are believed to increase the size of the error term reported for each year. Further discussion of the differences in trade and balance of payments reporting is included in the notes to Appendices 5.1-5.6.

⁶⁶⁶ BdeE, IEME Estadística: Importación y Exportación [Statistics: Imports and Exports], 1939-1945.

⁶⁶⁷ BAr E7160-01/1976-58/28-29, Gesamt Rekapitulationen, Statistischer Anhang Jahresbericht [Overall Recapitulation and Addendum Statistics].

In an attempt to make the relationships comparable, some terms have been standardised. The statistics in this chapter are presented from the point of view of the neutral countries in question. Therefore a surplus in the capital account of the Anglo-Swedish payments relationship reported in Appendix 5.4 indicates a transfer of capital from Britain to Sweden. All figures are reported in Sterling Pounds and local currency figures converted at the official rate for each year as reported in the Foreign Exchange Values in Tables 0.1-0.3 at the beginning of the thesis. Before proceeding to discuss the overall balance of payments statistics, the detailed neutral-belligerent financial relations and, in particular, the various loan and transfer agreements established during the Second World War should be reviewed. This allows us to better understand the political environment in which the neutrals had to manage their balance of payments.

**Table 5.10: Balance of Payments
Relationships Examined in this Section**

Relationship
Spain-Germany
Spain-United Kingdom
Spain-United States
Sweden-United Kingdom
Switzerland-Germany
Switzerland-United Kingdom

From here, this section presents available balance of payment statistics for six different neutral-belligerent relationships as listed in Table 5.10. They include two Axis-neutral and four Allied-neutral relationships; four are commercial clearing and two monetary clearing. This section provides hitherto unseen figures for individual balance of payments discussions. It demonstrates that, despite the political, economic and clearing system differences, the services and private capital account relationships are generally a source of income for all three neutrals in this study.

Spain

Of the six relationships examined in this section, the figures for the German, UK and US bilateral payment relationships with Spain originate from statistics supplied by the Bank of Spain's IEME, responsible for all the country's foreign currency transactions. The statistics for 1940-1944 provide information on services and capital for the three relationships. Trade statistics presented in Chapter Three, which reflect actual deliveries as opposed to accruals, are used for the goods imported and exported. More precise details about the construction of the statistics can be found in the notes to Appendices 5.1-5.3.⁶⁷⁰

Two trends are notable in the Spanish statistics, indeed, across all the balance of payments relationships presented in this chapter: sizeable net earnings from services and private transfers.

Spain-Germany

As seen in Table 5.11, from an overall perspective the Spanish-German balance of payments appears to have few discernible trends. The figures support the shift in trade dynamics suggested in an earlier section, with large merchandise trade surpluses in 1941/42 later redeemed in 1943/44 for German military hardware. This resulted in net loss for Spain of £908,000.

⁶⁷⁰ BdeE EIE.

**Table 5.11: Spanish-German Balance of Payments,
Reported as Net Earnings for Spain (thousands of Sterling Pounds)**

Type	1940	1941	1942	1943	1944	Overall
Goods	10	4,123	1,598	57	-6,696	-908
Services	-225	46	1,282	134	5,561	6,789
Private Transfers	103	601	2,279	1,141	2,385	6,509
Government Capital	0	-5	-46	9,956	-83	8,444
Errors and Omissions	112	-4,765	-5,133	-11,288	-1,167	-22,241

Source: Appendix 5.1.

Note: Constituent components reported separately. See Appendix 5.1 for detailed current and capital account figures.

With the exception of 1943, net earnings from services increased over the period. Spanish services provided to Germany included freight, investment income and protecting power services. The quantity of protecting power work for Germany rose rapidly from £387,000 in 1941 to £5.6 million in 1944. This protecting power work included protection of property and POWs in enemy countries and diplomatic work on behalf of Germany in enemy countries. Total services earnings over the period amount to £6.8 million (all the underlying earnings and expenses are detailed in Appendix 5.1). In terms of the overall current account from 1940-1944, total earnings were £5.9 million or 0.6% of Spain's 1939 GNP.⁶⁷¹

Despite needing approval to undertake transfers outside Germany, Spain benefitted from consistent private transfers, with about £2.4 million or 36% of the wartime total in the last year of the war. The total for the four-year period is £6.5 million. Some of these transfers were investments by German businesses in Spain; but it is reasonable to speculate that the larger net figure in 1944 reflects transfers from Germany in anticipation of defeat. In terms of government capital, the large one-time payment of £10.1 million by Spain to Germany as part

⁶⁷¹ Prados de la Escosura, *El Progreso Económico de España*, p.447.

of the Civil War debt retirement is reflected in the 1943 statistics. Overall, government capital transfers between 1940 and 1944 remain heavily influenced by this payment, representing £8.4 million in outflows from Spain;⁶⁷² equal to 0.9% of Spain's 1939 GNP.⁶⁷³ Spain's balance of payments with the US and Britain is remarkably similar.

Spain-United States

Spain incurred merchandise trade deficits with the US in 1940/1941, before the pre-emptive purchase programme increased Spain's trade earnings. With the increases earned by the sale of wolfram and other goods to the US, Spain still, from an overall perspective, had net outflows for merchandise trade of some £5.4 million, virtually all due to import surpluses in 1940 and 1941; see Table 5.12.

With respect to services, at no time did Spain provide protecting power services for the US or UK. Rather, initially Spain consumed considerable net services from the US in 1940, as detailed in Appendix 5.2. Wartime changes, including increased levels of Spanish shipping, investment income from corporate operations in Spain, tourism and travel and other wartime services earned Spain some £1.3 million from the US during the period. As a result, the net current account during 1940- 1944 was in deficit by some £4.1 million or 0.4% of Spain's 1939 GNP.⁶⁷⁴

⁶⁷² Leitz, *Economic Relations*, p.133-134.

⁶⁷³ *Ibid.*

⁶⁷⁴ Leitz, *Economic Relations*, p.133-134.

**Table 5.12: Spain-United States Balance of Payments,
Reported as Net Earnings for Spain (thousands of Sterling Pounds)**

Type	1940	1941	1942	1943	1944	Overall
Goods	-7,669	-5,240	2,296	2,151	3,040	-5,422
Services	-1,739	997	175	1,447	439	1,319
Private Transfers	1,405	1,559	1,125	1,901	2,565	8,555
Government Capital	3,073	-47	-1,774	-457	-1,920	-1,125
Errors and Omissions	4,930	2,730	1,823	-5,042	-4,124	317

Source: Appendix 5.2.

Note: Constituent components reported separately. See Appendix 5.2 for total current and capital account balances.

Appendix 5.2 suggests that the Spanish capital account surplus more than covers the current account deficit. Private transfers from the US to Spain were quite substantial, totalling £8.5 million. Government transfers decreased the current account benefit to Spain by a further £1.1 million over the entire period; the government transfers in 1942, 1943 and 1944 include the delivery of gold and US Dollars from the United States mentioned previously. In total over the 1940-1944 period, the capital account yielded earnings of £7.4 million or 0.7% of Spain's 1939 GNP.⁶⁷⁵

Spain-UK

Table 5.13 provides an overview of the Spanish balance of payments in the Anglo-Spanish relationship. It should be noted that the UK payments relationship with Spain excludes payments to/from the Empire. Much as with Spanish-German and Spanish-American trade, a trend is seen of increasing net surpluses from goods trade from 1942 onwards, with a peak in 1944. This results in net trade earnings of £3.9 million for Spain.

⁶⁷⁵ *Ibid.*

**Table 5.13: Spain-United Kingdom Balance of Payments,
Reported as Net Earnings for Spain (thousands of Sterling Pounds)**

Type	1940	1941	1942	1943	1944	Overall
Goods	-1,133	-4,998	1,951	1,985	6,081	3,886
Services	2,737	1,190	604	919	1,322	6,772
Private Transfers	1,520	1,636	2,207	1,335	558	7,256
Government Capital	-640	-3	-622	-3,933	-4,782	-9,980
Errors and Omissions	-2,484	2,175	-4,140	-305	-3,179	-7,934

Source: Appendix 5.3.

Note: Constituent components reported separately. See Appendix 5.3 for total current and capital account balances.

As with Germany and the US, Spain provided net services to the UK. These services included freight for purchases from Spain and investment income from British holdings in Spain.⁶⁷⁶ Net earnings from services varied over the period, due to fluctuations in the income and expenses (see Appendix 5.3). Total Spanish services earnings from 1940-1944 are £6.8 million. No additional details of these services earnings are available. The overall current account position in favour of Spain for the period is therefore £10.7 million or 1.0% of Spain's 1939 GNP.⁶⁷⁷

Capital account transfers were clearly in favour of Spain. As seen in Table 5.13, unlike the US and German cases, net private capital transfers to Spain declined in the last two years of the period studied. Net private transfers peak at £2.2 million in 1942 and then decline to £558,000 in 1944. Although there is no evidence to explain this trend, Britain probably restricted transfers to Spain in order to mitigate its need to transfer gold to Spain. Net Spanish earnings from private transfers amount to a total of £7.3 million during this period. The net government position is affected by gold payments of £372,000 in 1942, £3.0

⁶⁷⁶ BoE EIE.

⁶⁷⁷ *Ibid.*

million in 1943 and £1.3 million in 1944; recorded in the statistics is a net transfer of nearly £8 million in favour of the British (at Spain's cost). As a result, the net capital account for the period represents a deficit of some £2.7 or 0.3% of Spain's 1939 GNP.⁶⁷⁸

Sweden-UK

Although Sweden's relationship with the UK was based on monetary clearing and therefore not systematically similar to Spain, it had many of the same traits as the Spanish-belligerent clearing relationships. As with the Spanish examples, Sweden had substantial net earnings from services provided to the UK and benefited from significant and Norwegian-related transfers.

As Table 5.14 demonstrates, Sweden benefited from a substantial current account surplus. Payments for goods were consistently in Sweden's favour, probably reflecting the British requirements for Swedish speciality manufactures, such as ball bearings. This is most apparent in 1942, when £3.0 million, the trade balance in favour of Sweden (see Appendix 5.4), was about eight times the countervailing flow of £390,000; this resulted in a net trade balance in Sweden's favour of some £2.6 million for just a single year. Overall, despite being behind German and British blockades, Sweden earned as much as £4.5 million from trade with the UK over the three-year period, 4.2% of Sweden's 1939 GNP.⁶⁷⁹

⁶⁷⁸ Prados de la Escosura, *El Progreso Económico de España*, p.447.

⁶⁷⁹ Johansson, *Gross Domestic Product*, Table 57.

**Table 5.14: Sweden-United Kingdom Balance of Payments,
Reported as Net Earnings for Sweden (thousands of Sterling Pounds)
1940-1942 (Incomplete Years Omitted)**

Type	1940	1941	1942	Overall
Goods	1,529	304	2,632	4,465
Services	11,868	7,838	5,283	24,989
Private Transfers	106	12	147	265
Norwegian Transfers	0	1,572	2,004	3,576
Government Capital	-14,850	-7,725	-6,525	-29,100
Errors and Omissions	1,347	-2,000	-3,542	-4,195

Source: Appendix 5.4.

Note: Constituent components reported separately. See Appendix 5.4 for total current and capital account balances.

Swedish net services earnings from 1940-1942 are over five times net trade earnings. Sweden provided significant quantities of international shipping capacity to both the Germans and the British. Swedish ships in both the Allied and Axis zones were required to work for the belligerents, but by international convention, the belligerents had to compensate the Swedes for these services, lest they be accused of piracy against a neutral.⁶⁸⁰ As Appendix 5.4 shows, net earnings for these shipping activities for 1942-1944 amounted to £15.2 million or 14.3% of Sweden's 1939 GNP.⁶⁸¹

In addition, records indicate that much belligerent-neutral shipping was insured by Swedish insurance companies. Swedish earnings from insuring British cargoes were notable for a country of its size. In the first year, the earnings were £2.3 million against pay-outs of £25,000; the second year witnessed pay-outs exceeding premiums, with a loss of £26,000. In 1942, premiums of £1.6 million were collected against losses of £743,000. In total the Swedes earned a £3.0

⁶⁸⁰ Sections VI and VII of the Hague Convention of 1907.

⁶⁸¹ Johansson, *Gross Domestic Product*, Table 57.

million net for insuring British cargoes during the 1940-1942; this equals 2.9% of Sweden's 1939 GNP.⁶⁸²

Earnings from other services and government transactions, including protecting power services on behalf of the British government for citizens, POWs and property held in German territory amounted to £6.2 million net or 5.9% of Sweden's 1939 GNP for the 1940-1942 period.⁶⁸³ These funds also enabled the British to maintain a large Press Office (Ministry of Information) in the Embassy.⁶⁸⁴ The overall current account position in favour of Sweden for 1940-1942 is therefore nearly £25 million or a staggering 23.6% of Sweden's 1939 GNP.⁶⁸⁵

Private transfers from the UK to Sweden were heavily restricted during the war. Net transfers from 1940-1942 amounted to a rather small £265,000 (see Appendix 5.4), all of which had to be approved by both the relevant Treasury department and the Bank of England.⁶⁸⁶ Such transfers obviously had to be of very high priority in order to merit the diversion of funds from war-related activities.

In addition to these payments, the British made the rather unusual move of paying funds into the account of the Norges Bank (Norwegian Central Bank) at the Swedish Riksbank in order to maintain ships in Allied territory. After the fall of Norway in April 1940, the Norwegian ships within Allied territory were pressed into Allied service, provided lease payments had been made to the Swedish mortgage-holders; the Swedish government agreed to this arrangement as part of a 16 May 1940 Anglo-Swedish trade agreement.⁶⁸⁷ Since much of the Norway's shipping capacity had been built and financed in Sweden, the owners had to maintain payments on these vessels and those still under construction to

⁶⁸² Johansson, *Gross Domestic Product*, Table 57.

⁶⁸³ *Ibid.*

⁶⁸⁴ BoE OV6/150, memo dated 5 May 1941; BoE OV6/151, memo dated 4 September 1941.

⁶⁸⁵ *Ibid.*

⁶⁸⁶ BoE OV6/150-154, various reports dated from 1940-1944.

⁶⁸⁷ NA FO837/820-821; FO837/890; NARA RG107/160/925, folder marked "G2," report dated 6 December 1940.

prevent diplomatic protests and possible seizure of the ships.⁶⁸⁸ Payments covered the cost of shipping services, mortgages on the ships themselves, disbursement for ships held at neutral ports and payments for ships under construction in Sweden. In Sweden, funds were credited to the account of the Norges Bank, from which payments were made in Sweden; this account remained under the control of the Norwegian government-in-exile. Payments were made in a combination of Sterling (which was convertible to gold, subject to limits after February 1941) and also in Dollars provided by the US.⁶⁸⁹ As shown in Appendix 5.4, net Norwegian payments in 1941-1943 amount to a total of £8.5 million.

Overall, Sweden had a large net balance of payment surplus excluding government gold transfers from the Anglo-Swedish relationship. For the period 1940-1942, with complete statistics available, the Swedes earned a net total of £33 million, equal to 31.4% of Sweden's 1939 GNP.⁶⁹⁰ So, despite being behind a stringent German blockade, the Swedes were earning more than 10% of their annual GDP from transactions with the British. As previously discussed, the British government settled this deficit using gold payments, totalling £29 million over the course of the two years.⁶⁹¹

Switzerland's balance of payments with Germany, as reported in Table 5.11 and Appendix 5.5, have been developed from the records of the Swiss *Verrechnungsstelle* [Exchange Clearing Organization], which was an independent office in charge of reconciling clearing initially with Germany and ultimately the German occupied territories also. Figures for 1939 and 1940 have previously been reported and annotated by Stefan Frech as part of the CIE studies.⁶⁹² This

⁶⁸⁸ See extensive discussion on the ships *Lionel* and *Dicto* in W.N. Medlicott, *History of the Second World War: The Economic Blockade*, vol.II (London, 1959), p.454ff.

⁶⁸⁹ BoE OV6/150-154, reports marked "Payments to Sweden," Norwegian Account, various dates.

⁶⁹⁰ Johansson, *Gross Domestic Product*, Table 57

⁶⁹¹ BoE OV6/150-154, various reports dated from 1940-1944.

⁶⁹² BA7 E7160-01/1976/58/28, reports on years 1937/1938, 1939 and 1940.

work extends Frech's study to include 1941-1944.⁶⁹³ The precise assumptions used in creating these statistics are reported in the notes to Appendix 5.5.

**Table 5.15: Switzerland-Germany Balance of Payments,
Reported as Net Earnings for Switzerland, 1939-1944
(in thousands of Sterling Pounds)**

Type	1939	1940	1941	1942	1943	1944	Overall
Goods	-10,152	-3,750	71,337	-499	2,612	-9,390	50,158
Services	4,756	4,068	809	799	8,723	9,581	28,736
Private Transfers	4,643	4,238	1,679	178	N/A	N/A	10,738
Government Capital	1,898	2,553	1,221	9,452	-4,013	8,657	19,768
Errors and Omissions	-1,145	-7,110	986	-9,929	-7,322	-8,847	-33,367

Source: Appendix 5.5.

Note: Constituent components reported separately. See Appendix 5.5 for total current and capital account balances.

Table 5.15 shows, from an overall perspective, Swiss-German balance of payments has very few discernible patterns, but the overall trends are comparable with the other previous Spanish and Swedish examples. The figures support the change in trade dynamics suggested in the chapter above on Swiss-German trade, with net deficits in 1939-1940 converted to net earnings in 1941-1943 as Switzerland sold additional goods to the Germans.⁶⁹⁴ This results in net balance of payments earnings for Switzerland of some £50.2 million or 10.9% of Switzerland's 1938 NNI.⁶⁹⁵

As suggested by the table above and the figures in Appendix 5.5, Swiss services earnings were initially dependent on trade, with freight and insurance making up a large part of the net figures. Tourism and travel, a large part of the 1939 earnings, declined with the onset of the war, although the exact extent of

⁶⁹³ BAr E7160-01/1976/58/28, reports on years 1941 and 1942. BAr E7160-01/1976/58/28, reports on years 1943 and 1944.

⁶⁹⁴ See Chapter Two.

⁶⁹⁵ Meier et al, *Schweizerische Aussenwirtschaftspolitik*, p.490.

these earnings after 1940 is not known due to a lack of unit sub-category data.⁶⁹⁶ As a result of this shift, net services earnings in 1941-1942 are less than their 1939 levels. Near ten-fold increases in net services earnings in 1943 and 1944 probably result from increased levels of protective power work on behalf of Germany. This includes the protection of German property, citizens and POWs in enemy countries, as well as diplomatic work on their behalf. It also includes payments to the International Committee of the Red Cross in Geneva.⁶⁹⁷ The Swiss earned £28.8 million net from providing services to Germany from 1939-1944. This equals 6.7% of Switzerland's 1938 NNI. In total, current account earnings over the duration of the war reached some £78.9 million or 18.4% of Switzerland's 1938 NNI, about 3.6% each year.⁶⁹⁸

Switzerland also benefited from capital account earnings. Private transfer statistics are available from 1939-1942 and disclose a further £10.7 million in its earnings. As Figure 5.2 shows, currency restrictions meant that private transfers had to be approved by several levels of government before they were permitted. Transfers were especially difficult from Germany, because the German government wanted to prevent capital flight and a further deterioration of the Swiss-German balance of payments during the war.⁶⁹⁹ The lack of statistics after 1942 is partially because the Germans with new regulations made it far more difficult to transfer funds to Switzerland. Individuals were not permitted to hold foreign currency and all private transfers had to be justified to the German authorities. These Swiss earnings from private transfers equal 2.3% of Switzerland's 1938 NNI.⁷⁰⁰

⁶⁹⁶ BA E7160-01/1976/58/28, various reports.

⁶⁹⁷ Precise figures for Swiss protective power work on behalf of the German government is not known, but in total the Swiss government had more than 200 mandates of representation during this period. See Reto Borsani, *La Suisse et les bon offices* [The Swiss and their Good Offices] (Geneva, 1994).

⁶⁹⁸ Meier et al, *Schweizerische Aussenwirtschaftspolitik*, p.490.

⁶⁹⁹ Frech, *Clearing*, p.34ff.

⁷⁰⁰ Meier et al, *Schweizerische Aussenwirtschaftspolitik*, p.490.

As the Germans did not begin to reduce their Swiss debts until 1943, the government capital account shows substantial net earnings for Switzerland. As noted previously, transfers of gold from the belligerent to the neutral reduced government capital account earnings for the neutral. In this case, German monetary transfers continued to outpace gold transfers until 1943. Net Swiss balance of payments earnings for these transactions from 1939-1944 (net having already been reduced by gold transfers), totalled some £19.8 million. Thus, total capital account earnings totalled £30.5 million or 6.6% of Switzerland's 1938 NNI.⁷⁰¹

Switzerland-United Kingdom

**Table 5.16: Switzerland-United Kingdom Balance of Payments,
Reported as Net Earnings for Switzerland, 1942-1944
(in thousands of Sterling Pounds)**

Type	1942	1943	Overall
Goods	173	1971	2,144
Services	6,680	6,680	13,360
Private Transfers	0	N/A	0
Government Capital	-6,406	-9,452	-15,858
Errors and Omissions	-627	620	-7

Source: Appendix 5.6.

Note: Constituent components reported separately. See Appendix 5.6 for total current and capital account balances.

Finally, the Swiss balance of payments relationship with the UK is reported in net form in Table 5.16 and to the fullest extent possible in Appendix 5.6. Only two years of figures can be estimated on the basis of the sources

⁷⁰¹ *Ibid.*

detailed in the notes to Appendix 5.6. The net Swiss balance of payments earnings from trade with the UK amount to some £2.1 million or about 0.5% of Switzerland's 1938 NNI.⁷⁰² The general figures for this trade have been adapted from Chapter Four (above).

Net Swiss services earnings during this period are more than six times earnings from trade. Figures for services are based on Bank of England estimates for the period April 1942 to March 1943;⁷⁰³ these estimates have been annualized and identical figures for 1942 and 1943 are reported on this basis. General services, including shipping and insurance to Britain, amount to about £4.8 million for the two-year period. General Sterling Area services, including shipping and insurance services for the Empire, earned Switzerland £7.2 million, minus outgoings of nearly £2 million for transporting items to Switzerland on Allied vessels (via Genoa).⁷⁰⁴ Total protecting power earnings paid by the Foreign Office amounts to £3.7 million; these earnings include the protection of British property, citizens and POWs in enemy countries, as well as diplomatic work on their behalf. It also includes payments to the International Committee of the Red Cross in Geneva. It should be noted that the figures for 1943 probably underreport services revenue for the Swiss, who increased diplomatic protecting power services provided on behalf of Britain.⁷⁰⁵ Invoices for these services appear to have been retrospective, not in advance.⁷⁰⁶ The total services earnings for the 1942-1943 period amount to £13.4 million or 2.9% of Switzerland's 1938 NNI.⁷⁰⁷ Services revenues for the remainder of the period are unknown. Thus,

⁷⁰² Meier et al, *Schweizerische Aussenwirtschaftspolitik*, p.490.

⁷⁰³ BoE OV6/270 document 106, entitled "Sterling Area Balance of Payments with Switzerland April 1942-March 1943"

⁷⁰⁴ See Chapter Four.

⁷⁰⁵ BoE OV6/270 document 106, entitled "Sterling Area Balance of Payments with Switzerland April 1942-March 1943"

⁷⁰⁶ *Ibid.*

⁷⁰⁷ Meier et al, *Schweizerische Aussenwirtschaftspolitik*, p.490.

total current account earnings for the period amount to £15.5 million or about 3.4% of Swiss 1938 NNI.⁷⁰⁸

Capital transfers are almost exclusively a government phenomenon. Private transfers between the UK and Switzerland were heavily limited by the British authorities. No reports of private capital are made in this work, because no information is available on such transfers during this period. Swiss gold transactions with the UK are taken from the Independent Commission of Experts reports under 'government capital account.'⁷⁰⁹ As noted, during this two-year period, the Swiss government received gold worth £15.9 million, causing a corresponding deficit in the government capital account. These transfers were equal to 3.4% of Switzerland's 1938 NNI.⁷¹⁰

This section has presented hitherto unseen figures for the individual balance of payments relationships, revealing *inter alia* the details of the neutrals' earnings from services and transfers. This work now compares the services and private transfer earnings across the six relationships. This comparison demonstrates how far all six neutrals had substantial balance of payments earnings from services and private transfers. The similarities in the directions of the flow indicate that, despite the very different, and at times difficult, political relationships between them, these neutrals were vitally useful to the belligerents. Especially notable are the similarities in the flows on an annual per cent of economic activity basis amongst all the neutral-belligerent relationships examined.

⁷⁰⁸ *Ibid.*

⁷⁰⁹ Berger, *Switzerland and Gold Transactions*, Appendix 2.

⁷¹⁰ Meier et al, *Schweizerische Aussenwirtschaftspolitik*, p.490.

Services

Table 5.17: Net Services Earnings as a Proportion of Net Current Account and National Income

Neutral	Belligerent Counterparty	Period Available	Net Services Earnings	Net Services Earnings as a % of Net Current Account	Average Annual Services Earnings as a % of NNI/GNP
Spain	Germany	1940-1944	6,789	114%	0.1% ^b
	United States	1940-1944	1,319	N/A ^c	<0.1% ^b
	United Kingdom	1940-1944	6,772	63.5%	0.1% ^b
Sweden	United Kingdom	1940-1942	24,989	84.8%	1.2% ^a
Switzerland	Germany	1939-1944	28,736	1,000%	1.1% ^a
	United Kingdom	1942-1943	13,720	86.5%	1.2% ^a

Sources: see Appendices 5.1-5.6; Prados De La Escosura, *El Progreso Económico*, p.288; Johansson, *Gross Domestic Product of Sweden*, Table 57; Meier et al, *Schweizerische Aussenwirtschaftspolitik*, p.490

Notes: ^a 1938 NNI; ^b 1939 GNP; ^c current account is negative.

The statistics shown in Table 5.17 indicate that the neutrals in every case benefited from net services earnings. In the Spanish-belligerent relationships, earnings from services are both less than 0.1% of annual NNI/GDP and less than half of net current account earnings.⁷¹¹ But from the available Anglo-Swedish, Swiss-German and Anglo-Swiss relationships, it is evident these two neutrals derived particularly high levels of net earnings from services, relative in particular to the size of their economies. Services as a percentage of current account earnings exceed 85% for the Anglo-Swedish relationship and annually represent more than 1% of Sweden's NNI (measured using 1938 NNI).⁷¹² In the Swiss-German relationship, services covered an otherwise negative trade balance and provided the Swiss with the ability to benefit from improved prices as shown in Chapter Five (above). As suggested in Table 5.17, these services were annually equivalent to over 1% of Switzerland's 1938 NNI. Even though only two years are available, the Anglo-Swiss relationship also shows the high

⁷¹¹ Table 5.17; Prados De La Escosura, *El Progreso Económico*, p.288.

⁷¹² Table 5.17; Johansson, *The Gross Domestic Product of Sweden*, Table 57.

proportion of services as a part of Switzerland's net current account earnings. Over 86.5% of Swiss net current account earnings in this relationship were from services, equivalent to 1.2% of its 1938 NNI for this two-year period alone.⁷¹³

Private Transfers

Table 5.18: Net Private Transfers as a Proportion of National Income

Neutral	Belligerent Counterparty	Period Available	Net Private Transfers	Average Annual Private Transfers as a % of NNI/GNP
Spain	Germany	1940-1944	6,509	0.1% ^b
	United States	1940-1944	8,555	0.2% ^b
	United Kingdom	1940-1944	7,256	0.2% ^b
Sweden	United Kingdom	1940-1942	980	0.1% ^a
Switzerland	Germany	1939-1944	10,738	0.4% ^a
	United Kingdom	1942-1943	0	0%

Sources: See Table 5.17

Notes: ^a 1938 NNI; ^b 1939 GNP

Despite the transfer restrictions, neutrals consistently received net positive private transfers during the war. Throughout the wartime period, all three belligerents had severe restrictions on the transfer of funds to all neutral countries. As previously suggested, assuming they already had government permission, individuals trying to transfer funds through a relationship governed by compensation clearing had to wait to complete their transfer until sufficient countervailing funds were available.⁷¹⁴ The individuals transferring to and from monetary clearing belligerents were faced with a myriad of restrictions, even for investments; they still required state approval.⁷¹⁵ Regulations were designed either to prevent money from moving quickly from any one country and

⁷¹³ Table 5.17; Meier et al, *Schweizerische Aussenwirtschaftspolitik*, p.490.

⁷¹⁴ See Figure 5.2.

⁷¹⁵ See Figure 5.1.

destabilizing its financial situation, or to prevent individuals from hiding or laundering money in Allied and neutral countries.

Despite these restrictions, in each of the five neutral-belligerent relationships for which statistics are available, private transfers favoured the neutral throughout wartime. Although not as large as the current account, and in particular for the services surpluses, these private transfers witness to the neutral's advantages in capital preservation. The consistency of the net earnings for the neutrals, as shown in Appendices 5.1-5.6, suggests that neutrals were seen as a safe-haven, even during the most difficult times, such as 1940-41. This generally supports the existing literature by Frey and Waldenström, who show that financial markets considered at least Sweden and Switzerland to be safe from attack during this period.⁷¹⁶

As seen in Table 5.18, in each relationship, the net transfers were around 0.1% of the annual relevant NNI or GNP figure for each neutral country.⁷¹⁷ The exception is the Swiss-German relationship, which is approximately 0.4% of annual Swiss NNI;⁷¹⁸ this larger Swiss-German figure clearly demonstrates the closer relationship between these two countries and may show the German financiers' confidence in continued Swiss neutrality, if the difficulties in transferring funds are discounted. These higher levels of transfer occurred despite the very tight restrictions on transfers between Switzerland and Germany.⁷¹⁹ From these examples, it is clear that these neutrals benefited from net positive services earnings and private capital transfers.

Conclusions

Despite their many differences: political agreements, payment clearing procedures, military strengths and the neutrals' need to import many goods, the

⁷¹⁶ Bruno S. Frey and Daniel Waldenström, "Markets Work in War: World War II reflected in the Zurich and Stockholm bond markets" *Financial History Review*, II:I (2004), pp.51-67.

⁷¹⁷ Table 5.18.

⁷¹⁸ Table 5.18; Meier et al, *Schweizerische Aussenwirtschaftspolitik*, p.490.

⁷¹⁹ Frech, *Clearing*.

Chapter Five: Neutral-Belligerent Balance of Payments

belligerent payments relationships with Spain, Sweden and Switzerland had many similarities. Incorporating the merchandise trade statistics from the Chapters Two to Four, this chapter has provided both the mechanisms of the balance of payments systems and statistics for several of the belligerent-neutral relationships. It has demonstrated the neutrals derived net earnings from services which they provided to the belligerents and benefited from private transfers, despite the belligerents' restrictions on such transfers. The new balance of payments statistics presented herein clearly show that, despite the different clearing mechanisms and political relationships, the different earnings statistics as a percentage of NNI/GNP are substantially similar. This discussion will be continued in the final conclusion.

