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State-Building without Taxation.
The Political Economy of Government Finance in the Eighteenth-Century Republic of Bern

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Declaration:

I declare that the work in this thesis is my own.

The word count for the body of the text is c. 96,200 (incl. footnotes, excl. appendix and references).

This is the final version of the thesis that was originally submitted on 28 October 2006. It includes all minor amendments of the agreed list from the PhD viva on 18 January 2007. I thank my examiners, Prof Richard Bonney and Prof Thomas David for their insightful comments.

Stefan Altorfer-Ong,
London/Zurich, 1 February 2007
Abstract

The paradigm of early modern European state-building is predominantly derived from the experience of warring states and their attempts to increase revenue extraction. The Swiss republic of Bern offers an illuminating counter-example. Being free from major wars for over two centuries (1589-1798) offered a conductive situation that allowed the state to run consistent budget surpluses while minimising the tax burden on its citizens. The thesis explores the functions which the Bernese republic performed in the absence of warfare. I am particularly interested in the effect of redistribution of resources by the government, both directly through the fiscal constitution of the state and indirectly through institutions such as property rights, regulation and economic policy.

My methodology is based on models from New Institutional Economic History (North 1990; Epstein 2000), fiscal history (Schumpeter 195; Körner 1981; Bonney 1995/1999) and historical sociology (Tilly 1992; Ertman 1997). At the core of the thesis is an empirical analysis of fiscal redistribution, based on data from contemporary accounts of the state which I have collected from the archives. The Bernese republic is analysed in the context of a surplus state model, in which the following elements are mutually dependent and reinforcing: budget surpluses, low defence expenditure, the absence of a national debt, investments and low level of taxation. Overall the canton followed a niche strategy to state building which proved to be cost-effective compared to more coercive fiscal regimes. However, this strategy ultimately depended on the external effects of sustained warfare, taxation and public debts elsewhere in Europe.

A particular focus is on how the Bernese state used its structure as a surplus state to invest money on capital markets at home and abroad after 1710. I will use approaches from microeconomics and investor behaviour to analyse the canton’s portfolio investments.
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Chapter I

I Introduction

I-1 The Puzzle: State-building without Taxation

'No taxes, no unconstrained minister, no standing army and not the faintest sign of any threatening war! Can one find anything like this in any other place on earth? This is how the golden age has been. Ambition and riches have deprived the rest of the world of it.' The contemporary writer, scientist and politician Albrecht von Haller described his native Bern in 1753 with these words. Although Haller was a member of the ruling oligarchy and his statement therefore prone to exaggeration, the state he described was indeed extraordinary. It was a territorial republic that had not experienced major warfare for almost two centuries and had bursting coffers. Surplus money was invested on foreign capital markets, and the tax burden per capita was probably the lowest in Europe. In short, eighteenth-century Bern was a puzzle to its contemporaries and historians alike.

The history of European state formation and its impact on the economy has largely been studied from the standpoint of large territorial kingdoms. In these accounts of a development towards the nation state, smaller players perished and vanished. Paradoxically for these theories, examples of surviving 'non-nation' states are numerous; they include Bern and the other twelve republics of the Swiss Confederation. Analysing developments in these atypical states helps to distinguish between important structural changes and simple historical accidents to some extent. Particularly as most authors consider warfare a crucial factor of state development, Bern's peaceful development has almost counterfactual potential. Therefore, the central research question is: What functions did an early modern state perform in the absence of warfare, and what impact does this have on its political economy?

At the core of the thesis is an empirical analysis of Bernese public finance, which is vital to understanding the economic and political impact of states. Justification for this approach comes from Joseph Schumpeter who with much pathos claimed that 'the spirit of a people, its cultural level, its social structure, the deeds its policy may prepare - all this and more is written in its fiscal history, stripped of all phrases. He who knows how to listen to its message here discerns the thunder of

world history more clearly than anywhere else.\textsuperscript{2} In the case of Bern, as I will argue, the fact that there was very little ‘thunder’ makes this republic such an intriguing case study.

The selection of a single case study, while seemingly unspectacular, draws validity from the fact that the available models of state-building do not accommodate or account for the Bernese case. Hence the challenge is in dealing with a ‘theoretical mismatch’. The intention is not to disqualify any grand theories by examining one small state, but rather to investigate how the distinctive features of the canton can be better understood using these models, as it would be imprudent to ignore theory and recount the story of eighteenth-century Bern as an ‘insular’ state where everything was unique. The key is to use theoretical models carefully. Even if they fail to explain developments in their entirety, general explanations can be useful for understanding certain aspects. Ideally, this case study can offer feedback to the ‘failed’ theories and help to improve them, though it would be an unintended consequence and not the main purpose of my research.

The aim of this introductory chapter is to provide the conceptual background and lead into the case study.\textsuperscript{3} The remainder of this section will provide definitions of the state and state-building, as well as an overview of my research topic. This will be followed by a discussion of the most important theoretical explanations about the state-economy nexus in Section I-2, which covers approaches from economic history, historical sociology and financial history. The application of these models to the case of Bern and some tentative hypotheses are presented in a separate section (I-3), including my model of Bern as a surplus state. Section I-4 provides a brief introduction to the methodology and empirical data that underlies the empirical analysis. The chapter ends with an overview of the organisation of my thesis.

Definitions and Scope of my Research

Max Weber defined the state as a set of centralised and differentiated institutions that successfully claims the monopoly of legitimate violence within a

\textsuperscript{2} Schumpeter (1954): 7.

\textsuperscript{3} I have limited references in this chapter to a literature overview. Footnotes in subsequent chapters will provide more detailed information.
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Given territory. Numerous scholars have pointed out the limitations and pitfalls in this definition. Legitimacy is difficult to specify and the degree of monopolisation of violence can vary, particularly in early modern times where 'membership' to the state was not absolute and particular groups benefited from privileges, liberties, or exemptions. For Michael Mann, Weber's definition is problematic because it entails institutional (centrally located institutions) and functional (legitimate violence) elements. Amongst the aspects of social life which are state regulated, the most significant in economic terms are the implementation and enforcement of property rights and other formal rules, including those for revenue extraction. Additionally, the state provides public goods, most notably protection. This has been acknowledged by Douglass North and Robert Thomas, who see the state from an economic point of view and primarily as 'an institutional arrangement that sells protection and justice to its constituents. It does so by monopolizing the definition and enforcement of property rights over goods and resources and the granting of rights to the transfer of these assets. In return for this service, the state receives payment in the form of taxes.' They see this as a mutually advantageous trade between the governed and their government, as the provision of such public goods benefits from economies of scale.

To Weber, the constant struggle between elite groups over the type of and control over administration lays at the heart of state-building, even though he did not use this term. State-building, which some authors refer to as 'state formation', is far less about how new states are established but rather how existing states managed to survive and enhance their power. In this, states competed among each other, as well as with competing actors from within their territory. Therefore, state-building is mainly a process of widening and deepening of state power relative to its subjects. In this, there are interesting parallels to the concept of 'social disciplining' by Gerhard

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4 Weber, M. (1978). A similar definition is used by Charles Tilly, for whom states as 'the word’s largest and most powerful organizations for more than five thousand years' are defined as 'coercion-wielding organizations that are distinct from households and kinship groups and exercise clear priority in some respects over all other organizations within substantial territories': Tilly (1992): 1.
5 See, for example: Mann (1988); Ertman (1997); Nåf (1967); Epstein (2000).
6 Mann (1988).
8 North/Thomas (1973): 97. Strictly speaking, the definition of North and Thomas is for government, which they do not distinguish from the state. See the critique by Epstein (2000), discussed below.
9 Braddick (2000) sees the difference between the two in that 'state-building' was purposely undertaken, whereas 'state formation' was an impersonal progress. I will use the two terms synonymously.
Chapter I: Introduction

Oesterreich who described how early modern governments imposed an ever-increasing discipline on their subjects.¹⁰

These definitions are highly abstract and difficult to apply to any specific eighteenth-century state. For my empirical analysis, the state is defined as the government of Bern, or more specifically, everything that was recorded in the accounts of this government. Accordingly, the terms *government* and *state* are used synonymously unless otherwise mentioned. The sociologist Michael Mann had justified his choice when using a similar definition for his study on English state finance saying that ‘what this state undertook, however, is surely not without interest and significance.’¹¹ While such an institutional-cum-financial definition can be problematic and perhaps even tautological, it remains the best suited to an empirical analysis as long as its limits are acknowledged.

One of the downsides of my definition is that it discounts the distinction between various interest groups with a stake in the state. Despite being a republic with a parliament, Bern was not a Weberian *Ständestaat* with different social groups represented.¹² Neither did it have any territorial representation, as citizens from the subject territories were excluded from political participation. Furthermore, within the framework of my definition of the state the government is considered a unified entity which was not the case in practice. The Bernese political system in which government members were directly involved in state administration limited fractures between the two. However, the incentives of government and administrators were not always perfectly aligned and conflicts of interest prevailed. Institutional checks and balances were combined with rivalry and mutual distrust between government members.

Conflict between patricians was dwarfed by their common desire to secure exclusive access to highly lucrative posts in the government and state administration against potential new entrants. An important principle for the Bernese state was the *militia* idea that working for the *res publica* was a civic duty and hence only remunerated at a nominal rate. Although the principle had been largely undermined

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¹⁰ Oesterreich (1968), discussed below.
¹¹ Mann (1988): 74 (his emphasis). He defined the state as everything that was recorded in the accounts books of the government in Westminster.
for government offices, it still applied to some of the important positions in the state. It was also important to the canton’s military organisation, although the soldiers were almost exclusively subjects and not citizens of the republic. The canton’s administration was carried out by patrician government members with the support of local staff rather than a professional bureaucracy. In principle, Bernese patricians earned their living from private estates, a channel of income which allowed them to engage in political activities. In effect they were, to use another Weberian term, *Honoratiores*. This describes a group of individuals which has secured exclusive access to government positions through their economic ability to engage in offices that only pay nominal sums. However, this ceased to be the case by the eighteenth century as by then Bernese government offices provided a major source of income for ruling families, some of which had become quasi-professional administrators and politicians.

A second constraint of this definition of the state is that the canton’s government only represented one layer of political activity in the eighteenth century, when state functions were fragmented between several institutions. The canton was by far the most important nexus of political power and possessed a monopoly of legitimate violence. Some limiting factors of sovereignty that affected other states did not apply to Bern. First, the church was not an independent power: it was integrated into the republic during the Reformation and evolved into a *state church*, run and controlled by the government. Second, local privileges existed, but their impact was limited. Although communal autonomy was comparatively high, it did not pose a threat to sovereignty. Nevertheless, the government relied on collaboration and cooperation by its communes and, ultimately, by its subjects for many decisions. The counties into which the republic was divided for administrative purposes had lost any political power of their own.

Bern was one of thirteen cantons that formed the Swiss Confederation, a system of interlocking alliances between member states. The Confederation had very weak political institutions and relied on the cantons for administrative and military support. In short, it was little more than a channel through which the otherwise sovereign

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cants could co-ordinate their foreign policy.\textsuperscript{14} This was at times an onerous task due to religious, economic and political differences. Without any military force of its own, the Confederation was unable to enforce solutions unless the cantons cooperated. Bern was by far the largest of the Swiss states, covering nearly a third of Switzerland's overall territory and population. This gave it the position of a \textit{primus inter pares} which Bern assumed more by its military and financial power than by formal privilege. The relative effectiveness of its administration helped to make it the pre-eminent canton.

The time period of my analysis of the political economy of state-building in Bern is limited to the eighteenth century. This is more of an approximate framework than an exact demarcation, as I will not start with 1 January 1700. Incidentally, this start date would prove problematic, as under the Julian calendar that was used in the canton until 1701, the year started on the 25 March.\textsuperscript{15} The end of the period is clearer. On 5 March 1798, French troops marched into Bern, divided up its territory and incorporated all the Swiss states into the short-lived Helvetic Republic (1798-1803). In spite of several attempts to restore the old order afterwards, Bern never returned to its previous form. The former subject territories of Vaud and Argovia remained independent cantons, and the newly introduced, supposedly ‘old’ institutions were only caricatures of those that had disappeared with the French invasion.\textsuperscript{16}

1-2 Early Modern State-Building as You Know It

To organise the overview of the literature on the political economy of European state-building, I have divided all publications into three broad categories of economic history, historical sociology and financial history. Each of these will be discussed in turn later in this section. The distinction is not always clear-cut, and the most interesting works are those which challenge and cross such arbitrary boundaries. The implications of the explanations discussed in this section on my hypotheses for eighteenth-century Bern are explained in a separate section (I-3).

\textsuperscript{14} For the concept of state sovereignty: Spruyt (1994), who casually ignores the situation in Switzerland, even though this would be a good testing ground for his hypotheses.

\textsuperscript{15} For the calendar reform in Bern: RQBE, vol. 9.1: 207. In Britain, the Gregorian calendar (‘new style’) was introduced as late as 1752.

\textsuperscript{16} See, for example: Bernisches Historisches Museum (1998).
In embarking on the literature review the unit of comparison should be kept in mind. Since most of the theoretical explanations on state-building were written with an emphasis on the role of large monarchies, readers should note that my intention is not to compare Bern directly with the likes of Britain or France on a parity basis. This would be the proverbial comparison between apples and pears. The point is to relate the Bernese experience with a paradigm of European state-building rather than concrete examples. For more compatible individual comparisons, peripheral and smaller states would be more appropriate, but have generally been less extensively researched.

State and Economy in Economic History

Several major accounts of the historical development of economies have neglected the role played by the state. For Marxists, the state was simply a defender of the economic interests of ruling classes. States as actors in the economic process were hardly mentioned and if they were, the arguments were not very persuasive. As an example, Perry Anderson’s model of state formation ended up with little more than geopolitical determinism and leaves limited scope for economic explanation. On the opposite end of the political spectrum, neo-classical economists are reluctant to recognise the role of the state, except for securing property rights and providing the arena to enable market forces to work. Thus, the disciples of Adam Smith, who at times went beyond Smith’s original thoughts, either flatly ignored the state or saw it as an impediment to economic growth at best. Even though the importance of the modern state in economic development had been recognised by scholars including Alexander Gerschenkron, this was not applied to the early modern period. It took the emergence of another school of thought to reintroduce the state into political economy: New Institutional Economic History (NIE).