The new statistics also shed further light on the neutral's acceptance of gold. Because of their net surpluses resulting from their trade, services and private capital flows, the neutrals had to accept some form of countervailing payment. Gold was the only internationally accepted standard for such transfers. They accepted this gold from both the Allies and the Axis powers. The long standing moral debate on the gold issue will likely continue, but it is further enlightened by these new balance of payments statistics.

Appendix 5.1: Overall Balance of Payments: Spain-Germany
(in thousands of Sterling Pounds)

		1940			1941			1942			1943			1944		
		+	-	Net	+	-	Net	+	-	Net	+	-	Net	+	-	Net
Current Account	I. Goods	2,264	-2,254	10	15,402	-11,279	4,123	19,015	-17,417	1,598	33,788	-33,731	57	18,891	-25,588	-6,696
	I.1 Exports	2,264			15,402			19,015			33,788			18,891		
	I.2 Imports		-2,254			-11,279			-17,417			-33,731			-25,588	
	II. Services	113	-338	-225	1,543	-1,497	46	2,461	-1,179	1,282	3,328	-3,194	134	7,192	-1,631	5,561
	II.1 Freight and Insurance	6	-61		225	-369		439	-297		273	-989		298	-611	
	II.2 Other Transport Expenses		0			-2			-1			0			0	
	II.3 Tourism and Travel	23	-16		73	-109		95	-57		173	-111		252	-27	
Capital Account	II.4 Investment Income	32	-6		858	-23		497	-126		1,484	-107		1,073	-59	
	II.5 Government Transactions		-237			-860			-534			-1,829			-817	
	II.6 Other Services	51	-19		387	-134		1,430	-163		1,397	-158		5,569	-117	
	III. Private Transfers	111	-8	103	666	-65	601	2,316	-37	2,279	1,230	-89	1,141	2,391	-6	2,385
	III.1 Private Transfers	48	-8		386	-65		1,430	-37		1,109	-89		2,107	-6	
	III.2 Long-Term Private Capital	63			280			886			121			284		
	IV. Government Capital Account	0		0	0	-5	-5	0	-46	-46	0	9,956	9,956	0	-83	-83
	IV.1 Central Government											9,974			-39	
	IV.2 Short-Term Public Capital					-5			-46			-18			-44	
V. Errors and Omissions		112		112		-4,765	-4,765		-5,133	-5,133	-11,288	-11,288			-1,167	-1,167

Sources:

see attached notes.

appendices 3.1-3.2

BdeE, IEME Estadística: Importación y Exportación, 1939-1945

Notes:

Blank = no figure reported; 0 = amount is >0 but <0.5; N/A = figure not available

Appendix 5.2: Overall Balance of Payments: Spain-United States
(in thousands of Sterling Pounds)

		1940			1941			1942			1943			1944		
		+	-	Net	+	-	Net	+	-	Net	+	-	Net	+	-	Net
Current Account	I. Goods	3,272	-10,941	-7,669	3,437	-8,677	-5,240	6,783	-4,486	2,296	17,306	-15,156	2,151	14,602	-11,563	3,040
	I.1 Exports	3,272			3,437			6,783			17,306			14,602		
	I.2 Imports		-10,941			-8,677			-4,486			-15,156			-11,563	
	II. Services	1,610	-3,349	-1,739	2,108	-1,112	997	1,090	-915	175	3,587	-2,139	1,447	3,257	-2,818	439
	II.1 Freight and Insurance	554	-2,474		1,223	-578		695	-152		2,036	-1,044		2,079	-720	
	II.2 Other Transport Expenses		-22			-15			-12			-33			-29	
	II.3 Tourism and Travel	377	-125		384	-136		185	-283		93	-513		152	-339	
	II.4 Investment Income	589	-302		384	-107		141	-45		124	-1		257	-1,247	
	II.5 Government Transactions		-353			-203			-323			-349			-382	
	II.6 Other Services	90	-72		117	-73		68	-99		1,333	-199		769	-101	
Capital Account	III. Private Transfers	1,405	0	1,405	1,560	-1	1,559	1,154	-29	1,125	1,960	-59	1,901	2,855	-290	2,565
	III.1 Private Transfers	994			1,359	-1		943	-29		1,387	-59		2,158	-290	
	III.2 Long-Term Private Capital	411			201			211			573			697		
	IV. Government Capital Account	3,194	-121	3,073	26	-72	-47	0	-1,774	-1,774	0	-457	-457	0	-1,920	-1,920
	IV.1 Central Government	3,194	0		26	0			-1,629			-443			-1,920	
	IV.2 Short-Term Public Capital		-121			-72			-144			-15			0	
	V. Errors and Omissions	4,930		4,930	2,730		2,730		-1,823	-1,823		-5,042	-5,042		-4,124	-4,124

Sources:

see attached notes.

appendices 2.3-2.4

BdeE, IEME Estadística: Importacion y Exportacion, 1939-1945

Notes:

Blank = no figure reported; 0 = amount is >0 but <0.5; N/A = figure not available

Appendix 5.3: Overall Balance of Payments: Spain-United Kingdom
(in thousands of Sterling Pounds)

		1940			1941			1942			1943			1944		
		+	-	Net	+	-	Net	+	-	Net	+	-	Net	+	-	Net
Current Account	I. Goods	6,353	-7,486	-1,133	5,210	-10,207	-4,998	10,760	-8,810	1,951	10,664	-8,679	1,985	11,921	-5,840	6,081
	I.1 Exports	6,353			5,210			10,760			10,664			11,921		
	I.2 Imports		-7,486			-10,207			-8,810			-8,679			-5,840	
	II. Services	5,628	-2,891	2,737	2,138	-948	1,190	1,518	-914	604	2,304	-1,385	919	2,136	-814	1,322
	II.1 Freight and Insurance	624	-297		492	-95		302	-155		414	-726		425	-84	
	II.2 Other Transport Expenses		-97			-12			-7			-6			-7	
	II.3 Tourism and Travel	189	-83		150	-150		101	-82		212	-107		628	-151	
Capital Account	II.4 Investment Income	2,389	-1,663		397	-416		505	-446		727	-334		809	-314	
	II.5 Government Transactions	2,254	-599		872	-169			-112			-147			-145	
	II.6 Other Services	171	-151		227	-105		611	-113		951	-65		275	-113	
	III. Private Transfers	1,521	-1	1,520	1,638	-2	1,636	2,670	-463	2,207	1,362	-27	1,335	688	-130	558
	III.1 Private Transfers	813	-1		1,477	-2		2,083	-463		945	-27		552	-130	
	III.2 Long-Term Private Capital	708			161			587			417			136		
	IV. Government Capital Account	3	-643	-640	0	-3	-3	0	-622	-622	0	-3,933	-3,933	0	-4,782	-4,782
	IV.1 Central Government	3	10			-3			-372			-3,043			-1,324	
	IV.2 Short-Term Public Capital		-653			-1			-250			-891			-3,459	
V. Errors and Omissions			-2,484	-2,484	2,175		2,175		-4,140	-4,140	305		305		-3,179	-3,179

Sources:

see attached notes.

appendices 3.5-3.6

BdeE, IEME Estadística: Importación y Exportación, 1939-1945

BoE OV61/29, various

Notes:

Blank = no figure reported; 0 = amount is >0 but <0.5; N/A = figure not available

Appendix 5.4: Overall Balance of Payments: Sweden-United Kingdom
(in thousands of Sterling Pounds)

		1939			1940			1941			1942			1943			1944		
		+	-	Net	+	-	Net	+	-	Net	+	-	Net	+	-	Net	+	-	Net
Current Account	I. Goods	25,492	-15,163	10,329	2,185	-656	1,529	928	-624	304	3,022	-390	2,632	1,321	-818	503	1,976	-525	1,451
	I.1 Exports	25,492			2,185			928			3,022			1,321			1,976		
	I.2 Imports		-15,163			-656			-624			-390			-818			-525	
	II. Services		N/A		12,044	-176	11,868	10,113	-2,275	7,838	7,089	-1,806	5,283		N/A			N/A	
	II.1 Freight				7,422			5,979			2,313								
	II.2 Insurance				2,298	-25		1,566	-1,592		1,550	-743							
	II.3 Tourism and Travel																		
II.4 Investment Income																			
II.5 Government Transactions								185			526								
II.6 Other Services (Unclassified)					2,324	-151		2,383	-683		2,700	-1,063							
Capital Account	III. Private Transfers	1,009	-419	590	106	0	106	12	0	12	147	0	147	100	0	100	142	-6	136
	IV. Norwegian Related Transfers			0			0	1,572		1,572	2,004		2,004	4,878		4,878		N/A	
	IV. Government Capital Account		N/A			-14,850	-14,850		-7,725	-7,725		-6,525	-6,525		-5,175	-5,175		N/A	
	V. Errors and Omissions			-10,919			1,347			-2,000			-3,542			-306			-1,587

Sources:

BoE OV6/150-154, various reports dated from 1940 to 1944

RBA Valutamarknaden 1945, table 36

Goods Trade for 1942-1944: SAFSTA, 1942-1944, plus estimates of illicit transfers from table 2.5

Notes:

Blank = no figure reported; 0 = amount is >0 but <0.5; N/A = figure not available

For years 1939 and 1943, no services figures are available

For year 1939, no government capital account figures are available.

For years 1942-1944, trade in goods is based on SAFSTA figures plus illicit; all other years use BoE reported actual outlays

Norwegian related transfers for 1943 include estimated transfers of GBP460 per month for September-December 1943

Appendix 5.5: Overall Balance of Payments: Switzerland-Germany
(in thousands of Sterling Pounds)

		1939			1940			1941			1942			1943			1944		
		+	-	Net	+	-	Net	+	-	Net	+	-	Net	+	-	Net	+	-	Net
Current Account	I. Goods	10,988	-21,140	-10,152	17,201	-20,951	-3,750	33,321	38,016	71,337	37,874	-38,373	-499	34,539	-31,927	2,612	16,954	-26,344	-9,390
	I.1 Exports	10,988			17,201			33,321			37,874			34,539			16,954		
	I.2 Imports		-21,140			-20,951			38,016			-38,373			-31,927			-26,344	
	II. Services	8,450	-3,693	4,756	6,990	-2,922	4,068	4,570	-3,760	809	8,002	-7,203	799	22,263	-13,540	8,723	12,160	-2,579	9,581
	II.1 Freight and Insurance	3,920	-949		3,311	-628		(detail not available)			(detail not available)			(detail not available)			(detail not available)		
	II.2 Other Transport Expenses	454	-516		249	-299													
	II.3 Tourism and Travel	1,940	-196		868	-100													
	II.4 Investment Income	1,444	-237		1,117	-239													
	II.5 Government Transactions	52	-1,795		199	-1,655													
	II.6 Other Services	640			1,246														
Capital Account	III. Private Transfers	4,808	-165	4,643	4,388	-150	4,238	4,070	-2,391	1,679	2,836	-2,658	178	N/A			N/A		
	IV. Government Capital Account	2,363	-464	1,898	2,902	-349	2,553	8,137	-6,916	1,221	24,437	-14,986	9,452	21,347	-25,360	-4,013	10,386	-1,729	8,657
V. Errors and Omissions			-1,145	-1,145		-7,110	-7,110	986		986		-9,929	-9,929		-7,322	-7,322		-8,847	-8,847

Sources:

see notes attached

Bar E7160-01/1976-58/29-28, Statistisches Anhang Jahresbericht

Jean-Francois Bergier, et al (Independent Commission of Experts Switzerland - Second World War), *Switzerland and Gold Transactions in the Second World War: Interim Report* (Bern, 1998), appendix 2.

NARA RG107/160/929, folder marked "Swiss Credit to the Germans," report dated 22 February 1945.

Stefan Frech, *Clearing: Der Zahlungsverkehr der Schweiz mit den Achsenmächten* [Clearing: Swiss Payments with the Axis] (Zurich, 2001)

Notes:

Blank = no figure reported; 0 = amount is >=0 but <0.5; N/A = figure not available

Appendix 5.6: Overall Balance of Payments: Switzerland-United Kingdom
(in thousands of Sterling Pounds)

		1939			1940			1941			1942			1943			1944		
		+	-	Net	+	-	Net	+	-	Net	+	-	Net	+	-	Net	+	-	Net
Current Account	I. Goods	9,608	-6,438	3,170	5,568	-5,164	403	1,383	-824	559	1,326	-1,153	173	2,179	-207	1,971	2,133	-92	2,040
	I.1 Exports	9,608			5,568			1,383			1,326			2,179			2,133		
	I.2 Imports		-6,438			-5,164			-824			-1,153			-207			-92	
	II. Services		N/A			N/A			N/A		7,840	-980	6,860	7,840	-980	6,860		N/A	
	II.1 General										2,400			2,400					
Capital Account	II.2 General Sterling Area										3,600	-980		3,600	-980				
	II.3 Other Services - Foreign Office										1,840			1,840					
	III. Private Transfers		N/A			N/A			N/A		0	0	0		N/A			N/A	
	IV. Government Capital Account		0	0		-15	-15		-4	-4		-6,406	-6,406		-9,452	-9,452		-11,896	-11,896
	V. Errors and Omissions		-3,170	-3,170		-388	-388		-555	-555		-627	-627	620		620	9,856		9,856

Sources:

Jean-Francois Bergier, et al (Independent Commission of Experts Switzerland - Second World War), *Switzerland and Gold Transactions in the Second World War: Interim Report* (Bern, 1998), appendix 2.
SIdS, 1939-1945
BoE OV6/270, document 106, titled "Sterling Area Balance of Payments with Switzerland April 1942-March 1943"

Notes:

Blank = no figure reported; 0 = amount is >=0 but <0.5; N/A = figure not available
Trade is based on figures reported in SIdS
Services for years 1942-1943 are estimates based on the period April 1942 to March 1943.

Notes to Appendices 5.1-5.6

Spanish, Swedish and Swiss Balance of Payments in the Second World War

Purpose

These notes explain how the balance of payments for six neutral-belligerent payments relationships are calculated and reported in Chapter Five. Statistics are standardized across this work in accordance with the immediately post-war international standards. These notes provide information on the calculation of the current account and capital account statistics, as well as the error terms.

Spain (Appendices 5.1-5.3)

With the exception of trade data, the figures for the German, United Kingdom and United States bilateral payment relationships with Spain originate from statistics supplied by the Bank of Spain's IEME, responsible for all foreign currency transactions in Spain. These statistics are available from 1940 to 1944 and are reported in Appendices 5.1-5.3 in Pounds Sterling. The IEME provides figures for services, private transfers and government transfers for the three relationships.⁷²⁰ Trade statistics are also reported in the IEME statistics, but are not used here; instead, the balance of payments relies on the statistics reported in Chapter Three.

The trade statistics presented in Chapter Three, which reflect actual deliveries versus accruals, are used for the goods import and export figures reported in Appendices 5.1-5.6. These figures are used to avoid confusion and represent the actual balance of payments position for countries; precise details for the calculation of these trade figures are reported in the methodology of

⁷²⁰ BdeE EIE.

chapter Three and the notes to Appendices 3.1-3.6. The underlying figures can be found in Appendices 3.1-3.6 and are converted to Pounds Sterling at the rates mentioned in Chart 0.1. For clarity, any differences between the trade reported in the IEME statistics and the trade statistics reported in this chapter and in Chapter 3 are summarized in Tables 3A.1-3A.6.

Finally, an error term is reported for each relationship. Given the Spanish relationships derive from commercial clearing, these error terms indicate that there are mistakes or unknown transactions which could alter the balance of trade statistics.

Swedish-United Kingdom (Appendix 5.4)

The Anglo-Swedish relationship has been reconstructed using estimates from a variety of sources; however, complete records are available only from 1940 to 1942. Swedish trade reported in Chapter Two is reported on an Allied-Swedish basis, not for individual Allied countries. Therefore SfSTA records have been used to recreate trade with the United Kingdom, along with the estimates of illicit trade for 1942 to 1944, as reported in Table 2.5.

Services and so-called Norwegian related transfers for the period 1940 to 1942 are taken from Bank of England payment records for the period.⁷²¹ Services revenue outside this period is unknown and therefore omitted. The Norwegian related transfers refer to funds sent to Sweden in payment of transportation costs and leases for Norwegian ships rented to the Allies under Swedish law; these payments ensured the Allies' continued use of the ships.⁷²²

Private transfers from 1939 to 1944 are taken from Riksbank records of approved transfers;⁷²³ transfers from Sweden to the United Kingdom from 1940 to 1943 are limited due to strict Allied control over neutral assets. These

⁷²¹ BoE OV6/150-154, various reports dated from 1940 to 1944.

⁷²² BoE OV6/148, "Sjöfartskommittén [Shipping Committee]" agreements dated 28 November 1939 and 9 May 1940.

⁷²³ RBA *Valutamarknaden* [Currency Market Transactions] 1945, Table 36.

regulations made it very unattractive for any Swedes to remit assets to Allied territories.⁷²⁴ As the balance of payments must reconcile to zero, error terms are reported in Appendix 5.4 where appropriate.

Swiss-German (Appendix 5.5)

The Swiss balance of payments with Germany as reported in Table 5.10 and Appendix 5.5 have been developed from the records of the Swiss *Verrechnungsstelle* [Exchange Clearing Organization], which was an independent office in charge of reconciling clearing initially with Germany and ultimately the German occupied territories also.

This office reported statistics for transfers to and from Germany in three different time-dependent phases. Trade is reported, by the *Verrechnungsstelle* identically across the entire wartime period with the exception of services where less detail is presented (1943 to 1944). In the first phase, encompassing 1939 and 1940, full details of services, including freight and transportation, tourism and travel, investment and government transactions are given;⁷²⁵ in the second, from 1941 to 1942, only information on freight and travel is provided, with figures for the remaining service categories unknown.⁷²⁶ Only headline services figures are provided by the *Verrechnungsstelle* for 1943 and 1944.⁷²⁷ The large increases over previous years seen in these total figures are probably due to the increased role of German government payments to Switzerland for protecting power duties. Figures for government capital accounts in the German-Swiss relationship incorporate both the transfer of gold by Germany and the Swiss provision of loans for Germany. Gold transfer statistics are based on the Independent Commission of Experts reports on German-Swiss gold transactions;⁷²⁸ and the

⁷²⁴ BoE C44/236; OV6/153, memo dated 12 May 1942.

⁷²⁵ BAr E7160-01/1976/58/28, reports on years 1937/1938, 1939 and 1940.

⁷²⁶ BAr E7160-01/1976/58/28, reports on years 1941 and 1942.

⁷²⁷ BAr E7160-01/1976/58/28, reports on years 1943 and 1944.

⁷²⁸ Jean-François Bergier et al, *Switzerland and Gold Transactions in the Second World War: Interim Report* (Bern, 1998), Appendix 2.

balance of Swiss loans to Germany from the records of the Economic Warfare Branch of the United States Army, which provide the simplest presentation of the figures.⁷²⁹ An error term is also shown in Appendix 5.5.

Swiss-United Kingdom (Appendix 5.6)

Finally, the Swiss balance of payments relationship with the United Kingdom is presented in Appendix 5.6. Figures for services are based on Bank of England estimates for the period April 1942 to March 1943; these estimates have been annualized and identical figures are reported for 1942 and 1943 on this basis. For 1943 this probably underreports services revenue for the Swiss as they increased their diplomatic protecting power services provided to the British (including British prisoners of war).⁷³⁰ Services revenues for the remainder of the period are unknown. Trade figures in Appendix 5.6 are adapted from those reported in the SJdS and the illicit Swiss exports to the United Kingdom as reported in Table 4.6; both the illicit exports and the SJdS figures are converted into Sterling Pounds at standard rates.⁷³¹ Swiss gold transactions with the United Kingdom are taken from the Independent Commission of Experts reports and reported as 'government capital account.'⁷³² Private transfers are unknown for the 1939 to 1945 period. Finally, an error term is shown in Appendix 5.6 encompassing the various unknown factors.

⁷²⁹ NARA RG107/160/929, folder marked "Swiss Credit to the Germans," report dated 22 February 1945.

⁷³⁰ BoE OV6/270 document 106, entitled "Sterling Area Balance of Payments with Switzerland April 1942-March 1943"

⁷³¹ SJdS, 1939-1945; Table 5.6

⁷³² Berger, *Switzerland and Gold Transactions*, Appendix 2.

Part Four:
Neutral Labour Transfers
in the Second World War

Chapter Six

Spanish Civilian Labour in Germany

Abstract

Intense scholarly debate in the existing literature suggests Spanish dictator Francisco Franco sent Spanish workers to Germany, either to aid the German war effort or to relieve domestic pressures in his own government. Much of the research is based on diplomatic correspondence. The economic activities of the Spanish labour programme in Germany remain an enigma. This chapter provides an overview of the Spanish labour contribution to the German war effort and the resulting economic costs for Spain. It statistically demonstrates that the original Spanish-German agreement was structured to limit labour contributions to Germany, the Spanish government could not afford to provide as many workers as Germany envisaged. Therefore, in the creation of the labour programme, the Spanish government sought only to temporarily satisfy internal and external political pressures. The labour contributions were not intended to be significant.

Introduction

Throughout much of the first half of the Second World War in Europe, Hitler attempted to bring Spanish dictator Francisco Franco into the Axis alliance. The programmes organized during this period include Spanish military and labour contributions to the German war effort. On 22 August 1941, representatives of Germany and Spain signed the *Acuerdo hispano-alemán para el empleo de trabajadores españoles en Alemania* [Spanish-German Accord for the Employment of Spanish Workers in Germany] at the Spanish Foreign Ministry in Madrid.⁷³³ It established a second system of government-organized labour transfers from a neutral to a belligerent, following an Italian-German programme

⁷³³ AMAEC R2225/7, agreement dated 22 August 1941.

established in September 1939.⁷³⁴ The Germans wanted Spain to provide 400,000 workers and the Spanish government expected to despatch about 100,000 over the first six months.⁷³⁵ For many, it represented a step towards Spanish co-belligerency;⁷³⁶ however, despite considerable pressure, the Spanish government provided only 9,550 workers (about one five-thousandth of the German civilian workforce) and maintained its non-belligerent status for the rest of the war.⁷³⁷ Given its negligible effect on the war, the conflicting logic of promising to aid the Axis war effort without providing the promised resources raises the question of what the Spanish government intended this programme to accomplish.

This chapter builds on the first comprehensive study of the programme conducted by Rafael García Pérez and published in the journal *Hispania* in 1988.⁷³⁸ José Luis Rodríguez Jiménez subsequently published a book on the same premise.⁷³⁹ Both works assume that the programme was born of a political commitment by the Spanish Foreign Minister, Serrano Suñer, to provide “*voluntarios para el frente, voluntarios para las fábricas* [volunteers for the front, volunteers for the factories,]” regardless of cost.⁷⁴⁰ In this context, this becomes nothing more than one Spanish-German programme among several established in this period. Writers treat Spain’s military contribution to the war, the *Division Azul* (Blue Division), an 18,104-man contingent which fought on the Eastern

⁷³⁴ Deutsche Arbeitsfront (Amt für Arbeitseinsatz), *Sammlung der Bestimmungen über den Einsatz ausländischer Arbeiter in Deutschland* [Collection of Regulations for the Employment of Foreign Workers in Germany] (Berlin, 1941), p.194ff.

⁷³⁵ NARA RG242/T-77/243/987071-72.

⁷³⁶ See Elena Hernández-Sandoica and Enrique Moradiellos “Spain and the Second World War, 1939-1945” in Neville Wylie, *European Neutrals and Non-Belligerents during the Second World War* (Cambridge, 2002); Wayne Bowen, *Spaniards and Nazi Germany: Collaboration in The New Order* (Columbia, 2000), pp.77-102.

⁷³⁷ Edward Homze, *Foreign Labour in Nazi Germany* (Princeton, 1967), p.232.

⁷³⁸ Rafael García Pérez, “El envío de trabajadores españoles a Alemania durante la segunda guerra mundial” [The Shipment of Spanish Workers to Germany During the Second World War], *Hispania*, 48:170 (September-December 1988), pp.1031-1065. Subsequently partially republished in: Rafael García Pérez, *Franquismo y Tercer Reich* [Franco and the Third Reich] (Madrid, 1992).

⁷³⁹ José Luis Rodríguez Jiménez, *Los Esclavos Españoles de Hitler: La historia de los miles de españoles enviados a trabajar a la Alemania nazi* [Hitler’s Workers: the History of the Thousands of Spaniards Sent to Nazi Germany] (Barcelona, 2002), p.186

⁷⁴⁰ García Pérez, p.1038; see also Table 6.1.

Front, as far more important.⁷⁴¹ Both monetary and physical costs are crucial to understanding the failure of these programmes, the civilian labour contribution in particular.

The civilian labour programme was economically unsustainable. The Spanish government simply could not afford the cost of sending its highly-skilled workers to Germany; in an autarky, this approaches economic suicide. Both the military and labour contributions were designed to politically aid the German war effort; in both programmes the workers' and soldiers' German earnings were credited against Spanish debts to Germany. The individual soldiers and workers were paid from the Spanish state budget. The material expenses of the Blue Division were also fully covered by Germany. But, while the size of the Blue Division was limited, the civilian labour programme was not.⁷⁴² This chapter shows that the Spanish government bore the cost of the Spanish civilian labour programme. Paying the workers and soldiers from the state budget was expensive. The added material expenses of the Spanish workers' programme served only to worsen the situation. The size and cost of the labour programme was unlimited; had it grown to the size desired by the German government it would have cost more than 27% of Spain's annual state budget.⁷⁴³ It was not, as some authors suggest, a rational way for Spain to earn foreign exchange, when it was already earning considerable sums abroad which were unusable, such as the trade surpluses (see Chapter Three) and capital transfers (see Chapter Seven).⁷⁴⁴

This study provides new statistics on the workers and their skill levels, which update those of García Pérez's original study. Aiming at comprehensiveness, this study includes all Spaniards working in Germany, whether formally recruited under the programme or those who travelled as

⁷⁴¹ Gerald R. Kleinfeld and Lewis A. Tambs, *Hitler's Spanish Legion: The Blue Division in Russia* (London, 1979), p.355.

⁷⁴² See Tables 6.2 and 6.3.

⁷⁴³ Leandro Prados De la Escosura, *El Progreso Económico de España (1850-2000)* [Economic Progress of Spain (1850-2000)] (Bilbao, 2003), p.453; Table 6.6.

⁷⁴⁴ García Pérez, *trabajadores españoles*; Rodríguez Jiménez, *Los Esclavos*; for clearing balances, see Table 7.3.

individuals. All could use the remittance facilities and were eligible for state-paid repatriation.⁷⁴⁵ Following other studies, this study excludes Spanish Republicans and Communists living in France.⁷⁴⁶ Republicans put to work in Germany, under the various German-French worker recruitment programmes, were typically taken forcibly from French refugee camps and had no access to the Spanish government facilities.⁷⁴⁷

Using this new methodology of counting all those Spaniards in Germany expands the number of workers covered from the original strict historiographies of the programme. This study demonstrates that the peak number of workers in the programme was actually about 9,550, with around 25,000 Spanish workers altogether rotating through Germany before the programme ended.⁷⁴⁸ This is the first study to corroborate the 9,000 workers reported by Germany in 1943; García Pérez and Rodríguez Jiménez show maxima of 8,250 and 10,569, respectively.⁷⁴⁹ It also shows for the first time that the Spanish labourers in Germany were, on average, considerably more skilled than typical Spanish workers. The programme actually removed much-needed skilled labour from Spain during its post-Civil War reconstruction.⁷⁵⁰

García Pérez asserts that worker-level reasons account for the small number of Spaniards ultimately sent to Germany. The poor conditions initially endured by the Spanish workers are well documented.⁷⁵¹ Although these are not

⁷⁴⁵ AMAEC R2225/1, undated pamphlet; AMAEC R2225/6; AMAEC R2225/1, letter dated 7 November 1944, telegram dated 8 January 1945 and telegram dated 26 March 1945.

⁷⁴⁶ García Pérez, *trabajadores españoles*; Rodríguez Jiménez, *Los Esclavos*, p. 119; Bowen, *Spaniards*.

⁷⁴⁷ Antonio Vilanova, *Los Olvidados: Los exilados españoles en la segunda guerra mundial* [The Forgotten Ones: Spanish Exiles in the Second World War] (Madrid, 1969); Elizabeth Ann Marie Lindquist, *The Experience of the Spanish Republicans in the Auvergne, 1936-1946* (Kansas, 1984).

⁷⁴⁸ See Table 6.1.

⁷⁴⁹ IWM-D FD847/46, graphic entitled “*Der Arbeitseinsatz ziviler Ausländer nach der Staatsangehörigkeit* [Civilian Foreign Worker Statistics by Citizenship];” José Luis Rodríguez Jiménez, *Los Esclavos Españoles de Hitler: La historia de los miles de españoles enviados a trabajar a la Alemania nazi* [Hitler’s Workers: the History of the Thousands of Spaniards Sent to Nazi Germany] (Barcelona, 2002), p.186; see also Table 6.1.

⁷⁵⁰ For a breakdown of workers by class, see Enrique Prieto Tejeiro, *Agricultura y Atrazo en la España Contemporánea* (Madrid, 1988), pp.58-59.

⁷⁵¹ García Pérez, *trabajadores españoles*, pp.1049-1054.

doubted, this study shows that overall average take-home pay was considerably closer to expected rates than García Pérez suggests. With equally bad, if not worse, conditions in Spain and earnings in Germany higher, there was an incentive for workers to travel there.⁷⁵² Therefore, the impetus to limit the programme must originate with the shifting political climate, signalled by Spain's decision to stop recruiting and advertising; the first evidence of this appears as early as January 1942, only three months into the programme.

The new statistics here presented support the studies of historian Wayne Bowen, who suggests that the civilian labour programme resulted from significant tensions within the Spanish government.⁷⁵³ Bowen portrays Franco as holding together a fractious coalition, which included a government consisting of the *Falange* (31.6% of government positions), representatives of the armed forces (25.1%), Alfonsine monarchists (21.6%), Catholic activists (14.4%) and Carlist monarchists (6.6%).⁷⁵⁴ The *Falange* and other Nazi-allied domestic political organizations were trying to bring Spain into the war, while the resistance of the others effectively threatened another civil war.⁷⁵⁵ In response, Franco authorized limited military, economic and political collaboration with Germany, to placate *Falange* interests and preserve his regime. He probably saw this aid as the most Spain could offer Germany without angering the Allies; whereas the *Falange* and similar organizations deemed these programmes the absolute minimum permissible for a close ally.⁷⁵⁶

This chapter re-examines the economics of the Spanish labour programme. It revises the existing conjectures of Spanish worker totals in Germany, providing estimates of skill levels and gender, presenting figures for the overall programme and comparing worker transfers between the two

⁷⁵² J. Velarde Fuertes, *Introducción a la Historia del pensamiento económico español en el siglo XX* [Introduction to the History of the Economic Thought in Twentieth Century Spain] (Madrid, 1974), p.34; SHvD, ECEdE, 1941-1945.

⁷⁵³ Bowen, *Spaniards and Nazi Germany*; in support, see also Paul Preston, *The Politics of Revenge* (Eastbourne, 2001), Chapter 4.

⁷⁵⁴ Wayne H. Bowen, *Spain during World War II* (Missouri, 2006).

⁷⁵⁵ Bowen, *Spaniards*, pp.77-80.

⁷⁵⁶ *Ibid*, p.103.

countries to estimates of actual earnings. It determines, on the basis of certain assumptions, remittances were up to German pay levels. It asserts that the programme could never fulfil German desires, except at the expense of the already poor Spanish state.

Substantial shortcomings beset any attempt to accurately examine the Spanish-German civilian labour programme. The information from Spain leaves some clues to the origins, systems, expected profitability and long-term political intentions of the programme; but it does not provide insight into Franco's thinking. Unfortunately, the missing data to close these gaps were destroyed in the war. The programme records were burnt in August 1943 when the Spanish Embassy in Berlin was bombed.⁷⁵⁷ Subsequent records were apparently lost in the invasion of Berlin when the Embassy was abandoned. This problem has been mitigated by the surviving American and German records of the programme; however, gaps in their statistical data mean some estimation in any complete account of the Spanish-German civilian labour programme during the Second World War. Most notably, the estimates for the number of workers from 1943-1945 are dependent on the continuity in frequency of the workers transfers. Using this method to project the figures for these years leaves open the possibility of specific bias effects. An increase in the frequency of the worker remittances during this period could lower the number of workers.

Employment Overview

This section examines the employment figures from September 1941 to June 1945. Germany expected much of the Spanish worker programme. In April 1941, German government reports noted as many as 500,000 unemployed Spaniards;⁷⁵⁸ approximately 100,000 civilians were expected to leave Spain for Germany by mid-1942 and the Germans believed that 300,000-400,000 Spaniards would finally relocate.⁷⁵⁹ However, notwithstanding the German

⁷⁵⁷ García Pérez, *trabajadores españoles*, p.1052.

⁷⁵⁸ AMAEC R2225/1, undated pamphlet, p.99.

⁷⁵⁹ NARA RG242/T-77/243/987071-72.

government's desires, only 8,250 Spaniards ever worked in Germany on this programme; adding 1,300 Spaniards, estimated to have worked independently in Germany, comes to approximately 9,550.⁷⁶⁰ Approximately 25,000 Spaniards altogether were involved. In May 1943, when 36.5 million workers made up the highest total in Germany in 1939, the highest Spanish contribution represents less than 0.02% of the German workforce;⁷⁶¹ this equals approximately 0.1% of the Spanish workforce.⁷⁶²

Figure 6.1: Map of Spain
(indicating cities from which labour volunteers originated)



Source: Author

Workers in the programme were recruited in Spain by combined teams of Spanish and German officials; they were sent for equipment to the Spanish-French border town of Irún before departing for Germany via France. Their cities

⁷⁶⁰ See Table 6.1.

⁷⁶¹ Homze, *Foreign Labour*, p.232.

⁷⁶² Jordi Catalán Vidal, *La economía Española y la segunda Guerra mundial* [The Spanish Economy and the Second World War] (Barcelona, 1995), p.54.

of origin are shown in Figure 6.1. Although planned to be continuous, the supply of workers was recruited and transported in three main phases: from October to December, 1941, from spring to November, 1942 and from June to July, 1943.⁷⁶³ Smaller numbers bypassing the state system began work in Germany, using the transfer system to remit their earnings to Spain.

Table 6.1: Spanish Workers Employed in Germany by Quarter, September 1941 to June 1945: Spanish Foreign Ministry (MAE), García Pérez and Golson Estimates

Month, Year	MAE Estimates	García Pérez Estimates	Golson Estimates
December 1941	4,000		5,300
March 1942			6,300
June 1942			7,850
October 1942	8,242	6,253	9,542
December 1942		4,263	7,553
March 1943	4,674	4,674	5,974
June 1943		5,700	6,637
September 1943	6,300	7,700	7,300
December 1943		6,300	6,900
March 1944			4,012
June 1944		2,800	2,241
September 1944			1,109
December 1944		1,000	978
March 1945			656
June 1945			11

Sources: García Pérez, *Trabajadores españoles*, p.1057; Appendix 6.1.

Notes: For October 1942, García Pérez acknowledges the 8,242 figure from the MAE, but discounts 1,989 workers who were being repatriated by the Germans for various reasons. Golson estimates use the higher figure since the workers were still in Germany. See García Pérez, *El envío de trabajadores españoles*, p. 1047; AMAEC R2225/1, memo dated 5 February 1942.

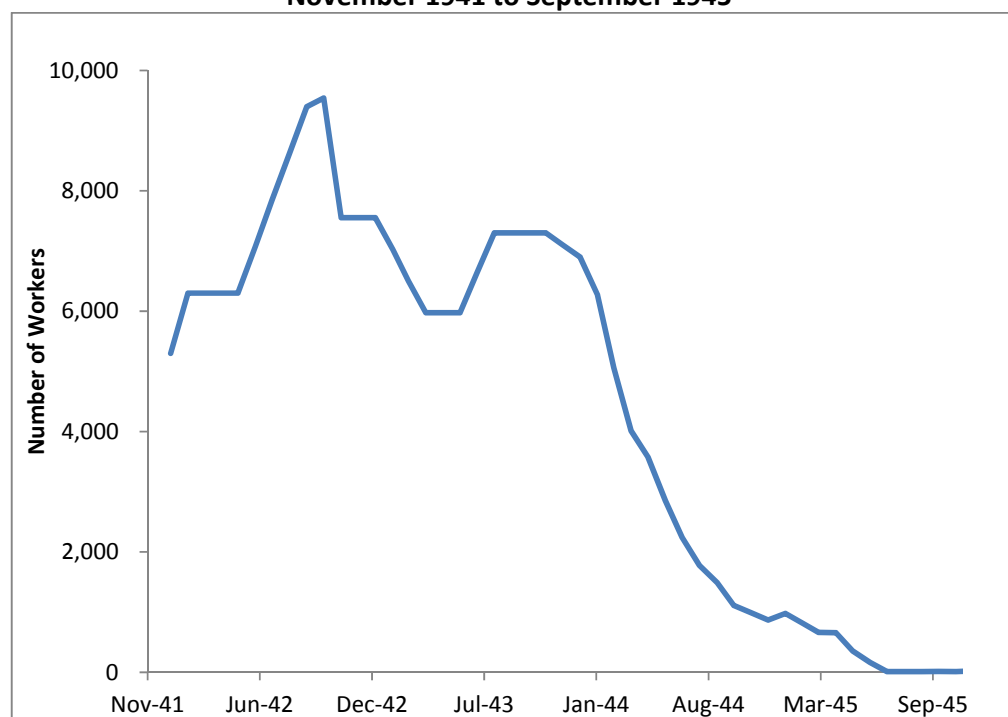
Worker statistics are reproduced in Table 6.1 and the Golson estimates in chart form in Figure 6.2. Figures from November 1941 to September 1943 are based on information maintained by the Spanish and German authorities; in Table 6.1, data taken directly from Spanish government sources administering the programme are labelled “MAE Estimates;” estimates by García Pérez are listed in the second column from the left. The right-hand column contains the

⁷⁶³ See Appendix 6.1.

results of this study; these estimates are typically higher than others and include all Spaniards temporarily working in Germany, as described previously.

Worker statistics before the end of 1943 originate from a combination of the MAE figures and German records on the number of non-programme Spaniards in Germany; statistics from the end of 1943 through December 1945 are reconstructed using monthly wage remittance statistics from Spanish authorities.⁷⁶⁴ These rest on the principal assumption that workers continued to return money to Spain as regularly throughout the remainder of the war as they had in 1943; since average wages varied over the war they are not used as benchmarks.⁷⁶⁵

**Figure 6.2: Total Spanish Workers in Germany,
November 1941 to September 1945**



Sources: see Appendix 6.1

The first phase of recruitment began in September 1941, but did not go as smoothly as the negotiators had hoped. The Germans sought to recruit 24,000

⁷⁶⁴ See Appendix 6.1.

⁷⁶⁵ SHvD, p.470-471.

workers immediately, including a relatively high proportion of skilled labourers; however, the Spanish total was only 5,000.⁷⁶⁶ Barcelona, Madrid and Huelva opened recruitment offices; further offices of the *Comisión interministerial para el envío de trabajadores a Alemania* [Inter-ministerial Commission for Workers in Germany - CIPETA] were later established in Barcelona, Seville, Valencia and other cities throughout Spain. Thousands apparently queued at these three offices in the first days of recruiting.⁷⁶⁷

Germany actively recruited skilled workers. Despite high unemployment, experienced skilled labour was in short supply in Spain and the potential loss of mining and metallurgical workers provoked great consternation.⁷⁶⁸ With the German recruitment, the belligerents began to compete for these workers; conditions in the British-owned Spanish mines immediately improved and salaries increased to make the jobs more attractive.⁷⁶⁹

5,000 workers left between mid-November 1941 and January 1942, after which shipments were halted amid reports of poor working conditions in Germany.⁷⁷⁰ Complaints mentioned poor housing, long hours and pay rates below equivalent German wages; there were also unresolved financial issues between Spain and Germany, including cost reimbursements, pensions, sick leave and other benefits.⁷⁷¹ These complaints were put to the German authorities and recruiting halted in late December 1941.⁷⁷² However, it remains unclear why the Spanish government was so concerned about its citizens, given its own hostility towards civil rights and the equally appalling working conditions in Spain.⁷⁷³ Various outstanding items over conditions and pay were resolved by spring 1942 and Spain resumed the programme; by 12 September as many as

⁷⁶⁶ AMAEC R2225/1, note dated 29 August 1941; memo dated 22 September 1941.

⁷⁶⁷ AMAEC R2225/1, reports dated 9-10 October 1941.

⁷⁶⁸ AMAEC R2225/1, report dated 9 October 1941.

⁷⁶⁹ AMAEC R2225/1, letter dated 9 January 1942.

⁷⁷⁰ *Ibid*; NARA RG242/T-77/243/986882; NARA RG242/T-77/243/986880.

⁷⁷¹ AMAEC R2225/6 and R2225/1, correspondence dated between 3 November 1941 and 9 April 1943.

⁷⁷² AGA T16256, memo dated 24 February 1942.

⁷⁷³ Prieto Tejeiro, *Agricultura*.

8,242 Spaniards were in Germany. However, of the 8,242 about 1,989 were admittedly awaiting return to Spain, leaving only 6,253 by October 1942.⁷⁷⁴ The number declined by approximately 1,000 when agricultural labourers returned to Spain and was then further reduced at the turn of the year.⁷⁷⁵

The total declined precipitously in late 1942. The Germans complained about both the low numbers and poor quality of the Spanish workers received so far.⁷⁷⁶ In what was interpreted by the Spanish authorities as retaliation for the lack of new workers in the autumn of 1942, the Germans suspended the Spaniards' next Christmas vacation. This postponed the workers' annual holiday until after 15 January 1943. Over 40% of the workers (approximately 650) who then returned to Spain refused to go back to Germany. The Spanish government refused to enforce their contracts and did not forcibly return them;⁷⁷⁷ it also suspended its recruitment efforts. The loss of approximately 650 workers resulted in a decline to 4,700 workers by February 1943. This figure set the base number of non-seasonal Spanish labourers in Germany until October/November 1943.⁷⁷⁸

After trying to recruit workers through their Embassies and Consulates in Spain, the Germans finally pressured the Spanish government to reauthorize the recruitment programme from June 1943 (planning began in February 1943).⁷⁷⁹ The third wave of recruitment saw far fewer volunteers.⁷⁸⁰ While García Pérez and others assert that this was the result of poor conditions in Germany, this paper challenges their opinion regarding wages, which kept up with German levels.⁷⁸¹ By this point, the cost of a programme with such small yields was also

⁷⁷⁴ AMAEC R2225/1, dated 5 February 1943.

⁷⁷⁵ See Appendix 6.2; estimates of agricultural workers based on seasonal changes from steady state.

⁷⁷⁶ AMAEC R2225/1, letter to dated 9 January 1942; AMAEC R2225/1, memo dated 5 February 1943

⁷⁷⁷ AMAEC R2225/1, memo dated 5 February 1943

⁷⁷⁸ *Ibid* and Table 6.1.

⁷⁷⁹ AMAEC R2225/1, memos dated between May and July 1943; AMAEC R2225/1, memo dated 5 February 1943.

⁷⁸⁰ Bowen, *Spaniards*, pp.187-188

⁷⁸¹ García Pérez, *trabajadores españoles*, pp.1049-1054.

clearly a factor; the number of CIPETA recruiting officers had notably decreased, foreshadowing a smaller yield.⁷⁸² Labour competition within Spain is also a possible cause, for the Spanish economy was improving substantially. The number of recruits was commensurate with previous yields and remained below expectations. The workers' skill levels were considerably lower than previous cohorts'.⁷⁸³

After October 1943, Spanish authorities no longer recorded the number of workers in Germany;⁷⁸⁴ however, the statistics can be re-created from other data. The only basis for assessment is the monetary transfers to Madrid.⁷⁸⁵ Figures for the number of workers from late 1943 to May 1945 have been re-created by taking the number of transfers and dividing them by the average number of transfers per worker in late 1943; these numbers are then adjusted to compensate for the one-third who reportedly did not use the transfer system, and smoothed, using a three-month moving average, to account for the large swings in transfers from communication breakdowns.⁷⁸⁶ This method suggests that approximately 2,500 recruits left Spain for Germany between March and June 1943; and the number of workers in Germany in 1943 peaked at approximately 7,200 between August and September 1943.⁷⁸⁷

Late summer 1943 marks a turning-point in Spanish-German relations. As suggested in the chapter on Spanish trade, Allied pressure on Franco to withdraw his support for Germany then reached its height. Losses in Spain's military contingent, the Blue Division, mounted as the German war on the Eastern Front became increasingly bleak.⁷⁸⁸ In August 1943, the President of CIPETA informally decided to repatriate as many Spanish civilian workers as

⁷⁸² AMAEC R2225/7, accounts of "*CIPETA Oficinas en España* [Spanish CIPETA Offices]," *Servicio de Intervención y Contabilidad* [Service of Transfer and Accounting]

⁷⁸³ Catalán Vidal, *La economía Española*, p.111ff.

⁷⁸⁴ AMAEC R2225/1; AMAEC R2225/7.

⁷⁸⁵ AMAEC R2225/7. See Appendix 6.1 for a complete listing of monthly remittances.

⁷⁸⁶ See Appendix 6.1 for precise formula and results.

⁷⁸⁷ See Appendix 6.1.

⁷⁸⁸ Gerald R. Kleinfeld and Lewis A. Tambs, *Hitler's Spanish Legion: The Blue Division in Russia* (London, 1979), p.324-339.

possible, purportedly due to poor conditions in Germany, but more probably closely related to the on-going trade negotiations with the Allies over petrol.⁷⁸⁹ Two months later, in October 1943, to satisfy Allied demands, Franco re-declared Spanish neutrality and ordered the withdrawal of Spanish support for Germany.⁷⁹⁰

In the short term, the Spanish government's policy changes led to increased numbers of workers. In the repatriation of the Blue Division from the Eastern Front, approximately 1,000 of the 18,400 workers decided to stay in Germany for a time while the division was returned to Spain.⁷⁹¹ In the last quarter of 1943, this temporarily increased the number of workers to about 6,900.⁷⁹²

After December 1943, the precipitous decline in the number of workers is estimated by García Pérez as 2,800 in June 1944 but approximately 1,000 by December 1944. As seen in Figure 6.2 and Table 6.1, the new methodology used in this study suggests approximately 4,000 in March 1944, declining to 2,240 by June 1944; the figure halved again by September, with only 1,100 workers left in Germany. Problems over transporting workers from Germany to Spain after the Allied invasion of Southern France no doubt hindered repatriation and slowed this decline; it resulted in approximately 980 workers remaining in December 1944 and 650 by March 1945.⁷⁹³

As this section has demonstrated, the number of civilian Spanish workers in Germany never reached the figures desired by the German government. Whereas the Germans wanted 400,000, they received no more than about

⁷⁸⁹ AMAEC R2225/1, memo dated 26 October 1943.

⁷⁹⁰ See summary of relations, NARA RG107/160/921, memo dated 24 March 1944.

⁷⁹¹ NARA RG242/T-77/885/634561; NARA RG242/T-77/885/564575-564606; NARA RG242/T-77/885/563485-563486; Fernando Vadillo, *Balada final de la División Azul: Los legionarios* [The Final Ballad of the Blue Division: The Legionaries] (Madrid, 1984); see also Appendix 6.1. Estimates are based on changes in remittances; for discussion on the repatriation of the *Blue Division*, see Kleinfeld and Tambs, *Hitler's Spanish Legion*, pp.329-345.

⁷⁹² See Table 6.1.

⁷⁹³ See Appendix 6.1.

9,550. Apart from three periods of modest transfers, the Spanish government consistently sought to limit the number of Spaniards sent to Germany.

Worker Profiles

The skill profiles of Spaniards employed in Germany show that they represented some of the most productive elements of the Spanish labour force. There were three principal groups of Spanish labourers: full-year unskilled, full-year skilled and seasonal agricultural workers. As part of their October 1941 effort, the Germans sought to recruit a largely skilled group of workers from Spain: about 13,000 for construction, 6,000 for mining, 4,000 for metallurgical and 1,000 for agricultural work.⁷⁹⁴ Excluding temporary workers, Spanish labour consistently included an above-average proportion of highly-skilled workers.⁷⁹⁵ As Figure 6.3, shows, the number of these in Germany dissipated slowly over time; from correspondence by the British Ambassador, holiday returns data and arrest records, the Spanish labourers in Germany classified as skilled declined from 62% of the full-year workers from the start in December 1941 to 44% by the end of the war.⁷⁹⁶ In comparison, it is believed that less than a quarter of domestic Spanish workers were skilled; and it was the unskilled who were disproportionately unemployed.⁷⁹⁷ The Spaniards were also more skilled than typical foreign workers in Germany during the war, where 38.33% of the workers were skilled.⁷⁹⁸ This section details the changes in the skilled, unskilled and agricultural labour groups of Spaniards in Germany.

⁷⁹⁴ AMAEC R2225/1, note dated 29 August 1941 and memo dated 22 September 1941.

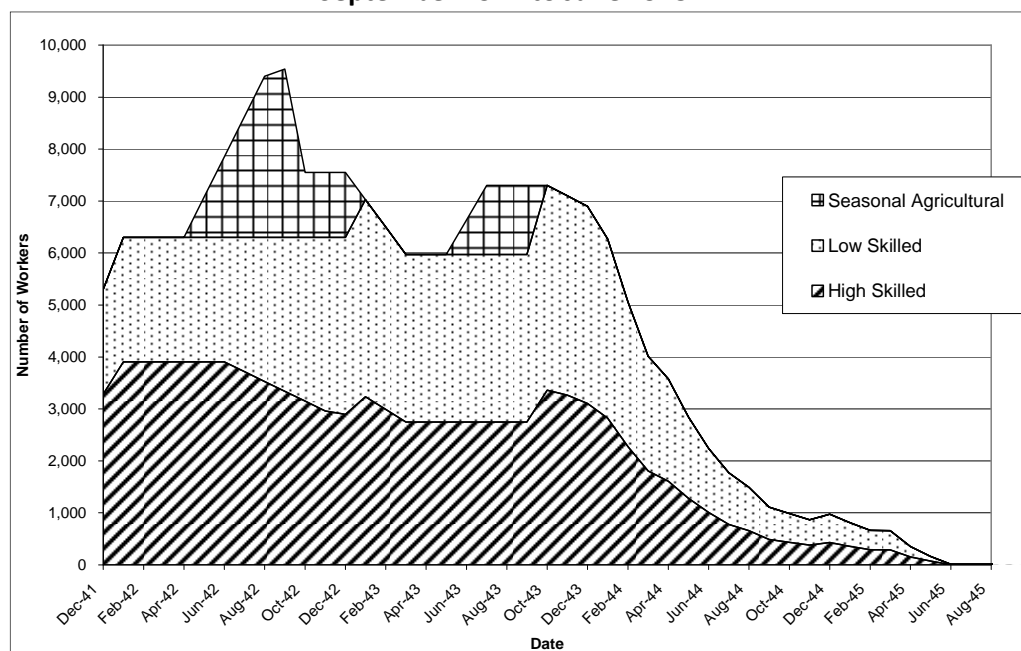
⁷⁹⁵ Homze, *Foreign Labour*, p.235.

⁷⁹⁶ AMAEC R2225/1, memos dated 9 January 1942 and 5 February 1943; NARA RG242/T-84/466/190-192.

⁷⁹⁷ See AMAEC R2225/1, correspondence from late 1941 on the employment situation in Spain. There are no definitive statistics on skilled versus unskilled labour in Spain during this period, in particular regarding unemployment.

⁷⁹⁸ Homze, *Foreign Labour*, p.69; IWM-D FD847/46, chart.

Figure 6.3: Spanish Workers in Germany by Skill Level, September 1941 to June 1945



Sources: see Appendix 6.2.

Many Spanish seasonal agricultural workers were recruited. Approximately 3,200 Spaniards went to Germany as temporary seasonal agricultural workers from June to October 1942 and 2,600 from June to October 1943. In both years, the number of workers increased dramatically in April and peaked in September/October, when Germany's farming season ended. These swings can be attributed only to agricultural workers, because outflows of long-term workers from Germany were strictly limited to the vacations set in their contracts.⁷⁹⁹ In 1942, the approximate trough to peak employment difference was 3,200 workers or about 39% of the peak workforce; in 1943, it was 2,600 workers or about 36% of the total workforce.⁸⁰⁰ Note that, as Figure 6.3 shows, although the temporary agricultural workers left in October/November 1943, approximately 1,000 members of the Blue Division replaced them; they chose to

⁷⁹⁹ AMAEC R2225/1, undated pamphlet.

⁸⁰⁰ See Appendix 6.1 for trough to peak employment and Appendix 6.2 for skill allocation.

stay in Germany when it disbanded.⁸⁰¹ Removing the temporary agricultural labour force establishes a base figure of 4,700 full-year workers, both skilled and unskilled, from January 1942 to February 1944.⁸⁰²

Of the full-year contract workers, three separate tests find between 2,000 and 2,900 (44% to 62%) working in skilled industrial jobs, with the remainder fulfilling less skilled or full-year agricultural roles. The first source for the number of skilled workers is a memo from the British Ambassador to the head of the President of CIPETA, Pelayo García Olay, concerning the recruitment of skilled industrial workers from British mines owned by Rio Tinto;⁸⁰³ it covers the skill distribution of recruits at the end of 1941. In November 1941, CIPETA recruited 216 men from Rio Tinto's mines. Of these, the Ambassador asserts that no fewer than 133 were regarded as highly skilled and impossible to replace. This group contains a large cross-section of mine-workers, including drillers, transport operators of various kinds, boilermen, furnace loaders, welders, electricians, pump operators and crane drivers. The unskilled group includes telephone operators, apprentices, labourers, carpenters, storekeepers and assistants of various kinds. The Ambassador's figures would probably have been biased to make his point that highly-skilled workers from British mines were being recruited for the German war effort; but his figures suggest that approximately 62% of those recruited to German industries were highly skilled. Applying this figure to the 4,700 permanent labourers in Germany between late 1941 and early 1942 would indicate approximately 2,900 as highly-skilled and 1,800 with lower skills in January 1942.⁸⁰⁴

The second source of relevant data dates from the 1942/43 holiday period. As previously noted, skilled industrial workers (but not unskilled agricultural workers) employed in Germany were allowed vacations in Spain under the Spanish-German agreement. After their first year's work, they

⁸⁰¹ See previous section for a discussion of the disbandment of the Blue Division.

⁸⁰² See Appendix 6.2.

⁸⁰³ AMAEC R2225/1, letter dated 9 January 1942.

⁸⁰⁴ *Ibid.*

received 21 days' vacation on full pay, excluding travel days.⁸⁰⁵ Over the 1942/43 holiday season, when Germany delayed their leave, records were kept of those who eventually left for Spain; many chose not to return. According to the Spanish figures, 2,191 workers, the highly-skilled industrial workers who alone were entitled to these holidays, left Germany in January 1943. This figure indicates that about 46% of the 4,700 full-year workers were involved; approximately 2,500, or 54%, low- or non-skilled labour remained.⁸⁰⁶

The percentage of skilled workers declined further. Despite a steep decline after mid-1944, approximately 1,000 were still in Germany in December 1944. A fragmented set of German diplomatic correspondence regarding Spaniards arrested in Berlin in late 1944 to early 1945 provides some insight into the composition of those Spaniards who remained. The November 1944 record of Spaniards prosecuted for crimes includes complete profiles for nine Spaniards. Of the nine, six are skilled labourers and three are listed merely as *Arbeiter* [labourers]; the six skilled workers comprise two electricians, two mechanics, one welder and one mechanical fitter.⁸⁰⁷ The January 1945 arrest record includes a further nine subjects, only seven of whom, one skilled labourer and six unskilled, were Spaniards who feature as part of this programme.⁸⁰⁸ The former was a mechanic while the latter comprised three day labourers, two waiters and one busboy.⁸⁰⁹ Sixteen is hardly an ideal sample size for the approximately 1,000 workers in Germany at this time; however, these are the only relevant statistics available. Of the sixteen, seven were skilled and nine unskilled; this suggests approximately 44% skilled and 56% unskilled. When these figures are applied to the approximately 1,000 Spanish workers still in Germany around the end of December 1944, they indicate approximately 440 skilled workers and 560

⁸⁰⁵ AMAEC R2225/1, undated pamphlet, p.99-101.

⁸⁰⁶ AMAEC R2225/1, memo dated 5 February 1943.

⁸⁰⁷ NARA RG242/T-84/466/190-192; NARA RG242/T-84/466/182-189.

⁸⁰⁸ Two are excluded: one is Portuguese and the other a Spanish Republican (*Rotsparier*) who had been living in France before working in Germany. The remaining seven lived in Spain before working in Germany.

⁸⁰⁹ NARA RG242/T-84/466/182-189.

unskilled. This late figure for skilled workers is still above the maximum 38.33% of German skilled workers during the war.⁸¹⁰

As the results suggest, the Germans were forced increasingly to accept fewer skilled and unskilled Spanish workers in order to maintain recruitment figures. Given the rapidly improving Spanish economy and the gradually worsening situation in Germany, it is only logical that those with most to gain in Spain (i.e. the skilled workers) returned there before others with poorer job prospects.

The gender profile of the workers suggests an overwhelming male majority. German political ideology generally frowned on women in the workplace, resulting in a disproportionate recruitment of Spanish men over women.⁸¹¹ The number of Spanish women working in Germany at the outset of the programme was low and declined steadily. Of the 1,300 Spanish workers in Germany before the formal programme began in December 1941, 16% were female and 84% male.⁸¹² As the German labour recruitment programme was specifically geared to younger males, it is reasonable to assume that no women left for Germany between October 1941 and January 1944. As a result, at the September 1943 peak, only 3% of the total Spanish labour contingent in Germany is estimated to be female.⁸¹³ The skill and gender statistics are important for determining expected wages, since in Germany females were paid substantially less than males.

Transfers

One of the most important aspects of the August 1941 Spanish-German agreement was the currency exchange system known as "*Arbeiter Sonderkonto*" [The Workers' Special Account]. This clearing system enabled them to send funds

⁸¹⁰ Homze, *Foreign Labour*, p.69. IWM-D FD847/46, chart.

⁸¹¹ Claudia Koonz, *Mothers in the Fatherland: Women, the Family and Nazi Politics* (London, 1987); Hanna Elling, *Frauen im deutschen Widerstand, 1939-1945* [Women in German Resistance, 1939-1945] (Frankfurt am Main, 1978), pp.11-22.

⁸¹² NARA RG242/T-77/243/985921-22.

⁸¹³ See Appendix 6.2.

home from Germany despite the currency embargoes, allowing Spaniards working in Germany to remit their Reichsmark earnings in Spanish Pesetas to Spain; without this, only Spaniards who accepted payment in blocked Reichsmarks would have worked in Germany. These transfers are compared to estimated earnings to determine whether Spanish workers were being compensated at the same rates as similarly skilled Germans.

The mechanics of the *Arbeiter Sonderkonto* system were prejudiced towards workers remitting all earnings back to Spain, less expenses incurred in Germany. As Figure 6.4 indicates, all funds had to be sent to a clearing account in favour of the Spanish government;⁸¹⁴ these funds were credited against Spanish civil war debts. The Spanish Treasury then paid the worker's family an equivalent amount in Spanish Pesetas at the official exchange rate from the state budget. When workers returned to Spain, they had to collect any Reichsmarks or Rentenmarks held in cash at the French-Spanish border (where German control ended) and remitted to Spain.⁸¹⁵ The Spanish government charged no commission for these transfers.⁸¹⁶ However, this system did not function entirely as desired. Only about two-thirds of the workers transferred their earnings in cash;⁸¹⁷ according to Spanish official surveys, the rest remitted their German earnings to Spain as consumer goods, illustrated by the left-hand pathway in Figure 6.4.⁸¹⁸

⁸¹⁴ AMAEC R2225/7, pamphlet, pp.99-101.

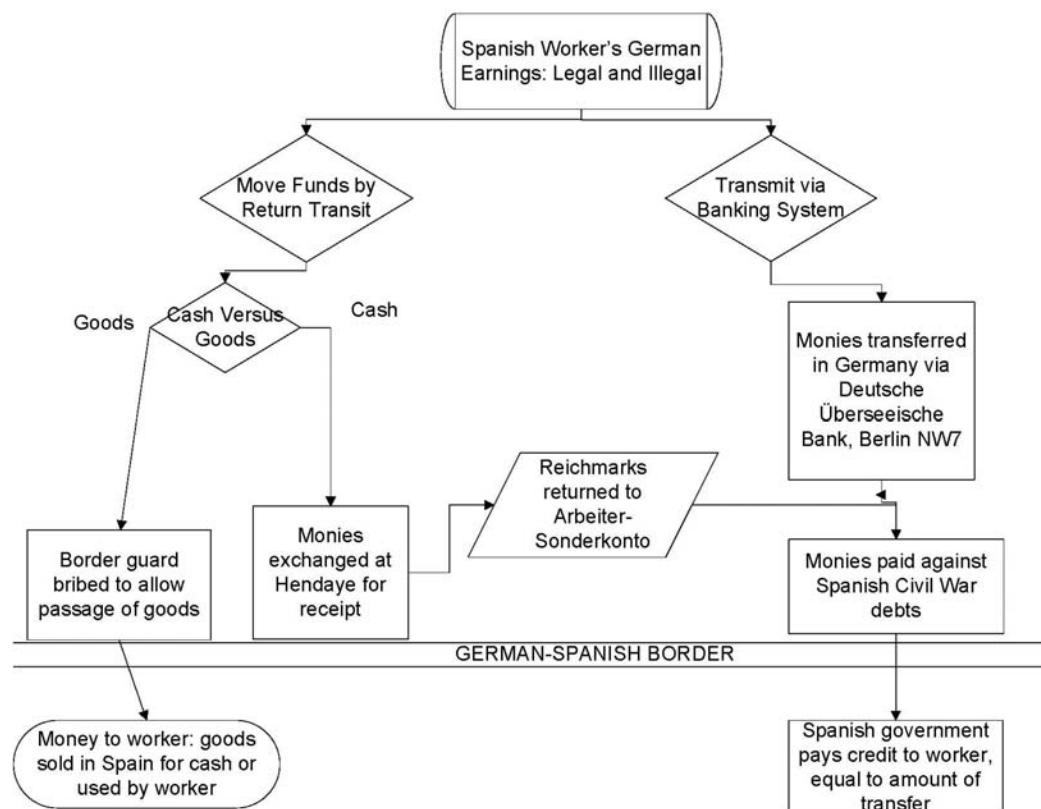
⁸¹⁵ Ibid; AMAEC R2225/1, letter dated 9 January 1942.