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17. The situation is different for per capita comparisons, which are possible across states of a different size, although there are other inherent problems with per capita calculations [see Gelabert (1995) and the discussions in Section IV-5 below].
18. See the overview by Prak (2001).
20. Smith (1976); For a Neo-Classical approach; see Barzel (2002).
21. For the modern state: Gerschenkron (1962); Sylla/Tilly/Tortella (1999).
22. The term ‘bringing the state back in’ is borrowed from political science: Evans/Rueschemeyer/Skocpol (1985).
The basic concern of NIE is to investigate the impact that institutions have on economic growth, defined and measured as a long-run rise in per capita income. For Douglass North, institutions are forms of cooperation and competition between economic actors, accompanied by a system of enforcement of these rules that organise human interaction. More succinctly, institutions are 'the rules of the game.'\(^{23}\) North, with Robert Thomas, argued in an early influential NIE book that efficient economic organisation was the key to economic growth. Efficient institutions managed to engage actors in productive activity by reducing externalities and transaction costs. Thus, they brought the private return of economic activities close to their social return. North and Thomas used this in a rather simplistic and teleological way to explain the 'rise of the Western world.'\(^{24}\) Their reductionist approach seemed to present a blueprint for economic growth in the form of the Whig version of development in Britain and later developments in the United States of America. The argument goes as follows: by securing property rights, states establish formal markets as an institutional framework conductive to growth, as opposed to economic organisation through traditional societies or arbitrary governments. The existence of sub-optimal, inefficient solutions can be attributed to bad policy under predatory rulers and their rent-seeking activities. Margaret Levi, a follower of Douglass North, elaborated on this point and went even further. From her strict rational-choice point of view, rulers cannot be anything else than predatory.\(^{25}\)

Numerous critiques can be made of North and Thomas. First, it is not clear what efficient economic institutions look like and transaction costs are by definition very difficult to measure. A single set of efficient institutions applicable to every situation simply does not exist. Long before NIE, Gerschenkron had shown how substitute solutions can be suitable under conditions of economic backwardness by analysing and comparing latecomers to the industrialisation process.\(^{26}\) Such a Gerschenkronian corrective might also be applied to concepts of NIE in order to correct for their Whig-centred view of history. Second, North and Thomas lack a coherent explanation about institutional change and why inefficient economic institutions persist. In his more recent work, North has addressed these questions and

\(^{23}\) North (1990): 3.
\(^{26}\) Gerschenkron (1962).
integrated concepts of path dependency to his argument. Third and most relevant to my concerns, NIE's concept of the state is anachronistic. North and Thomas' view is that the early modern state was much like its modern counterpart. They do not account for differing historical circumstances in early modern states, where membership was neither absolute nor universal, and where jurisdictional, political and economic inequalities represented serious and important impediments to secure property rights. Finally, if states secure property rights with the aim of extracting revenue by taxation, this can also have adverse economic effects.

Nevertheless, stripped of its determinism, NIE remains the best and most coherent explanation for early modern economic growth. Its positive features are twofold. On one hand, NIE brings the state into consideration and makes it a central actor rather than an exogenous variable in explaining economic growth. The concept is open for adaptation to other kinds of societies and states. It can hence be brought beyond the scope of what its authors had in mind. One possible way of doing so is the 'improved NIE' (my words) approach of Larry Epstein. He agrees with North and Thomas about the importance of secure property rights and reduced transaction costs. However, Epstein argues convincingly that the negative impact of the state on economic growth was not through excessive intervention but rather the lack and limitations of state sovereignty. The underlying assumption is that pre-modern growth is caused by market expansion, which allowed for specialisation and division of labour. This goes back to Adam Smith's idea that markets emerged because of human nature and its propensity to barter and trade. Such 'Smithian' growth is fundamentally different from modern, technology-driven 'Schumpeterian' growth. By assuming Smithian growth for early modern economies, Epstein identifies inadequate institutional preconditions of markets as the main impediment for such growth. Prisoners' dilemmas and coordination failures limited the free entry to markets as well as their extension. For Epstein, markets were the unintended consequence of expanding state sovereignty. Furthermore, states were supportive of

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28 Levi (1988), who states her allegiance to Douglass North in her introduction.
29 See especially Epstein (2000): ch. 1 for this critique.
31 He is also known as Stephan R. Epstein: Epstein (2000); Epstein (2005).
32 Smith (1976). Weber also sees markets as the most efficient form for the allocation of economic resources, as they are perfectly impersonal: Weber, M. (1978).
33 The term refers to Joseph Schumpeter's work on technology (rather than his position on state finance discussed below); see for example: Schumpeter (1991).
economic development because they created incentives, provided information and stimulated organisational as well as institutional change. It thus follows that a lack of centralised sovereign jurisdiction was at least as problematic as the persistence of predatory rulers. The main political regime barriers in early modern Europe were legally sanctioned monopolies that provided sources for rent-seeking, as well as jurisdictional fragmentation. They represented the inability to establish a unified, non-discriminatory fiscal and legal regime.\(^3\)

Epstein also addressed the impact of republics on economic growth by referring to Weber's postulate that republics were conducive to prosperity, mainly where towns were strong and states were weak.\(^5\) Even though this might be true for Italian city-republics of the late medieval and Renaissance period, the causal link between constitutional form and economic impact is unclear. From the point of view of many subjects, living in a republic was not necessarily attractive, as the politically empowered citizens tended to shift the burden of financing and maintaining the state infrastructures to their hinterland.\(^6\) The main problem with 'republicanism' as an explanation for successful economies is that early modern republics had little in common, apart from their political organisation. There was a broad range of states ranging from small urban republics in Italy or Germany to the territorial republics of considerable size such as Venice or the United Provinces. They all had completely different economic structures and paths of development. In the Swiss Confederation alone the diversity of republics was extraordinary. City-republics where both the economy and political regime depended on export industry and trade (Basel, Zurich) are difficult to compare with the relatively democratic rural Landsgemeinde cantons. The latter were controlled by local elites, some of whom had little interest in trade (Uri, Schwyz) while others were heavily engaged in it (Appenzell, Glarus).

The literature on the state offering protection for (export-) markets has mainly been discussed in the context of long distance trade and textiles.\(^7\) Ulrich Pfister has combined the idea of states offering protection rents with the emergence of proto-industry, defined as a 'process of regional growth in heavily export-oriented industrial production, in which no role is played by increases in the productivity of

\(^{34}\) Epstein (2000). For the jurisdictional fragmentation, also: Olson (1982).
\(^{36}\) The same is true for subjects living in the city without the right of citizenship, the so called Hintersassen. See Epstein (2000) and Gelabert (1995), discussed below.
\(^{37}\) See also the contributions of C.F. Lane, discussed in the subsequent heading.
labour and capital through technological change.\footnote{Pfister, U. (1996a): 137. For a more detailed version: Pfister, U. (1992a): 21-32; Pfister, U. (1996b). For the concept of ‘proto-industry’: Mendels (1972). From the abundant literature on the topic and numerous critiques of Mendel’s concept, see especially the collections of Leboutte (1996) and Ogilvie/Cerman (1996). For the following, see Pfister, U. (1996b): 150-152.} While earlier explanations of proto-industry understated the role of the state, Pfister includes political factors in the form of protecting market access and a potential for monopoly rents by setting quality standards and controlling the production process. Two main assumptions characterise his model of a stylised dual economy with both a proto-industrial and an agricultural sector. First, total factor productivity (TFP) growth and technological change are impossible. Second, capital and labour inputs are not substitutes. The overall growth rate is therefore determined by the growth rate of the labour force and of the capital stock, as well as by changes in the terms of trade. The latter are defined as relative prices of imported foodstuffs to exported manufactures, which can be influenced by political action if a close relation between entrepreneurs and governments exists.

In an empirical overview of proto-industry in early modern Switzerland, Pfister argued as follows. Since the cantons were in no position to protect their export markets aggressively, they obtained access to overseas markets through privileges that were granted in return for mercenary services. With their bargaining position slipping because the terms of trade for mercenaries had been undermined by changes in military technology, the Swiss were unable to maintain export privileges after the mid-seventeenth century. The alternative strategy of securing monopoly rents through setting standards and controlling production processes likewise became increasingly unsuccessful. States were unable to control for outflows of technological know how through the emigration of skilled workers and failed to find effective ways to monitor embezzlement and manage increasing ‘overhead costs’. Both strategies for securing state-supported proto-industrial growth were exhausted by the mid-eighteenth century. This process had started at least a century before when previously centralised and guild-controlled production was replaced by a putting-out system, in which goods and semi-finished products were traded in the market.\footnote{Ogilvie translates this to ‘artisanal system’. The term Kaufsystem goes back to Kriedte/Medick/Schlumbohm (1977).} As a result, the cotton boom of the mid-eighteenth century was based on a ‘wide-ranging and efficient transaction system linking financial activities and well-developed postal system with industrial involvement.’\footnote{Pfister, U. (1996b): 152.} By then, Swiss entrepreneurs were able to market large volumes of
products that responded to customer demand. In combination with bottle-necks in labour supply, this relative autonomy of the industrial sector supported the transition to modernisation.41

Early Modern State-building (Historical Sociology)

It is a truism to argue that the state was essential to historical analyses by sociologists and political scientists, since both disciplines originated in attempts to explain this very phenomenon. Following the pioneering works by Max Weber and others, state-building has become a major issue to the point that it is nearly impossible to provide a comprehensive overview. Given the great breadth and width of work on the topic, I will limit my overview to specific theories that account for economic aspects of state-building in early modern Europe. In this context, Michael Mann distinguished two theoretical streams, an ‘Anglo-Saxon’ one where the role of states is primarily economic and domestic; and a ‘Germanic’ approach, for which the state is fundamentally military and international in character.42 This dichotomy has faded and most political sociologists have adopted a view of state formation that combines the two streams. Paul Kennedy, for instance, sees geopolitical power as merely the outcome of economic strength.43

Otto Hintze was amongst the first scholars to recognise that military conflict, and not class struggle was an important factor in European state-building. The result of geopolitical conflict was the establishment of either an absolutist-cum-bureaucratic regime or representative government.44 Early neo-classical research on the economic consequences of warfare helped to formalise these approaches. Frederic Lane analysed the state as a protection-providing firm, distinguishing monopoly profit (‘tribute’) from the ‘protection rent’ that benefited certain actors, especially merchants involved in international trade.45 Lane emphasized that violence could precipitate positive economic externalities by securing internal legal and external military support, if wealth was redistributed towards individuals with a higher propensity to invest than consume and shifted from less productive to more

42 Mann (1988).
43 Kennedy (1989).
44 Hintze’s most important works were translated by Gilbert (1975).
45 Lane (1958); Lane (1979).
productive activities.\textsuperscript{46} Richard Bean analysed the costs and consequences of different forms of military organisation, focusing in particular on their impact on the state’s power to tax.\textsuperscript{47} More recently, Philippe Contamine and others have written on the military impact of state-building in a comparative perspective.\textsuperscript{48}

Charles Tilly adopted Hintze’s view that geopolitical struggle was a major determinant of state formation, but questioned the link between military pressure and the establishment of a bureaucracy. Drawing heavily on Gabriel Ardant, he acknowledged that a main determinant was the state’s ability to finance its warfare activities by collecting taxes. A high level of economic development could provide easily taxable resources and thus substitute for bureaucratisation.\textsuperscript{49} In his more recent work, Tilly dismissed his earlier account as being too teleological. He still views state structure chiefly as a by-product of the ruler’s effort to acquire the means for war, but distinguishes three paths to state formation: coercion-intensive, capital-intensive, and a middle way (‘capitalized coercion’).\textsuperscript{50} Other authors have followed his earlier approach and studied extraction regimes in more detail.\textsuperscript{51} With empirical material about English state finance, Michael Mann described the arrival of the ‘permanent war state’ in the seventeenth century, when functions of the state were largely military.\textsuperscript{52} To ensure their survival, states had to increase their extractive capacities to fund professional armies, navies, or both. Even though standing armies could be deployed for domestic repression, external geopolitical pressure was much more important in shaping early modern states. Brian Downing was mainly interested in the origins of liberal democracy, which he found in the representative assemblies of late medieval Europe. As questionable as this finding might be, his reflections on the financial resources of state formation are illuminating. Military modernisation led to a strengthening of monarchical power in countries that relied on domestic financial resources. Furthermore, in states where the military revolution was absent or which found other means for financing their armies, constitutional government was not destroyed. Downing does not analyse the situation in Switzerland. Even though the

\textsuperscript{46} Bullard et al. (2004): 101.
\textsuperscript{47} Bean (1973).
\textsuperscript{48} Contamine (2000).
\textsuperscript{49} Tilly (1975), see also Tilly (1992) and Ardant (1975), discussed below.
\textsuperscript{50} Tilly (1992).
\textsuperscript{51} See also Ferguson (2001).
\textsuperscript{52} Mann uses the expression ‘permanent war state’ in inverted commas: Mann (1988): 108. He claims that no European state was continuously at peace – which is not the case for the Swiss Confederation (discussed above). See also: Mann (1986-1993).
cantons would not fit properly into any of his categories, some of his ideas can be applied and used as reference points.  

Early theories of state formation placed a strong emphasis on the parallel rise of absolutism and bureaucracy. The British situation, presented by Henry Roseveare, Patrick O'Brien or John Brewer shows that this combination is incomplete. Despite being a ‘constitutionalist’ state, it had a highly developed tax collecting bureaucracy, to the extent that it resembled a Weberian bureaucracy avant la lettre. Thomas Ertman has tried to account for this fact by separating regimes (absolutism) from infrastructures (bureaucracy). In an impressive tour de force, he tried to explain the outcome of early modern state-building for a number of European states (see Figure I-1).

<table>
<thead>
<tr>
<th>Character of Infrastructure</th>
<th>Political Regime</th>
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<tbody>
<tr>
<td>Patrimonial</td>
<td>Absolutist</td>
</tr>
<tr>
<td></td>
<td>Latin Europe*</td>
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<tr>
<td>Bureaucratic</td>
<td>Constitutional</td>
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<td></td>
<td>Poland, Hungary</td>
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<td></td>
<td>German Territorial States, (Denmark)</td>
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<tr>
<td></td>
<td>Britain, (Sweden)</td>
</tr>
</tbody>
</table>

Figure I-1: Ertman’s Explanandum, or the Situation in Eighteenth-Century Europe

Source: Ertman (1997): 10, Table 1.

*) Latin Europe = France, Spain, Portugal, Tuscany, Naples, Savoy, Papal States
States in brackets are the states that his model cannot explain properly.

To explain this outcome, Ertman introduces a historical dimension to his model, which makes relative timing a key determinant of the state-building process. He does this with explicit reference to Alexander Gerschenkron’s studies of relative economic backwardness, which were discussed earlier. In Ertman’s view, the causes of the different outcomes of state-building were the organisation of local government during in the late middle ages, the timing of the onset of sustained geopolitical competition,

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53 Downing (1992); Downing (1988); see also Stasavage (2003). The term ‘military revolution’ was introduced by Michael Roberts in 1956, see: Rodgers (1995); Parker (1996).

and the independent influence of strong representative assemblies, notably on taxation. While this explanation works for most states in his sample, it fails to account for the situation in Sweden and Denmark.

The problems with his sophisticated model are twofold. First, Ertman concentrates heavily on large monarchies and excludes both republics and small states from his analysis, dismissing them as 'nonterritorial states.' If Alberto Alesina and Enrico Spolaore have recently introduced the size of nations as a topic of contemporary economics, this task has not been attempted for the early modern period. Secondly, there is a strong survivor bias in Ertman's view. By limiting his explanation to the formation of successful states, he cannot account for failures, such as Bohemia or Burgundy. Even though Ertman introduces a historical dimension in what could be called a 'Gerschenkronian turn', his model still appears teleological. It provides small comfort to say that most broad-brushed sociological explanations share similar faults to an even stronger degree.

Wolfgang Reihnard's history of state power has put a strong emphasis on monarchs as key actors in modelling the European state. Other scholars have challenged his top-down view of the state-building process and emphasized the strong bargaining position of the ruled in regimes based on consent. This 'state-building from below' approach was pioneered by Peter Blickle and further developed by his students. Thomas Brady has also stressed non-coercive alternatives to state-building with a strong emphasis on Swiss models. In general, research on alternative forms of state-building focused mainly on Southern German and Swiss states, relying on Dietrich Gerhard's concept of an 'Old Europe' in which corporately organised societies continued from the high middle ages to around 1800. While concepts stressing continuity have been prominent in empirical studies, they have not reached

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55 In a footnote, Ertman explains his case selection and casually defines his 'nonterritorial states': Amongst others he excludes Venice because it was only a city republic; the Dutch republic and the Swiss Confederation because they were federal entities, as well as the German 'midget states' and independent territories who were - in his view - little more than overblown private estates: Ertman (1997): 5 (fn. 3).
56 Alesina/Spolaore (2003).
57 Ertman (1997), with explicit reference to Gerschenkron (1962) for the historical dimension.
58 Reinhard (1999); see also Reinhard (1996a).
59 Blickle (2000); for an English summary: Blickle (1986); Holenstein (2000). See also the debates in Blickle (1997) and Reinhard (1996b).
60 Brady (1991) and - although with an earlier timeframe - Brady (1985).
61 The term Old Europe (Alteuropa) goes back to Gerhard (1981).
the degree of conceptualisation of the ‘modernising’ visions of state-building epitomised in Ertman’s model.

The economic impact of early modern states has been researched by Douglass North and Barry Weingast, who argued in an influential paper that the Glorious Revolution of 1688 was favourable for the British economy. The country benefited from a new political constitution that limited the power of the crown through constitutional commitment. In the new parliamentary system, wealth holders with veto power checked for the crown’s ability to renege on public debt. In turn, Parliament provided sufficient tax revenue to fund the state. North and Weingast interpreted this as part of a broader commitment to secure property rights. As a proxy to test their argument, they used falling interest rates on public debt. This thesis has been soundly critiqued by several scholars. A comparison with data from continental countries makes the British performance look more like a Gerschenkronian catching up of a late developer in financial organisation than a significant advantage over her competitors. Others have argued that interest rates are not a good indicator of secure property rights, as they were fixed legally and not through the market. Another critique comes from Patrick O’Brien, who has shown that financial innovation happened to a large extent during the Civil War and cannot be attributed to the Glorious Revolution.

The scepticism towards the Whig interpretation of North and Weingast is also tangible in a book edited by Philip Hoffman and Kathryn Norberg. Their attempt to link political constitutions and the ideology of state finance – what they call ‘a new fiscal history’ – concentrates on fiscal crises in England, the Netherlands, Spain and France. Hoffman and Norberg acknowledge the importance of fiscal policy on state-building, pointing to the puzzling fact that the (supposedly) freest people in Europe, the Dutch and the British, were taxed at the highest rates. As an explanation, they attribute the willingness to pay taxes to representation. O’Brien argues along similar

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64 Temin/Voth (2005). They emphasise credit rationing instead. For the basic idea, developed for the French credit market: Hoffman/Postel-Vinay/Rosenthal (2000).
lines when describing the origins of British ‘fiscal exceptionalism.’\textsuperscript{67} The willingness of taxpayers to sustain the strategic, commercial, and imperial objectives of the government relied on a professional and relatively efficient system for the assessment and collection of excises.\textsuperscript{68} In addition, Britain’s revenue was to a large extent based on indirect taxes. Its fiscal constitution allowed less manipulation for redistribution towards private gain, social groups or specific regions. Compared to other European countries, the British fiscal system had the advantage of being efficient. It also relied on a broadening and widening base that was universally taxed. Such ideas of a \textit{fiscal absolutism} in Britain are in conflict with traditional views of a dichotomy between continental absolutism and British constitutionalism.

The concept of absolutism, which played such an important role in early historical sociology, has lost most of its attraction to scholars, who have ‘deemphasized the absolute in absolutism.’\textsuperscript{69} Great discrepancies between contemporary claims and the reality have been pointed out. Gianfranco Poggi, one of the most fervent critics, has brought this to the point in a comment on Louis XIV’s alleged statement \textit{L’Etat c’est moi}, arguing that the ruler ‘probably never said it; if he did say it, he did not mean it that way; if he did mean it that way, then he did not know what he was talking about.’\textsuperscript{70} Nowhere was the difference between aspirations of the ‘absolutist’ state and reality larger than in fiscal matters; in France, ‘taxpayers remained chronically “undertaxed”.’\textsuperscript{71} From a ruler’s perspective (rather than the taxpayer’s), this compares unfavourably to the situation in Britain and the Dutch Republic, where in spite of parliamentary consent the fiscal burden was high. As a ‘socio-historical version of absolutism’, Gerhard Oesterreich’s concept of social discipline [\textit{Sozialdisziplinierung}] has been remarkably popular.\textsuperscript{72} Oesterreich relied mainly on ideas by Weber, combining them with Norbert Elias and Michel Foucault. In its simplest form, the concept claims that the early modern state had a fundamental impact in disciplining individuals, thus establishing a hierarchically organised society.

Most of the socio-political explanations presented so far do not investigate the effects of their findings on economic development. In this, they could benefit from the ideas of Hilton Root, who has analysed the redistributive role of governments. Root considered the economic efficiency of the criteria used for allocating resources within a state. When comparing the redistributive role of governments in Old-Regime France and Britain, he distinguished between cronyism and corruption. In the British case, the corruption of Parliament was an informal and illegal form of redistribution, but was open to market forces in what could be called a ‘market for corruption’. In contrast, France had a system of cronyism, where an institutionalised, legally sanctioned form of favouritism redistributed resources within the state. Although his dichotomy between cronyism and corruption might be overstated in Root’s empirical references, the basic idea has a good explanatory potential when used as a pair of Weberian ideal types.\(^7\)

The Rise of the Fiscal State (Financial History)

For the most part, the field of financial history – which in this context I take to be the history of state finance only – has been rather reluctant in adapting models from other disciplines and has remained predominantly descriptive. A landmark research project about the financial dimension of the rise of the modern state has produced a wealth of data for several states across six centuries throughout Europe, which was compiled in the *European State Finance Database (ESFDB).*\(^7\) However, in contrast to the astonishing width and depth of the data, conclusive comparisons proved difficult and conceptual explanations provided little more than a re-statement of older models.\(^7\) Joseph Schumpeter’s early attempt to introduce a combination of history and ‘financial sociology’ has been ignored for a long time.\(^7\) When it was re-discovered, sociologists seemed to have found more fruitful approaches to its extension – arguably because they found it easier to brush aside the complex issues that arise when comparing empirical data across a variety of states. Accordingly, some of the most compelling books about state finance have been written by scholars

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\(^7\) Bonney (1995b); Bonney (1999b).

\(^7\) Bonney (1995c); Körner (1995a); Körner (1995b) and Gelabert (1995). See also Bonney/Ormrod (1999), discussed below.

\(^7\) Schumpeter (1954), originally written in 1918.
from other disciplines. Financial history has to a large extent failed to recognise its potential for broader contexts, such as state-building or constitutional developments. I will organise the discussion of the main contributions which are relevant to my own study by starting with evolutionary models of fiscal states, followed by issues of revenue and taxation, and closing with the role of public credit.

For Schumpeter, fiscal history was seen as the starting point for a sociological analysis of the state. In the account books, the reality of this institution could be investigated, stripped from the ideological burden inherent to normative sources. Both the causal importance of state finance and its 'symptomatic significance' – the fact that almost every human action has its fiscal reflection – are interesting starting points for both historical and sociological examinations. This can be applied even further than Schumpeter's own analysis, which remained rather teleological and unilinear. The starting point of his developmental model are the medieval rulers who had to live off their own domains. In addition to the direct income from crown lands, their income consisted of feudal rights (regalia) and revenue from judicial powers. Sporadic contributions from vassals and the church provided further revenue, but rulers had no general right to levy taxes. The fiscal economy of this domain state moved into crisis because of the growing expenses for warfare. Princes first incurred large debts, and when they could borrow no more, they turned to the estates [Stände] to provide taxes for common exigencies: 'Out of the "common exigency" the state was born.' What followed was the growth of a fiscal system based on the taxation of estates and the Church, which reached its peak in the late sixteenth century. As the state created its own institutions and became a separate power, taxes were no longer raised merely for extraordinary, pre-specified purposes. The concept and the machinery of the tax state had arrived. The political conflict then changed into one about control of this type of state. For Schumpeter, taxes not only helped to create the state, but also brought a 'calculating spirit' to society.

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79 The German term Domäne can be translated as 'demesne' [e.g. by Schumpeter (1954)] or 'domain' [e.g. by Bonney (1995b)]. For the sake of coherence, I will adopt the latter spelling consequently.
81 Schumpeter (1954): 16. In this, he is close to the Weberian account of 'rationalisation', which, however, is mainly driven by religious beliefs and cultural customs, or the famous 'protestant work ethic': Weber, M. (1978).
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The empirical content of Schumpeter’s theory about the transition from domain to tax state has been criticised. Even though taxes were extraordinary revenue granted for the common good in theory, in practice rulers had stopped living off their domain from the late middle ages.\(^8\) The critique of the Schumpeterian view by Bonney contains two main points.\(^3\) First, that the income from domains did not decline uniformly throughout Europe. The most striking example is Prussia, where even in the eighteenth century the composition of revenue did not look like that of a tax state.\(^4\) Second, that the administrative problems of the domain state were for the most part not inherent to this form of fiscal system and could be observed in other types of states as well. Bonney therefore opened up the definition of the domain state and introduced four different types thereof: (1) primitive, where rulers were obliged to consume *in situ*; (2) less primitive, where a central and local administration ensured collection, storage, and consumption of the rulers’ goods in kind; (3) entrepreneurial, where payments in kind were a safeguard against price fluctuations and shortages; and (4) colonial, where new territories were acquired to be integrated into the rulers’ domains. Another solution was adopted by Kersten Krüger, who has modified the Schumpeterian account by introducing an intermediate phase of development, in which some combination of domain revenue and taxation prevailed. By describing this mixed solution as a ‘finance state’ [*Finanzstaat*], he referred to Gerhard Oesterreich, who used the same term to describe a period in constitutional history.\(^5\) In formal terms, Krüger adds little to the Schumpeterian concept, whereas Bonney’s suggestions have the advantage of being suitable for typologies of fiscal constitutions.\(^6\) A more recent study of Richard Bonney and Mark Ormrod refined Krüger’s view and conceptualised his approach by presenting a developmental model of fiscal change in which states went through four broad stages: tribute, domain, tax, and fiscal state.\(^7\)

Sociologists following the classic texts by Gabriel Ardant stressed the importance of finance for the building of states. Ardant’s voluminous studies are

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\(^{82}\) Gelabert (1995); see also Bonney (1995a); Isenmann (1995); Körner (1994) for the ideological foundation of taxation.

\(^{83}\) Bonney (1995b). This differs from his view in Bonney/Ormrod (1999), discussed below.


\(^{86}\) The same critique applies to Buchholz (1996) and Buchholz (1992). The main advantage of his study is the integration of the Scandinavian literature.

\(^{87}\) Bonney/Ormrod (1999).
mostly based on French material and sometimes lack thorough conceptualisation.\textsuperscript{88} Charles Tilly formalised Ardant’s thoughts and made them more accessible, as discussed earlier in this section. Ardant examined the impacts and limits of revenue collecting, listing the problems involved in early modern taxation. These include an insufficient production by largely agricultural economies with relatively low returns, the small size of the market sector, difficulties in tax collection, unequal distribution of the burdens and difficulties in tax assessment. Subsistence economies are difficult to tax, as revenue extraction is much simpler when goods circulate. Cities that depended on markets even for basic foodstuffs became easy targets for tax collectors. In the countryside, salt was heavily taxed, because it was a good that farmers could not produce themselves and therefore had to buy on markets. Other solutions to tax in the absence of markets were tithes, levies on stocks of wealth, approximate estimates (i.e. taxing whole communities instead of individuals), or flat-rate universal taxes per capita, such as poll taxes. Non-fiscal methods of financing included such ‘archaic solutions’ as confiscation and secularisation of church property, the venality of offices, as well as currency debasements. Maximising taxation could be made either with an emphasis on coercion (‘constraint’) or by obtaining compliance from taxpayers. Ardant’s most important point was his emphasis that economic development could substitute for coercive ways of extraction. According to him, Physiocrats of the eighteenth century who analysed the economic impact of tithes recognised that any tax on the gross product and not net revenue perpetuated inefficient incentive structures, discouraging investments.\textsuperscript{89}

The impact of taxation on the economy is difficult to establish. Peter Mathias and Patrick O’Brien have tried to analyse this empirically for Britain and France.\textsuperscript{90} They were criticised by Donald McCloskey, who argued that the incidence of taxation cannot be determined from a theoretical point of view.\textsuperscript{91} Nevertheless, empirical studies should be carried out with the necessary precaution in interpretation. For example, John Beckett and Michael Turner suggested that financing Britain’s aggressive foreign policy through heavy taxes produced short-term adverse effects, while leading to longer-term economic prosperity. The burden of excise tended to dampen internal demand and might even have slowed the process

\textsuperscript{88} Ardant (1975); see also Ardant (1965); Ardant (1972).
\textsuperscript{89} Ardant (1975).
\textsuperscript{90} Mathias/O’Brien (1976).
\textsuperscript{91} McCloskey (1978), see the reply from Mathias/O’Brien (1978).
of industrialisation.\textsuperscript{92} O'Brien argued that this was one of the factors that pushed business towards external and imperial markets. Despite the negative effect on internal demand, the most innovative sectors of industry, particularly textiles, remained lightly taxed.\textsuperscript{93}

The importance of non-fiscal impacts on tax revenue has also been considered by other scholars. Juan Gelabert, in his comparison of early modern tax burdens, stated that given the relatively low level of taxation in early modern economies and the big proportion of revenue in kind, harvest fluctuations were probably more important and certainly less predictable than taxes. The nature of taxation was also crucial: indirect taxes were relatively efficient in times of economic and population growth, such as in eighteenth-century Britain. In a situation of decline on the other hand, the reliance on pro-cyclical indirect forms of taxation could have negative effects, as Gelabert illustrated with reference to seventeenth-century Spain. Contemporary taxpayers were well aware of the regressive nature of indirect taxes, but in societies based on privilege this must have seemed a relatively effective solution. Early modern states could usually increase taxation on segments of the population that were already taxed. In urban republics, this was often the surrounding and not politically represented countryside. Only in times of acute fiscal pressure were there attempts to break out of fiscal constraints and to tax new resources. Gelabert stressed that the amount of money paid by taxpayers could be significantly lower than the sum obtained by the treasury because of the redistributive nature of the fiscal regime. France is the example of how an inefficient tax collecting system could distort the economic impact of taxation on an economy. Gelabert also analysed the impact of religion, or rather: the organisation of the church, on state finance. Exemption of the clergy from paying taxes and the secularisation of church property could have considerable fiscal effects.\textsuperscript{94}

In line with the increase in taxation throughout the early modern period was the search for ways of funding states through borrowing, which led to innovations in public credit.\textsuperscript{95} In spite of its Italian antecedents, these developments were most

\textsuperscript{92} Beckett/Turner (1990).
\textsuperscript{93} O'Brien (1988); O'Brien (1994).
\textsuperscript{94} Gelabert (1995).
\textsuperscript{95} Körner (1995b).
visible during the Dutch *golden age* and post-civil war Britain.\(^{96}\) According to James Tracy, financial innovations which had enabled the Dutch to finance their war of independence were later copied by the English.\(^{97}\) Peter Dickson coined the term ‘Financial Revolution’ to describe the changes that took place in Britain’s government finance after the Glorious Revolution.\(^{98}\) The basic idea behind the Financial Revolution was that Parliament allowed the state to borrow on an unprecedented scale through securing tax revenue that was earmarked for servicing newly established ‘funded’ debts. This debt was issued in relatively small sums to private investors, either as annuities or through joint-stock companies. Since individual lenders could sell their financial claims on the government, this allowed for the establishment of a secondary market for government securities. Combined with innovations in the financing of long-distance trade, the national debt was thus at the origin of what Larry Neal calls ‘financial capitalism’.\(^{99}\)

Douglass North specified the innovations that lowered transaction costs in early modern long distance trade, which corresponded to developments in government finance: they reduced transactions costs by increasing the mobility of capital, lowered information costs and transformed uncertainty into risk.\(^{100}\) An involvement of wealthy individuals or groups in financing the state, or what Weber called ‘politically oriented capitalism’ was not unusual in the early modern period.\(^{101}\) What was new in the Financial Revolution was that the state was now financed through the capital market, where its creditors were anonymous and widely dispersed. For governments, this financial strategy lowered the cost of servicing debts via a reduction of interest rates. To obtain such a discount, they had to mortgage future tax revenue for interest payments and abstain from a reneging on public debt. In short, both parliament and crown (or: government) had to commit to ‘play by the rules of the capital market.’\(^{102}\) From an investor’s perspective, government bonds had the advantage of being relatively secure and liquid assets.