⁸¹⁶ AMAEC R2225/7, agreement.

⁸¹⁷ AMAEC R2225/1, memo dated 26 October 1943.

⁸¹⁸ AMAEC R2225/7, letter from Larocino Corride to MAE dated 25 October 1943.

**Figure 6.4: Spanish Worker's Earnings:
Transmission Mechanism from Germany to Spain**



Sources: AMAEC R2225/1, undated pamphlet, page 99. AMAEC R2225/1, letter dated 25 October 1941.

As the data in Table 6.2 show, over 90.8 million Pesetas worth of earnings were remitted through the *Arbeiter Sonderkonto* system between September 1941 and December 1945.⁸¹⁹ This represents 427 Pesetas per worker-month.⁸²⁰ The net value of the transfers just exceeds 0.125% of an average year of wartime GDP.⁸²¹

⁸¹⁹ See total figure from Table 6.5 and in Appendix 6.2.

⁸²⁰ See Appendix 6.2.

⁸²¹ Prados De la Escosura, *El Progreso Económico*, p.288.

Table 6.2: Transfers from Germany to Spain, 1941-1945

Year	Transfers (Pesetas)	Number of Transfers
1941	3,931,343	N/A
1942	12,687,015	24,202
1943	44,734,638	38,164
1944	30,914,362	19,855
1945	1,841,297	1,656
Total	90,810,361	

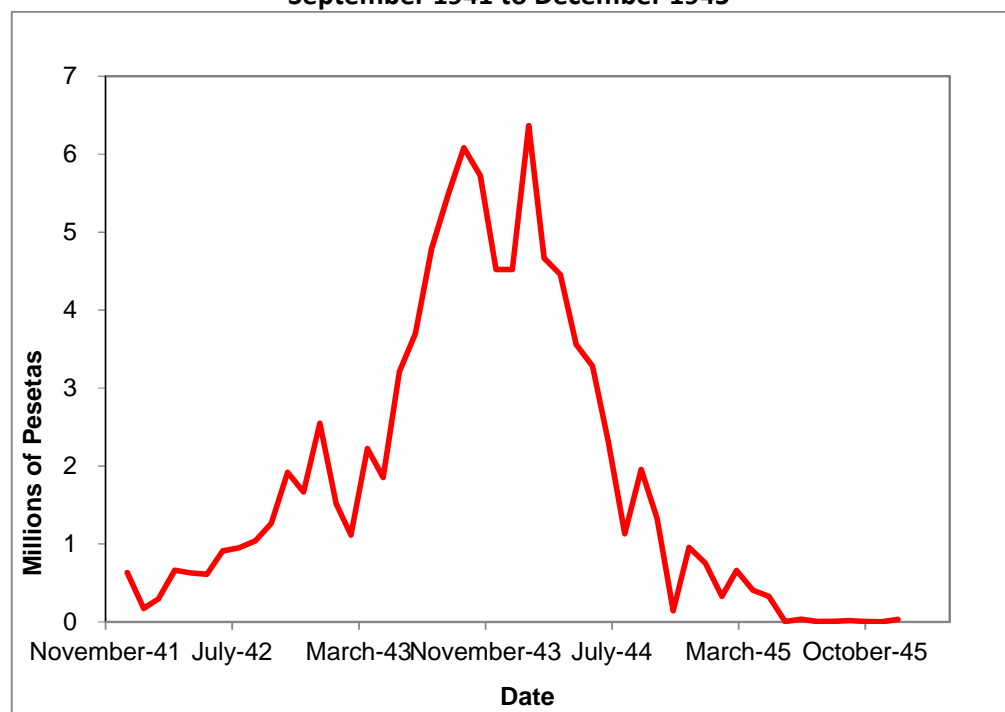
Sources: AMAEC R2225/2, memo, "Negociado de Transferencias;" Appendix 6.2.

Notes: Transfers begin in September 1941, before Spanish programme workers actually arrived in Germany due to volunteer, non-programme workers already in Germany. Payments continued through December 1945. AMAEC R2225/7, memo, "Negociado de Transferencias: Estadística del Año 1945."

The *Arbeiter Sonderkonto* transfer statistics reveal general trends. Transfers in 1942, the programme's first full year, represent about one-seventh of the total; 1943, the peak year of transfers, saw almost exactly half and 1944 about one-third. Figure 6.5 shows the remittances from Germany on a monthly basis. As the chart illustrates, total monetary transfers steadily increased from December 1941 to December 1942; they then slowed with the return of seasonal labour to Spain and recovered in spring 1943. Remittances reach their peak in January 1944. The holiday period at the end of 1944 interrupts what is otherwise a steady decline in the three-month moving average of transfers after September 1943.⁸²²

⁸²² See Appendix 6.2.

**Figure 6.5: Monthly Remittances from Germany,
September 1941 to December 1945**



Sources: AMAEC R2225/2, memo, "Negociado de Transferencias," AMAEC R2225/7, memo, "Negociado de Transferencias: Estadística del Año 1945;" Appendix 6.2.

The extent to which the system actually accounted for all transfers is, however, less than complete. According to the August 1941 agreement, it should have dealt with all funds from Spanish workers, allowing the Spanish government to obtain valuable Reichsmark foreign exchange and lower its debts.⁸²³ But, according to a Foreign Ministry memo dated 26 October 1943, only two-thirds of the Spaniards in Germany used the banking system to for remittances.⁸²⁴ The CIPETA figures suggest that a third of Spaniards in Germany either spent all their earnings in Germany or transmitted funds to Spain by other methods than bank transfer.⁸²⁵ Spanish Foreign Ministry documents suggest that in the early months of the programme some workers were remitting their funds in the form of purchased goods when they returned to Spain. Because it would not have been

⁸²³ AMAEC R2225/7, Agreement dated 22 August 1941.

⁸²⁴ AMAEC R2225/1, memo dated 26 October 1943.

⁸²⁵ AMAEC R2225/7, letter dated 25 October 1943.

easy to carry large quantities of luggage or heavy consumer items on the long train journey, the transported items probably consisted of liquor, cigarettes or other small expensive items obtainable only on the German black market; due to shortages, they could resell these in Spain at cost or even above. The actual earnings which were transmitted thus are not available.⁸²⁶ The information contained in the memo is deemed sufficiently credible to suppose that these earnings reached 15% of transfers.⁸²⁷

Table 6.3: Transfers Withheld and Under Investigation, 31 December 1945

Status	Number of Transfers Withheld	Amount (Pesetas)
Blocked	130	220,401
Pending additional information	82	129,770
Total	212	350,171
As percentage of total transfers	0.25%	0.39%

Sources: AMAEC R2225/7, memo “Comisión interministerial para el envío de trabajadores españoles a Alemania” dated January 1946; AMAEC R2225/7, table entitled “Negociado de Transferencias: Estadística del Año 1945.”

The statistics may also be affected by black market activities and wage inflation. As the war dragged on, unofficial prices and wages in Germany rose quickly, but remained comparatively low in Spain. According to the written records, many Spanish workers took advantage of black-market activities to sell Spanish commodities to the Germans, using the transfer system to remit their illegal black-market earnings to Spain. However, the Spanish Foreign Ministry took little action to stop them. There are no statistics to indicate the actual levels of illicit transfers, but the actual levels may be expected to be quite low.⁸²⁸

When discussing the problem of illicit earnings and remittances, the Spanish Foreign Ministry officials used large and dramatic examples to highlight the potential costs to the Spanish state and dramatize the level of illegal activities. For example, a Spaniard could carry coffee to Germany, exploiting the

⁸²⁶ AMAEC R2225/7, letter dated 25 October 1943, p.2.

⁸²⁷ García Pérez, *trabajadores españoles*, p.1052.

⁸²⁸ See Appendix 6.2 for average yearly wages.

wide price difference between the two countries. It was estimated that a worker could carry twenty kilos of coffee from Spain to Germany after a vacation, which at 450 Reichsmarks per kilo could net 9,000 Reichsmarks on the German black market. At the 1943 exchange rate of 4.24 Pesetas per Reichsmark, this sale would yield approximately 37,800 Pesetas in income, equivalent to about seven years of regular earnings in the Spanish labour programme.⁸²⁹ These illegitimate earnings could have been remitted through the *Arbeiter Sonderkonto* system, inflating the perceived total of wages earned.

However, despite their concern, Spain took almost no action to limit the transfer of illegitimate funds. As Table 6.3 shows, the Spanish government blocked only 0.38% of the transfers (by value) at the end of the programme.⁸³⁰ Such a low percentage suggests a government not concerned enough to take action. Workers' earnings, whether legitimate or not, therefore remained high compared with Spanish standards. Spaniards had an incentive to travel to Germany for work.

Earnings

Determining the estimated earnings of the Spanish workers in Germany is crucial to understanding their treatment in Germany. The *Arbeiter Sonderkonto* transfer system was based on very favourable exchange rates for transfers by Spain to Germany. This meant that Spanish workers in Germany benefited from very high daily wages compared to their Spanish counterparts.⁸³¹ Much of the existing literature argues they were not paid and did not remit wages in line with these rates. However, this study shows that the Spaniards were paid comparably with their German counterparts. In face of equally bad working conditions in Spain, there should have been a strong desire among Spaniards to go to

⁸²⁹ Appendix 6.2; for worker earnings statistics, see Appendix 6.1; for exchange rates, see ECEdE, 1941-1945.

⁸³⁰ AMAEC R2225/1, memo dated 26 October 1943.

⁸³¹ Fuertes, *Introducción a la Historia*, p.34; SHvD, ECEdE, 1941-1945.

Germany, given fair opportunities. The declining number of Spanish labourers in Germany is therefore probably the result of Spanish government restrictions.

Using information previously presented on the number of Spanish workers and their skill levels, it is possible to determine expected earnings. As previously described, the numbers of Spanish workers derive from calculations based on the frequency of transfers, which are independent of earnings levels and are assumed to have remained constant from 1943-1945 at 7.73 transfers per worker. Using the resulting number of workers and German earnings levels, it is then possible to determine whether the Spanish workers were being compensated in accordance with the agreement and whether they would have wanted to continue working in Germany. In order to undertake this part of the study, it is necessary to build a table of estimated earnings using the number of workers employed in Germany, the weekly wages, skill levels and gender of workers.⁸³² It is then possible to compare the values of expected earnings to funds remitted using the *Arbeiter Sonderkonto* system.

Table 6.4: Weekly Wages by Skill Level and Sex (in Pesetas)

Year	Skilled Male	Unskilled Male	Skilled Female	Unskilled Female
1941	235	166	111	109
1942	231	161	107	105
1943	234	166	104	98
1944	234	167	101	94

Sources: SHvD, ECEdE, 1941-1945.

According to the August 1941 agreement, Spanish workers were to be treated in every respect as German workers, including levels of earnings. As seen in Table 6.4, the expected average weekly earnings of a German worker, separated by skill and sex, lies between approximately 235 Pesetas for a skilled male worker in 1941 and a low of about 94 Pesetas for an unskilled female labourer in March 1944. Using the wage information for German workers and the data in the previous sections, it is possible to construct a table of expected

⁸³² See Appendix 6.2.

quarterly earnings versus actual transfers sent via the *Arbeiter Sonderkonto* system.

Table 6.5: Quarterly Expected Earnings versus *Arbeiter Sonderkonto* Transfers, January 1942 through May 1945

Quarter Ended	Expected Wages (Millions of Pesetas)	Transfers via <i>Arbeiter Sonderkonto</i>		Transfers adjusted for the one-third not using <i>Arbeiter Sonderkonto</i>	
		Millions of Pesetas	Difference from expected (in %)	Millions of Pesetas	Difference from expected (in %)
March 1942	15.0	1.1	-92%	1.7	-89%
June 1942	16.6	2.2	-87%	3.2	-80%
Sept 1942	20.3	3.3	-84%	4.9	-76%
Dec 1942	16.8	7.4	-63%	11.1	-34%
March 1943	15.0	4.9	-68%	7.3	-51%
June 1943	14.2	8.8	-38%	13.1	-7%
Sept 1943	16.4	16.3	0%	24.5	50%
Dec 1943	16.4	14.8	-10%	22.1	36%
March 1944	11.8	15.5	31%	23.2	97%
June 1944	6.7	9.1	37%	13.7	107%
Sept 1944	3.4	4.4	-32%	6.6	98%
Dec 1944	2.2	1.9	-15%	2.8	28%
April 1945 (4 months)	1.9	1.7	-9%	2.6	36%
Totals	156.5	90.0	-42%	137.0	-12%

Sources: see Appendix 6.2.

Notes: Earnings and transfers from September 1941 to December 1941 and from May 1945 to December 1945 are excluded from total, due to the unreliability of the data and a lack of knowledge about the workforce during these periods. The assumption of five percent female is based on fragmentary evidence discussed in the text.

The expected quarterly earnings of all Spanish workers in Germany are given in Table 6.5. These statistics are based on the estimated average wages and previously determined skill levels. Women are assumed to form 3% of the total workforce, their maximum percentage. The net results show estimated earnings as 42% more than the transfers through the *Arbeiter Sonderkonto* system. When adjusted for the one-third who are believed not to have used the

transfer system, the difference is reduced to 12%.⁸³³ It is, therefore, not unreasonable to assume that the workers' weekly earnings matched those of the Germans.⁸³⁴ In order to make this claim, it is necessary to explain the notable periodic differences in the remittances, as seen in Table 6.5. It is possible to explain most of this periodization in terms of living expenses, returning workers and other factors.

The Spaniards' transfers in the twelve to fifteen months of the programme were a good deal lower than the expected wages. This can be attributed to substantial initial costs for each Spanish worker when he took up residence in Germany and probably amounted to around 850 Pesetas, based on the compensation paid by Germany later for personal property destroyed in aerial bombings (200 Reichsmarks or about 850 Pesetas);⁸³⁵ however, assuming that all 8,242 workers in their first year incurred 850 Pesetas of one-off setup costs and adjusting for the one-third who did not use the system, receipts using the transfer system are still below the expected amounts.⁸³⁶

Transfers from April 1943 and through September 1944 were greater than expected earnings. Over the eighteen-month period, earnings were to have been 63.4 million Pesetas based on the number of Spanish workers in Germany reported in Table 6.5; this has to be measured against transfers of 68.9 million Pesetas using *Arbeiter Sonderkonto*, 8.7% over expected earnings.⁸³⁷ Adjusting for the estimated one-third of the workers who did not use the transfer system yields estimated transfers of some 103.4 million Pesetas or 61% over the expected earnings of the Spanish workers during this period.⁸³⁸ These large excesses suggest that workers could have been remitting earnings from liquidated personal items accumulated during the period. They were also possibly engaging in black-market activities. Whichever is true, these funds were

⁸³³ AMAEC R2225/7, letter dated 25 October 1943.

⁸³⁴ AMAEC R2225/1, memo dated 26 October 1943.

⁸³⁵ AMAEC, R2225/1, notes dated 4 and 8 April 1944.

⁸³⁶ AMAEC R2225/7, letter dated 25 October 1943.

⁸³⁷ Appendix 6.2.

⁸³⁸ *Ibid.*

remitted earnings suggesting that workers were paid in line with German wages. Recruitment would have remained brisk had Spain permitted, given the employment and working conditions in Spain. But it limited recruitment by closing the CIPETA offices and the border with France, making it harder for individuals to volunteer. These actions can at least be partly attributed to the costs to the government of maintaining the programme.

Expenses of the Spanish Worker Programme

The final accounts of the Spanish worker programme show that the Spanish government was hiring and employing workers for the German war effort at its own expense, as the August 1941 agreement designed. There were two tiers of costs: workers' salaries paid by the Spanish state, which totalled 90.8 million Pesetas. These direct labour costs were ultimately credited to the German loans. Excess programme expenses totalled 7.2 million Pesetas as outlined in Table 6.6. These were not reimbursed by the German government. When combined with the workers' salaries paid from the state budget, the total cost to the Spanish state was 98.0 million Pesetas or 0.68% of an average year's wartime spending by Spain.⁸³⁹ Thus, for 98.0 million Pesetas of state spending, the Spanish government received only 90.8 million (92.7%) in credits against the German loans.

⁸³⁹ Table 6.6; Prados De la Escosura, *El Progreso Económico*, p.453.

Table 6.6: Final Accounting of the Hispano-German Civilian Labour Programme (in Pesetas)

	1941	1942	1943	1944	1945	Unallocable	TOTAL
Income:							
Credits for Equipment Returned		551,841	1,747,385	1,336,985	186,937		3,823,147
Credits for Unused Items Held in Warehouses, Hendaye						714,200	714,200
Credits for Train Tickets Refunded		0	8,059	5,136	570		13,765
Reimbursed Expenses - Credit from Germany	332,410						332,410
Reimbursed Expenses - Other Spanish Gov't Entities						184,493	184,493
Advance Payments		91,835	33,827	5,102	307		131,071
Transfers Withheld						350,170	350,170
TOTALS	332,410	551,841	1,755,444	1,342,121	187,507	898,694	5,549,257
	1941	1942	1943	1944	1945	Unallocable	TOTAL
Expenses:							
Personnel in Spain - Salaries	115,860	564,818	615,244	555,360	157,495		2,008,778
Personnel in Spain - Benefits	35,327	105,658	74,025	18,741	1,812		235,562
Personnel in Germany - Salaries	26,983	834,243	946,218	514,579	108,500		2,430,524
Personnel in Germany - Benefits	0	36,152	39,972	9,808	1,649		87,582
Materials - Purchased in Spain	116,816	95,278	85,437	50,300	15,908		363,740
Materials - Purchased in Germany	3,230	137,141	136,740	140,290	1,297		418,698
Materials - Acquisition of Equipment for Workers	2,475,479	2,208,627	397,444	0	0		5,081,550
Transportation Expenses within Spain	399,417	325,349	228,595	4,679	35,951		993,991
Other Expenses in Spain (including employee transport)	155,395	1,030	1,825	640	0		158,890
Other Expenses in Germany (including transport)	8,315	29,086	43,797	6,497	6,334		94,029
Other - Transportation Billed by RENFE in 1947						437,174	437,174
Other - Hacienda Expenses, billed in 1946						332,190	332,190
Uncategorized Expenses						87,667	87,667
TOTAL EXPENSES	3,336,822	4,337,382	2,569,297	1,300,894	328,946	857,031	12,730,373
TOTAL INCOME LESS EXPENSES	(7,181,117)						
TOTAL SALARIES PAID TO WORKERS	(90,810,361)						
TOTAL COSTS TO SPANISH STATE	(97,991,478)						

Sources:

ECedE, 1941-1945.

AMAEC R2225/7, memo marked, " *Negociado de Transferencias: Recibos Pendientes de Despacho* " from *Servicien de intervención y contabilidad, CIPETA*, dated January 1946.

AMAEC R2225/7, memo from *Subsecretario, Presidencia del Gobierno* , dated 8 November 1947.

AMAEC R2225/7, memo from MAE to RENFE dated 10 July 1947.

AMAEC R2225/7, " *CIPETA Oficinas en el Extranjero* ," and " *CIEPTA Oficinas en España* ," *Servicio de Intervención y Contabilidad*.

Although recruitment, equipment and transportation within Spain and inspections in Germany were meant to comprise all Spain's expenses, Spain in effect became responsible for several additional items. For example, it organized and transported the workers to the Spanish border where they were given clothing, footwear, rations for the journey and passports at the state's expense. Spanish workers were, however, not equipped with sufficient heavy winter clothing to survive the long, harsh German winters; from the autumn of 1942, the Spaniards had to supply these items outright, since the Germans did not.⁸⁴⁰ Food shortages led the Spanish Embassy in Berlin to request additional food for distribution to the Spanish workers in Germany. The clothing, boots and other equipment cost Spain just over half-a-million Pesetas net after crediting for equipment returned to the warehouses during repatriation and at the time of liquidation.⁸⁴¹ Other expenses included a billing in 1946 by the Spanish Treasury for miscellaneous costs as well as invoices for office supplies purchased in Spain and Germany.⁸⁴²

In the area of transportation, several memos indicate the Germans failed to return Spanish workers to the border station at Irún, but gave them tickets instead to the German border with France; the Spanish state ultimately purchased several thousand Pesetas worth of French, Belgian and Swiss train tickets to repatriate these workers.⁸⁴³ Transportation cost altogether some 1.4 million Pesetas billed by the national train operator, RENFE, through 1947.⁸⁴⁴

After credits for the returned equipment and train tickets are recorded against the related expenses, the actual income from withheld payments and reimbursement is small (see Table 6.6). The income consists mostly of withholdings from the transfer programme and reimbursed expenses. The largest credit comes from transfers withheld and never paid because the

⁸⁴⁰ AMAEC R2225/1, memos dated 20 September 1942 and 3 October 1942.

⁸⁴¹ AMAEC R2225/7, accounts.

⁸⁴² AMAEC R2225/2, letter dated 13 February 1946.

⁸⁴³ AMAEC R2225/2, see memos and bills for various expenses, dated between 21 July 1942 and 10 July 1947.

⁸⁴⁴ AMAEC R2225/2, memo dated 10 July 1947.

recipients could not be traced and/or the funds were blocked as illegitimate earnings; these withholdings totalled 350,000 Pesetas.⁸⁴⁵ Reimbursements include the sum of 332,000 Pesetas which Germany advanced to Spain in September 1941.⁸⁴⁶ Other Spanish departments reimbursed CIPETA for various expenses, totalling some 184,500 Pesetas during the programme. Income for the reimbursement for advance payments, of which no description is available, totalled 131,000 Pesetas.⁸⁴⁷ These credits were less than expenses.

As seen in Table 6.6, total income (including reimbursements and reclaimed equipment) from the programme came to 5.5 million Pesetas and total expenses to 12.7 million Pesetas; as a result, direct programme costs were 7.2 million Pesetas or about 0.05% of an average year's state spending in wartime.⁸⁴⁸ Combined with employee expenses of 90.8 million, total Spanish state expenditure for the programme reached 98.0 million Pesetas (0.68% of an average year's wartime Spanish state spending).⁸⁴⁹

As the structure of the agreement and these final accounts suggest, by agreeing to organize, equip and monitor the Spanish workers going to Germany, the Spanish state committed itself to spending millions of Pesetas. Under the August 1941 agreement, it could claim reimbursement for reasonable expenses, up to 42.40 Pesetas per worker; but, as seen in Table 6.6, actual expenses per worker were substantially higher:⁸⁵⁰ during the active periods of recruitment from November 1941 to October 1943, there were approximately 25,000 individual workers.⁸⁵¹ Total net programme expenditures of 7.8 million Pesetas for 25,000 workers implies a net expenditure of approximately 316 Pesetas per worker, far exceeding the 42.40 Peseta credit. As these figures suggest, the German contribution merely offset, but never fully reimbursed Spanish

⁸⁴⁵ AMAEC R2225/2, memo dated January 1946;

⁸⁴⁶ AMAEC R2225/7, memo dated 8 November 1947

⁸⁴⁷ AMAEC R2225/7, accounts.

⁸⁴⁸ Prados de la Escosura, *El Progreso Económico*, p.453.

⁸⁴⁹ See Table 6.6.

⁸⁵⁰ See Table 6.6 for net expenses; Appendix 6.2 for net number of workers.

⁸⁵¹ Figure calculated from periods with net increases in workers from Table 6.1.

expenses. By design, Spain was providing direct economic assistance to Germany through this labour programme. When combined with the workers' salaries, which were paid by the Spanish state, a total of 98.0 million Pesetas was taken from the Spanish state's budget to pay for this limited number of workers.

The high levels of Spanish state expenditure in favour of the German government suggest that Franco was deliberately subsidizing the workers whom he sent to Germany; had the programme run to the base peak figure of 100,000 workers in early 1942 and maintained them until October 1943, the Spanish state would have had to spend about 6% of the average Spanish state budget during the wartime period to maintain these workers; had it grown to the size desired by the German government it would have cost in excess of 27% of the annual state budget.⁸⁵² As this suggests, the Spanish state could have faced considerable fiscal strain if the Germans had ever reached even their minimum recruitment goals, let alone their desired number of workers.

Conclusions

The Spanish-German civilian labour programme remained small throughout the war. The Spanish government's recruitment efforts, the low number of actual recruits and the withdrawal of the recruiting officers in 1942 all support this paper's conclusion that the programme was designed to be a failure. The Spanish government could not reasonably be expected to send its precious highly-skilled workers to Germany at its own expense; for such a regime, this would mean economic suicide. The statistics strongly support Wayne Bowen's assertion that Franco provided the Germans with civilian labour as a domestic concession; it relieved political pressure and guaranteed his survival as leader of Spain.

Spanish neutrality was clearly affected by the Spanish-German labour programme. Although economically small, this programme represented a

⁸⁵² Leandro Prados De la Escosura, *El Progreso Económico de España (1850-2000)* [Economic Progress of Spain (1850-2000)] (Bilbao, 2003), p.453; Table 6.6.

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doctrinal shift in the Spanish position. Franco sought to provide direct economic support to Germany, for which Spain bore most of the costs. The unequal provision of this aid, from August 1941 to October 1943, meant that Spain favoured one belligerent outright over another. But, like the Swiss workers in Germany, the actual numbers were so small that the war effort was unaffected.

Appendix 6.1: Spanish Workers in Germany

AMAEC Data - Spanish Civilian Labour Programme							WiRueAmt	AMAEC + WiRueAmt			Golson Transfers-based Estimates		Golson Estimates		
Period Starting A	Period Ending B	Transferred Amount Per Month C	Transferred Amount - Three-month Moving Average D	Number of Transfers (Monthly) E	Number of Transfers (Yearly) F	Number of Workers (AMAEC data) G	Number of non-Spanish Civilian Labourers (German data) H	Estimated Number of Spanish Workers (Qualitatively Based) - see note #1 I	Average Total Workers per Year J	Adjusted Average Number of Transfers per Worker per Year - see note #2 M	Number of Workers based on adj. 1943 transfer rate - see note #3 O	3 month moving average of workers based on adj. 1943 transfer rate P	Net Spanish Workers in Germany R	Percent Male - see note #4 S	Percent Female - see note #4 T
FORMULA										=F/(2J/3)	=E*7,403				
9/1/1941	12/31/1941	633,049				4,000	1,300	5,300					5,300	96.65%	3.35%
1/1/1942	1/31/1942	174,686				5,000		6,300					6,300		
2/1/1942	2/28/1942	295,832	378,139					6,300					6,300		
3/1/1942	3/31/1942	663,899	530,099					6,300					6,300		
4/1/1942	4/30/1942	630,568	635,740					6,300					6,300		
5/1/1942	5/31/1942	612,754	718,348					7,075					7,075		
6/1/1942	6/30/1942	911,724	825,835					7,850					7,850		
7/1/1942	7/31/1942	953,028	969,111					8,625					8,625		
8/1/1942	8/31/1942	1,042,580	1,087,318			8,100		9,400					9,400		
9/1/1942	9/30/1942	1,266,345	1,409,320			8,242		9,542					9,542		
10/1/1942	10/31/1942	1,919,036	1,617,863			6,253		7,553					7,553		
11/1/1942	11/30/1942	1,668,209	2,045,200					7,553					7,553		
12/1/1942	12/31/1942	2,548,355	1,911,107		24,202			7,553	7,971	4.55			7,553		
1/1/1943	1/31/1943	1,516,756	1,726,269					7,027					7,027		
2/1/1943	2/28/1943	1,113,697	1,618,160					6,500					6,500		
3/1/1943	3/31/1943	2,224,026	1,730,589			4,674		5,974					5,974		
4/1/1943	4/30/1943	1,854,043	2,429,915					5,974					5,974		
5/1/1943	5/31/1943	3,211,677	2,921,622					5,974					5,974		
6/1/1943	6/30/1943	3,699,147	3,900,162					6,637					6,637		
7/1/1943	7/31/1943	4,789,662	4,654,738					7,300					7,300		
8/1/1943	8/31/1943	5,475,405	5,448,852					7,300					7,300		
9/1/1943	9/30/1943	6,081,489	5,761,270					7,300					7,300		
10/1/1943	10/31/1943	5,726,916	5,443,105			6,000		7,300					7,300		
	11/30/1943	4,520,910	4,922,912					7,100					7,100		
	12/31/1943	4,520,910	5,135,413		38,164			6,900	7,403	7.73			6,900		

Appendix 6.1: Spanish Workers in Germany

AMAEC Data - Spanish Civilian Labour Programme							WiRueAmt	AMAEC + WiRueAmt			Golson Transfers-based Estimates		Golson Estimates		
Period Starting A	Period Ending B	Transferred Amount Per Month C	Transferred Amount - Three-month Moving Average D	Number of Transfers (Monthly) E	Number of Transfers (Yearly) F	Number of Workers (AMAEC data) G	Number of non-Spanish Programme Labourers (German data) H	Estimated Number of Spanish Workers (Qualitatively Based) - see note #1 I	Average Total Workers per Year J	Adjusted Average Number of Transfers per Worker per Year - see note #2 M	Number of Workers based on adj. 1943 transfer rate - see note #3 O	3 month moving average of workers based on adj. 1943 transfer rate P	Net Spanish Workers in Germany R	Percent Male - see note #4 S	Percent Female - see note #4 T
1/1/1944	1/31/1944	6,364,419	5,184,171	4,040							6,270		6,270		
2/1/1944	2/29/1944	4,667,184	5,162,865	2,888							4,482	5,059	5,059		
3/1/1944	3/31/1944	4,456,991	4,227,810	2,851							4,424	4,012	4,012		
4/1/1944	4/30/1944	3,559,255	3,765,947	2,016							3,129	3,577	3,577		
5/1/1944	5/31/1944	3,281,596	3,049,782	2,048							3,178	2,851	2,851		
6/1/1944	6/30/1944	2,308,494	2,240,864	1,447							2,246	2,241	2,241		
7/1/1944	7/31/1944	1,132,501	1,798,945	837							1,299	1,773	1,773		
8/1/1944	8/31/1944	1,955,839	1,474,234	1,144							1,775	1,493	1,493		
9/1/1944	9/30/1944	1,334,363	1,144,572	906							1,406	1,109	1,109		
10/1/1944	10/31/1944	143,515	811,500	93							144	988	988		
11/1/1944	11/30/1944	956,623	617,907	911							1,414	868	868		
12/1/1944	12/31/1944	753,583	679,830	674	19,855						1,046	978	978		
1/1/1945	1/31/1945	329,286	581,058	305							473	812	812		
2/1/1945	2/28/1945	660,304	466,010	590							916	663	663		
3/1/1945	3/31/1945	408,440	465,820	386							599	656	656		
4/1/1945	4/30/1945	328,715	248,089	292							453	353	353		
5/1/1945	5/31/1945	7,112	123,465	5							8	161	161		
6/1/1945	6/30/1945	34,569	15,828	15							23	11	11		
7/1/1945	7/31/1945	5,804	15,997	2							3	11	11		
8/1/1945	8/31/1945	7,619	10,573	5							8	12	12		
9/1/1945	9/30/1945	18,296	10,541	16							25	13	13		
10/1/1945	10/31/1945	5,708	8,956	5							8	12	12		
11/1/1945	11/30/1945	2,865	13,717	3							5	21	21		
12/1/1945	12/31/1945	32,580		32	1,656						50				

Appendix 6.1: Spanish Workers in Germany

		AMAEC Data - Spanish Civilian Labour Programme				WiRueAmt	AMAEC + WiRueAmt				Golson Transfers-based Estimates		Golson Estimates		
Period Starting	Period Ending	Transferred Amount Per Month	Transferred Amount - Three-month Moving Average	Number of Transfers (Monthly)	Number of Transfers (Yearly)	Number of Workers (AMAEC data)	Number of non-programme Spanish Civilian Labourers (German data)	Estimated Number of Spanish Workers (Qualitatively Based) - see note #1	Average Total Workers per Year	Adjusted Average Number of Transfers per Worker per Year - see note #2	Number of Workers based on adj. 1943 transfer rate - see note #3	3 month moving average of workers based on adj. 1943 transfer rate	Net Spanish Workers in Germany	Percent Male - see note #4	Percent Female - see note #4
A	B	C	D	E	F	G	H	I	J	M	O	P	R	S	T

Sources:

AMAEC R2225/7, letter from Larcocino Corride to MAE, dated 25 October 1943.

AMAEC R2225/7, memo, "CIPETA: Estado de las remesas de ahorros de salarios enviados por los productores a sus familias."

AMAEC R2225/2, memo, "Negociado de Transferencias."

AMAEC R2225/7, memo, "Negociado de Transferencias: Estadística del Año 1945."

AMAEC R2225/1, "Apunte para el Sr. Ministro, MAE," date 5 February 1943.

AMAEC R2225/1, letter to Embasador von Stobrer in Madrid, 9 January 1942.

AMAEC R2225/1, CIPETA Memo, dated 12 March 1943.

NARA RG242/T-77/243/986879-986880, Wehrwirtschafts- und Rüstungs-Amt (Wi Rü Amt), report marked "VO/Wi Rü Amt und Dienstab Ost bei OKH/Gen Ou," dated 13 March 1942.

NARA RG242/T-77/243/987071-72, memo marked "Vermerk für Chef", dated 10 November 1941.

NARA RG242/T-77/243/986882, memo entitled "Stand der Anwerbung ausl. Arbeitskräfte," marked Rue IVd, dated 19 January 1942.

NARA RG242/T-77/243/986880, memo entitled "Arbeitseinsatz von Ausländern im Reichsgebiet," dated 13 March 1942.

Notes:

Note #1 - Figures in bold refer to recruiting periods; figures in italics refer to period of disengagement. When no statistics are available during recruiting/disengagement periods, figures have been averaged to next data point.

Note #2 - Adjusted refers to adjustments necessary to correct for the one-third of the workers who were estimated not to have used the system, who used consumer goods to transport earnings instead

Note #3 - Number of workers set equal to 12/1943 transfer rate of 7,403. See column J.

Note #4 - The female workers present in Germany in October 1941 are the only known statistics for Spanish female workers in Germany.

Appendix 6.2: Estimated Earnings of Spanish Workers

FROM APPENDIX 6.1		WORKERS BY SKILL (See Note #1)			WEEKLY WAGES (RM) - AVERAGE GERMAN WAGES (See Note #2)				EARNINGS ESTIMATES			AMAEC Data - Spanish Civilian Labour Programme	
Period Ending	Estimated Number of Workers	High Skilled	Low Skilled	Seasonal Agricultural	Male High Skilled	Male Low Skilled	Female High Skilled	Female Low Skilled	Monthly Reichsmark Earnings with 3% Female	Monthly Peseta Earnings with 3% Female - see note #3	Total max. allowed monthly earnings (300 Reichsmarks per worker)	Transferred Amount Per Month	Transferred Amount - Three-month Moving Average
12/31/1941	5,300	3,286	2,014		55.41	39.22	26.09	25.73	1,029,444	4,364,841	6,741,600	3,931,343	
1/31/1942	6,300	3,906	2,394		54.44	38.13	25.25	24.85	1,198,206	5,080,395	8,013,600	174,686	
2/28/1942	6,300	3,906	2,394		54.44	38.13	25.25	24.85	1,198,206	5,080,395	8,013,600	295,832	378,139
3/31/1942	6,300	3,906	2,394		54.44	38.13	25.25	24.85	1,198,206	5,080,395	8,013,600	663,899	530,099
4/30/1942	6,300	3,906	2,394		54.44	38.13	25.25	24.85	1,198,206	5,080,395	8,013,600	630,568	635,740
5/31/1942	7,075	3,906	2,394	775	54.44	38.13	25.25	24.85	1,315,174	5,576,339	8,999,400	612,754	718,348
6/30/1942	7,850	3,906	2,394	1,550	54.44	38.13	25.25	24.85	1,432,142	6,072,284	9,985,200	911,724	825,835
7/31/1942	8,625	3,717	2,583	2,325	54.44	38.13	25.25	24.85	1,537,141	6,517,477	10,971,000	953,028	969,111
8/31/1942	9,400	3,528	2,772	3,100	54.44	38.13	25.25	24.85	1,642,139	6,962,670	11,956,800	1,042,580	1,087,318
9/30/1942	9,542	3,339	2,961	3,242	54.44	38.13	25.25	24.85	1,651,601	7,002,789	12,137,424	1,266,345	1,409,320
10/31/1942	7,553	3,150	3,150	1,253	54.44	38.13	25.25	24.85	1,339,439	5,679,222	9,607,416	1,919,036	1,617,863
11/30/1942	7,553	2,961	3,339	1,253	54.44	38.13	25.25	24.85	1,327,470	5,628,471	9,607,416	1,668,209	2,045,200
12/31/1942	7,553	2,898	3,402	1,253	54.44	38.13	25.25	24.85	1,323,480	5,611,554	9,607,416	2,548,355	1,911,107
1/31/1943	7,027	3,232	3,794		55.11	39.05	24.60	23.13	1,286,123	5,453,163	8,937,920	1,516,756	1,726,269
2/28/1943	6,500	2,990	3,510		55.11	39.05	24.60	23.13	1,189,786	5,044,693	8,268,424	1,113,697	1,618,160
3/31/1943	5,974	2,748	3,226		55.11	39.05	24.60	23.13	1,093,449	4,636,223	7,598,928	2,224,026	1,730,589
4/30/1943	5,974	2,748	3,226		55.11	39.05	24.60	23.13	1,093,449	4,636,223	7,598,928	1,854,043	2,429,915
5/31/1943	5,974	2,748	3,226	0	55.11	39.05	24.60	23.13	1,093,449	4,636,223	7,598,928	3,211,677	2,921,622
6/30/1943	6,637	2,748	3,226	663	55.11	39.05	24.60	23.13	1,195,743	5,069,950	8,442,264	3,699,147	3,900,162
7/31/1943	7,300	2,748	3,226	1,326	55.11	39.05	24.60	23.13	1,298,037	5,503,676	9,285,600	4,789,662	4,654,738
8/31/1943	7,300	2,748	3,226	1,326	55.11	39.05	24.60	23.13	1,298,037	5,503,676	9,285,600	5,475,405	5,448,852
9/30/1943	7,300	2,748	3,226	1,326	55.11	39.05	24.60	23.13	1,298,037	5,503,676	9,285,600	6,081,489	5,761,270
10/31/1943	7,300	3,358	3,942		55.11	39.05	24.60	23.13	1,336,153	5,665,288	9,285,600	5,726,916	5,443,105
11/30/1943	7,100	3,266	3,834		55.11	39.05	24.60	23.13	1,299,546	5,510,075	9,031,200	4,520,910	4,922,912
12/31/1943	6,900	3,105	3,795		55.11	39.05	24.60	23.13	1,258,627	5,336,579	8,776,800	4,520,910	5,135,413
1/31/1944	6,270	2,821	3,448		55.13	39.41	23.74	22.07	1,147,942	4,867,274	7,974,932	6,364,419	5,184,171

Appendix 6.2: Estimated Earnings of Spanish Workers

FROM APPENDIX 6.1		WORKERS BY SKILL (See Note #1)			WEEKLY WAGES (RM) - AVERAGE GERMAN WAGES (See Note #2)				EARNINGS ESTIMATES			AMAEC Data - Spanish Civilian Labour Programme	
Period Ending	Estimated Number of Workers	High Skilled	Low Skilled	Seasonal Agricultural	Male High Skilled	Male Low Skilled	Female High Skilled	Female Low Skilled	Monthly Reichsmark Earnings with 3% Female	Monthly Peseta Earnings with 3% Female - see note #3	Total max. allowed monthly earnings (300 Reichsmarks per worker)	Transferred Amount Per Month	Transferred Amount - Three-month Moving Average
2/29/1944	5,059	2,276	2,782		55.13	39.41	23.74	22.07	926,215	3,927,151	6,434,559	4,667,184	5,162,865
3/31/1944	4,012	1,805	2,206		55.13	39.41	23.74	22.07	734,512	3,114,332	5,102,772	4,456,991	4,227,810
4/30/1944	3,577	1,610	1,967		55.13	39.41	23.74	22.07	654,952	2,776,997	4,550,054	3,559,255	3,765,947
5/31/1944	2,851	1,283	1,568		55.13	39.41	23.74	22.07	521,973	2,213,164	3,626,225	3,281,596	3,049,782
6/30/1944	2,241	1,008	1,233		55.13	39.41	23.74	22.07	410,304	1,739,689	2,850,446	2,308,494	2,240,864
7/31/1944	1,773	780	993		55.13	39.41	23.74	22.07	323,597	1,372,050	2,255,616	1,132,501	1,798,945
8/31/1944	1,493	657	836		55.13	39.41	23.74	22.07	272,527	1,155,516	1,899,639	1,955,839	1,474,234
9/30/1944	1,109	488	621		55.13	39.41	23.74	22.07	202,295	857,732	1,410,089	1,334,363	1,144,572
10/31/1944	988	435	553		55.13	39.41	23.74	22.07	180,300	764,474	1,256,776	143,515	811,500
11/30/1944	868	382	486		55.13	39.41	23.74	22.07	158,400	671,616	1,104,120	956,623	617,907
12/31/1944	978	430	548		55.13	39.41	23.74	22.07	178,412	756,469	1,243,616	753,583	679,830
1/31/1945	812	357	455		55.13	39.41	23.74	22.07	148,111	627,989	1,032,398	329,286	581,058
2/28/1945	663	292	371		55.13	39.41	23.74	22.07	120,924	512,718	842,895	660,304	466,010
3/31/1945	656	289	367		55.13	39.41	23.74	22.07	119,697	507,515	834,341	408,440	465,820
4/30/1945	353	155	198		55.13	39.41	23.74	22.07	64,474	273,369	449,412	328,715	248,089
5/31/1945	161	71	90									7,112	123,465
6/30/1945	11	5	6									34,569	15,828
7/31/1945	11	5	6									5,804	15,997
8/31/1945	12	5	7									7,619	10,573
9/30/1945	13	6	8									18,296	10,541
10/31/1945	12	5	7									5,708	8,956
11/30/1945	21	9	12									2,865	13,717
12/31/1945												32,580	
TOTALS:									38,295,927	162,374,730	267,931,756	94,108,655	

Appendix 6.2: Estimated Earnings of Spanish Workers

FROM APPENDIX 6.1		WORKERS BY SKILL (See Note #1)			WEEKLY WAGES (RM) - AVERAGE GERMAN WAGES (See Note #2)				EARNINGS ESTIMATES			AMAEC Data - Spanish Civilian Labour Programme	
Period Ending	Estimated Number of Workers	High Skilled	Low Skilled	Seasonal Agricultural	Male High Skilled	Male Low Skilled	Female High Skilled	Female Low Skilled	Monthly Reichsmark Earnings with 3% Female	Monthly Peseta Earnings with 3% Female - see note #3	Total max. allowed monthly earnings (300 Reichsmarks per worker)	Transferred Amount Per Month	Transferred Amount - Three-month Moving Average

Sources:

SHvD, 1928-1944

AMAEC R2225/1, letter from the British Ambassador, Arthur Tencken to Pelayo Garcia Olay, MAE, dated 9 Jan 1942.

NARA RG242/T-84/466/190-192, memo entitled "*Stafsache, Sond. IV, 6 P.K.Ls. 541.44 (3194.44).*"

NARA RG242/T-84/466/182-189, memo entitled "*An das Sondergericht bei dem Landgericht Berlin, 6PJs 1770/44 und 193 KLs 31/45.*"

AMAEC R2225/7, letter from Larcocino Corride to MAE, dated 25 October 1943.

Notes:

Note #1: Estimates of skilled labour based on correspondence and arrest records detailed in sources; averages taken between data points

Note #2: Average German wages across all industries as compiled by American Occupation Authorities (see first source)

Note #3: Official Reichsmark to Peseta conversion rate (1:4.24) used

Chapter Seven

Swiss-German Transitory Labour in the Second World War

Abstract

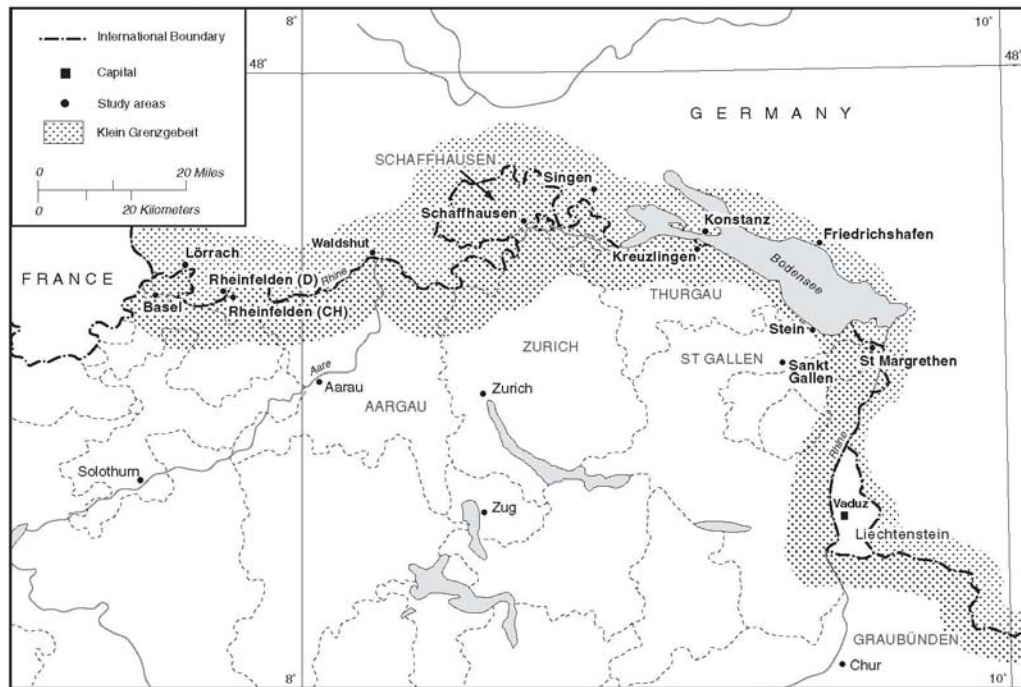
Histories of southern German firms during the Second World War suggest that Switzerland provided many highly-skilled labourers for Germany's war effort. A comprehensive study of Swiss labour in Germany is needed to determine Switzerland's net labour contribution. This chapter examines the labour exchanges between the two countries, focusing on individuals working within a free movement and trade area on the border between Switzerland and Germany. A maximum of 1,800 Swiss workers is ascertained to have worked in the German part of this area, representing 7.5% of the total labour force, 12% of the highly-skilled labour force and over 20% of the metal workers in the ten-kilometre German zone. Swiss contributions are somewhat offset by Germans working in the Swiss zone. Most importantly for Swiss neutrality, this chapter suggests that, despite initially supportive increased labour transfers at the start of the war, the Swiss government sought from 1941 to prevent workers from transferring to Germany.

Introduction

Before, during and after the Second World War, Switzerland and Germany maintained a free movement and trade zone known as the *Klein Grenzgebiet* [small border area], which allowed the free movement of goods, materials and labour within a twenty-km area straddling the Swiss-German border. This is the only example of labour exchange where individuals could live in a neutral country and voluntarily work in a belligerent throughout the war. Before the war, other countries, including the Netherlands, Belgium and Luxembourg, operated similar arrangements. These agreements terminated with the start of hostilities.⁸⁵³

⁸⁵³ NARA RG242/T-77/243/901075-901076.

Figure 7.1: Swiss-German *Klein Grenzgebiet*, 1939, with internal Swiss borders



Source: Author

During the war, this zone operated under an agreement dated 9 March 1939, the *Schweizerisch-deutsches Abkommen über den kleinen Grenzverkehr* [the Swiss German Agreement on Small Border Traffic]. This agreement was ratified on 29 August 1939, a day after the Swiss army mobilized in preparation for war.⁸⁵⁴ Individuals living within a 10-km area on either side of the border could move freely within the overall zone for any reason, including labour; they could also transfer money and goods up to certain limits freely across the border.⁸⁵⁵ Figure 7.1 shows the *Klein Grenzgebiet* area with the internal Swiss cantonal borders. This new agreement dramatically improved the potential for employment exchanges in the zone by increasing allowable cash remittances from 10 Reichsmarks (equivalent to 17.5 Swiss Francs) per month to 10

⁸⁵⁴ BAr E1070/1000-34/123, agreement dated 9 March 1939; BAr E1070/1000-34/123, parliamentary message dated 29 August 1939.

⁸⁵⁵ BAr E2001D/1000-1152/ memo dated 17 February 1940, pp.6-7.

Reichsmarks per working day.⁸⁵⁶ This increased the workers' ability to remit wages, but limited transfers to those who lived in the *Klein Grenzgebiet* zone. Swiss living outside the zone could no longer remit wages without government permission and are therefore beyond this study's scope.⁸⁵⁷

The *Klein Grenzgebiet* had many natural advantages during the Second World War for Germany's strained labour and capital. Swiss-owned manufacturing plants had long been established in the German part of the zone. These facilities used fewer German resources than similar German facilities elsewhere.⁸⁵⁸ Germany did not have to house, clothe or feed this workforce, based in Switzerland. The Swiss Federal Railways transported the workers on tracks powered by electricity from Swiss hydro-electric plants along the Rhein to such German cities as Waldshut, Singen and Konstanz.⁸⁵⁹ Switzerland also provided some raw materials for businesses in this area.⁸⁶⁰ These advantages persuaded Germany to seek increased production there and to recruit as many Swiss as possible.

Existing figures for the number of Swiss workers in the *Klein Grenzverkehr* zone are at best vague. Memos from late 1941 to mid-1943 indicate that Germany tried to recruit 35,000 transitory highly-skilled Swiss metal and building workers into this area; this correspondence implies a large number working

⁸⁵⁶ BAr E1070/1000-34/123, agreement; BAr E7160-01/1968-223/249, undated memo marked "Bericht über die Grenzverkehrsverhandlungen mit Deutschland vom 10. bis 13. August" [Report over the frontier traffic negotiations with Germany from 10 to 13 August].

⁸⁵⁷ AMAEC R2225/1, pamphlet "*Der Einsatz ausländischer Arbeitskräfte in Deutschland, Berlin 1942* [The Employment of Foreign Workers in Germany, Berlin 1942]," pp.98-102.

⁸⁵⁸ See chapter entitled "*Die Steigerung der Produktion in Deutschland und Italien* [The Increase of Production in Germany and Italy]" in *Geschichte der Aluminium-Industrie-Aktien-Gesellschaft Neuhausen 1888-1938: Zweiter Band* [History of the Aluminium Company, 1888-1938: Second Volume, 1921-1938] (Zurich, 1943), pp.139-152; Hans Ulrich Wipf, *Georg Fischer AG, 1930-1945: Ein Schweizer Industrieunternehmen im Spannungsfeld Europas* [Georg Fischer, 1930-1945: A Swiss Industrial Company in the European Conflict Zone] (Zurich, 2001), pp.181-434.

⁸⁵⁹ *Horaires Suisse 1943* [Swiss Rail Timetable] (Zurich, 1942) ; Jean-Daniel Kleisl, *Electricité Suisse et Troisième Reich* [Electricity in the Third Reich] (Zurich, 2001).

⁸⁶⁰ Christian Ruch, Myriam Rais-Liechti and Roland Peter, *Geschäfte und Zwangsarbeit* [Business and Forced Labour] (Zurich, 2001).

there already.⁸⁶¹ However, separate German border crossing statistics for January 1940 indicate, on average, only 2,552 daily border crossings, of which only 1,285 emerge as Swiss.⁸⁶² The Swiss Federal Office of Statistics figures show only 485 workers commuting to Germany in November 1939;⁸⁶³ however, this office names no source for these statistics or methods for compiling them.

Studies of the *Klein Grenzgebiet* suggest the importance of these highly-skilled labourers and managers; however, none provide figures for the number of Swiss workers involved, their earnings or estimates of their economic contribution to the German war effort.

Historians Christian Ruch, Myriam Rais-Liechti and Roland Peter, members of the Commission of Independent Experts (CIE) established to study Swiss neutrality in the Second World War, suggest relatively close links between Swiss businesses in the German part of the *Klein Grenzgebiet* and their parent companies in Switzerland.⁸⁶⁴ The CIE studies provide an April 1943 figure of 26,876 non-German labourers in these Swiss firms in Southern Germany, in an employment total of 158,690; this includes workers both inside and outside the *Klein Grenzverkehr*.⁸⁶⁵ They worked for companies including the Swiss aluminium conglomerate, *Aluminium Industrie AG* (AIAG), the chemical company Lonza and food companies Maggi and Nestlé.⁸⁶⁶ The first two were especially important to the German war effort, producing about 7% of all German carbide and 15% of all

⁸⁶¹ NARA RG242/T-77/243/986448-986453; NARA RG242/T-77/243/986769; NARA RG242/T-77/243/986482; NARA RG242/T-77/243/986480-81; NARA RG242/T-77/243/986440-986458.

⁸⁶² NARA RG242/T-77/243/901075-901076.

⁸⁶³ BA R E3320B/1000-773/22, *Deutsch-schweizerischer Grenzverkehr seit Juli 1936* [German-Swiss Border Area since July 1936] and *Österreich-schweizerischer Grenzverkehr seit März 1938* [Austrian-Swiss Border Area since March 1938] in "*Deutsch-schweizerischer und Österreichisch-schweizerischer Grenzverkehr, November 1939* [German-Swiss and Austrian-Swiss Border Area, November 1939]."

⁸⁶⁴ Cornelia Rauh, *Schweizer Aluminium für Hitlers Krieg?* [Swiss Aluminium for Hitler's War?] (Munich, 2009); Christian Ruch, Myriam Rais-Liechti and Roland Peter, *Geschäfte und Zwangsarbeit: Schweizerische Industrieunternehmen im Dritten Reich* [Business and Forced Labour in Swiss Industry in the Third Reich] (Zurich, 2001).

⁸⁶⁵ Ruch et al, *Geschäfte und Zwangsarbeit*, p. 221.

⁸⁶⁶ *Ibid*, pp.123-200.

German aluminium in this area.⁸⁶⁷ The Swiss parents of these subsidiary companies demonstrably maintained significant control over them, providing, *inter alia*, managerial expertise, machine tools, raw materials, capital for expansion and other necessities for their daily operation.⁸⁶⁸ In a discussion of factory workers from Eastern Europe, the authors imply a net Swiss labour contribution to the *Klein Grenzverkehr*, but they do not provide a full account of it.⁸⁶⁹

This study finds at most 1,800 Swiss transitory labourers, a small fraction of the 26,876 foreign workers indicated by the CIE study who worked in the *Klein Grenzgebeit* during the war, a disproportionate number were skilled. They represent 7.5% of the total labour force in the German *Klein Grenzgebeit*, but less than 0.2% of the total labour force in the German *Land* of Baden.⁸⁷⁰ The counter-traffic of Germans working in Switzerland totalled no more than 1,400 transitory workers, who were more likely than their Swiss counterparts to be both unskilled and female. As a result of the skill and gender disparity, the Swiss provided Germany with an economic contribution three times the counter flow.

Finally, the Swiss sought to limit worker transfers, in particular after 1941. Swiss policies are very contradictory in this period. Although the government went to the trouble of ratifying a new treaty covering the *Klein Grenzgebeit* at the Federal level three days before the War started, local Swiss governments acted almost immediately to limit worker transfers;⁸⁷¹ they progressively increased the costs of the permits needed to cross the border and limited customs transfers to those specifically allowed in the Treaty, preventing excess funds from leaving Germany.⁸⁷² These restrictions limited the advantages of

⁸⁶⁷ Kleisl, *Electricité Suisse*, p.63 and p.101.

⁸⁶⁸ Ruch, et al, *Geschäfte und Zwangsarbeit*, pp.79-211.

⁸⁶⁹ *Ibid*, pp.216-233.

⁸⁷⁰ *Ibid*, p.336.

⁸⁷¹ StABS PD-REG/8c/(1)/2-1:3, Protocol dated 16 October 1939; StAZH Z6.6098, letter dated 22 January 1940; StAAG BA.09.0692, letter dated 9 September 1939; StAZH Z6.6098, protocol dated 26 September 1939.

⁸⁷² StAZH BEZ/AND/134/2-3.

working in the *Klein Grenzgebiet*. Workers there relinquished their jobs faster than in the German workforce, after 1943 in particular.⁸⁷³ These changes to Swiss local government policies demonstrate that the Swiss did not ultimately favour providing Swiss labour to Germany. Thus, the 1939 Swiss-German Treaty actually served to strengthen Switzerland's independent position by seeking to limit labour contributions, while appearing to benefit the Germans.

Methodology

In estimating the workers, only the voluntary "guest" labourers who were:

1. Not permanent residents in their country of employment
2. Citizens of their home country
3. Able to remit their earnings to their home country

are counted. The current system of identifying foreign workers on the basis of citizenship is irrelevant if they cannot leave the belligerent country with their earnings. For Germany and Switzerland, these exchanges were limited to those living and working within their respective areas of the *Klein Grenzgebiet*.⁸⁷⁴ Only permanent resident aliens who could return with their earnings are counted.

Undeniably, these limitations reduce the scope of this study. German statistics indicate approximately 16,000-18,000 Swiss citizens working in Germany during the Second World War;⁸⁷⁵ but, as this paper shows, fewer than 1,800 of these Swiss citizens were residents of Switzerland. Only the Swiss residents working in Germany were subject to Swiss border controls, Swiss laws

⁸⁷³ Appendices 7.4 and 7.5; Roland Peter, *Rüstungspolitik in Baden. Kriegswirtschaft und Arbeitseinsatz in einer Grenzregion im Zweiten Weltkrieg* [War Industry Politics in Baden: War Business and Labour in the Border Region during the Second World War] (Munich, 1995), p.336.

⁸⁷⁴ See Figures 7.1 and 7.2; BA R E1070/1000-34/123, agreement dated 9 March 1939.

⁸⁷⁵ Mark Spoerer, *Zwangsarbeit unter dem Hakenkreuz: Ausländische Zivilarbeiter, Kriegsgefangene und Häftlinge im Deutschen Reich und im besetzten Europa 1939-1945* [Labour under the Swastika: Foreign Civilian Labour, POWs and Forced Labour in the German Reich and the Rest of Europe, 1939-1945] (Stuttgart, 2001) p.87 and p.222. NARA RG242/T-77/243/986879-986880; NARA/RG242/T-77/243/985921-985922; IWM-D FD847/46, graphic entitled "Der Arbeitseinsatz ziviler Ausländer nach der Staatsangehörigkeit" [Civilian Foreign Worker Statistics by Citizenship] in *S-Buch, Arbeitseinsatz* [S-Book, Worker Statistics].

and the limitations on transferring remittances. The remaining 14,000-16,000 Swiss citizens in Germany were permanent residents there and hence largely beyond Swiss jurisdiction. They could not remit funds from Germany unless parallel contra-funds were available.⁸⁷⁶

Table 7.1: Sources for Swiss Worker Figures, by Canton

Canton	Swiss Workers in Germany	German Workers in Switzerland
Basel Stadt (BS)	Basel-Stadt Police through April 1940; then based on Aargau/Zürich trends	Basel-Stadt Police through April 1940; then based on Aargau trends
Aargau (AG)	Bi-annual foreign labour surveys	Bi-annual foreign labour surveys
Zürich (ZH)	<i>Grenzkarte</i> log books, maintained by Police	1943 Swiss Federal Report; Aargau trends used for 1939-1943 and 1943-1946
Schaffhausen (SH) Thurgau (TH) St.Gallen/Graubünden (SG/GR)	Based on relative Federal Trade Statistics, November 1939 with 1940-1946 trends estimated from Aargau and Zürich	

For greatest accuracy, whenever possible this study uses figures from the lowest government level; this means using largely Swiss sources. In Germany, organizational responsibility for the *Klein Grenzgebiet* was highly centralized and few records survived the war;⁸⁷⁷ in Switzerland, monitoring, shared between the Swiss Federal Government and the individual cantons bordering Germany, was highly decentralized. Decentralization created duplicate entities with overlapping responsibilities, many maintaining copies of cantonal records. Estimates are derived from these materials.

⁸⁷⁶ BAr E1070/1000-34/123, letter dated 8 February 1940.

⁸⁷⁷ BA-MA; StdtAK; and StdtWST.