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\(^{98}\) Dickson (1993); See also Tracy (1985); Roseveare (1991).

\(^{99}\) Neal (1990); Neal (2000).

\(^{100}\) North (1991).


\(^{102}\) Neal (2000): 124, see also North/Weingast (1989), discussed above.
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Several authors have stressed the importance of financial markets for economic development.\textsuperscript{103} The major problem with government borrowing is that it can divert financial resources away from a productive use ("crowding out").\textsuperscript{104} For early modern Britain, Peter Temin and Hans-Joachim Voth recently investigated this problem with data from the private capital market, arguing that crowding out effects were limited in scale.\textsuperscript{105} The problem that remains unresolved is to determine whether public debt was a direct substitute for other forms of saving and investment, especially in activities that were more productive for the economy.

If most of the research on public finance has dealt with revenue extraction by the state, this neglects the impact of expenditure. For an overall consideration of the political economy of state-building, fiscal redistribution is crucial. In an empirical study of early modern Lucerne, Martin Körner provided a detailed framework for analysing redistribution through state finances, in which he distinguished between functions of the state, sectors of economic activity and natures of transaction.\textsuperscript{106} This approach will be described in detail in the methodology section (1-4) below, as my investigation of Bernese public finances is largely based on Körner's framework.

1-3 Analysing the Mismatch: My Hypotheses

Most of the established historiographic and theoretical approaches have major disadvantages. They are by definition simplifying and in focusing on a core of Western European monarchies, most fail to account for the considerable amount of variation between early modern states. If the losers in the state-building process were included, this would improve the quality of models considerably. Full explanatory power can only be claimed if an empirical test proves that these states failed because they did not adapt to features of the survivors. Such a test, however, is limited by the lack of data. States that disappeared have left fewer records, or rather the likelihood of their destruction is higher. Additionally, failed states have been neglected by historiography in general, which dwell on the old lament of history being written by the winners. Fortunately, some smaller states have survived. Studying these can

\textsuperscript{103} For instance: Sylla/Tilly/Tortella (1999); Levine (1998).
\textsuperscript{104} See a discussion for Britain [O'Brien (1994)] and France [Hoffman/Postel-Vinay/Rosenthal (2000)].
\textsuperscript{105} Temin/Voth (2005).
\textsuperscript{106} Körner (1981). He used a simplified version of this approach in comparative study of expenditure in European state finance: Körner (1995a).
increase the number of cases with which to test hypotheses, though it would also increase complexity as the emerging picture is likely to demand more specification. The reluctance to integrate republics in comparative historical analyses has been blamed by Körner amongst others, who termed them a valuable alternative to monarchic states and as polities that 'possessed a real dynamism and a capacity to modernize.'

Considering alternatives to the major avenues of state formation could help to distinguish explanatory factors from sheer accidents. To cite an example: did the power to tax an ever-increasing amount of resources really benefit the economy? Or rather: what were the necessary preconditions under which the power to tax had a positive impact?

What I propose for this study is an analysis of Bern's alternative path to state formation. It was not a highly successful state, and it clearly does not fit most theoretical frameworks. I will use the explanatory models in a heuristic way: if taken as typologies rather than developmental models, concepts like the Schumpeterian domain state can be useful in describing the key features of a particular situation.

By analysing the points where Bern runs counter to the theoretical explanations, knowledge about the situation of the political economy in this specific state can be derived.

Overall, the canton followed a niche strategy to state-building, which some might argue was conservative and backward. In many respects, eighteenth-century Bern was more akin to a medieval than to a modern state. It did not rely on a powerful extraction machine, which meant that the tax burden borne by its subjects was very moderate. Instead, it used alternative ways of extracting resources, such as through tithes and corvée labour for serving in the militia army. From their paternalistic standpoint, the patrician government were proud to offer their (supposedly) free subjects a state without taxation, run by prudent and frugal magistrates. For the most part, as illustrated by the Albrecht von Haller quote at the beginning of this chapter, they lauded the absence of a standing army and bureaucracy. The Bernese legitimacy approach to the fiscal constitution can be regarded as a cost-efficient alternative to more coercive ways of state funding. In this context, the term 'legitimacy' is used relative to other early modern states; compared

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109 See the quote above (p. 10).
to modern nation states, the canton’s discriminatory ways of revenue extraction would not qualify as legitimate. Nevertheless, Bern certainly was not a predatory state, and revenue maximising was not its prime concern.

The reasons why the Swiss Confederation was not invaded or subjected to tribute payments by its larger neighbours were a combination of deterrence, Realpolitik and luck. Deterrence was maintained through its sizeable militia armies and mercenary troops, though their actual strength was possibly overrated by contemporary observers. Realpolitik kept the main powers with an interest and proximity to Switzerland at bay. The French crown and the Habsburg Empire checked each other’s influence at most times and ensured that the cost of invading outweighed the benefits of ruling the relatively poor Swiss Confederation. Both powers were happy to have a neutral, or at least relatively neutral, buffer between their territories.\textsuperscript{110} In this situation, both powers secured what they were most interested in at a relatively low cost: safe passage through the Alps, market access and mercenaries. Finally, luck was almost certainly the main ingredient of Swiss independence. The fate of the \textit{Pax Helvetica} at times hung on a thin thread, particularly when confessional conflicts ran wild. In the end, disagreements were solved peacefully. The Swiss had learnt their lesson in what Martin Körner called ‘financial solidarity’ in the sixteenth century, namely that the common interest in peaceful coexistence as a bi-confessional and occasionally dis-united Confederation offset the cost of secession.\textsuperscript{111}

Thus, in geopolitical terms, Bern virtually abstained from the European power play in the eighteenth century. The sheer existence of such peaceful states is puzzling, as the omnipresence of warfare is one of the very few explanatory variables that most theories of early modern state-building agree upon. Some of the unintended consequences of warfare on the economy – standing armies, capital markets or growth of the state itself – were not entirely absent. Bern developed along the lines of a free rider state, profiting from public goods provided by the belligerent European powers. Even though Mancur Olson has specified the free rider problem with view to the domestic situation, it can be applied to this situation as well.\textsuperscript{112} The externalities that Bern profited from were technological, military and financial developments in

\textsuperscript{110}For Swiss neutrality: Suter (1998).
\textsuperscript{111}Körner (1980).
\textsuperscript{112}Olson (1965).
other states. Mercenaries who fought on Europe's battlefields were one of the most important export goods. They were also the price to pay for military independence and 'neutrality.' Furthermore, by investing part of its surplus abroad, Bern profited from the indebtedness of Britain and other powers that financed their ever-increasing national debt on the capital market.

The Model of Bern as a Surplus State

To describe the political economy of eighteenth-century Bern, I have used the concept of a *surplus state*. This term is slightly different from Körner's entrepreneurial state and Bonney's entrepreneurial domain state. The canton relied to a considerable part on revenue collected in kind, which could be consumed, stored and sold on the market. It combined this traditional domain income with engagement in economic activities, such as the monopoly of salt trade, grain storage, but also financial investments. This might initially be interpreted as a failure by the government to coerce its subject into contributing towards its revenue as the state was not funded through taxation. However, as I will proceed to argue the government did not *need* to tax its population. Instead, it was content with its traditional sources of revenue. This put a severe financial cap on state-building, at least as far as the shortfall of incomes from taxation could not be compensated.

The Bernese surplus state was in a positive equilibrium (a 'virtuous circle') that combined five interdependent and mutually reinforcing elements: low defence expenditure, budget surpluses, investments that generated returns, low levels of taxation and the absence of a national debt (see Figure I-2). The most important condition for this equilibrium to work was the absence of warfare.

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113 Körner (1981); Bonney (1995c): 447-463. I use the term surplus state because Bern had other options than to engage in entrepreneurial activity (discussed below).
I will briefly introduce all five elements of the surplus state model and discuss possible connections between them below. At this point, they should all be understood as hypotheses which have to be falsified by the empirical analysis throughout my thesis. I have limited this section to the crucial points, leaving detailed references to the discussion in the empirical chapters.

*Low Level of Defence Expenditure:* As a member of the Swiss Confederation, Bern abstained from expansion - and thus from warfare - from the late sixteenth century. In spite of short civil wars, the *Pax Helvetica* prevailed until 1798, sparing the cantons from the soaring bill of defending their territory in a Europe where warfare had become highly capital intensive. The defence of the Bernese republic rested on a two-tier system combining a domestic militia with mercenary troops positioned abroad that worked as a *virtual standing army*. This was a very cost-effective solution to national defence, since the militia was mainly paid for in kind by extracting forced labour and the mercenaries were funded by foreign states.

*Budget Surpluses:* With its frugal approach to state finance, the canton regularly spent less than its revenue. Only towards the end of the century did expenditure exceed revenue for several consecutive years, mainly because of the military threat from France. These budget surpluses accumulated in the form of ‘retained earnings’, cash or funds for investment.

*Absence of a National Debt:* Loans played an important part in financing territorial expansion in the fifteenth and sixteenth centuries. The resulting public debt was repaid through budget surpluses, tax revenue and *pension* payments by foreign powers for the use of mercenary troops. By the turn of the eighteenth century, Bern
had been without net public debts for over a hundred years; the government had even started with amassing considerable funds. At first, these took the form of a cash reserve that served as a war chest. Its exact amount is difficult to quantify because the government deliberately kept no accounts or inventories about the content of its vaults.

*Investments and Returns:* As mentioned above, budget surpluses could be invested to generate future returns. The opportunities for this were numerous. Bern had rounded its territorial possessions by purchasing lands and titles, improved infrastructure throughout the country, engaged in economic activities and invested in financial claims. The latter had started with loans on the domestic market or neighbouring territories, which could foster dependencies and political clientelism. From 1710 the canton had added foreign borrowers to its loan portfolio by granting credit to Britain and the United Provinces. These funds were later converted to purely financial investments on the London capital market.

*Low Level of Taxation:* Along with other Swiss republics, Bern had one of the lowest levels of taxation of any European state of its time. Direct taxation on property had been abolished in the seventeenth century and indirect taxes were moderate. Most of the tax revenue came from tithes on grain and wine, which were long-standing and legitimate sources of revenue extraction.

Although all elements of the surplus state model were ultimately interrelated, some of the connections can be specified more clearly. In particular, I distinguish between three sub-cycles of the overall virtuous cycle, namely a *militia-, investor- and representation cycle* (see Figure I-3).
The *militia cycle* relied on the provision of security without a standing army. The Bernese militia, in which in principle every able-bodied man served without compensation, triggered very little expenditure in cash. It was not funded by tax revenue, but by the extraction of labour in the form of regular training days and eventual days in battle. In addition, soldiers had to provide and maintain their own equipment. This situation had the side effect that Bernese subjects were armed, which limited the potential to impose tax revenue by coercion. The risk of armed tax rebellions was high and made any new introduction very costly from the government’s perspective. Instead it relied on co-operation and compliance from subjects and local elites, because these were well integrated into the Bernese state and had considerable local autonomy, issues of internal safety were negligible. The small number of political riots was mainly targeted at reforming the existing order rather than at its complete overthrow. This in turn made the maintenance if internal security less costly.

The *investor cycle* refers to debates about the entrepreneurial state cited earlier and can also be called the entrepreneurial cycle. The basic idea is that accumulated surpluses that are not used to service debt can provide funds for productive investment by the state. Cameralist writers suggested that a state should invest in factories, mines or infrastructure. After failed attempts to build canals in the late seventeenth century, the Bernese state invested in its road system in the eighteenth century. This attracted local and foreign traffic, which in turn generated additional customs revenue. The canton also invested in a system of public granaries which was expected to stabilise grain prices and avoid starvation in years of bad harvest. This
was part of an embryonic welfare state that included orphanages, hospitals and schools, although it remained at a very limited scale. From the late seventeenth century onwards, the state had also started to act like a bank, granting loans to private borrowers and entrepreneurs in order to encourage domestic economic development. This practice proved rather unsuccessful in the long run because there were few investment opportunities within the territory. The sole possibility of lending domestically was by mortgage credit, most of which was agricultural. The government had been involved in this market for a long time. When it effectively banned foreigners from the market, their financial claims were taken over by the state. As in the rest of the Swiss Confederation however, a lack of investment opportunities and low interest rates resulted in an oversupply of capital. This led to capital exports by private investors and ultimately by the state as well.

The representation cycle also relied on the returns of previous investments. It followed from the principle that these returns assured the government’s independence in two ways. First, investments which could be liquidated served as a war chest in combination with the cash reserve which had fulfilled this function before. The objective was to mobilise bullion reserves for military emergencies in the first instance and then sell financial assets in the medium run if necessary. In other words, the funds fortified the geopolitical independence of the Bernese state. Second, revenue that derived from investments also secured the independence of the government (and here, the words state and government are not used synonymously). Since taxing property needed the consent of taxpayers, which was usually only granted against political participation, the absence of direct taxes helped to make the government immune to any such claims. Thus, turning the slogan of the American Revolution on its head, the Bernese government could be said to aim for a situation of ‘no representation without taxation.’ As this situation would potentially run against the idea of the militia cycle, the government had to walk a tight rope. A negative aspect was that overseas investments created new dependencies, because Bern was subjected to the goodwill of the states in whose national debt it had invested, Britain in particular.

In principle, Bern as a surplus state had other options apart from the investment of state funds: it could increase public consumption or lower taxation. While the

\footnote{114 Of course, issues of taxation were only the tip of the iceberg of the American Revolution.}
former was not opportune, the latter was nearly impossible. Public consumption was strongly disliked by the frugal Bernese patricians. Their republican-cum-protestant ethos limited expenses for lavishing representation. Strict sumptuary laws – which were not always strictly followed in practice – were intended to maintain a social order in which the equality between citizens was paramount. It was combined with a differentiation from non-citizens, which were the majority of the canton’s population that were not represented in the government. Although the ruling elite adapted new fashions throughout the eighteenth century, this was capped by internal checks. The limits on personal expenses also applied to public finance, in which representation was limited just enough to still ensure that political power remained visible and unquestioned. The patricians considered the state their ‘family affair’ and took a long-term view to the sustainability of its budget accordingly. Savings and investments translated into a provision for future generations; to overspend would be viewed disapprovingly as living off them.