As seen in Table 7.1, only a few records and statistics on Swiss transitory workers in Germany have survived. Canton Zürich maintained complete indices of the 3,612 *Grenzkarte* [border passes] issued from 1 January 1938 to 31 December 1946, along with relevant personal data. These records have been redacted and sorted to reveal 2,085 permits issued to unique individuals.⁸⁷⁸ Complete figures from Canton Zürich are reported in Appendix 7.1. The *Arbeitsamt* [Labour Bureau] in Canton Aargau counted migrant workers by skill-type and gender bi-yearly; these figures are reported in Appendix 7.2.⁸⁷⁹ The police in Canton Basel-Stadt maintained records on *Grenzkarte* holders during the early war period which included name, date of birth and occupation; genders can be reasonably assumed from the given names.⁸⁸⁰ A summary of the figures for Basel Stadt is included in Appendix 7.3.

Figures for Cantons Schaffhausen, Thurgau, St. Gallen and Graubünden are obtained through a proportional comparison of *Klein Grenzgebiet* trade with Cantons Basel Stadt, Zürich and Aargau according to Swiss Federal statistics;⁸⁸¹ in estimating, it must be assumed that workers in the former group remitted the same amount in cash and goods as in the latter. The homogeneity of the regions makes this reasonable.⁸⁸² Appendices 7.4 and 7.5 contain the calculations for these cantons. The information thus derived provides the total number of Swiss workers in Germany every quarter from November 1939 to December 1945; for comparative purposes, these figures are overall extended backwards to June 1936 using available wage remittance statistics for the entire *Klein Grenzgebiet*.⁸⁸³

⁸⁷⁸ StAZH BEZ/AND/134/2-3.

⁸⁷⁹ StAAG BA.09.0596, reports; StAAG BA.09.0692, reports; StAAG BA.09.0693, reports.

⁸⁸⁰ StABS PD-REG/8c/(1)/2-1:3, lists of border permits attached to correspondence dated between 28 February and 11 April 1940.

⁸⁸¹ BAr E2001D/1000-1552/38, letter dated 22 May 1940; BAr E6351F/1000-1044, letter dated 31 January 1939; BAr E6351F/1000-1044/491, letter dated 24 February 1939.

⁸⁸² SJDs, 1945.

⁸⁸³ BAr E3220B/1000-773/22, report dated January 1940, pp.15-16; SJDs, p.10.

The archival figures for German residents working in Switzerland are sparser than the converse totals. In Canton Basel Stadt, the police maintained registers of those who obtained permits; the Canton Aargau *Arbeitsamt* [Labour Bureau] also maintained bi-annual counts of German workers in Switzerland.⁸⁸⁴ The Swiss Federal Customs Office had figures for the number of German residents commuting to Cantons Zürich, Schaffhausen, Thurgau, St. Gallen and Graubünden for work in 1943.⁸⁸⁵ Applying the changes seen in Canton Aargau to the figures for the other cantons gives a complete count for German workers in Switzerland every quarter from November 1939 to June 1945.⁸⁸⁶

Table 7.2: Labour Force in Baden *Klein Grenzgebiet*

Kreis District Number	Capital	Number of Workers	Est. High Skilled	Est. Metal Workers
Baden-11	Lörrach	2,784	720	270
Baden-8	Säckingen	2,754	825	550
Baden-3	Waldshut	1,771	890	355
Baden-27	Donaueschingen	4,134	2,730	1,030
Baden-18	Konstanz	13,507	6,100	1,300
Total		24,950	11,625	3,505

Sources: BA-MA, RW 20-5/51-57; Peter, *Rüstungspolitik in Baden*, p.92.

Using the permit and border crossing figures for both groups of labourers allows additional statistics for each worker group to be calculated. Estimates are made of gender, skill levels and the earnings of each group each quarter throughout the war.

Statistics generated by the *Rüstungsinspektion Oberrhein für Baden* [the Production Inspectorate for Baden, in the Upper Rhein Area] are used to generate figures for the actual number of German workers and their occupations

⁸⁸⁴ StABS PD-REG/8c/(1)/2-1:3, lists of border permits attached to correspondence dated between 28 February and 11 April 1940; StAAG BA.09.0596, reports; StAAG BA.09.0692, reports; StAAG BA.09.0693, reports.

⁸⁸⁵ BAr E6351F/1000-1046/12, letter dated 30 October 1943; BAr E6351F/1000-1046/12, letter dated 30 October 1943; BAr E6351F/1000-1046/12, letter dated 10 November 1943.

⁸⁸⁶ BAr E3220B/1000-773/22, report dated January 1940, pp.15-16; SJDs, p.10.

in the *Klein Grenzgebiet*. As no precise figures for the ten-kilometre zone are available, local districts [called *kreis*] in which the ten-kilometre zone is situated (even partially) are used. As Table 7.2 shows, these districts include those with regional capitals in Lörrach, Säckingen, Waldshut, Donaueschingen and Konstanz. With available information, this yields 24,950 workers in the German part of the ten-kilometre zone.⁸⁸⁷ The estimated number of highly-skilled and metal workers in Baden is based on 1938 skill allocation figures, as shown graphically by the *Baden Statistischen Landesamt* [Baden State Statistics Office].⁸⁸⁸ Estimates for the number of workers in highly-skilled and metal-working jobs are included in Table 7.2. The 1938 percentages of skilled labour are multiplied by the 1943 worker figures, failing other statistics of the number of skilled workers. Although no compensation has been made, using 1938 skill figures introduces some downward bias, since the number of highly-skilled and metal workers should have increased during the war.

All the sources, both Swiss and German, admit substantial shortcomings. Most notably, there are potential bias effects, for available government statistics for most cantons provide only sporadic data points throughout the period. The long-term projections for Swiss commuting to Germany rely solely upon statistics from Cantons Zürich and Aargau; and on Canton Aargau alone for Germans commuting to Switzerland. Using the figures from so few cantons to project overall trends lets in bias effects for specific cantons. Although no evidence suggests this, it could very well be Aargau that experienced inordinate increases or reductions in its numbers of wartime workers. Given the information available, this potential error cannot be eliminated.

Swiss Workers in Germany

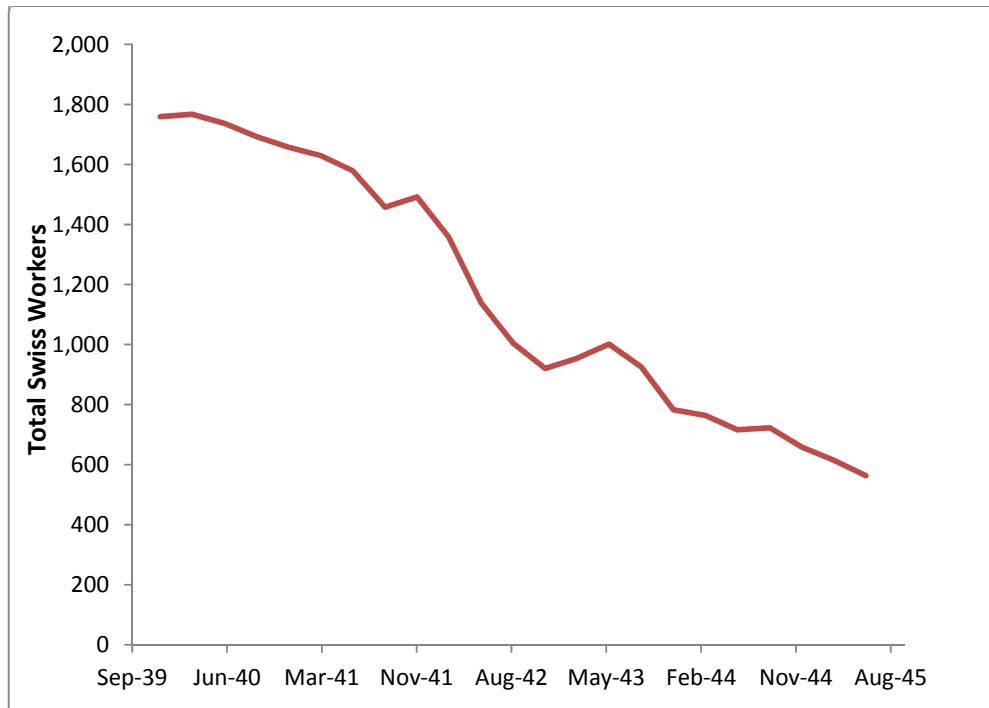
This section provides overall statistics for the Swiss residents working in the German *Klein Grenzgebiet*. It determines that there was a maximum of 1,800

⁸⁸⁷ BA-MA RW20-5/51- 57.

⁸⁸⁸ Peter, *Rüstungspolitik*, p.92.

Swiss workers in Germany, mostly highly-skilled males, transiting between Switzerland and Germany from June 1936 through mid-1946, roughly 7.5% of the labour force in the *Klein Grenzgebiet* area.⁸⁸⁹ The figures declined steeply during the war.

**Figure 7.2: Swiss Transitory Labourers in Germany,
December 1939 to June 1945**



Sources: See Table 7.3

Table 7.3 shows quarterly statistics for each canton, as well as the total number of Swiss workers commuting to the Baden *Klein Grenzgebiet*. Cantonal figures reported in bold are taken from archival sources; those in normal typeface are generated from estimates, in accordance with previously-mentioned practice. As Table 7.3 and Figure 7.2 indicate, the population of Swiss

⁸⁸⁹ Peter, *Rüstungspolitik*, p.92; Appendix 7.5; BA-MA R20-5/51.

workers commuting to work in the German *Klein Grenzgebeit* declined from approximately 1,800 in December 1939 to about 560 by June 1945.⁸⁹⁰

Table 7.3: Swiss Transitory Labour in Germany by Original Canton
Overall Statistics by Quarter

Date	Total Workers Switzerland to Germany	Basel- Stadt	Aargau	Zürich	Schaff- hausen	Thurgau	St.Gallen and Graubünden
Dec-39	1,759	326	130	190	130	972	11
Mar-40	1,767	308	127	201	132	988	11
Jun-40	1,737	303	124	199	130	971	11
Sep-40	1,692	295	120	194	126	946	11
Dec-40	1,657	289	117	191	124	926	10
Mar-41	1,630	284	119	183	122	912	10
Jun-41	1,579	276	120	170	118	885	10
Sep-41	1,458	255	122	142	110	819	9
Dec-41	1,492	262	131	137	112	840	10
Mar-42	1,358	239	122	121	102	766	9
Jun-42	1,140	201	113	87	86	645	7
Sep-42	1,004	177	102	74	76	569	6
Dec-42	920	162	90	72	70	521	6
Mar-43	954	168	92	77	72	539	6
Jun-43	1,001	176	93	85	76	565	6
Sep-43	925	163	90	73	70	523	6
Dec-43	783	139	87	47	60	445	5
Mar-44	764	136	86	45	58	435	5
Jun-44	716	127	84	37	55	409	5
Sep-44	723	128	74	52	55	410	5
Dec-44	658	116	64	52	50	372	4
Mar-45	616	108	52	60	46	346	4
Jun-45	563	98	39	66	42	315	4
Sep-45	1,418	244	58	221	105	782	9
Dec-45	1,451	251	77	202	108	805	9

Sources: See Appendices 7.1 to 7.4 for individual Canton statistics.

Breaking this decline into periods, from December 1939 to December 1941, the figures fell slowly, by about 15% of the workforce; however, as German efforts to mobilize labour and foreign labour recruitment increased in 1942, the number of Swiss workers in the *Klein Grenzgebeit* decreased more

⁸⁹⁰ See sources for Appendices 7.1-7.5

rapidly.⁸⁹¹ From March to December 1942, just over one-third of this group stopped working in Germany. A slight increase of approximately 80 workers or about 10% of the workforce followed from December 1942 to June 1943; however, between June 1943 and June 1945, the number of these Swiss workers halved. The reasons for the rapid decline in June 1945 to the low point of 563 transitory workers - about 2.5% of the labour force in the ten-kilometre area - are discussed in the last section.

Skills and gender figures vary between cantons, depending on the economic environment in the area immediately past the border. Among the known figures, the workers leaving Canton Aargau to work in Rheinfelden and Waldshut were mostly highly-skilled male metal-workers, with 88% estimated as skilled and 86% male in December 1939;⁸⁹² however, those leaving Zürich were largely unskilled (32%) and agricultural workers (42%); they typically owned farms immediately across the border. 90% of the workers from Zürich were male.

To provide a comprehensive skill and gender profile of all Swiss residents travelling to Germany beyond Cantons Aargau and Zürich requires certain assumptions about individual cantons for which no or limited data are available. Too little stand-alone information remains on the skill sets and gender distribution of workers in Cantons Basel-Stadt, Thurgau, Schaffhausen, St. Gallen and Graubünden for a complete wartime profile; however, the figures for these cantons can be estimated using known quantitative and qualitative data. Skills and gender figures are available for Canton Basel-Stadt for the two months ending April 1940. As the skills and gender concentrations in Cantons Aargau and Zürich do not vary widely, it is reasonable to assume that the skill and gender figures from Basel for workers in Canton Basel Stadt last throughout the war. High per capita monthly earnings figures in the *Eidgenössische Statistische Amt*

⁸⁹¹ Peter, *Rüstungspolitik*, p.336.

⁸⁹² StAAG BA.09.0596, reports; StAAG BA.09.0692, reports; StAAG BA.09.0693, reports.

reports on the Austrian-Swiss *Klein Grenzverkehr* [small border traffic] indicate that workers from St. Gallen and Graubünden consisted entirely of highly-skilled men.⁸⁹³

Gender and skills data for Cantons Schaffhausen and Thurgau must be estimates. With the lack of quantitative information, a gender and skill profile for these cantons must be built from qualitative knowledge. From the prevalence of factories for war materiel and the German desire to recruit highly-skilled Swiss in the Schaffhausen-Singen area, it can reasonably be assumed that highly-skilled, male labourers formed the majority of those based in Canton Schaffhausen.⁸⁹⁴ Swiss commuting from Thurgau to Konstanz worked in highly-skilled jobs in a city with both industry and commerce. The closest comparable canton for both is Aargau, where highly-skilled workers commuted to German industrial plants across the Rhein. Thus, gender and skills distribution estimates from Canton Aargau can be used for Cantons Schaffhausen and Thurgau.⁸⁹⁵ The resulting estimates establish that most of the Swiss working in the German *Klein Grenzgebiet* were skilled.

Despite the decline in the number of workers, the wartime skill profile of Swiss workers in the German *Klein Grenzgebiet* remains fairly constant. Where displacement occurred, in the early part of the war, Swiss agricultural labour in Germany was typically replaced by skilled and unskilled workers. As Figure 7.3 reveals, the overall percentage of skilled labourers, starting at 70% in December 1939, reached a low of 58% in June 1943 and then returned to 74% by June 1945. Similar trends were noted in unskilled labour; at 15% in December 1939, unskilled labour reached 29% in June 1943 before returning to 21% of the total employed in December 1945. Agricultural labour remained a stable proportion of the labour force varying from 14% to 16% throughout the war. Using the December 1939 worker skill profile, 70% (1,260) of the Swiss workers in Germany

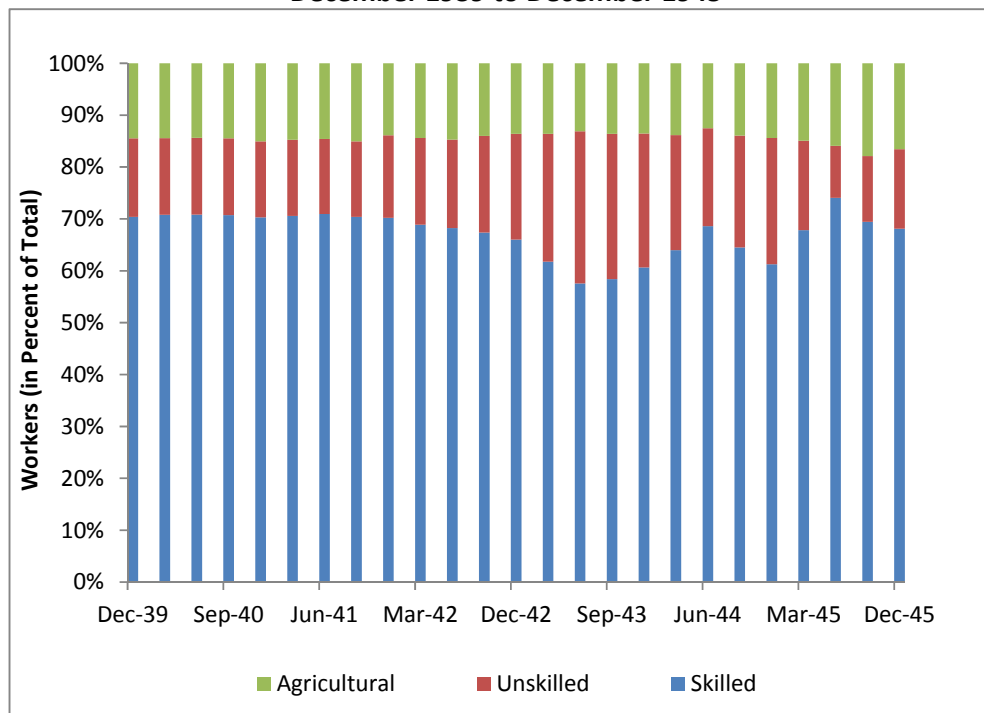
⁸⁹³ BAr E3320B/1000-773/22, report dated January 1940.

⁸⁹⁴ NARA/RG242/T-77/243/986448-986453.

⁸⁹⁵ See summary figures in Appendix 7.6.

were skilled, 270 were unskilled and 270 worked in agriculture. In the ten-kilometre zone, this labour would have represented about 12% of the skilled labour force.⁸⁹⁶ Further estimated statistics on the number of metal-workers from Cantons Zürich and Aargau indicate that Switzerland supplied approximately 20% of the 3,505 skilled metal-workers in this part of Germany.⁸⁹⁷

Figure 7.3: Swiss Residents Working in Germany, by Skill Type, December 1939 to December 1945



Sources: See Appendix 7.5.

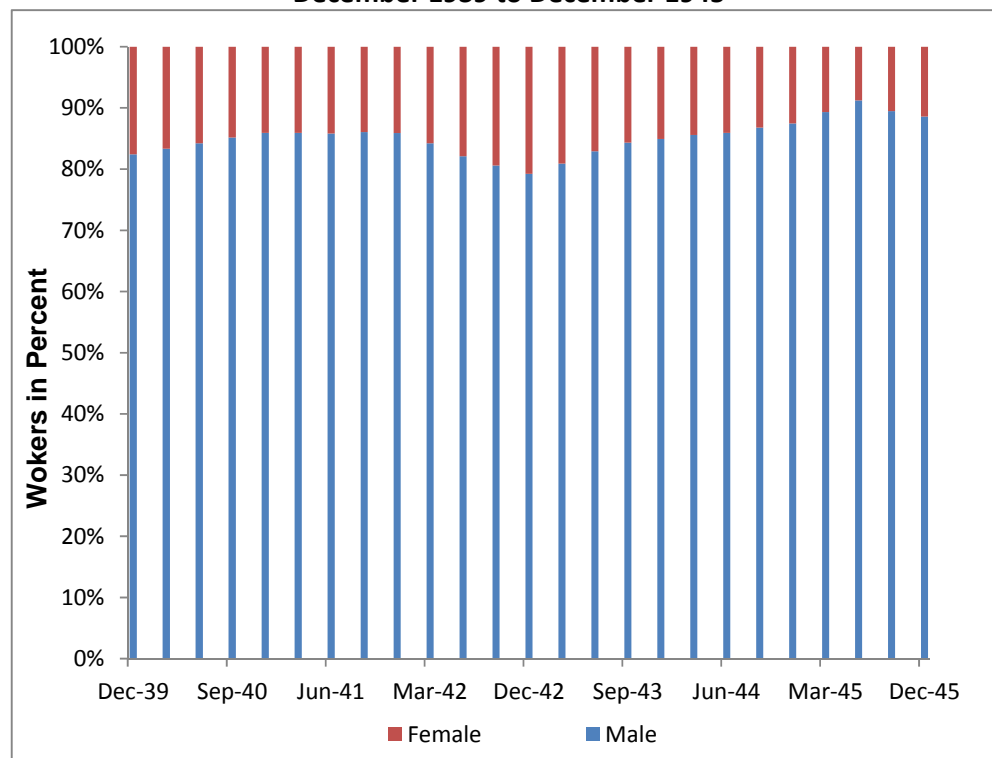
Using similar assumptions, it is possible to produce a gender distribution of the Swiss workforce in the German *Klein Grenzgebiet*. A disproportionate number of working men travelled across the border. As seen in Figure 7.4, for almost the whole wartime period men made up 79% or more of the Swiss labour force commuting to Germany; the low point for male labour was December 1942, part of a decline which started for unknown reasons in December 1941.

⁸⁹⁶ See Table 7.2.

⁸⁹⁷ *Ibid.*

However, the number of men had increased to 86% of the workforce by March 1944 and largely remained until the war ended.⁸⁹⁸

Figure 7.4: Gender Distribution of Swiss Residents Working in Germany, December 1939 to December 1945



Sources: See Appendix 7.5

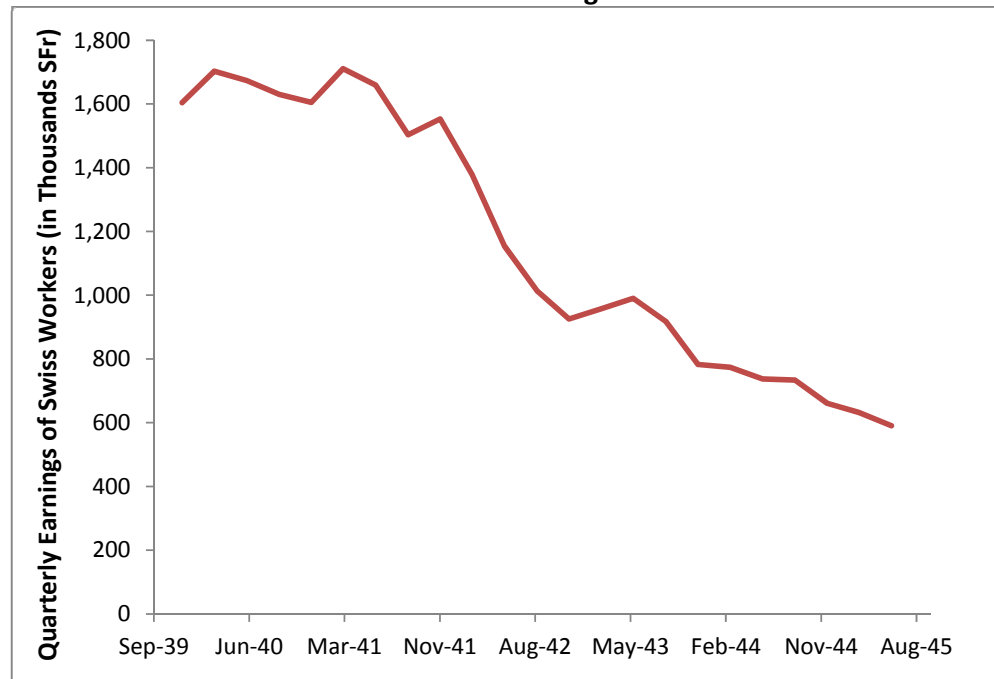
The gender ratio suggests the Swiss *Klein Grenzgebiet* workers resembled the workers migrating to Germany from other countries. On average, there were seventeen men for every three women in the Swiss *Klein Grenzgebiet* group.⁸⁹⁹ Statistics for voluntary labour from all countries suggest that 84% were men and 16% women.⁹⁰⁰ Using the worker statistics, skill and gender profiles, moreover, the earnings of Swiss workers in Germany can be calculated.

⁸⁹⁸ See Appendix 7.5

⁸⁹⁹ *Ibid.*

⁹⁰⁰ NARA RG242/T-77/243/985921-985922.

Figure 7.5: Total Quarterly Earnings of Swiss Residents Working in Germany, December 1939 to August 1945



Sources: See Appendix 7.5; based on assumptions explained in the text.

Quarterly earnings for Swiss residents working in the German *Klein Grenzgebiet* declined in tandem with the number of workers (see Figure 7.5). Some assumptions must be made to estimate earnings. Wage rates in wartime Germany are based on both skill level and gender; consequently its groups must be broken into gender-skill sub-groups, such as skilled males, skilled females, unskilled males, etc. The available statistics for the distribution of workers from Canton Aargau suggest that overall the female population comprised 10% skilled, 57% unskilled and 33% agricultural.⁹⁰¹ The number of male workers in each skill subset results from subtracting its total of female workers from the total in this skill level. Each skill-gender variant is then multiplied by its relevant average

⁹⁰¹ See Appendix 7.3.

German salary, as reported in Appendix 7.5.⁹⁰² These Reichsmark salaries are converted at the constant wartime rate of 1.75 Swiss Francs per Reichsmark.⁹⁰³

Using these assumptions, gross total estimated earnings for Swiss residents in Germany from December 1939 to June 1945 is 26.9 million Swiss Francs or approximately 0.32% of Swiss 1939 NNI.⁹⁰⁴ Total earnings declined consistently each quarter throughout the war, largely in tandem with the overall reduction in the number of workers. Average wages fluctuated between 912 and 1,051 Swiss Francs per worker quarter, due to changes in the composition of the workforce and small fluctuations in the German pay rates.⁹⁰⁵ These figures exceed the almost nil estimates from several authors and demonstrate that Switzerland's contribution to the German war effort was important in a few specific areas of skilled labour.

Although the ultimate number of these workers and their contribution to GDP was very small, their impact on German production for certain specialty items should not be discounted. As detailed in the CIE studies, Swiss labourers working in the German *Klein Grenzgebiet* factories produced critical items for Germany, including aluminium, condensers, guns, machine tools, fittings and other specialized hardware;⁹⁰⁶ without these the German war-machine would have been considerably less effective. Of course, the number of Germans working in Switzerland correspondingly reduces the latter's contributions.

German Workers in Switzerland

This section examines how many Germans were working in Switzerland, together with their skill and gender variants and earnings. It establishes that no more than 1,400 Germans ever worked in the Swiss *Klein Grenzgebiet* during the

⁹⁰² SHvD, pp.470-471.

⁹⁰³ SJDs, 1945, p.255.

⁹⁰⁴ Martin Meier et al, *Schweizerische Aussenwirtschaftspolitik, 1930-1948* [Swiss External Business Politics, 1930-1948] (Zurich, 2002), p.409.

⁹⁰⁵ See Appendix 7.5; SHvD, pp.470-471.

⁹⁰⁶ Ruch et al, *Geschäfte und Zwangsarbeit*, p.123-200; Kleisl, *Electricité*, p.63 and p.101. Wipf, *Georg Fischer*, pp.275-276.

war and their numbers declined faster than their counterparts'. These German workers were substantially less skilled than the equivalent Swiss in Germany and contained higher proportions of women. Their profile accounts for the substantially lower earnings.

**Table 7.4: Germans Working in Switzerland, by Canton,
December 1939 to December 1945**

Date	Total Workers: Germans in Switzerland	Basel- Stadt	Aargau	Zürich	Schaff- hausen	Thurgau	Cantons St.Gallen and Graubünden
Dec-39	1,384	938	46	108	12	97	183
Mar-40	1,225	831	41	96	10	86	161
Jun-40	1,065	724	36	83	9	75	139
Sep-40	919	617	30	71	8	64	129
Dec-40	772	510	25	59	6	53	119
Mar-41	736	490	24	56	6	50	110
Jun-41	702	469	23	54	6	48	101
Sep-41	667	449	22	52	6	46	93
Dec-41	581	388	19	45	5	40	85
Mar-42	583	408	20	47	5	42	61
Jun-42	558	408	20	47	5	42	36
Sep-42	572	418	21	48	5	43	37
Dec-42	586	428	21	49	5	44	38
Mar-43	530	388	19	45	5	40	34
Jun-43	474	347	17	40	4	36	31
Sep-43	405	296	15	34	4	30	26
Dec-43	419	306	15	35	4	32	27
Mar-44	335	245	12	28	3	25	22
Jun-44	474	347	17	40	4	36	31
Sep-44	335	245	12	28	3	25	22
Dec-44	335	245	12	28	3	25	22
Mar-45	223	163	8	19	2	17	14
Jun-45	112	82	4	9	1	8	7
Sep-45	181	133	7	15	2	14	12
Dec-45	251	184	9	21	2	19	16

Sources: see Appendix 7.6.

War-time figures for Germans working in Switzerland derive from Swiss cantonal figures combined with a set of October 1943 reports from the Swiss *Oberzolldirektion* on German transitory workers in Switzerland. Statistics for

Canton Aargau originate from the *Aargau Arbeitsamt* reports previously mentioned and cover the whole war.⁹⁰⁷ For other cantons it has been necessary to rely on 1943 *Oberzolldirektion* reports (covering 1942), which included information on the nationalities of the German residents working in Switzerland; for Cantons Basel Stadt, Zürich, Schaffhausen, Thurgau, St. Gallen and Graubünden, worker figures are projected from the 1942 Swiss Customs figures, based on gains and losses in Canton Aargau.⁹⁰⁸ The principal assumption here is the increases and decreases in worker totals are similar for all cantons.

The war saw a sustained decline in the number of German-resident labourers working in Switzerland. As Figure 7.6 and Table 7.4 show, the population of Germans working in the Swiss *Klein Grenzgebiet* declined from approximately 1,384 to June 1944, reaching an intermediate low of 335; then they rose from 335 to 474 and declined again from about 335 in September 1944 to 112 in June 1945. This represented a total decline of 91% over the war.⁹⁰⁹ Exceeding by nearly two-and-a-half times the wartime reduction in the number of Swiss workers commuting to Germany, it was probably affected by German conscription demands.⁹¹⁰ The precise Swiss workforce within the ten-kilometre area cannot be estimated for comparative purposes; however, the total number of German labourers commuting to Switzerland in September 1939 represents approximately 0.18% of the workforce within the relevant cantons.⁹¹¹

Because of a lack of available information, the skills and gender metrics of the German residents working in Switzerland must be estimated. Skill figures from Canton Aargau and other qualitative information allow skill levels for other cantons to be assessed which take into account their geographical differences. For overall estimates for Germans working in the Swiss *Klein Grenzgebiet*,

⁹⁰⁷ StAAG BA.09.0596, reports; StAAG BA.09.0692, reports; StAAG BA.09.0693, reports.

⁹⁰⁸ BAr E6351F/1000-1046/12, letters dated 30 October 1943; BAr E6351F/1000-1046/12, letter dated 10 November 1943.