To lower taxation was also difficult, as paradoxical as it might sound. Limiting tithe collection was practically impossible without forfeiting this right completely because its rate was fixed historically. Tithes were highly legitimate, and the fact that they were levied as a proportion of revenue made them relatively easy to bear. When harvests were abundant, farmers could more easily spare part of their returns. In times of bad harvest, the government was probably more lenient in collecting tithe revenue, although empirical evidence on this is understandably hard to come by. All other taxes were comparatively low by European standards. Although the government could have reduced tariffs or its monopoly profit on salt sales, the scope for doing so was relatively small. After all, the state needed to maintain a minimal infrastructure of tax collection in place as a last resort for times of hardship. Since introducing new taxes was difficult and costly, it is most likely that the government would have had to rely on an increase of current forms of taxation to boost its revenue in an emergency. Finally, there was also an element of ‘keeping up with the Joneses’ in taxation. With potential competitors relying on increasing funds provided by taxation, Bern was in danger of falling behind its competitors in geopolitical terms.

Bern’s reliance on tithes as a source of revenue induced a dependency on agricultural returns, which was only a partial blessing. On one hand, it made planning difficult, since harvests could fluctuate severely across time. On the other hand, the
state could profit from improvements in agricultural productivity and price increases for agricultural products. Arguably, it could also have profited from these by taxing agricultural income through an income tax; its collection would almost certainly have been more expensive than the 'tax at source' solution of tithes. The reliance on the primary sector seems backwards and un-dynamic from a teleological perspective. From an eighteenth-century standpoint however, agriculture was a leading dynamic sector. It was natural for the government to rely on lands and their produce as the main source of resource extraction: they were immobile, hard to hide and easy to tax. The government's stake in high agricultural returns also partly aligned the interests of ruling patricians and agriculturalists. Both groups aimed to generate higher agricultural returns. It is not surprising, therefore, that physiocratic ideas and a desire to improve agriculture featured prominently among government members. Innovations that would undermine the existing order, such as the introduction of (tax free) potatoes on a large scale, were deliberated reluctantly.

1.4 Methodology and Sources for Empirical Evidence

This section will outline the main methodological premises of my study, which will be discussed in more detail in the empirical chapters. In particular, I will address the problem of how values can be determined in non-market societies like the Bernese, which was only partly monetised. Finally, I will present the main types of empirical evidence that I have used for my thesis.

Methodology

There are two underlying premises for my research. First, it is important to consider both revenue and expenditure of the government and second, using analytical criteria is preferable to relying on categories used in the eighteenth century. Both approaches have been pioneered by Martin Körner and refined by his students.\(^{115}\) With respect to the first premise, by comparing the structure of revenue with that of expenditure, it is possible to determine how the state redistributed resources within an economy. This is crucial in determining the economic effects of

\(^{115}\) Körner (1981); Hagnauer (1995); Hagnauer/Bartlome (1998).
state-building. As a result of the second premise, I classify information from historical accounts within a framework that is based on accounting standards used in present-day Swiss cantons. In particular, I follow their distinction between current transactions and investments (to which I refer as inventory transactions). The former describe all financial activities that did not have an impact beyond the current budget, the latter are revenue and expenditure that affect assets of the state. They therefore have the character of investments or capital formation. In the context of a surplus state, the importance of the distinction becomes obvious. Inventory transactions describe all relevant revenue and expenditure connected with investing surpluses and provide information of how well the surplus state's investor cycle was funded.

One could argue that the application of accounting categories for modern states cannot accommodate for the complexities of early modern states. This should not be used as an argument for neglecting analytical distinctions, but rather as an encouragement to extant present-day accounting categories in a way that is useful for historical research. Where necessary, I have therefore made adaptations to ensure that eighteenth-century circumstances are appropriately reflected. Other complexities are explicitly mentioned, such as the attempts to unify values, discussed under the next heading. Another possible objection is that using an analytical framework cannot do contemporary actors justice. Government members, so the argument goes, did not distinguish between rigid analytical categories and had often only fragmented information at their disposal. Whatever the case, it does not invalidate attempts to go beyond what contemporaries thought they were doing. It is the very essence of social science to explore structures that contemporaries fail to recognise. The alternative would be to limit research to the knowledge of contemporaries, in which case it could provide little more than a re-edition of primary documents. After all, the same would apply to all concepts of historical research, ranging from social discipline to absolutism — and, of course, state-building.

Finally, some would argue that limiting the state to its financial records is an accountant's view of history. There is certainly some truth in such a statement if government ledgers are considered the only source of information. On the other hand, it can be argued that finance was the vital lifeline to any form of government activity.

116 See Section III-1 and Section IV-1 below.
Budgets often reveal more about the true nature of a government than lofty policy statements about its intentions. An analysis of state-building should also accommodate for non-financial effects, however. I will discuss this briefly for the Bernese case in a designated section (II-6), using normative sources as complementary evidence.

Determining Values in Non-Market Societies

Early modern economies were to a large extent dependent on non-market exchange. The degree of commercialisation or ‘marketisation’ depended on several variables, including urbanisation, division of labour and taxation. In this situation, the state could not rely entirely on a monetised financial system as this would expose it to inflation. In years of bad harvest, when grain prices were high, the state and its money-earning employees would find it difficult to find grain on the market at an accessible price.\(^{117}\) As a preventive measure, the budget of early modern states often included a significant component of transactions that were collected in kind.\(^ {118}\) Salary payments were also partly paid in grain to secure their purchasing power. The interplay between cash transactions and transactions in kind was therefore an important aspect of Bernese state finance in the eighteenth century. For a coherent analysis however, all transactions must be converted into a single measure – preferably in a stable currency – using information on relative prices. This is the only way to compare figures in a meaningful way. When doing so, it is important to bear in mind that any measure based on standardised prices is simplifying and anachronistic.

Collecting revenue in kind represented more than just a failure to standardise accounting practices. By converting minor land rents into monetary units, governments demonstrated that they were perfectly capable of executing such reforms. In addition to acting as inflation buffers, grain and wine revenue could be stored as contingencies in the event of a military attack. Public inventories were also used to limit price fluctuations; selling their contents in times of critically high prices during a harvest crisis should reduce prices and cover shortages. In combination with import and export regulations, public inventories were therefore used as a tool for

\(^{118}\) See also Bonney (1995c): 463-472.
economic policy. As a convenient side-effect, an anti-cyclical selling strategy should also guarantee that grain was sold at high prices and hence generate a good return on storage investments.

Determining the exact value of goods in non-monetised economies is both difficult and complex. In general, any value can be expressed in kind, labour or money (see Figure I-4).

Figure I-4: Determining Values in Non-Market Societies

Units are in square brackets. Abbreviations: $Y =$ wage; $p =$ Price; $C^* =$ Consumption

Proportions between these units are determined by prices, wages and food consumption. Of these, only the latter were stable. Prices and wages fluctuated and have to be valued with information recorded in accounts. Throughout my study, I will use the Bernese Batzen as currency of reference. The Batzen was a stable accounting currency, which means that it was not minted but related to a fixed amount of bullion. As a proxy, one Batzen was the equivalent of 0.7g of fine silver and 0.09g of fine gold (see Section VII-13 in the appendix for details). This is the best way to make results comparable across space and time, although some authors prefer to use non-monetary units, such as wages, grams of quality adjusted grain or calories (kcal). Once the terms of conversion are fixed, the choice of a basic unit should not alter the results, at least not for a short-term or cross-section analyses. For a long-term perspective, inflation has to be taken into consideration.

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119 Strictly speaking, wages are not a measure for labour, but for the price of labour.
While the Batzen was stable in its bullion content, its purchasing power varied across time. Even when inflation rates were under 1% per annum, this could make a considerable difference in the long run. The Batzen mainly lost value compared to foodstuffs (grain and dairy products); real wage inflation was lower, as were price increases for manufactured goods. The best way to face the challenge that these inflation rate differences pose is to calculate key figures in a variety of equivalents and compare them. I will do this in particular in the structural analysis (Chapter IV), for which good empirical price evidence is available. The downside of using the Batzen as a main unit for my analysis is that, again, it is an abstraction from reality. By neglecting complexities of the interplay between monetary and non-monetary transactions, it is also anachronistic. To compare values across time and space, it remains the best option, however.

Empirical Data and Material for Comparison

In this heading, I will briefly outline the main types of resources that I have used for my analysis. The documents and series will be presented in more details in the relevant parts of the empirical chapters. In general, I rely on a combination of edited information and primary research carried out in Swiss archives.

Edited empirical material about the early modern Bernese economy is scarce. Even the most elementary measures, such as population and GDP estimates are sporadic and unreliable. The figures which are available have largely been provided by Christian Pfister, who has written the most comprehensive study of the Bernese economy and compiled the Bernhist database. I have also used Pfister’s earlier work on tithe revenue and grain prices. Further information on grain prices comes from studies by Ernst Bucher, Georges André Chevallaz, Erika Flückiger Strebel and Patrick R. Monbaron. Other financial data of the canton has not been edited so far, except for Julius Landmann’s study on foreign capital investments.

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120 For a detailed discussion on inflation rates, see Section VII-14 in the appendix.
121 Bernhist database: http://www.bernhist.ch; see also Pfister, C. (1995) and other publications by the same author.
123 Bucher, E. (1944); Chevallaz (1949); Flückiger Strebel (2002); I thank Dr. Monbaron for letting me use his data on Lausanne market prices.
124 Landmann (1903) and Landmann (1904). His text relies on the Historie der Ausländischen Stands Capitalien of 1776 (StABE B VII 2389).
The most important part of my research is based on primary sources. In particular I have analysed accounting records of the canton in the public record offices of Bern, Argovia and Vaud. This data has been transcribed in the context of a research project carried out at the University of Bern between 2000 and 2002. For overseas investments by the canton, I have used archives in London, as well as transcripts of relevant documents or time series from other scholars. Qualitative material from my study is mainly from government reports and legal documents, some of which has been edited in the series *Sammlung Bernischer Rechtsquellen (RQBE).*

Research about the impact of the state on the economy should ideally be carried out with a comparative approach. Differences in currency and accounting practice make standardisation necessary for inter-state comparison. Accounting standards, categories, or time periods were not universal, and the contemporary practices often confuse rather than clarify the situation. However, these factors should not discourage comparative research. While extrapolating data can surmount a number of them, the remaining differences have to be acknowledged to avoid painting with too broad a brushstroke. The *European State Finance Database (ESFDB)* and the two accompanying volumes edited by Richard Bonney provide ample empirical material for comparing patterns of revenue and expenditure across different states.

Comparative cases to Bern can be found in the first instance in the other states of the Swiss Confederation. The aforementioned work by Körner about Lucerne remains the benchmark in extent and depth of analysis. Other Swiss cantons have been studied by H. Büchli (Solothurn), Hans Conrad Peyer (Zurich), or Artur Vettori (Basel). Outside Switzerland, it is difficult to find comparative examples for early

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125 Staatsarchiv Bern (StABE); Staatsarchiv Aargau (StAAG) and Archives Cantonales Vaudois (ACV); Burgerbibliothek Bern (BBB).
126 Forschungsprojekt BeFin: [http://www.befin.hist.unibe.ch](http://www.befin.hist.unibe.ch); see also Körner (1997). I was working as a research assistant and coordinator for the project.
127 Public Record Office, Kew (PRO); Bank of England Record Office (BERO); British Library (BL). I thank Nick Linder, Béla Kapossy, Larry Neal and Gary Shea for sharing their data with me. The use of their transcripts will be credited throughout the text.
128 *Rechtsquellen des Kantons Bern* [abbreviated as RQBE], several volumes and years. It is part of the series *Sammlung Schweizerischer Rechtsquellen.* Government reports are mainly from the Staatsarchiv Bern (StABE).
130 Körner (1980); Körner (1981); Körner (1999).
131 Büchli (1916); Peyer (1968); Vettori (1984).
modern states in such a fortunate financial situation. Of the major powers, only Prussia managed to avoid a net national debt, at least until the end of the reign of Frederick II (1786). There might be similar comparative cases in small German states. Venice was debt-free from the seventeenth century as well. In addition, studies about surplus states of the early twenty-first century like Singapore or Norway, Kuwait and other oil states might share some of the conceptual problems. Another example for an early modern free rider strategy was the Landgrave of Hesse-Cassel, who sold mercenary services to Britain and invested the return on the London capital market in the late eighteenth century. The major monarchic states, Britain and France, for which there is ample research, can only serve as counter-examples to the situation in Bern. The same is true for the Dutch republic.

I-5 The Organisation of my Thesis

In Chapter II, I will introduce the political organisation of the eighteenth-century Bernese republic. This will provide the necessary background for the empirical analysis that ensues in the subsequent three chapters. Chapter III presents a long-term overview of the government’s most important accounts. It concentrates on the state’s assets and draws on aggregated data. This is complemented with a structural analysis (Chapter IV), for which I have collected information on all available accounts of the Bernese state in two sample years, 1732 and 1782. The third empirical chapter (V) will consider the ‘crown jewel’ of Bernese state finance, the canton’s financial investments overseas. The conclusion (Chapter VI) will sum up the most important findings and discuss them further.

The main points of each section will be summarised in the last paragraph to provide quick orientation. All non-essential information has been organised in the appendix.

133 See Buchholz (1996) who focuses largely on Germany.
134 Pezzolo (2003a); Hocquet (1999).
136 The literature on these countries is abundant. For an overview, see Bonney (1999a); O’Brien/Hunt (1999).
137 Hart, M.t./Jonker/Zanden (1997).
II Res Publica Bernensis

II-1 Introduction, Chapter Overview and Historiography

In 1714, the government of Bern decided to change its official seal (see Figure II-1). While the earlier version from 1470 had referred to the state as Communitas Villae Bernensis, the new version called it Respublica Bernensis.\(^{138}\)

![Figure II-1: Seal of the Res Publica Bernensis](image)

Source: Capitani (1991): 71. The seal was made in 1716/17 by Justin de Beyer after a design by Johann Rudolf Huber, 1716/17.

The new seal was a belated acknowledgement of the transformation that Bern had undergone since the late Middle Ages. It was no longer an Imperial city, but had become an independent, sovereign territorial state. Like its Roman predecessor, the Bernese republic had conquered and acquired a territory that surpassed the original city by far. By the eighteenth century, its area covered roughly a third of the Swiss Confederation. Changing the terminology of the seal also symbolised another transition: that political power had been gradually transferred from a community of citizens to the authorities of the republic, which had become increasingly aristocratic in nature.\(^{139}\)

\(^{138}\) The original text says Rei Publicae Bernensis Siglium Maius (Great Seal of the Bernese Republic). A small seal with the same expression (Siglium Minus Rei Publicae Bernensis) had been ordered in 1678 but was not used before 1716. See Bernisches Historisches Museum (1991): 375-376 and Capitani (1991): 70-71, with reference to Fluri (1924). According to Feller (1955): 427-428, the term Res Publica Bernensis was only introduced in 1722.

\(^{139}\) Geiser (1891): 96.
This chapter will discuss constitutional arrangements and political outlook of the Bernese republic in the eighteenth century. Its aim is twofold: to explain the outcome of the state-building process and describe the structure within which state-building occurred. It presents the state largely from a functionalist perspective. The remainder of this section will introduce the most important aspects of the historiography. In the next section (II-2), I will examine characteristics of Bern as a state, notably its relation to competitors for political power and the absence of taxation. Section II-3 will present the territory and population. The nature of the patrician government and its administration will be analysed in Section II-4, and the canton's geopolitical and military strategies in Section II-5. The role of the Bernese state as a provider of non-financial goods is discussed separately (Section II-6). Finally, Section II-7 provides a brief introduction of the republic's fiscal constitution, intended as background information for the empirical chapters that follow (Chapters III-V). The concluding remarks of this chapter (Section II-8) will attempt an overall assessment of Bernese rule.

Historiography

Historians referred to early modern Bern as the 'largest city-state north of the Alps.' Although a frequently used description, it can be somewhat misleading. This reference to Bern as a city-state neglects the fact that it was a territorial state in which the city itself was relatively small. The latter's maximum population of 15,000 by the mid-eighteenth century only covered a fraction of the 300,000 population that lived in the territory of the canton. Compared to German city-states like Hamburg, Bremen or Frankfurt am Main, the city of Bern was small in size. As a territorial republic, however, the canton was surpassed by the Dutch United Provinces.

My historiographic overview refers to selected studies that have been particularly useful for my research. A more systematic coverage can be found in the series Bibliographie der Berner Geschichte, edited since 1975. Amongst the

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140 See Messerli/Egli (2003): Title and Pfister, C./Egli (1998): 34. This expression implies the comparison to the largest such polity South of the Alps, Venice, which was not a city-state in the strict sense either.
141 Bibliographie der Berner Geschichte, ed. by Burgerbibliothek Bern (yearly, since 1975). Newer versions online [http://aleph.unibas.ch/]; see also the journals Berner Zeitschrift für Geschichte und Heimatkunde and the older Blätter für bernische Geschichte, Kunst und Altertumskunde (1905-1929); as well as the series Archiv des Historischen Vereins des Kantons Bern.
Chapter II: Res Publica Bernensis

The historiography of early modern Bern, Richard Feller’s epic four-volume *Geschichte Berns* stands out.\(^{142}\) It covers the political, cultural and economic history of the republic before 1798. The author’s poetic writing style and the dearth of references make the work prone to mixing solid facts, anecdotes and florid imagination. Because of these stylistic challenges, some of Feller’s interpretations should be examined critically, in spite of a generally high degree of accuracy of his account. Anton von Tillier’s *Geschichte des eidgenössischen Freistaates Bern* from 1838 is mainly impressive and renowned for its outstanding coverage of archival material.\(^{143}\) The constitutional history of *Ancien Régime* Bern by Karl Geiser is a seminal work on the topic, which has been recently complemented by studies from François de Capitani and Béla Kapossy.\(^{144}\) Capitani has also contributed to the most recent textbook article about Bern in the *Historical Dictionary of Switzerland*.\(^{145}\) Over the past few years, a series of inter-disciplinary studies on Bernese history have been published, covering the Middle Ages to the seventeenth century; a volume for the eighteenth century is currently in preparation.\(^{146}\)

The former subject territories Argovia and Vaud have been written about separately in monographs and specialised journals.\(^{147}\) For Vaud, the historiography of the period before 1798 has traditionally been anti-Bernese, being only rarely challenged by ‘revisionist’ studies.\(^{148}\) Today, the attitude of historians is more relaxed and provides a balanced account, combining positive and negative aspects of Bernese rule. This is best illustrated by the introduction in the most recent overview of Vaud before 1798, written for the bicentenary of independence.\(^{149}\) The Bernese period is less well researched for Argovia.\(^{150}\)

\(^{142}\) Feller (1946); Feller (1953); Feller (1955); Feller (1960).

\(^{143}\) Tillier (1838-1840).

\(^{144}\) Geiser (1891), see also Geiser (1932); Capitani (1991); Kapossy (2002); for a more superficial version: Wälchli (1981).

\(^{145}\) HLS (2002), article *Bern*: 253-274.

\(^{146}\) Beer et al. (1999); Schwinges (2003); Holenstein (2006); The eighteenth century volume is planned for 2008 under the title *Berns goldene Zeit* (Bern’s golden age).

\(^{147}\) More recent contributions are: Gallard (1970-87) [esp. vol 4]; Hubler (1991) or Flouck et al. (1998); see also the *Bibliothèque Historique Vaudoise* series and the journal *Revue Historique Vaudoise*.

\(^{148}\) For Vaud, classical anti-Bernese interpretations are Olivier (1837) and Verdeil (1849-1852). For a ‘revisionist’ approach: Gaillard (1935), although with a focus on earlier centuries.

\(^{149}\) Monbaron (1999b).

\(^{150}\) Verein Forschungsprojekt Aargau 1798 (1997); HLS (2002): Article *Aargau*, and the journal *Argovia*. 
II-2 Bern as a State

In the introduction, I argued that Bern can be defined as a state in the Weberian sense of being a set of institutions which successfully claimed the monopoly of legitimate violence within its territory. This section will investigate the relation between the elements of government and state more closely, which will then be used synonymously in the rest of my thesis. The nature of the Bernese government itself will be the subject of a subsequent section in this chapter; for now, it will be considered a ‘black box’. In this section, I will elaborate in more detail how the above definitions of the state match the realities of eighteenth-century Bern by first examining the different levels of governance. In particular, the issue of communal autonomy is addressed in this context. I will then discuss the Bernese approach to state-building more specifically by referring to one of its most distinctive features, the absence of direct taxation on property.

The government of the canton constituted one of several layers of state activity in Bern, though arguably the most important one. Before these are explained in greater detail, it is worth noting the absence of two factors that limited sovereignty in other states: the Church and nobility. In 1528, Bern had introduced the Reformation by government decree. To safeguard the spiritual needs of its population, Bern established a state church which was funded through appropriated church lands and titles. The latter included the right to levy tithes. The government secularised church administration and assumed the tasks of poverty relief, schooling and monitoring public morality. In practice, these costly functions were delegated to parishes and communes, over which the state assumed a supervisory role. Correspondingly, the Bernese state church quickly became an indispensable tool of administration, as pastors often performed official and semi-official functions on behalf of the government. The clergy was recruited and employed by the state based on recommendations by religious advisory councils.

The nobility as the other traditional rival for political power was not organised as an independent group in Bern. Within the city republic, noblemen were part of the government itself, as will be discussed below. Nobility from the territory were included in matters of local administration individually, often securing subordinate

positions in a quasi-dynastic manner. However, they were not organised as a group across the canton, nor were they represented as an estate in government.

The remaining competitors of the Bernese government were found in the Swiss Confederation, higher up in the state hierarchy, and in counties and communes at a lower level (see Figure II-2).

**Main Tasks:**

- Coordination of Foreign Policy
- Foreign Affairs
- Defence (Military Organisation)
- Finance and Taxation
- Jurisdiction and Police (partly)
- Religion (State Church)
- Economic Policy
- Welfare (subsidiarity)

(constitutional units only)

- Jurisdiction and Police (partly)
- Local Infrastructure
- Welfare
- Agriculture (Communal Land)

**Figure II-2: Levels of State Activity and Main Tasks in Eighteenth-Century Bern**

Bern became a member state of the Swiss Confederation in 1353.\textsuperscript{152} Although it was by far the largest of the cantons in the *Corpus Helveticum*, it did not have any formal prerogatives and was only a *primus inter pares*. The Confederation was a complicated system of bilateral and multilateral alliances in perpetuity between the XIII cantons and their numerous allies. The cantons were never formally incorporated into a federal (or even central) state. In 1648, the Swiss were granted exemption from the Holy Roman Empire of German Nations and obtained formal sovereignty. In practice, they had been independent from as early as 1499, when they ceased to make

\textsuperscript{152} Strictly speaking, one could not ‘join’ the Swiss Confederation, as it was only a system of mutual alliances. Also, the year 1353 should be seen as a proxy rather than an actual date. For the term *Corpus Helveticum*: Peyer (1978): 675 (note 2). Amongst the allies of the Swiss Confederation were cities (St. Gallen, Mülhausen or Geneva), monarchic (principality of Neuchâtel) and quasi-monarchic (prince-bishop of St. Gallen) states, as well as federal republics (Grisons, Valais).
financial contributions towards the Empire. In practice, sovereignty was with the cantons, which also had the military means to guarantee and protect it.\footnote{Spruyt (1994) – see also note 14 above.} A fragile equilibrium was maintained between the different interests of Protestants and Catholics, as well as urban and rural republics within the Confederation. Overall, the existence of the \textit{Corpus Helveticum} was guaranteed more through ‘balancing conflicts’ and a shared determination to defend a common existence, than harmony between its constituent parts.\footnote{Capitani (1986): 488.}

The Confederation had no central institutions except for the Federal Diet, which was in essence a congress of ambassadors of sovereign states. Its decisions required ratification by the cantonal governments. Only minor administrative matters were decided by majority vote.\footnote{See for the Confederation in general: Im Hof (1977) or Peyer (1978).} The Diet functioned as a court of arbitration between competing cantons and coordinated their foreign policy (discussed in Section II-5). With its military might and comparatively well-developed administration, Bern was clearly the most powerful Swiss state, though it was contingent on co-operation from its allies. The Confederation was not a serious competitor to Bern’s state-building process, because any delegation of state functions by the sovereign cantons was voluntary.

The same can be said of the counties, which by the eighteenth century had become pure administrative units without political power. They lacked independent institutions and were not represented within the government. County enquiries, in which subjects were asked for their opinion on specific political issues, were the closest Bern ever got to a Weberian \textit{Ständestaat} which accommodates political representation from different social groups.\footnote{Weber, M. (1978): 1085-1087.} This form of co-operation which had been in regularly used in the sixteenth century went into abeyance and was organised for the last time in 1614.\footnote{Walchli (1981): 129. See also Holenstein (2000).} In the eighteenth century, county-enquiries were entirely absent and the counties firmly controlled by the government.
Communal Autonomy

More serious challenges to the government’s claim to a monopoly of legitimate violence came from the communes. In the everyday experience of Bernese subjects, these political units were arguably as important as the state because they regulated a broad range of activities. Peter Blickle has found that the far-reaching self-government of the Swiss communes of the later Middle Ages (‘communalism’) was better developed and remained stronger than in most of the Empire, where communes had been largely integrated in the administration of sovereign states. André Holenstein has refined Blickle’s findings for sixteenth- and seventeenth-century Bern, for which he emphasised the importance of co-operation between communes and state administration. Unfortunately, documents about decision-making processes at the local level are scarce and there is scant research about communal autonomy in the eighteenth century. Some local studies describe the experience of particular villages, cities or parishes.

As their main tasks, Bernese communes had to provide lower levels of jurisdiction, poverty relief, schooling and infrastructure. In those parts of the canton that practiced a crop rotation system, an assembly of landowners also decided on how the communal lands were used. Furthermore, communes played an important role in the Bernese military system, as the militia was organised and partly funded at this level. The control of the troops remained entirely with the government, however (discussed in Section II-5). The sheer fact that subjects were armed illustrates how far the authorities needed to base their decisions on consent, as more coercive strategies would have been met with violent resistance. Bernese officials oversaw communal autonomy and kept it in line with the government’s interest.

While the judicial rights of the communes were long-standing, poverty relief was only delegated to them as late as the seventeenth century, with the state making

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158 For simplicity, I will refer to the local political units as communes. However, there were several levels of communality in eighteenth-century Bern: parishes, Burgergemeinden, Rechtsame- and Gütergemeinden, etc. See Scribner (1996): esp. 294-298 and for Bern: Pfister, C. (1995): 25-27.
159 Holenstein (2005): 262.
163 See for Worb: Holenstein (2005), who also includes fire defence as one of the commune’s tasks.
164 This is discussed in more detail in Section II-6 below.
165 See also Pfister, C./Kellerhals (1989).
only subsidiary contributions.\(^{166}\) This can be considered an act of reversed state-building, where a government imposed an unpopular and expensive task on communes to deal with it on the local level. An unintended consequence of that action was that the need to fund these expenses provided communes with independent funds, thus increasing their autonomy and political bargaining position in the medium term.\(^{167}\) In rural areas, poverty relief often had the lion's share of communal budgets. To raise revenue, communes had several options that were often applied simultaneously. They could lease out common land to the poor, distribute aid in kind, finance relief from their communal funds or levy specific taxes.\(^{168}\) Empirical evidence on communal tax burdens is scarce and points towards high inequalities both regionally and between different members of communes (see Section IV-5 below).

**Legitimacy through Low Taxation**

The financial situation of Bern will be discussed in more detail in the empirical chapters III and IV. In this context, the focus is solely on the impact of taxation – or rather, the lack thereof – on the legitimacy of political rule. It is sufficient to note that since the late seventeenth century, the state itself did not levy any direct taxes on property. The major tax revenue of the canton came from tithes, a 10% tax on agricultural revenue.\(^{169}\) It was mostly levied on former Church lands and had originally served the purpose of covering the costs of the local priest and poverty relief. Part of the former Church domain had been handed to communes or parishes when poverty relief was delegated to them.\(^{170}\) As a long-standing tax, the tithe was considered legitimate and never fundamentally questioned.\(^{171}\) In some parts of the canton, mainly in Alpine regions, tithes had been discharged in late-Medieval times.

The absence of direct taxation by the state was a distinctive feature of early modern Swiss republics.\(^{172}\) Although this had been a common strategy for city republics in late medieval times, by the late sixteenth century most found themselves

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\(^{166}\) See also Flückiger Strebel (2002); Flückiger Strebel (2005). Depending on the region, it was delegated to communes or parishes. Both in absolute terms and relative to population growth, poverty seems to have increased throughout the eighteenth century.


\(^{168}\) The communal funds for poor relief (*Armengut*) usually consisted of both land and capital.

\(^{169}\) For tithes in Bern: Gmür (1954) and Pfister, C. (1975). In Vaud, the actual tithe rate was only an eleventh: Monbaron (1998a).

\(^{170}\) See for example: Flückiger Strebel (2005) [for Worb].

\(^{171}\) See also Gmür (1954).

\(^{172}\) Körner (1999)
deeply in debt. In Bern, occasional taxes were imposed in the seventeenth century for specific purposes. In spite of moderate rates, they met with stiff resistance. When the government tried to introduce a 0.1% tax on property for the whole territory in 1641, it faced organised protests which achieved that instead of the intended period of six years, the tax was only levied for a single year. The culmination of resistance was the peasants' revolt of 1653 in Bern and other parts of Switzerland. Although this was not a tax revolt in the strict sense, it had fiscal overtones. The main cause for the revolutionary outbreak was currency devaluation by the government, also identifiable as a (debasement-) tax. The peasants formed an alliance, besieged the city and questioned its political legitimacy. Bernese authorities oppressed the rebellion with loyal troops from Vaud and support from Zurich. The revolt of 1653 was a mixture of religious protest, struggle for political hegemony within the Confederation and an uprising against political rule. Although the civil war by itself caused little disruption, its impact on future political developments should not be under-estimated, for it revealed the limits of the state's power to modernise political structures. It made the Bernese authorities aware that their survival depended on co-operation by their subjects. Accordingly, the government rejected a project for introducing a perpetual tax on property in 1697.

This absence of direct taxation played an important part in the government's strategies to legitimate its rule in a paternalistic way. The statement of Albrecht von Haller quoted in the introduction to the previous chapter illustrates how proud Bernese patricians were to offer their subjects a state without taxation. In his *Speech of a Swiss about the Happiness of Subjects under a Free Government*, Alexander Ludwig von Wattenwyl went even further when he tried to convince the Bernese population that despite being deprived of political rights, they lived in a state of liberty because the republic hardly depended on taxes. Although such attitudes seem paternalistic from today's perspective, in the context of early-modern states Bernese subjects were relatively free of feudal obligations and, as will be discussed later, their fiscal burden was exceptionally low (see Section IV-5 below).