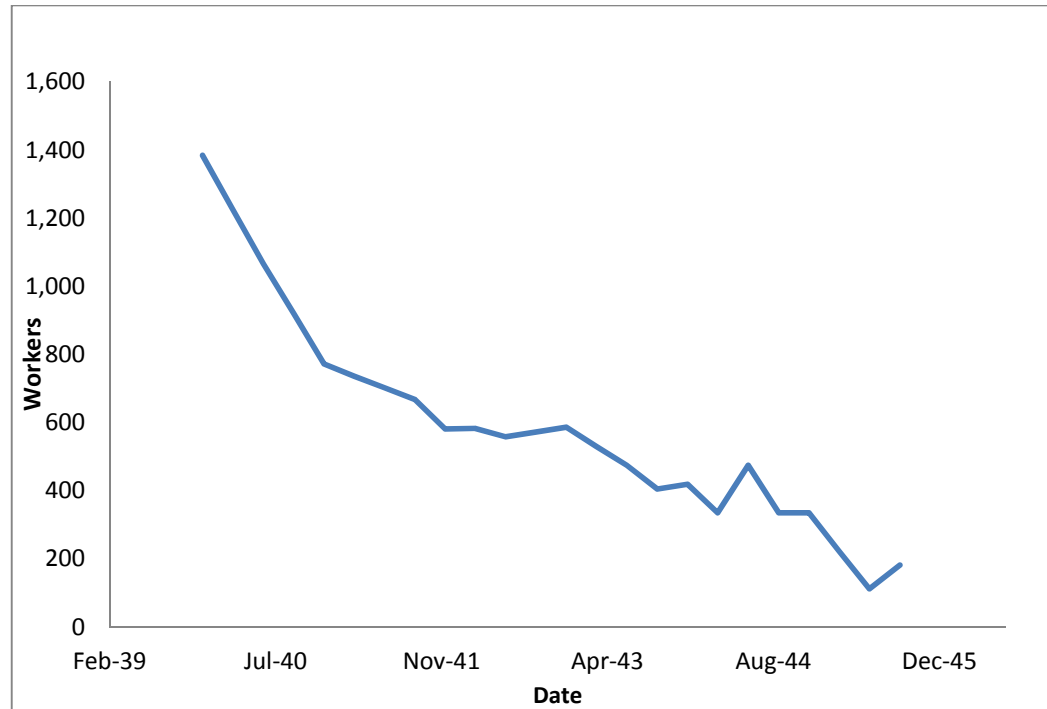
⁹⁰⁹ See Table 7.4.

⁹¹⁰ BAr E3320B/1000-773/22, reports.

⁹¹¹ As measured from September 1939 to December 1939; SJDs 1941, p.41.

including earnings, see Appendix 7.6. Considering the cantons overall, these figures indicate approximately 35% of skilled workers, 54% of unskilled and 11% working in agriculture; the war saw little fluctuation in the skill statistics.

Figure 7.6: German Transitory Labourers Working in Switzerland, December 1939 to June 1945



Sources: see Appendix 7.6

These statistics using available skills or gender information are based only on the Aargau *Arbeitsamt* reports. As Appendix 7.3 indicates, the German residents working in Canton Aargau were mostly unskilled. The weighted wartime average of skilled labour in Canton Aargau was close to 42%, with all but 1% of the remainder consisting of unskilled labour;⁹¹² this leads to a 40% disparity given the 80% skill level of the countervailing traffic.⁹¹³

⁹¹² StAAG BA.09.0596, reports; StAAG BA.09.0692, reports; StAAG BA.09.0693, reports.

⁹¹³ See Appendix 7.4.

For the other cantons, a skill-gap similar to the one in Aargau has to be assumed. The Basel region and Canton Schaffhausen were large cities which attracted more semi- and higher-skilled German workers than did other areas in Switzerland; the number of skilled workers for these cantons is calculated on the basis of the highest skilled labour rates for Swiss travelling to work in German cities (88%), reduced by the difference in skill levels between the workers commuting to and from Canton Aargau.⁹¹⁴ This yields approximately equal numbers of skilled and unskilled workers in these cantons.

By contrast, the more rural geography of the *Klein Grenzgebiet* areas in the cantons of Zürich, Thurgau and St. Gallen results in a higher percentage of agricultural and unskilled workers there. For all three cantons, the German labourers working in the *Klein Grenzgebiet* zones is estimated to be 20% skilled, 40% unskilled and 40% agricultural, based on examples of labour transfers to an agricultural area, such as Swiss workers from Canton Zürich commuting to Baden; these transfers emerge as 29% skilled, 31% unskilled and 40% agricultural workers. To compensate for the skill differential between German and Swiss workers, the number of skilled workers is adjusted downward by slightly less than one-half; the remainder are assigned to unskilled labour. This results in an estimate for Germans commuting to the more rural cantons of approximately 20% skilled, 40% unskilled and 40% agricultural. Considered together, these cantonal figures yield a combined workforce of 35% skilled, 54% unskilled and 11% agricultural workers in December 1939.

Estimates for the gender distribution of the workers, lacking other qualitative or quantitative information, are based solely on the Canton Aargau example. The gender distribution of German residents working in Canton Aargau favoured women 57% to 43%, using a weighted average of the wartime quarterly figures.⁹¹⁵ Despite the slightly above-average number of skilled (and therefore

⁹¹⁴ See Appendix 7.3.

⁹¹⁵ See Appendix 7.3.

male) labourers, the gender figures for Canton Aargau are used as the wartime average. Any other method of estimating the gender figures could be very complex, due to the time-dependent changes resulting from increasing levels of German military conscription. Similarly for the countervailing traffic, amongst the female workers, 35% are estimated to be skilled and 65% unskilled/agricultural. These gender-skill statistics serve to estimate earnings.

The total earnings of Germans working in the *Swiss Klein Grenzgebiet* were about one-third of their Swiss counterparts in Germany. For comparison, salaries of equivalent average German workers are used.⁹¹⁶ As reported in Appendix 7.6, gross estimated earnings for German residents working in Switzerland from December 1939 to June 1945 amount to 8.1 million Swiss Francs. This represents a miniscule 0.10% of Swiss 1938 NNI.⁹¹⁷ As Appendix 7.6 reveals, net quarterly earnings during the war declined steadily, with the number of workers. Average earnings for the period fluctuated between 569 and 640 Swiss Francs per worker-quarter; average wages reached a peak in March 1941 and declined thereafter.⁹¹⁸

The Swiss contribution to the German war effort was roughly three times the German contribution to Switzerland. The difference between the expected earnings of the transitory labour groups amounts to just under 16 million Swiss Francs in favour of Switzerland. This indicates that 0.22% of Swiss 1938 NNI went to the Germans as transitory labour.⁹¹⁹ While this contribution is small, no such contribution was being made to the British or Allied war efforts.

Swiss-German Labour Exchanges and Swiss Wartime Neutrality

At first glance, the quick approval of the 1939 agreement in the days before war started suggests that the Swiss sought to actively provide Germany

⁹¹⁶ SHvD, pp.470-471.

⁹¹⁷ Meier et al, *Schweizerische Aussenwirtschaftspolitik*, p.409.

⁹¹⁸ See Appendix 7.6 for figures and sources.

⁹¹⁹ Meier et al, *Schweizerische Aussenwirtschaftspolitik*, p.409.

with labour during the war. However, the statistics showing the limits on the labour supply refute this idea. So do the actions of the local Swiss governments and Federal government departments. From the outbreak of war, Swiss officials sought through various technical procedures to reduce the number of Swiss workers commuting to Germany, including reduced duration and increased costs for border crossing permits and enforcing customs restrictions on cross-border monetary flows, in particular after early 1943. These actions reduced the financial inducements to work in Germany and accelerated the decline in numbers of Swiss transitory workers. This contradiction suggests that Switzerland was attempting to treat the belligerents more equally than the 1939 agreement initially suggests.

Table 7.5: Index of Comparative Labour Trends in Baden (January 1941=100)

January of Year	Swiss Workers in Baden	Total Workers in Baden	Total German Workers in Baden	Foreign Workers in Baden	Georg Fischer Workers in Singen Plant
1940	109				102
1941	100	100	100	100	100
1942	72	80	78	164	80
1943	63	58	53	292	67
1944	45	63	56	361	61

Sources: Peter, *Rüstungspolitik in Baden*, p.336; Wipf, *Georg Fischer*, p.330; Appendix 7.5.

Trends for Swiss transitory labour behaved like those for German workers in Baden until 1943. As Table 7.5 demonstrates, between January 1940 and 1943, the number of Swiss transitory workers in Germany and the total number of workers in Baden closely correlate; the number of Swiss workers in Baden declined 15% more slowly over this period than the total workforce in Baden (January 1941=100).⁹²⁰ Some of this difference can be explained by the shortage of skilled labour and the German desire to retain higher-skilled workers,

⁹²⁰ Table 7.5; Peter, *Rüstungspolitik*, p.336.

including the Swiss.⁹²¹ Thus, although Germany often sought to exploit the area, Swiss transitory workers ultimately left their posts about as often as their German counterparts until 1943.⁹²²

The relative decline of Swiss workers from 1943-1945 accelerates in comparison to other labour groups in Baden.⁹²³ This relates directly to a second wave of changes in the rules for Swiss authority permits, which encouraged the Swiss to leave their jobs more readily than did their counterparts. Table 7.5 suggests a 29% decline in the number of Swiss transitory workers from 1943 - 1944, compared to an increase of 8% in the total number of workers in Baden. The decline in the number of Swiss working in the German *Klein Grenzgebiet* from 1943 onwards is related to informal Swiss policy changes, designed to reduce the incentives for working in Germany.

The changes increased the transitory workers' costs and thus lowered their net earnings. The 1939 agreement required identity/permit cards called *Grenzkarte* for all transitory visitors, but allowed each country to regulate these border permits as those chose.⁹²⁴ In November 1941, two-year Swiss permits dropped to three-months at most. After mid-1942, the local Swiss authorities charged two Swiss Francs for each permit.⁹²⁵ These changes increased the costs of the original permit by between 8 and 24 times, depending on its duration. At worst, workers could then spend up to 20% of their earnings on permits, as compared to less than 1% before.⁹²⁶ These increased costs should have discouraged transitory labour.

The Swiss government started also to enforce its customs allowances strictly. Before the war, workers earning more than ten Reichsmarks (17.5 Swiss Francs) per week were able to supplement the transmission of their cash

⁹²¹ *Ibid.*

⁹²² NARA RG242/T-77/243/986448-986453

⁹²³ Peter, *Rüstungspolitik*, p.336.

⁹²⁴ BAr E1070/1000-34/123 agreement dated 9 March 1939.

⁹²⁵ StAZH BEZ/AND/134/2-3.

⁹²⁶ See Appendix 7.6.

earnings with consumer goods. Duty-free goods included valuable items such as up to 125g of sugar, 49g of coffee, 49g of chocolate, 49g of cocoa powder and various meats.⁹²⁷ However, after 1941, increasing shortages in Germany forced all earnings to be remitted in cash. This prevented Swiss workers from remitting all their earnings, which would have exceeded the cash transfer limits.

Unable to use costly consumer goods to transmit their earnings, workers earning more than 17.5 Swiss Francs per working day effectively forfeited some of their pay every week.⁹²⁸ An average week's wages of approximately 75 Swiss Francs could have taken five working days to remit;⁹²⁹ skilled workers earning above the average (over 100 Swiss Francs a week for a male skilled worker) would have lost part. The Germans tried to increase these cash payment remittance limits, but the Swiss agreed to the changes only for pensioners and travellers, not labourers.⁹³⁰ The limitations on remittances and increased costs for *Grenzkarte* were clearly enough to slowly dissuade these Swiss workers from commuting to work as before.

Conclusions

Swiss-German exchanges of labour within the *Klein Grenzgebiet* ultimately benefited the Germans. This study demonstrates a small net outflow of highly-skilled labour from Switzerland to Germany during the Second World War. The Germans provided Switzerland with largely unskilled female labour while Germany gained a disproportionate number of skilled male workers. The net contribution of the worker exchanges represents less than 0.28% of Swiss 1938 NNI, but its impact on German production for specific wartime specialty

⁹²⁷ BAr E1070/1000-34/123, agreement dated 9 March 1939.

⁹²⁸ *Ibid*; BAr E7160-01/1968-223/249, undated memo marked "Bericht über die Grenzverkehrsverhandlungen mit Deutschland vom 10. bis 13. August" [Report on the Frontier Traffic Negotiations with Germany from 10 to 13 August].

⁹²⁹ Assumes average quarterly wage of approximately 900 Swiss Francs as suggested by Appendix 7.6.

⁹³⁰ NARA RG242/T-77/152/887810.

items cannot be discounted.⁹³¹ Swiss transitory labour working in German war factories produced critical items: metals, machines and other specialized products. Swiss even-handedness is stained by this one-sided contribution to the German war effort: although very small, the Swiss made the Germans a net contribution three times greater than they received, but no such contribution to the Allies.

However, despite allowing Swiss citizens to contribute by working for the German war effort, the Swiss government did limit the size and scale of the contribution. Although the Swiss Federal government authorized pro-German changes to the operation of the *Klein Grenzgebiet* zone only two days before the war began, Swiss local authorities sought to restrict worker movements. Rules and restrictions designed to limit worker transfers were enforced; permits became more expensive and worker transfers were restricted by the ability to remit earnings. Consequently, the economic inducement to work in Germany slowly dissipated for most Swiss during the war.

The story of Swiss labour in Germany suggests the Swiss government wanted to maintain favourable relations with Germany by preserving existing interests, while also preventing Germany from gaining large numbers of Swiss workers. The seemingly confusing dual policy of agreeing to and ratifying the new Treaty governing the *Klein Grenzgebiet* while also increasing the costs for Swiss transitory workers in Germany allowed the Swiss government to fulfil these goals. Existing Swiss workers could maintain their employment and transmit their earnings to Switzerland in cash; however, over the long-term these and other workers would be more likely to take up work at home as comparative employment trends improved. Thus, the Swiss government maintained positive relations with Germany and the illusion that they could provide the thousands of workers needed for the German war effort, all the while restricting worker flows and maintaining their independence.

⁹³¹ Appendices 7.5 and 7.6; Meier, *Schweizerische Aussenwirtschaftspolitik*, p.409.

Appendix 7.1
Swiss Working in Germany
Canton Zuerich

Start Date	12/1/39	1/1/40	2/1/40	3/1/40	4/1/40	5/1/40	6/1/40	7/1/40	8/1/40	9/1/40	10/1/40	11/1/40	12/1/40	1/1/41	2/1/41	3/1/41	4/1/41	5/1/41	6/1/41
End Date	12/31/39	1/31/40	2/29/40	3/31/40	4/30/40	5/31/40	6/30/40	7/31/40	8/31/40	9/30/40	10/31/40	11/30/40	12/31/40	1/31/41	2/28/41	3/31/41	4/30/41	5/31/41	6/30/41
Overall:																			
Permits Issued Each Month	38	23	32	28	35	19	3	3	36	12	4	7	3	4	4	3	7	10	15
Permits Valid At End of Month	971	962	947	921	902	866	809	745	724	703	675	660	654	639	622	592	573	545	499
Unskilled Permits	197	196	189	180	166	161	152	136	133	127	122	118	117	114	108	103	94	89	69
Skilled Permits	152	155	146	138	135	129	123	111	105	101	95	92	91	86	82	79	76	71	66
Agricultural Permits	198	192	183	177	180	170	153	144	135	130	125	122	122	120	116	106	102	94	85
Not Employed Permits	348	345	345	338	331	320	298	273	258	248	236	228	224	218	212	201	197	187	170
Unknown Permits	64	61	70	74	77	75	73	71	84	89	89	92	92	93	96	95	97	98	102
Government Permits	9	9	10	10	10	9	8	8	8	7	7	7	7	7	7	7	6	6	6
Pension Permits	2	3	3	3	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1
Total	970	961	946	920	901	866	809	745	724	703	675	660	654	639	622	592	573	546	499
Recurring Only (excludes unemployed):																			
Unskilled	61	63	61	61	62	63	61	59	60	59	58	57	57	56	56	56	54	53	50
Skilled	49	53	50	50	53	52	51	49	49	48	48	48	49	49	49	49	48	47	47
Agricultural	80	84	89	90	96	96	87	86	87	87	86	85	85	85	84	78	76	75	73
Total Recurring Workers	190	200	200	201	211	211	199	194	196	194	192	190	191	190	189	183	178	175	170
Unskilled %	32%	32%	31%	30%	29%	30%	31%	30%	31%	30%	30%	30%	30%	29%	30%	31%	30%	30%	29%
Skilled %	26%	27%	25%	25%	25%	25%	26%	25%	25%	25%	25%	25%	26%	26%	26%	27%	27%	27%	28%
Agricultural %	42%	42%	45%	45%	45%	45%	44%	44%	44%	45%	45%	45%	45%	45%	44%	43%	43%	43%	43%
Male %	88%	89%	88%	88%	88%	89%	88%	89%	90%	90%	90%	89%	90%	89%	89%	90%	90%	89%	89%
Female %	12%	12%	13%	12%	12%	11%	12%	11%	10%	10%	10%	11%	10%	11%	11%	10%	10%	11%	11%
Recurring Males Only:																			
Unskilled Recurring Males	47	49	47	47	48	49	47	46	49	48	47	46	46	45	45	45	44	43	40
Skilled Recurring Males	48	52	48	48	51	50	49	47	47	46	46	46	47	47	47	47	46	45	45
Agricultural Recurring Males	73	76	80	81	87	88	80	79	80	80	79	78	78	78	77	72	70	68	66
Total Male Recurring Workers:	168	177	175	176	186	187	176	172	176	174	172	170	171	170	169	164	160	156	151
Recurring Females Only:																			
Unskilled Recurring Females	14	14	14	14	14	14	14	13	11	11	11	11	11	11	11	11	10	10	10
Skilled Recurring Females	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Agricultural Recurring Females	7	8	9	9	9	8	7	7	7	7	7	7	7	7	7	6	6	7	7
Total Female Recurring Workers:	22	23	25	25	25	24	23	22	20	20	20	20	20	20	20	19	18	19	19
Overall %F	12%	12%	13%	12%	12%	11%	12%	11%	10%	10%	10%	11%	10%	11%	11%	10%	10%	11%	11%
Unskilled % F	19%	18%	19%	19%	18%	18%	19%	18%	15%	16%	16%	16%	16%	16%	16%	16%	16%	16%	17%
Skilled % F	2%	2%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Agricultural % F	8%	9%	9%	9%	9%	8%	7%	8%	7%	7%	8%	8%	8%	8%	8%	7%	7%	9%	9%

Sources:
StAZH, BEZ/AND/134/2
StAZH, BEZ/AND/134/3

Appendix 7.1
Swiss Working in Germany
Canton Zuerich

Start Date	7/1/41	8/1/41	9/1/41	10/1/41	11/1/41	12/1/41	1/1/42	2/1/42	3/1/42	4/1/42	5/1/42	6/1/42	7/1/42	8/1/42	9/1/42	10/1/42	11/1/42	12/1/42	1/1/43
End Date	7/31/41	8/30/41	9/30/41	10/31/41	11/30/41	12/31/41	1/31/42	2/28/42	3/31/42	4/30/42	5/31/42	6/30/42	7/31/42	8/31/42	9/30/42	10/31/42	11/30/42	12/31/42	1/31/43
Overall:																			
Permits Issued Each Month	15	16	10	42	23	19	22	31	53	54	24	11	10	3	5	10	3	3	2
Permits Valid At End of Month	482	468	401	394	410	396	376	356	344	323	279	266	261	222	210	211	203	199	195
Unskilled Permits	61	56	43	43	45	43	42	40	42	37	32	31	32	28	27	29	29	28	28
Skilled Permits	65	60	47	42	46	44	42	41	40	38	36	33	33	30	29	30	29	27	27
Agricultural Permits	78	75	66	63	64	60	56	53	48	44	36	32	33	26	26	26	25	25	25
Not Employed Permits	165	157	127	123	128	121	112	103	105	82	71	70	65	59	56	56	56	56	54
Unknown Permits	106	113	113	118	122	122	120	116	105	119	101	97	95	76	69	67	61	60	58
Government Permits	6	6	4	4	4	5	4	3	4	3	3	3	3	3	3	3	3	3	3
Pension Permits	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	482	468	401	394	410	396	376	356	344	323	279	266	261	222	210	211	203	199	195
Recurring Only (excludes unemployed):																			
Unskilled	48	47	39	38	40	38	38	36	38	32	28	27	28	25	24	26	26	25	25
Skilled	49	47	40	39	43	41	39	38	37	35	32	30	30	27	26	27	26	24	24
Agricultural	71	70	63	60	62	58	54	51	46	42	34	30	31	24	24	24	23	23	23
Total Recurring Workers	168	164	142	137	145	137	131	125	121	109	94	87	89	76	74	77	75	72	72
Unskilled %	29%	29%	27%	28%	28%	28%	29%	29%	31%	29%	30%	31%	31%	33%	32%	34%	35%	35%	35%
Skilled %	29%	29%	28%	28%	30%	30%	30%	31%	32%	34%	34%	34%	34%	36%	35%	35%	35%	33%	33%
Agricultural %	42%	43%	44%	44%	43%	42%	41%	41%	38%	39%	36%	34%	35%	32%	32%	31%	31%	32%	32%
Male %	90%	90%	88%	88%	88%	88%	89%	89%	89%	89%	87%	86%	85%	83%	84%	84%	84%	83%	83%
Female %	10%	10%	12%	12%	12%	12%	11%	11%	11%	11%	13%	14%	15%	17%	16%	16%	16%	17%	17%
Recurring Males Only:																			
Unskilled Recurring Males	40	39	31	30	32	30	30	28	30	25	21	20	20	17	17	19	19	18	18
Skilled Recurring Males	47	45	38	37	41	40	38	37	37	35	32	30	30	27	26	27	26	24	24
Agricultural Recurring Males	64	64	56	53	55	50	48	46	41	37	29	25	26	19	19	19	18	18	18
Total Male Recurring Workers:	151	148	125	120	128	120	116	111	108	97	82	75	76	63	62	65	63	60	60
Recurring Females Only:																			
Unskilled Recurring Females	8	8	8	8	8	8	8	8	8	7	7	7	8	8	7	7	7	7	7
Skilled Recurring Females	2	2	2	2	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0
Agricultural Recurring Females	7	6	7	7	7	8	6	5	5	5	5	5	5	5	5	5	5	5	5
Total Female Recurring Workers:	17	16	17	17	17	17	15	14	13	12	12	12	13	13	12	12	12	12	12
Overall %F	10%	10%	12%	12%	12%	12%	11%	11%	11%	11%	13%	14%	15%	17%	16%	16%	16%	17%	17%
Unskilled % F	14%	15%	17%	17%	17%	17%	17%	18%	17%	18%	20%	21%	22%	24%	23%	21%	21%	22%	22%
Skilled % F	4%	4%	5%	5%	4%	2%	3%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Agricultural % F	9%	8%	10%	10%	10%	12%	10%	9%	10%	11%	13%	14%	14%	17%	17%	17%	18%	18%	18%

Sources:
StAZH, BEZ/AND/134/2
StAZH, BEZ/AND/134/3

Appendix 7.1
Swiss Working in Germany
Canton Zuerich

Start Date	2/1/43	3/1/43	4/1/43	5/1/43	6/1/43	7/1/43	8/1/43	9/1/43	10/1/43	11/1/43	12/1/43	1/1/44	2/1/44	3/1/44	4/1/44	5/1/44	6/1/44	7/1/44	8/1/44	9/1/44
End Date	2/28/43	3/31/43	4/30/43	5/31/43	6/30/43	7/31/43	8/31/43	9/30/43	10/31/43	11/30/43	12/31/43	1/31/44	2/29/44	3/31/44	4/30/44	5/31/44	6/30/44	7/31/44	8/31/44	9/30/44
Overall:																				
Permits Issued Each Month	11	10	19	33	13	15	16	26	22	21	30	42	39	39	24	18	15	26	10	26
Permits Valid At End of Month	201	200	211	227	221	180	153	162	134	135	122	129	134	131	128	121	119	142	125	142
Unskilled Permits	28	27	26	31	31	27	26	27	16	11	11	12	13	11	12	11	13	17	15	16
Skilled Permits	27	28	29	31	31	25	23	25	21	16	23	13	15	16	14	15	15	17	14	18
Agricultural Permits	28	30	32	32	32	30	30	30	27	31	21	27	24	26	26	18	18	25	23	28
Not Employed Permits	57	57	64	64	65	46	37	42	40	45	38	46	52	42	40	43	38	43	40	46
Unknown Permits	58	55	57	66	60	50	35	36	28	30	27	28	30	34	34	32	33	38	31	32
Government Permits	3	3	3	3	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2
Pension Permits	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Total	201	200	211	227	221	180	153	162	134	135	122	129	137	131	128	121	119	142	125	142
Recurring Only (excludes unemployed):																				
Unskilled	25	24	23	28	28	24	23	24	14	9	9	10	11	9	10	9	10	14	11	12
Skilled	24	25	26	28	28	22	20	22	18	13	20	10	12	13	11	12	12	14	11	15
Agricultural	26	28	30	30	29	27	27	27	24	28	18	24	21	23	23	15	15	22	20	25
Total Recurring Workers	75	77	79	86	85	73	70	73	56	50	47	44	44	45	44	36	37	50	42	52
Unskilled %	33%	31%	29%	33%	33%	33%	33%	33%	25%	18%	19%	23%	25%	20%	23%	25%	27%	28%	26%	23%
Skilled %	32%	32%	33%	33%	33%	30%	29%	30%	32%	26%	43%	23%	27%	29%	25%	33%	28%	28%	26%	29%
Agricultural %	35%	36%	38%	35%	34%	37%	39%	37%	43%	56%	38%	55%	48%	51%	52%	42%	41%	44%	48%	48%
Male %	84%	82%	82%	84%	85%	86%	86%	90%	91%	90%	85%	91%	91%	91%	86%	92%	92%	94%	93%	94%
Female %	16%	18%	18%	16%	15%	14%	14%	10%	9%	10%	15%	9%	9%	9%	14%	8%	8%	6%	7%	6%
Recurring Males Only:																				
Unskilled Recurring Males	18	17	16	20	20	18	17	19	10	7	7	7	9	7	6	7	8	12	9	10
Skilled Recurring Males	24	24	25	27	27	21	20	22	18	13	18	10	11	13	11	12	12	14	11	15
Agricultural Recurring Males	21	22	24	25	25	24	23	25	23	25	15	23	20	21	21	14	14	21	19	24
Total Male Recurring Workers:	63	63	65	72	72	63	60	66	51	45	40	40	40	41	38	33	34	47	39	49
Recurring Females Only:																				
Unskilled Recurring Females	7	7	7	8	8	6	6	5	4	2	2	3	2	2	4	2	2	2	2	2
Skilled Recurring Females	0	1	1	1	1	1	0	0	0	0	2	0	1	0	0	0	0	0	0	0
Agricultural Recurring Females	5	6	6	5	4	3	4	2	1	3	3	1	1	2	2	1	1	1	1	1
Total Female Recurring Workers:	12	14	14	14	13	10	10	7	5	5	7	4	4	4	6	3	3	3	3	3
Overall %F	16%	18%	18%	16%	15%	14%	14%	10%	9%	10%	15%	9%	9%	9%	14%	8%	8%	6%	7%	6%
Unskilled % F	22%	23%	23%	22%	22%	20%	21%	17%	22%	18%	18%	23%	15%	18%	29%	18%	17%	13%	15%	14%
Skilled % F	0%	4%	4%	3%	3%	4%	0%	0%	0%	0%	9%	0%	8%	0%	0%	0%	0%	0%	0%	0%
Agricultural % F	16%	18%	17%	14%	12%	10%	13%	7%	4%	10%	14%	4%	5%	8%	8%	6%	6%	4%	5%	4%

Sources:
StAZH, BEZ/AND/134/2
StAZH, BEZ/AND/134/3

Appendix 7.1
Swiss Working in Germany
Canton Zuerich

Start Date	10/1/44	11/1/44	12/1/44	1/1/45	2/1/45	3/1/45	4/1/45	5/1/45	6/1/45	7/1/45	8/1/45	9/1/45	10/1/45	11/1/45	12/1/45	1/1/46	2/1/46	3/1/46	4/1/46
End Date	10/31/44	11/30/44	12/31/44	1/31/45	2/28/45	3/31/45	4/30/45	5/31/45	6/30/45	7/31/45	8/31/45	9/30/45	10/31/45	11/30/45	12/31/45	1/31/46	2/28/46	3/31/46	4/30/46
Overall:																			
Permits Issued Each Month	23	10	22	38	40	50	25	13	11	5	296	76	11	10	3	2	127	293	77
Permits Valid At End of Month	149	145	152	176	167	164	170	181	189	194	490	566	577	587	505	206	326	370	232
Unskilled Permits	15	18	19	19	22	21	22	22	23	24	55	58	58	59	57	26	48	38	28
Skilled Permits	19	18	19	21	17	20	18	21	23	25	61	69	73	74	63	27	59	37	29
Agricultural Permits	33	29	31	36	32	28	28	30	30	30	97	112	114	115	99	31	54	77	42
Not Employed Permits	50	48	49	62	58	57	60	62	62	62	177	211	214	216	181	65	101	153	75
Unknown Permits	30	30	32	36	35	36	40	44	49	51	92	108	110	114	96	54	58	57	55
Government Permits	2	2	2	2	2	2	2	2	2	2	7	7	7	8	8	3	6	7	3
Pension Permits	0	0	0	0	1	0	0	0	0	0	1	1	1	1	1	0	0	1	0
Total	149	145	152	176	167	164	170	181	189	194	490	566	577	587	505	206	326	370	232
Recurring Only (excludes unemployed):																			
Unskilled	12	15	16	16	19	18	19	19	20	21	51	54	54	55	53	23	41	29	25
Skilled	16	15	16	18	14	17	15	17	19	21	54	62	66	67	56	23	46	29	24
Agricultural	30	26	28	33	29	25	25	27	27	27	91	105	107	108	93	28	45	52	37
Total Recurring Workers	58	56	60	67	62	60	59	63	66	69	196	221	227	230	202	74	132	110	86
Unskilled %	21%	27%	27%	24%	31%	30%	32%	30%	30%	30%	26%	24%	24%	24%	26%	31%	31%	26%	29%
Skilled %	28%	27%	27%	27%	23%	28%	25%	27%	29%	30%	28%	28%	29%	29%	28%	31%	35%	26%	28%
Agricultural %	52%	46%	47%	49%	47%	42%	42%	43%	41%	39%	46%	48%	47%	47%	46%	38%	34%	47%	43%
Male %	95%	93%	88%	91%	90%	93%	93%	94%	94%	94%	88%	88%	89%	89%	88%	95%	91%	89%	93%
Female %	5%	7%	12%	9%	10%	7%	7%	6%	6%	6%	12%	11%	11%	11%	12%	5%	8%	11%	7%
Recurring Males Only:																			
Unskilled Recurring Males	10	12	13	14	16	16	16	16	17	18	38	40	40	41	39	20	31	24	21
Skilled Recurring Males	16	15	16	17	14	16	15	17	19	21	52	59	63	64	54	23	45	29	24
Agricultural Recurring Males	29	25	24	30	26	24	24	26	26	26	82	96	98	99	84	27	44	45	35
Total Male Recurring Workers:	55	52	53	61	56	56	55	59	62	65	172	195	201	204	177	70	120	98	80
Recurring Females Only:																			
Unskilled Recurring Females	2	3	3	2	3	2	3	3	3	3	12	13	13	13	13	3	9	5	4
Skilled Recurring Females	0	0	0	1	0	1	0	0	0	0	2	3	3	3	2	0	1	0	0
Agricultural Recurring Females	1	1	4	3	3	1	1	1	1	1	9	9	9	9	9	1	1	7	2
Total Female Recurring Workers:	3	4	7	6	6	4	4	4	4	4	23	25	25	25	24	4	11	12	6
Overall %F	5%	7%	12%	9%	10%	7%	7%	6%	6%	6%	12%	11%	11%	11%	12%	5%	8%	11%	7%
Unskilled % F	14%	17%	16%	11%	14%	10%	14%	14%	13%	13%	19%	19%	19%	19%	20%	12%	18%	15%	14%
Skilled % F	0%	0%	0%	5%	0%	6%	0%	0%	0%	0%	4%	5%	4%	4%	3%	0%	2%	0%	0%
Agricultural % F	3%	4%	13%	8%	9%	4%	4%	4%	4%	4%	9%	8%	8%	8%	9%	3%	2%	12%	5%