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174 Walchli (1981): 131; Landolt (1990). A yearly tax of 0.1% on all property for defence purposes had been levied within the city of Bern from 1628-1634, and the Pays de Vaud paid an extraordinary tax from 1635 onwards after initial protests.
175 Holenstein (2004); Suter (1997).
177 See the quote of Albrecht von Haller in Chapter I (p. 10 above).
In summary, although the Bernese government anchored its rule on co-operation from its subjects, it qualifies as a state wielding a near-monopoly on legitimate violence. Church, nobility and communes were successfully integrated into the state under government control. While communes had wide-ranging autonomies and were important institutions for subjects’ everyday lives, they were never serious competitors for the state’s monopoly of legitimate violence in the eighteenth century. Even if their privileges and liberties imposed a limit to centralised state-building, the situation was one of mutual dependency and co-operation. The local autonomy that communes enjoyed did not guarantee them any representation within the government of the republic. After the abolition of the county enquiries in 1614, there was no formal participation of subjects in the political affairs of the canton. The ruling elites used the absence of direct taxation as the most important element in their claim for legitimacy.

II-3 Territory, Population and Economy

Eighteenth-century Bern was the largest state of the Swiss Confederation in land area and population. By 1798, around one in three Swiss subjects lived under Bernese rule. However, the territory of the canton remained fragmented legally and economically. This section will first give a brief outline of the territorial expansion of Bern and then consider its organisation in the eighteenth century. I will also briefly discuss population estimates and offer a general overview of the canton’s economy.

Territorial Expansion

The city of Bern was founded relatively late, in the second half of the twelfth century, and developed from being a local power into a sizeable territorial state in the late Middle Ages. Its most important conquests were Argovia (1415) and the French-speaking Pays de Vaud (1536). The territory of the canton remained unchanged from the late sixteenth century until the French invasion of 1798. Its holdings spanned the mountainous regions of the Oberland, the wine-growing shores of Lake

179 HLS (2002), article Bern. See also Schwinges (2003) and Feller (1946); Feller (1953) for the territorial expansion.
Geneva, as well as the grain-producing areas of the Swiss *Mittelland*. In spite of trends to unify governance and administration, political fragmentation prevailed and many old customs or local autonomies remained unchallenged until the end of the *Ancien Régime*. Foreign noblemen continued to claim rights and titles in boroughs within Bernese territory. Only in exceptional cases were they disputed and bought out. The legal code of the city was used as a subsidiary law to customary local codes. Although the Bernese government intensified its paternalist regulation by issuing an ever-increasing number of laws ('mandates'), it never imposed a unified fiscal regime.

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**Figure II-3: Map of Eighteenth-Century Bern with Districts**


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180 For a more detailed analysis of the regions, see: Pfister, C./Egli (1998).
181 This happened with Sumiswald [1698], Aubonne [1700], Köniz [1729] and Kastelen [1732]: Feller (1955): 475. Most privately owned boroughs remained under private rule (discussed below).
182 Wächthi (1981): 110; see also RQBE, *passim*.
183 In the German historiography, this process has been referred to as the enlargement of the 'gute *Policey*’ (in its pre-modern spelling), which could be translated as 'good governance'. For the sixteenth and seventeenth centuries, this concept has been discussed for Bern by Holenstein (1998). See also Peyer (1978): 117-118.
The political and legal fragmentation of the Bernese territory confused even its contemporaries. To clarify the situation, the government ordered a survey of its territory, which was published in the Book of Regions of 1782. By then, there were six distinctive types of administrative units:

1. The city of Bern and its surrounding parishes, directly ruled and administered by the government.
2. Four Landgerichte formally governed by the guild-master of a city-quarter [Venner] and administered by his subordinate.
3. Five municipal towns with far-reaching autonomy, governed by their elected Mayors.
4. 50 counties, or Landvogteien, which formed the bulk of the Bernese territory. During a tenure of six years, a member of the government represented Bernese rule as bailiff and monitored the local administration.
5. Several small boroughs under private rule [Twingherrschaften]. They were governed by their owners, which in most cases were patrician families from the city; these boroughs were formally under Bernese sovereignty.
6. Four Condominiums, or Mediatämter, for which Bern shared sovereignty and administration with the canton of Fribourg.

There were further Condominiums administrated jointly with other Swiss cantons, which were not considered part of the Bernese territory. In addition, seven former monasteries without territory were integrated into the state as Klostervogteien.

According to the primary agricultural activity, the canton can be divided into three main zones or belts: first, the grain-producing plains of Argovia, Upper Argovia (Oberaargau), Seeand and Vaud. Second, the pre-Alpine region of Emmental was a zone of mixed farming. Third, cattle farming dominated in the Southern part of the canton, the Alps (Oberland). Pockets of vineyards were scattered according to the climatically suitable locations, particularly in the coastal regions of Vaud. Each zone had specific patterns of production, but also social and cultural structures. The division between the regions was not always clear-cut, but followed roughly their geographical situation. The degree of commercialisation of the zones was inverse to

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185 For an example, see Pfister, C./Kellerhals (1989).
186 Lugano, Mendrisio, Locarno, Valle Maggia; since 1712 also Baden, the Untere Freie Ämter, Thurgau, Rheintal and Sargans. The small Condominium of Tessenberg was shared with the prince-bishop of Basel: Im Hof (1977): 753.
their natural potential: in the marginal lands of the Oberland, production was relatively free and market-oriented, while the grain-producing regions were burdened by a rigid system of co-operative utilisation. They were also most heavily taxed in tithes, as will be discussed below (Section IV-5).  

Population Estimates and Demographic Trends

It is difficult to establish the total population living under Bernese rule in the eighteenth century. The most reliable figure is from an official census in 1764; it counted 323,008 people living in the canton, of which 40,276 in Argovia and 112,346 in Vaud. Given the inaccuracies of eighteenth-century data collection, these should be considered rough estimates rather than exact figures. The 1798 census by the Helvetic authorities is even more unreliable because its authorities carried out the data collection inconsistently. In addition, changes of district and communal borders make a comparison to the Ancien Régime situation difficult. With its pre-1798 borders, the canton's population was approximately 410,000. Based on its 1980 borders (mainly without Argovia and Vaud), Christian Pfister has estimated total population figures for Bern at 193,000 (in 1700), 200,000 (in 1764) and 231,768 (in 1798) respectively. The city itself grew from 14,219 (1700) to 15,932 (1730) inhabitants, from where their number fell back to 12,186 (1798).

The Bernese Economy in Brief: Agriculture

The most relevant aspects of the Bernese economy for my study will be discussed more detail in the empirical chapters. Studies about the early modern Bernese economy are rare and mostly focus on agriculture. A strong emphasis on the primary sector is also underlying the most comprehensive study of the Bernese economy.

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190 This means that 175,316 lived in the rest of the canton, often referred to as Deutschbern. See HLS (2002), article Bern: 267 and Mesmer (1987): 158-160.
192 Schluchter (1988): 49, 64. Figures for Aargau (only Aarau, Brugg, Kulm, Lenzburg, Zofingen), Bern and Vaud in their 1988 borders, excluding Echallens, Orbe and Grandson: total of 409,535. Other authors give the figure of 407,000 [Walter (1966): 239, based on an estimate from Hildebrand in 1860]. The overall population of today's Switzerland was 1.66m according to the 1798 census.
194 HLS (2002), article Bern (Gemeinde).
195 For the 'classical' studies on Bernese agriculture and economy: Geiser (1899); Geiser (1932); Schmidt, G.C.L. (1932).
economic history by Christian Pfister, who traced the origins of economic ‘modernisation’ back to 1700. Pfister’s interest tracing the long-term development of the canton of Bern in its post-1980s borders has made him use an anachronistic area of study. For the Ancien Régime, the exclusion of Argovia and Vaud is a significant shortcoming. A second problem of Pfister’s approach is even more limiting in the context of my research: the state as an actor remains essentially unaccounted for in Pfister’s explanations. Although he acknowledges the importance of the government’s grain policy and the impact of Economic Patriots on agriculture, the two are not examined in their own right. Anton Brandenberger followed up on Pfister’s earlier research and investigated problems of supplies and market integration using economic theory.

The pre-eminence of agriculture in Bernese economic history can partly be explained by the relative weight of the sector, as most of the Bernese population was engaged in some type of agricultural activity or other. In Christian Pfister’s words, all important aspects of early modern life concentrated on land: it was an energy resource, production factor, source of capital investment, tax base, measure of political power and social esteem, as well as the unique source of social security. Differences within the primary sector were large, both regionally and between different sized farms within the same region. For the former, the varying climatic conditions across the main agricultural regions have been mentioned under the previous heading. For the latter, large landholders had very little in common with small-plot farmers who often relied on secondary income from (proto-)industrial activity to make ends meet. Within the household economy, labour and other resources were allocated to subsistence- and market-oriented tasks. There were few cash crops: wine, flax, dairy products and – to a lesser extent – grain. For the latter, most households could only sell a surplus on the market. According to Christian Pfister’s estimates of harvest returns, the canton could feed its own population in

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197 Brandenberger (2004). See the discussion in Section II-6 below.

years of normal harvest and was thus 'subsistent, but not autarchic.' In years of crises on the other hand, grain had to be imported. This contrasts with the view of contemporary observers who argued – based on faulty assumptions – that Bern needed to import roughly a third of its grain. Georges André Chevallaz has pointed out that the resulting import volume of some 20,000 tonnes would be equivalent to the entire grain export of France.

While dairy farming became more productive and profitable, grain agriculture stagnated until the mid-eighteenth century. Productivity increases were mainly hindered by a lack of manure. In addition, the traditional structure of decision-making in the three-field crop rotation system hindered a dynamic response to demographic change or shifts in demand. Alterations in crops, cycles or quantities depended on the agreement of all 'stakeholders', including government, landlord and commune. From the mid-century, agricultural improvements slowly led to an increased production, but the major innovations and breakthroughs occurred in the early nineteenth century.

Industry and Services

Recent scholarship has emphasized the diversity of economic activities that were carried out throughout the territory. The dominance of a dynamic agricultural sector created demand for related industries (building, blacksmiths, coopering) and services (butchers, mills). Extractive industries were limited to small pockets in the Western and Alpine regions. Anne Radeff, who has investigated petty trade and regional markets, refers to this with the rather misleading concept of économie globale. Her most important contribution is the analysis of the distributive structures in the Bernese economy through an examination of fairs and markets, which multiplied throughout the eighteenth century. In addition, a thriving economy surfaced around the export of low value-added goods. Specific industries

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204 Radeff (1996). In Radeff’s terminology, économie globale stands for an all-encompassing view of both domestic and export trade, and not a geographically global approach. Even though this is not be excluded per se, most of her analysed material is inter-regional, rather than global.
206 For the latter, see Flückiger/Radeff (2000).
have been discussed in the broader context of Swiss economic history. In particular, the Walter Bodmer’s work on the textile industry remains a landmark.\textsuperscript{207}

Textiles were Bern’s main export-oriented ‘proto-industry.’\textsuperscript{208} They were mostly produced in the eastern part of the canton, using the market town of Langenthal as a local hub. In Vaud, the industry was clustered around Lausanne and well connected with Geneva merchants.\textsuperscript{209} In addition, hand-knitting and similar tasks were carried out throughout the canton, especially in marginal areas. The Bernese textile industry specialised in the relatively simple processing of linen, calicoes (‘indiennes’\textsuperscript{2}) and knitted stockings, which required little investment and could be carried out by a labour force that was often working part-time.\textsuperscript{210} Knowledge-intensive branches of the industry, such as silk manufacturing, were virtually absent in Bern. In the second half of the eighteenth century, St Gallen shifted to the spinning and weaving of cotton and was replaced by Upper Argovia as the Swiss centre for linen production. The merchant-producers of eastern Switzerland left the low-value linen to their Bernese competitors and focused on more profitable products that could rely on extensive trading networks for export. Linen was less dependent on trade because its raw material, flax, was grown locally. While this might explain Bern’s advantage in the early stages of the industry, by 1760 the canton had to import several tonnes of flax from Alsace and Brabant to cope with an increasing demand for the final product.\textsuperscript{211} Merchants from other Swiss cities exported the Bernese linen, mostly to France. Demand for the product was high, which was partly caused by its good and consistent quality.\textsuperscript{212} Linen production reached its peak in the early 1780s, after which it dropped sharply.\textsuperscript{213}

The raw materials for cotton were more expensive, so part of the production was organised on a credit basis. In this putting-out system, merchants provided the domestic producers with raw materials and collected the final product, with itinerant merchants (\textit{Fergger}) acting as intermediaries. The printing of calicoes was organised

\textsuperscript{207} Bodmer (1960).

\textsuperscript{208} For the concept of ‘proto-industry’ see footnote 38 above. An overview for Switzerland is provided by Pfister, U. (1996b).


\textsuperscript{210} See Pfister, C. (1995): 455-456 and Schneider, H. (1937): 455-466. The latter were partly machine-produced. This technology had been introduced by a Huguenot refugee who later moved his business to Murten after losing production privileges in Bern.


\textsuperscript{212} Bodmer (1960): 157-158.

in centralised manufactures, both in the city of Bern and municipal towns. Some of the cotton production was controlled by merchants from Zurich and Geneva, while Bernese producers were putting out to neighbouring regions (Lucerne, Fricktal), selling their surplus production to Zurich merchants.

Bern had several smaller proto-industries in addition to textiles, such as clock making in the western parts of the canton, printing in the cities of Bern and Lausanne, woodcarving in the Oberland, and extractive industries in Vaud. Although important locally, their impact on the canton’s economy was limited. A few ‘strategic industries’ were state-run, such as the production of weapons, black powder and salt; ironworks and mineral extraction were heavily subsidised. All these businesses were small in scale, except for salt production, which nevertheless remained insufficient to supply the domestic market. Its output was minimal compared to the amount of salt that the government traded as a monopoly (see Section III-5 below).

Another monopoly was on postal services, which the state farmed out to the patrician von Fischer family. They obtained a franchise in 1675 and subsequently past it on to 41 family members until 1832, with only a short intermezzo of state-run postal services from 1702-1708. After this date, Bernese authorities set the franchise fee at 50% of net profits, though disputes erupted over the calculation of these profits on several occasions. The Fisher family usually paid a flat fee that was augmented every few years. The remaining service sector was not concentrated, but regional and small scale in character. Beat Kümin has analysed Bernese inns and taverns in detail, while Anne Radeff has focused mainly on itinerant merchants. Other services were tourism and schooling, which both targeted foreign noblemen as their prime clientele; they were accordingly very limited in scope. Finally, mercenaries serving in foreign armies can also be considered a service export from the Bernese economy (see Section II-5 below).

This section has given a brief overview of the fragmented nature of the Bernese territory in both political and economic terms. Reliable figures for population and

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218 Kümin (1999); Kümin/Radeff (2000); Radeff (1994); Radeff (1996).
economic indicators are rare and make conclusive statements difficult. The economy was dominantly agricultural, with large regional and social differences. Proto-industrial production of linen for export was concentrated in the eastern part of the canton, while rural crafts were spread throughout the territory.

II-4 Government and Administration

In an anonymously published *Account of Switzerland* of 1714, attributed to the English ambassador Abraham Stanyan, the stability of Bern’s political system was compared to that of an inverted pyramid. So small was its foundation that it would take little movement from either within or from the outside to make the entire structure tumble. While his prediction of the stability proved inaccurate – Bern fell more than eighty years after Stanyan’s statement – the pyramidal image appears appropriate. The government was controlled by a narrow patrician oligarchy, whose rule had become quasi hereditary, even if their dominance was by custom more than by law. In this section, I will consider the composition of the Bernese government and explain its structure, discuss patricians as a social group and present contemporary critiques of their rule. The final part of the section will discuss the canton’s administrative structure.