Sources:
StAZH, BEZ/AND/134/2
StAZH, BEZ/AND/134/3

Appendix 7.1
Swiss Working in Germany
Canton Zuerich

Start Date	5/1/46	6/1/46	7/1/46	8/1/46	9/1/46	10/1/46	11/1/46	12/1/46
End Date	5/31/46	6/30/46	7/31/46	8/31/46	9/30/46	10/31/46	11/30/46	12/31/46
Overall:								
Permits Issued Each Month	92	89	56	56	45	26	33	32
Permits Valid At End of Month	271	240	229	240	228	232	235	235
Unskilled Permits	33	32	27	28	28	27	30	33
Skilled Permits	30	33	30	32	31	31	31	32
Agricultural Permits	50	42	40	41	38	40	40	38
Not Employed Permits	96	76	75	82	73	77	76	75
Unknown Permits	55	54	53	54	54	53	53	53
Government Permits	6	3	4	3	4	4	5	4
Pension Permits	1	0	0	0	0	0	0	0
Total	271	240	229	240	228	232	235	235
Recurring Only (excludes unemployed):								
Unskilled	27	26	25	25	25	25	27	27
Skilled	25	27	26	27	26	26	25	25
Agricultural	37	35	35	34	33	35	33	33
Total Recurring Workers	89	88	86	86	84	86	85	85
Unskilled %	30%	30%	29%	29%	30%	29%	32%	32%
Skilled %	28%	31%	30%	31%	31%	30%	29%	29%
Agricultural %	42%	40%	41%	40%	39%	41%	39%	39%
Male %	91%	91%	92%	91%	92%	92%	91%	91%
Female %	9%	9%	8%	9%	8%	8%	9%	9%
Recurring Males Only:								
Unskilled Recurring Males	21	20	20	19	20	20	21	21
Skilled Recurring Males	25	27	26	27	26	26	25	25
Agricultural Recurring Males	35	33	33	32	31	33	31	31
Total Male Recurring Workers:	81	80	79	78	77	79	77	77
Recurring Females Only:								
Unskilled Recurring Females	6	6	5	6	5	5	6	6
Skilled Recurring Females	0	0	0	0	0	0	0	0
Agricultural Recurring Females	2	2	2	2	2	2	2	2
Total Female Recurring Workers:	8	8	7	8	7	7	8	8
Overall %F	9%	9%	8%	9%	8%	8%	9%	9%
Unskilled % F	18%	19%	17%	19%	17%	17%	18%	18%
Skilled % F	0%	0%	0%	0%	0%	0%	0%	0%
Agricultural % F	5%	5%	5%	6%	6%	5%	6%	6%

Sources:
StAZH, BEZ/AND/134/2
StAZH, BEZ/AND/134/3

Appendix 7.2
Swiss Working in Germany - Canton Aargau

Outgoing Workers (to Germany):

	7-Dec-37	7-Jul-38	12-Dec-38	22-Dec-39	16-Dec-40	8-Aug-41	11-Dec-41	16-Jul-42	24-Dec-42	14-Jul-43	14-Dec-43	4-Jul-44	18-Jan-45	29-Jun-45	11-Dec-45	9-Jul-46
Total	91	101	214	130	117	122	131	113	90	93	87	84	64	39	77	94
Male	79	90	202	112	106	111	119	97	74	81	78	76	59	38	73	88
Female	12	11	12	18	11	11	12	16	16	12	9	8	5	1	4	6
Skilled		84	120	114		105	111	91	70	62	60	67	46	36	66	73
Unskilled		17	92	16		15	19	18	18	30	25	16	17	2	10	18
Agricultural		0	2	0		2	1	4	2	1	2	1	1	1	1	3
Skilled M		82	114	111		104	110	91	69	62	58	62	46	36	66	72
Unskilled M		8	87	1		5	8	5	5	18	18	12	12	2	7	13
Agricultural M		0	1	0		2	1	1	0	1	1	1	1	1	1	1
Skilled F		2	6	3		1	1	0	1	0	2	5	0	0	0	1
Unskilled F		9	5	15		10	11	13	13	12	7	4	5	0	3	5
Agricultural F		0	1	0		0	0	3	2	0	1	0	0	0	0	2

Incoming Workers (from Germany):

	7-Dec-37	7-Jul-38	12-Dec-38	22-Dec-39	16-Dec-40	8-Aug-41	11-Dec-41	16-Jul-42	24-Dec-42	14-Jul-43	14-Dec-43	4-Jul-44	18-Jan-45	29-Jun-45	11-Dec-45	9-Jul-46
Total	81	75	68	46	25	22	19	20	21	17	15	17	12	4	9	267
Male	29	23	24	22	11	12	10	10	11	10	9	12	7	1	2	246
Female	52	52	44	24	14	10	9	10	10	7	6	5	5	3	7	21
Skilled		30	23	20		11	11	10	11	7	7	9	7	1	4	70
Unskilled		44	43	25		11	8	10	10	9	8	8	5	3	5	197
Agricultural		1	2	1		0	0	0	0	1	0	0	0	0	0	0
Skilled M		16	14	16		9	9	7	8	4	5	7	5	0	1	9
Unskilled M		6	8	4		3	1	3	3	3	2	3	2	1	1	8
Agricultural M		1	2	1		0	0	0	0	1	0	0	0	0	0	0
Skilled F		14	9	4		2	2	3	3	3	2	2	2	1	3	61
Unskilled F		38	35	21		8	7	7	7	6	6	5	3	2	4	189
Agricultural F		0	0	0		0	0	0	0	0	0	0	0	0	0	0

Sources:

StAAG BA.09.0596 (1911-1950, Grenzverkehr, Bezirksamt Rheinfelden), "Arbeitsbewilligung in täglichen Grenzverkehr," 7 July 1938.
 StAAG BA.09.0596, "Arbeitsbewilligung in täglichen Grenzverkehr," 12 December 1938.
 StAAG BA.09.0692 (1932-1943, Krieg, Grenzverkehr, Bezirksamt Rheinfelden), folder marked "3/659," "Arbeitsbewilligung in täglichen Grenzverkehr," 22 December 1939.
 StAAG BA.09.0692, folder marked "3/654+3/659+3/662," "Arbeitsbewilligung in täglichen Grenzverkehr," 22 December 1939.
 StAAG BA.09.0692, folder marked "3/654+3/659+3/662," "Arbeitsbewilligung in täglichen Grenzverkehr," 8 August 1941 and 11 December 1941.
 StAAG BA.09.0692, folder marked "1942/1943, 3/653+3/654+3/662," "Arbeitsbewilligung in täglichen Grenzverkehr," 16 July 1942 to 14 December 1943.
 StAAG BA.09.0693 (1944-1949, Krieg, Grenzverkehr, Bezirksamt Rheinfelden), folder marked "1944/1945, 3/653," "Arbeitsbewilligung in täglichen Grenzverkehr," 14 July 1944 to 11 December 1945.
 StAAG BA.09.0693, folder marked "1946-1949, 3/653," "Arbeitsbewilligung in täglichen Grenzverkehr," 9 July 1946.

Appendix 7.3

Swiss Working in Germany - Canton Basel

Available Data: Permits Issued 28-Feb-1940 to 11-April-1940

Workers Coming from Switzerland:

Sample Size:

Total Number of Permits Issued:	861
Number Revoked:	74
Net Permits Valid:	787
Total Number of Unique Workers:	308

Occupation Information:

Agricultural:	118	53.6%
Skilled/Business Interests:	66	30.0%
Un-skilled:	36	16.4%
Total with known occupation info:	220	

Gender Distribution:

Overall:

Male	446	56.8%
Female	339	43.2%

Male		As % Total	As % M
Skilled M	60	27.3%	42.6%
Unskilled M	17	7.7%	12.1%
Agricultural M	64	29.1%	45.4%
Female			As % F
Skilled F	6	2.7%	7.6%
Unskilled F	19	8.6%	24.1%
Agricultural F	54	24.5%	68.4%

Total **220**

Sources:

StABS PD-REG/8c/(1)/2-1:3, *Grenzkarte Listen* [Lists of Border Permits] marked or attached to correspondence marked "22" to "32" and "a" through "d" dated between 28 February and 11 April 1940.

Appendix 7.4 (part 1)

Swiss Working in Germany - Customs Transfers Kl. Grenzverkehr

Calculation of Total Economic Activity by Canton, November 1939

Reconciliation of Customs Data from Federal Zones to Cantons

Location	Canton	1a. Imports: Exempt Purchases	1b. Imports: Goods	1c. Services	Exports	Total Economic Activity	Total Economic Activity, According to Districts Needed - to Appendix VI (Bold Figures, in Swiss Francs)	
Swiss Customs District 1								
Kleinhüningen	Basel Stadt	5,109	2,239	2,280	7,560	17,188	17,679	Customs District 1: Basel Stadt, Aargau, & Zuerich
Basel Bad. Bahnhof Eilgut	Basel Stadt							
Basel Bad. Bahnhof Freiburger	Basel Stadt							
Riehen	Basel Stadt							
Grenzacherstrasse	Basel Stadt							
Rheinfelden	Aargau							
Saeckingerbruecke	Aargau							
Schwaderloch	Aargau							
Liebstadt	Aargau							
Koblentz	Aargau							
Swiss Customs District 2								
Waldshut	Aargau	115		92	284	491	172	3,648 Canton Schaffhausen
Zurzach-Burg	Aargau							
Trasadingen	Schaffhausen	110		27	35	172		
Schaffhausen	Schaffhausen	175	426	148	1,101	1,850		
Diessenhofen	Schaffhausen	255		347	880	1,482		
Thayngen-Bahnhof	Schaffhausen	75		10	59	144	144	26,609 Canton Thurgau
Buch-Grenze	Schaffhausen							
Kreuzlingen	Thurgau	5,769		2,200	18,640	26,609	26,609	
Total Customs District 2		6,499	426	2,824	20,998	30,747		
Total Customs Districts 1 + 2		11,608	2,665	5,104	28,558	47,935		

Sources:

BAr E2001D/1000/1552/38, folder marked "B.11.21.A.4, 1940/1942, Abkommen mit Deutschland..." letter from Eidgenössischen Oberzolldirektion to Handelsabteilung des Eidgenössischen Volkswirtschaftsdepartments, marked "Nr. 185/3" dated 22 May 1940

BAr E6351F/1000/1044/490, folder marked "1938, 2 Teil," Letter from Eidgenössischen Oberzolldirektion to Eidgenössischen Statistische Amt, marked "Nr. 185/3" dated 31 January 1939

BAr E6351F/1000/1044/491, folder marked "1939: Statistisch Meldungen über den Kleinen Grenzverkehr mit Deutschland," Letter from Eidgenössischen Oberzolldirektion to Eidgenössischen Statistische Amt, marked "Nr. 185/6" dated 24 February 1939.

Appendix 7.4 (part 2)
Swiss Working in Germany - Customs Transfers Kl. Grenzverkehr
Determine Permit Holders and Workers in Cantons Schaffhausen and Thurgau
November/December 1939

Step I. Calculate Average Economic Activity per Grenzkarte Holder:

Canton	Permits Valid in Canton:	Workers in Canton:
Basel Stadt (from Appendix 7.3)	830	326
Aargau (from Appendix 7.2)	664	130
Zurich (from Appendix 7.1)	971	190
Total Permits Outstanding	2,465	646
Total Economic Activity in Customs District I (from Appendix 7.4 part 1)	Fr. 17,678.60	Fr. 17,678.60
Total Economic Activity per Unit	Fr. 7.17	Fr. 27.37

Step II. Determine Number of Permit Holders and Workers:

	Canton Schaffhausen	Canton Thurgau
Economic Activity November 1939	Fr. 3,648	Fr. 26,609
Permit Holders:		
Economic Activity per Permit Holder	Fr. 7.17	Fr. 7.17
Estimated Number of Grenzkarte Holders at 1 Dec 1939:	509	3,710
Workers:		
Economic Activity per Worker	Fr. 27.37	Fr. 27.37
Estimated Number of Swiss Residents Working in Germany at 1 Dec 1939:	133	972
Sources:		
Appendices 7.1-7.3		
Appendix 7.4 part 1		

Appendix 7.5

Estimated Net Earnings of Swiss Residents Working in Germany, December 1939 to June 1945

Date	Total Workers - Switzerland to Germany						Gross Quarterly Earnings Reichsmarks	Gross Quarterly Earnings Swiss Francs	Average Earnings per Worker Quarter (Swiss Francs)	German Equivalent Salaries - Reichsmarks			
	Total Workers	Male	Female	Skilled	Unskilled	Agri-cultural				Per Week			
										Male Skilled	Male Unskilled	Female Skilled	Female Unskilled
Dec-39	1,759	82%	18%	70%	15%	14%	916,495	1,603,867	912	48.28	34.73	23.34	23.98
Mar-40	1,767	83%	17%	71%	15%	14%	973,008	1,702,764	964	51.22	36.09	24.26	24.42
Jun-40	1,737	84%	16%	71%	15%	14%	956,383	1,673,671	964	51.22	36.09	24.26	24.42
Sep-40	1,692	85%	15%	71%	15%	14%	931,500	1,630,126	963	51.22	36.09	24.26	24.42
Dec-40	1,657	86%	14%	71%	15%	15%	917,261	1,605,206	969	51.22	36.09	24.26	24.42
Mar-41	1,630	86%	14%	71%	15%	15%	977,563	1,710,735	1,050	55.41	39.22	26.09	25.73
Jun-41	1,579	86%	14%	71%	15%	15%	948,328	1,659,575	1,051	55.41	39.22	26.09	25.73
Sep-41	1,458	86%	14%	70%	14%	15%	859,217	1,503,629	1,032	55.41	39.22	26.09	25.73
Dec-41	1,492	86%	14%	70%	16%	14%	887,375	1,552,906	1,041	55.41	39.22	26.09	25.73
Mar-42	1,358	84%	16%	69%	17%	14%	788,006	1,379,011	1,015	54.44	38.13	25.25	24.85
Jun-42	1,140	82%	18%	68%	17%	15%	659,674	1,154,429	1,013	54.44	38.13	25.25	24.85
Sep-42	1,004	81%	19%	67%	19%	14%	579,457	1,014,049	1,010	54.44	38.13	25.25	24.85
Dec-42	920	79%	21%	66%	20%	14%	528,728	925,275	1,005	54.44	38.13	25.25	24.85
Mar-43	954	81%	19%	62%	25%	14%	546,997	957,245	1,004	55.11	39.05	24.6	23.13
Jun-43	1,001	83%	17%	58%	29%	13%	565,810	990,167	989	55.11	39.05	24.6	23.13
Sep-43	925	84%	16%	58%	28%	14%	524,349	917,611	992	55.11	39.05	24.6	23.13
Dec-43	783	85%	15%	61%	26%	14%	447,339	782,842	1,000	55.11	39.05	24.6	23.13
Mar-44	764	86%	14%	64%	22%	14%	442,173	773,803	1,013	55.13	39.41	23.74	22.07
Jun-44	716	86%	14%	69%	19%	13%	421,245	737,179	1,029	55.13	39.41	23.74	22.07
Sep-44	723	87%	13%	64%	22%	14%	419,157	733,524	1,015	55.13	39.41	23.74	22.07
Dec-44	658	87%	13%	61%	24%	14%	377,568	660,744	1,004	55.13	39.41	23.74	22.07
Mar-45	616	89%	11%	68%	17%	15%	361,045	631,830	1,026	55.13	39.41	23.74	22.07
Jun-45	563	91%	9%	74%	10%	16%	337,370	590,398	1,048	55.13	39.41	23.74	22.07
TOTAL								26,890,585					

Sources:

See appendices 7.1-7.4

Salaries assumed to follow German standards from Länderrate des Amerikanischen Besatzungsgebiets. *Statistisches Handbuch von Deutschland, 1928-1944* (Ehrenwirth: München, 1949), p.470-471

Notes:

To account for different gender distributions within the skill levels, only 10% of women are assumed to be skilled, the remainder as unskilled (57%) and agricultural labour (33%) as per Canton Aargau statistics and as discussed in the text.

Appendix 7.6

Estimated Net Earnings of German Residents Working in Switzerland, December 1939 to June 1945

Date	Total Workers - Germany to Switzerland						Gross Quarterly Earnings Reichsmarks	Gross Quarterly Earnings Swiss Francs	Average Earnings per Worker Quarter (Swiss Francs)	German Equivalent Salaries - Reichsmarks Per Week			
	Total Workers	Male	Female	Skilled	Unskilled	Agricultural				Male Skilled	Male Unskilled	Female Skilled	Female Unskilled
Dec-39	1,384	43%	57%	35%	54%	11%	450,034	787,559	569	48.28	34.73	23.34	23.98
Mar-40	1,225	43%	57%	35%	54%	11%	415,181	726,566	593	51.22	36.09	24.26	24.42
Jun-40	1,065	43%	57%	35%	54%	11%	361,195	632,092	593	51.22	36.09	24.26	24.42
Sep-40	919	43%	57%	35%	54%	11%	311,751	545,565	594	51.22	36.09	24.26	24.42
Dec-40	772	43%	57%	34%	54%	12%	262,377	459,159	595	51.22	36.09	24.26	24.42
Mar-41	736	43%	57%	35%	54%	12%	268,959	470,678	640	55.41	39.22	26.09	25.73
Jun-41	702	43%	57%	35%	54%	12%	256,259	448,453	639	55.41	39.22	26.09	25.73
Sep-41	667	43%	57%	35%	54%	11%	243,549	426,211	639	55.41	39.22	26.09	25.73
Dec-41	581	43%	57%	35%	54%	12%	212,173	371,303	639	55.41	39.22	26.09	25.73
Mar-42	583	43%	57%	35%	54%	10%	206,321	361,061	620	54.44	38.13	25.25	24.85
Jun-42	558	43%	57%	36%	55%	9%	196,744	344,302	617	54.44	38.13	25.25	24.85
Sep-42	572	43%	57%	36%	55%	9%	201,647	352,882	617	54.44	38.13	25.25	24.85
Dec-42	586	43%	57%	36%	55%	9%	206,549	361,460	617	54.44	38.13	25.25	24.85
Mar-43	530	43%	57%	36%	55%	9%	185,941	325,397	614	55.11	39.05	24.6	23.13
Jun-43	474	43%	57%	36%	55%	9%	166,460	291,305	614	55.11	39.05	24.6	23.13
Sep-43	405	43%	57%	36%	55%	9%	141,923	248,365	614	55.11	39.05	24.6	23.13
Dec-43	419	43%	57%	36%	55%	9%	146,757	256,824	614	55.11	39.05	24.6	23.13
Mar-44	335	43%	57%	36%	55%	9%	116,217	203,379	607	55.13	39.41	23.74	22.07
Jun-44	474	43%	57%	36%	55%	9%	164,618	288,081	607	55.13	39.41	23.74	22.07
Sep-44	335	43%	57%	36%	55%	9%	116,187	203,327	607	55.13	39.41	23.74	22.07
Dec-44	335	43%	57%	36%	55%	9%	116,173	203,303	607	55.13	39.41	23.74	22.07
Mar-45	223	43%	57%	36%	55%	9%	77,506	135,635	608	55.13	39.41	23.74	22.07
Jun-45	112	43%	57%	35%	56%	9%	38,781	67,867	608	55.13	39.41	23.74	22.07
TOTAL								8,510,773					

Sources:

See appendices 7.1-7.4

Salaries assumed to be similar to German standard from Länderrate des Amerikanischen Besatzungsgebiets. *Statistisches Handbuch von Deutschland, 1928-1944* (Ehrenwirth: Munich, 1949), p.470-471

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Notes:

To account for different gender distributions within the skill levels, 35% of women are assumed to be skilled, the remainder as unskilled and agricultural labour as per Canton Aargau statistics. See discussion in the text.

Part Five:
Conclusions on the
Economics of Neutrality

Chapter Eight

Conclusion: The Economics of Neutrality

Neutrality, as reflected through trade, labour and capital flows during the Second World War, is realism. It is not the idyllic impartiality codified in the sixteenth century by Hugo Grotius or in The Hague Conventions;⁹³² or the co-belligerent status asserted in the popular literature.⁹³³ Despite the carnage of the First World War and the new threats against neutrality, no new definition was established in the interwar period. The military gap between the belligerents and neutrals widened, leaving the latter increasing subject to the military pressures of the former. Although further analysis of the deliberations behind the outcomes would be required to substantiate the policy decisions, revealed preferences indicate economic engagement was the only way for the neutrals to maintain independence. As a result, in a world of total war, neutrality is a realist phenomenon.

Across seven chapters, this dissertation has examined the economic relationships between the belligerents and three neutrals during the Second World War. It has not evaluated the moral arguments so often cited in the popular literature and has focused only on the development of accurate statistics

⁹³² Hugo Grotius, *De Jure Belli ac Pacis* [On the Laws of War and Peace], vol.2:bk.3 (London, 1925), p.783 (Translation); See The Fifth Hague Convention of 1907, which details the rights and duties of neutral powers and persons in case of war on land. For a complete text, see *Treaties and Other International Agreements of the United States of America 1776 to 1917*, vol.1: Multilateral 1776-1917 (Washington, DC, 1968).

⁹³³ Mark Aarons and John Loftus, *Unholy Trinity: The Vatican, the Nazis, and the Swiss Banks* (New York, 1998); Tom Bower, *Blood Money: The Swiss, the Nazis and the Looted Billions* (London, 1997); Adam LeBor, *Hitler's Secret Bankers* (New Jersey, 1997); Warner Rings, *Raubgold aus Deutschland: die Golddrehscheibe Schweiz in Zweiten Weltkrieg* [The Robbery of German Gold: The Revolving Door of Gold in Switzerland in the Second World War] (Ascona, 1990); Philipp Sarasin and Regina Wecker, *Raubgold Réduit Flüchtlinge: Zur Geschichte der Schweiz im Zweiten Weltkrieg* [The Robbery of Gold from the Refugees: The History of Switzerland in the Second World War] (Zurich, 1998); Jakob Tanner, "Hand mit den Nazis," *Bilanz*, 10 (1989), p.346-352; Isabel Vincent, *Swiss Banks, Nazi Gold, and the Pursuit of Justice* (New York, 1997); Don Arthur Waters, *Hitler's Secret Ally, Switzerland* (La Mesa, 1992); and Jean Ziegler, *The Swiss, the Gold, and the Dead* (New York, 1998).

to reveal the neutrals' methods of survival. It contributes to the retrospective understanding of neutral-belligerent relations because it offers conclusions based on cross-comparative economic outcomes. Of course, making final claims on neutrality based only on economic outcomes is problematic. We do not know precisely what types of non-economic pressure were exerted by the Germans and the Allies. Readers should recognize the situation is nuanced and can be complicated by culture or political signals exchanged between the partners which are not included in this study. Nonetheless, using Samuelson's revealed preference theory, this dissertation can comment on neutrality from an economic perspective.

Using trade, labour and capital flows, this dissertation suggests neutrality in the Second World War is economic realism, using carefully conceived deterrents against and concessions to the belligerents. It has detailed the economics of Spain's, Sweden's and Switzerland's relationships with the belligerents. Although it does not give a full understanding of the policy motivations behind the decision, these neutrals are engaged in a complicated multi-player game in which their actions are consistent with self-preservation and the avoidance of conflict. All three neutrals examined in this study have features in common. They do not excessively defer to one belligerent or another, but rather like any country, whether in war or in peace, they try to obtain the best possible terms for themselves in their relations with the belligerents. Therefore, conclusions based solely on the economic situation

Despite the different political origins of the three neutrals' policies, their economic concessions prove to be quite similar. The three countries have widely differing trade policies and agreements with the belligerents. The dissertation demonstrates the Germans benefitted from increased trade volumes and favourable pricing during the apex of Hitler's power. Switzerland, surrounded by the Germans, provides sizeable trade credits. But German control is never absolute. The two most isolated countries, Switzerland and Sweden, provide

concessions to the Allies in order to maintain recognition of their neutrality and access to Allied markets. Small goods critical to the Allied war effort were smuggled around the blockades and services extended to the Allies through every available channel. But the Allies were required to pay for these goods and services in gold. Spanish-belligerent terms follow a similar pattern, before changing to favour Spain after the start of the Allied pre-emptive purchasing campaign in late 1942/early 1943. No neutral country provides the belligerents with large numbers of workers. The overall trends have some periodicity to them, with overall notable increases in favouritism to Germany during its period of strength after the defeat of France in June 1940 and increasing deference to Allied demands after late 1943. By early 1945, all three neutrals see Germany's loss as imminent and the multi-belligerent game suggested in the introduction increasingly reverts to a one-belligerent model between the Allies and the neutrals as the war comes to a close.

Amongst the tactics used, the Swedish government ensured both parties received what they desired and prevented the other from objecting using information asymmetries. The normal trade agreements system clearly defined the quantities of particular exports. Comparing the political agreements against actual trade in Chapter Two, the Swedish government disregarded the agreed terms of its annual war trade agreements with the belligerents, especially for critical goods, in order to fully satisfy both belligerent groups. Quantities of goods, payment terms and other aspects were altered according to wartime conditions. The Swedes provided the Germans with the iron ore, ball bearings and machine tools critical for the German war effort; in a clear concession to the Germans, 1941, the peak year of German military power, was also the peak year of Swedish exports to Germany. In exchange, as shown in Chapter Two, the Swedes benefited from nominal goods import surpluses with both belligerent groups and were able to maintain favourable prices in German-Swedish trade throughout the period. Further, as seen in Chapter Five, the Swedes did not have

to provide trade credits to the Germans. In the case of German-Swedish trade, the excess merchandise imports favouring Sweden amounted to 1.8 billion Kronor, equalling 14.9% of Swedish 1938 NNI.⁹³⁴ Despite the large goods surplus, it is evident that the Swedish government acted within the previously described realist neutral framework.

In order to maintain its links outside the German trade bloc, the Swedes offered concessionary prices to the Allies and permitted the transportation of ball bearings, machine tools and other items important for the Allied war effort, documented here for the first time. These items were transported by air and sea through the blockade from Sweden to the UK, with trade increasing steadily until 1945. As part of these activities, the Swedish allowed Allied quasi-military transports to use Swedish territory for blockade-running, a concession which was otherwise incompatible with international neutral law. The Swedish government was also willing to suspend exports to Germany in October 1944, to benefit the Allies given that the Swedes were still surrounded by Axis powers. When contrasted against the pro-German actions, this clearly shows the Swedish government was acting pragmatically throughout the war, giving concessions where necessary to maintain Sweden's independence.

Despite being engulfed by the German bloc and its customs regime, the Swiss government was also able to maintain trade with the Allies. The Allies exerted financial and diplomatic pressure on the Swiss government. As seen in Chapters Four and Five, after Britain stated that its test for Swiss independence was the maintenance of an export surplus, the Swiss government provided the Allies with relative price benefits and a large export surplus (in nominal and real terms) and ensured that export trade volumes were maintained. In what was a particularly large concession to the Allies, exports included much-needed military goods, such as watches and guns.

⁹³⁴ Östen Johansson, *The Gross Domestic Product of Sweden and its Composition 1861-1955* (Stockholm, 1967), Table 57; Appendices 2.1 and 2.2.

To satisfy German military pressure, the Swiss offered a clearing deficit which rose to 990 million Swiss Francs, equivalent to 12.0% of Swiss 1938 NNI between 1941 and late 1943, as detailed in Chapter Five.⁹³⁵ In order to avoid trade retaliation, the Swiss also exploited information asymmetries and tried to prevent the disclosure of these sums to the Allies. Switzerland also provided the Germans with increased quantities of specialty exports; price increases were not as notable as in the Swedish or Spanish cases, despite the fact most of the goods were sold on credit. The dual nature of Swiss policy is particularly notable in labour, where the Swiss government ratified a new agreement with Germany for a free trade and movement area in late August 1939 to satisfy German demands; but almost immediately, local Swiss government authorities started to enforce permit regulations which limited transfers. Although Switzerland was still surrounded by the Germans until February 1945, after mid-1943, the Germans were at an increasing disadvantage, in both net trade and pricing terms.

Spanish-belligerent relationship also fits within the suggested neutral-belligerent framework. The Spanish government was initially in a weak position against the German government and therefore offered concessions on exports. However, the Spanish supplied the dense metal wolfram and the Spanish government was soon able to extract increasingly stiff price concessions from all of the belligerents using the *quid pro quo* trading system. It gained substantial technical and military equipment from the Germans which could have otherwise been used in the German war effort. The Spanish *quid pro quo* trading system allowed the Spanish government to best the Allies forcing them to pay for Spanish exports in gold, despite the Allied control of Spain's energy supplies. Moreover, the Spanish maintained the Allied-Axis competition right until the Allied armies reached the Spanish border. As a result, Spain's wartime trade position is consequently best characterized as one of pragmatic self-benefit, not

⁹³⁵ Martin Meier, Stefan Frech, Thomas Gees, and Blaise Kropf, *Schweizerische Aussenwirtschaftspolitik 1930-1948* [Swiss Foreign Trade Politics 1930-1948] (Zurich, 2002), p.293.

wartime domination by Germany. The seemingly close political alliance between Hitler and Franco clearly had limited impact on the economic relationship of the two countries, especially during the later years of the war.

Whether in trade, labour or capital flows, the three neutrals in this study survived the war (at least economically) through carefully designed concessions and deterrents. With military deterrents alone, it would have been very difficult for these neutrals to resist German or Allied aggression. In order to maintain a realist power balance between a neutral and a belligerent, the neutral was compelled to use economic means for survival as explained by the multi-player game provided in the introduction. This dissertation has demonstrated that in this context neutrality cannot be impartiality, with sales of identical quantities of goods and the provision of equal rights. Rather, as the neutrals trade, labour and capital concessions in the Second World War show, neutral self-preservation is an exercise in economic realism, where the game necessitates changing the level of economic concessions from the neutral or benefits to the neutral to correct for the relative power balance between a neutral and a belligerent at any given time.

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