Constitutional Arrangements and Levels of Government

The Bernese state had no written constitution, only a handwritten tome commonly called the Red Book which contained the government’s most important decisions. The government referred to itself as Schultheiss, Rät und Burger von Bern. This title encapsulated the three main layers of power: Mayor (*Schultheiss*), Senate (*Rät*) and Great Council (*Burger*). The latter had formerly been an assembly of citizens and evolved into a parliament recruited by election and co-optation. Its position as the supreme source of power and sovereignty was confirmed in 1682 by a document that also held the state accountable solely to God. This affirmation of the Council’s absolute sovereignty formally marked the end of continuous attempts by

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219 Anonymous [Abraham Stanyan] (1756): 105. Most of his book deals with the situation in Bern; he was married to a Bernese. See Bucher, B. (1951); Zeerleder (1942).

220 Quoted in Geiser (1891): 97.
the Senate to be recognised as sovereign. In reality though, the Senate possessed considerable powers by virtue of frequent meetings and exclusive access to information. To avoid dominance by any of the elements that comprised the government, the Bernese constitution possessed numerous internal checks and balances (see Figure II-4).

**Figure II-4: The Government of Bern**

Sources: Geiser (1891); Feller (1955); Capitani (1991). See also the slightly different scheme in HLS (2002): article Bern. Numbers in brackets stand for the number of people in each category. Translations: Senate (Kleiner Rat), Vice-Mayor (Stillstehender Schultheiss), "Secretees" (Heimlicher), German Treasurer (Deutsch-Säckelmeister), Treasurer for Vaud (Welsch-Säckelmeister), Salt-Senator (Salzherr), Arsenal-Senator (Zeugherr), State Clerk (Staatschreiber), Court Clerk (Gerichtsschreiber), Grand Officer (Grossweibel), Townhall-Mayor (Ratshausammann), Bailiff (Landvogt), "Sixteen" (Sechzehner), Societies/Guilds (Gesellschaften). I have not translated the word *Venner*, since its original meaning as banner bearer does not describe their function in the eighteenth century accurately enough.

At the apex of the Bernese government pyramid were the Mayors. To guarantee that no single man would usurp power, the positions of Ruling Mayor and Vice-

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221 In other Swiss cities, the Senate was more successful in its attempts to usurp power: Peyer (1978): 107-116.
Mayor were rotated annually between the two incumbents. While the former chaired the meetings of the Senate and Great Council, the latter was in charge of the Secret Council handling foreign affairs. With unlimited tenure, the Mayors were only replaced after resignation or death and vacancies were filled by a Senator, who was elected by the Great Council.

The next layer was the Senate, which was also called Small Council or Daily Council. 27 Senators (including the two Mayors) set the agenda for the sessions of the Great Council. Two important sub-Councils were staffed exclusively by Senators: the Secret Council and the Vennerkammer, or Chamber of Venners. The latter dealt with all financial matters of the state and was presided over by the (German-) Treasurer, who was elected for six years. Its other members, the Venners, had a four-year tenure and were designated by their respective town-quarter guilds. Of the remaining Senators, some had specific duties such as the Senator of the Arsenal, who presided over the chamber responsible for military armaments. Each Senator sat in several chambers or commissions, which had both governmental and administrative functions and combined members of Senate and Great Council.

Mayors and Senators were all formally members of the Great Council, or Council of the Two Hundred, which met two to three times a week. It was also called the CC with reference to the Latin number for 200. The power of the Great Council was in practice curtailed by limited access to information. For instance, although it decided on all financial matters regarding expenses of more than 100 Taler (3,000 Bz), information about proposals prepared by the Vennerkammer was only transmitted orally. One important function of the Great Council was to elect all magistrates of the republic from amongst its members. While Mayors, Senators and certain positions that required particular know-how were elected, the more lucrative bailiff positions were balloted since 1710 to rule out simony. To avoid appropriation by office holders, all tenured positions in the government were fixed and non-renewable.

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222 The positions of Mayor and Vice-Mayor (Stillstehender Schultheiss) rotated annually between the two officeholders. Occasionally, the Latin word Consul was used for both.
223 The two newest elected Senators were called 'Secretees' ('Heimlicher').
224 The position of treasurer was split up between the (German-) Treasurer (Deutschsäckelmeister) and the Treasurer for Vaud (Welschsäckelmeister). For the Venner chamber, see also Section II-7 below.
225 The word Venner originally described the banner bearer. The four Venner-guilds Pfistern, Schmieden, Metzgern, and Gerbern each elected a Venner amongst their Senators: Walter (1966): 237.
227 The election of the Senators was a mixture of vote and ballot: Feller (1955): 434. Candidates had to be in the Council for over a decade and married or widowed. Bailiffs will be discussed below.
Access to Government

When contemporaries referred to the Great Council as 'the Citizens' (Burger) or 'the Two Hundred', both were misnomers. The Council neither represented all citizens nor did it comprise 200 members. The Great Council had become a parliament with 200 members as a minimum number; in 1688, its maximum was set at 299. Every time the Council approached minimum occupancy, it restored its ranks to the maximum number from within the citizenry. In the eighteenth century, this happened approximately every ten years. As new government members were appointed by co-optation, this promoted oligarchic tendencies. The electoral body consisted of the Mayors, Senators, four ex officio members of the Great Council, plus another sixteen that were designated by their respective guild (see Figure II-4). Each of these 47 electors could nominate one candidate whose place was secured. Thus, of the circa 80 seats that would usually be free, nominees occupied more than two thirds. Voting for the remaining seats was open and not by secret ballot, which meant that co-monitoring was possible and guaranteed the predicted outcome.\footnote{228}

New Councillors were elected among all male citizens above 29 years. The number of eligible candidates was in decline as the right to citizenship had been closed in 1651 and new immigrants to the city were only accepted as residents or permanent residents at best. While the former did not have any specific rights and were prohibited from buying property, the latter were equal to the citizens in all but political participation.\footnote{229} Permanent residency had been established in the sixteenth century to cover waiting times before admission into full citizenship; it had evolved into a distinct social status. At the time of the 1764 census, of the city's total population of 13,681 only 3,737 were citizens. The remainder were permanent residents (253), residents (7,985) or foreigners (1,706).\footnote{230} Compared to a total population of over 300,000 for the entire canton, not even 1% were citizens with full political rights.

\footnote{228} Therefore, it was less an election than a nomination: Geiser (1891): 104; Feller (1955): 431-433.\footnote{229} Only wine trade was a privilege of citizens: Geiser (1891): 87-89; Brunner (1992).\footnote{230} Of the citizens, 1,581 were men: Wälchli (1981): 145 and Walter (1966): 239.
Parallel to the decline in numbers of eligible families was the decrease of families who were actually represented in government, the patricians.\textsuperscript{231} Figure II-5 shows the number of eligible families (citizens) and families in government (patricians) for the period of 1650-1795. Since 1790, a decree fixed both their respective numbers.

\begin{center}
\textbf{Figure II-5: Families with Bernese Citizenship, 1650-1795}
\end{center}

Source: Geiser (1891): 95 and 110 [supplemented with Capitani (1986): 884]. Eligible families (citizens) are referred to as \textit{Ratsfähige} or \textit{Regimentsfähige Burger}, families in government (patricians) were \textit{im Rat vertretene Familien}. From 1790 onwards, there were fixed minima for the number of eligible families (236) and families in government (76), hence the dashed horizontal line: Feller (1955): 464 gives the figure of 73 families in government for 1784.

The system of completion of the Great Council also resulted in concentration \textit{within} the patrician oligarchy. Figure II-6 shows the distribution of cumulative seats in the Council within families ranked by the number of occupied seats for 1691 (only data for the twelve largest families) and 1795. In both dates, the Council had been restored to the maximum number of 299. The twelve largest families held a total of 115 seats in 1691 and 122 in 1795.\textsuperscript{232} By then, the number of families with a single seat had fallen to 12.

\begin{footnotesize}
\textsuperscript{231} Geiser (1891): 96. \textit{Patricians} describes usually those families represented in government (although some authors include all citizens). The term refers to the senatorial patriciate of the Roman Republic.

\textsuperscript{232} They were not exactly the same families, however; see Geiser (1891): 96-96 and 110.
\end{footnotesize}
Chapter II: Res Publica Bernensis

Figure II-6: Families in the Great Council, 1691 and 1795

Source: Geiser (1891): 96-96 and 111. X-axis: number of families in government; Y-axis: cumulative number of seats (families ranked by number of seats). For 1691, only figures for the 12 largest families are available. The broken diagonal lines show an equal distribution amongst families for the given number of families represented (1691: 76; 1795: 98). Numbers show the number of seats for the largest family at each point. In 1795, there were 1,628 registered members of guilds (i.e. eligible patricians): Walter (1966): 242.

In addition to the trend towards oligarchy, the leadership of the Bernese republic was burdened with gerontocracy. While most administrative offices had a fixed, non-renewable tenure, the most senior positions of Senator and Mayor were for life. Furthermore, elements of seniority favoured older government members in access to power. This system had changed little since late-Medieval times, when political institutions had been designed for a relatively high turnover of magistrates. Increased life expectancy coupled with fewer military and political dangers for office-holders ossified the system. For individual patricians, this often meant a long waiting time until they could fulfil the duty for which their whole life was designed for: participation in the government of the Res Publica Bernensis.

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Republican Ethos and Corruption

Patrician dominance had become a status quo by the early eighteenth century, and though their appropriation of rule was not universally accepted, co-optation guaranteed its continuity. Despite its formal status as a participatory republic, Bern had become a de facto aristocracy in which an elite group of magistrates successfully monopolised their offices. In theory, access to the government was open to all citizens, but in reality long waiting times made this option exclusive to rentiers who were supported by tidy family fortunes. Government work paid well in the eighteenth century, yet most functions still entailed expenses that required sizeable personal funds, as magistrates were liable with their own assets when holding an office. Thus, Bernese patricians effectively qualify for what Max Weber described as honoratiores. He defined this term as a group of office-holders who monopolised their positions based on wealth, in spite of a political system that was formally open.235

Most patricians lived off country estates spread throughout the territory; often their families owned feudal rights. Their dependence on agricultural rents explains the popularity of physiocratic ideas within government members. An engagement in paid work – including banking and commerce – while not strictly prohibited was considered inappropriate for patricians.236 They argued that depending on income would affect independent judgement. Interestingly, this reservation did not apply to feudal income, nor to serve in foreign armies as will be discussed below. Although Bern had guild-like institutions with its Societies (sometimes referred to as ‘guilds’), their economic functions of regulating markets or professions had a very limited scope beyond the capital. In particular, Bernese city guilds were not privileged with respect to the territory. Most members were not active in the guild’s trade, but belonged there by family tradition. Guilds formed the backbone of Patrician social life and were responsible for poverty relief to destitute members. The political importance of these Societies was twofold: membership was a condition for eligibility to the Great Council, and for certain elections guilds had secured voting quotas.237 Thus, ruled by a patrician class of magistrates and officeholders with little economic

236 See the critique in Brunner (1992). Wholesale commerce and wine trade within the city were patrician monopolies.
237 See Capitani (1991). The societies/guilds/corporations were called Gesellschaften or Zünfte; Stanyan calls them Abbeys, based on the French term; they could also be referred to as drinking-clubs (describing a social group that meets in a particular tavern). For the Venner-guilds and their voting quotas, see note 225.
interests except in landholding, Bern was distinctive from republics where guilds played an important political and economic role, as in Zurich or Basel.\textsuperscript{238}

Patricians were aware of how susceptible their political arrangements were to cronyism, nepotism and corruption. For instance, when a merger of two existing customs offices was debated in 1770, concerns were voiced that this position could become too powerful, as it would control monetary transactions worth more than Lb 150,000 (1.125m Bz). Treasurer Johann Rudolf Daxelhofer stated that ‘in republican governments one always has to worry that credit [here in the sense of: dependency] and favour will be preponderant.’\textsuperscript{239} One way of checking for these dangers was to attend to the republican virtue of equality. This did not imply equality among the whole population – not even of all citizens – but of patricians represented in government. Those with an official function were only \textit{primus inter pares}. In order to curb overt favouritism and nepotism, strict laws regulated temporary withdrawal from the right to vote in matters concerning family members.\textsuperscript{240} This was part of the reason why ballots had been introduced in elections for lucrative government offices.\textsuperscript{241} All these constitutional safeguards were completed with mutual envy and distrust amongst rival families, which worked as an effective internal check on patricians.

Balloting was believed to represent divine judgement, which to the historian Hans Conrad Peyer meant that ‘favouritism was considered less dangerous than the random election of incompetent candidates.’\textsuperscript{242} But while equality amongst government members was strictly adhered to, the distinction between those in government and the excluded was clear.\textsuperscript{243} The ultimate sign of this equality-cum-distinction was reached in 1783, when all families in government were entitled to add the noble title ‘von’ to their names. This nullified the previous difference between noble and ordinary patrician families while setting them apart from ordinary citizens and subjects.\textsuperscript{244} Sumptuary laws were in place to secure this social order and maintain republican virtues. An inscription on the throne of the Mayor that referred to the values of \textit{Liberté & Egalité} was duly painted over after these words ascribed a

\textsuperscript{238} Peyer (1978).
\textsuperscript{239} Quoted in Beck (1923): 43. Daxelhofer was Treasurer of Vaud.
\textsuperscript{240} Feller (1953): 428-429; see also RQBE, vol. 5: 695.
\textsuperscript{241} The ballot was first introduced as a trial and then extended: Feller (1953): 332. For equality also Wälchli (1981): 139.
\textsuperscript{242} Peyer (1978): 113.
\textsuperscript{244} It is said that Frederick II of Prussia mocked this with the expression: \textit{Messieurs de Berne se sont déifiés:} quoted from Wälchli (1981): 141. See also Im Hof (1977): 709.
different meaning after the French Revolution. In Bern, as in other early modern states, the concept of Liberty had very little to do with individual freedom and rather implied privileges, exemptions and independences (‘liberties’) of certain groups (‘Estates’).

Factions and Criticism

Although the Bernese parliament was not organised into formal political parties, there were factions within the government. Families with specific interests included the von Erlach, who owned a mercenary regiment in France and the von Fischer, who ran the postal monopoly. Common interest also distinguished the larger families from smaller ones, who constantly ran the risk of losing their place in the government. At times of geopolitical crisis, each camp lobbied for its position, sometimes influenced by their vested interests or bribes from foreign ambassadors.

Béla Kapossy has distinguished three different groups of critics of patrician rule in the eighteenth century. The first were artisans from the city who were excluded from government. In 1749, some of them attempted to restore ancient freedoms and an equal distribution of privileges within the citizenry by coup d’etat. Their uprising was crushed, but news of the event echoed throughout Europe. The second group of critics were from subject territories and complained about being deprived of their traditional economic freedoms and other liberties. Rudolf Braun has described this as the ‘status inconsistency’ of subjects who had made fortunes in business, but could not participate in political power or lead the life of a rentier. An isolated attempt in 1723 to shake off Bernese rule of Vaud failed because it found little support within the local population. Only in the 1790s did Revolutionary tendencies become a serious threat, arguably because of French support. A different kind of criticism came from the third group, the Economic Patriots. Emanating from patrician families, they did not question the political system per se, but its loss of republican frugality and virtue. As an alternative, they promoted a return to (Neo-)Roman qualities of

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245 Kapossy (2002).
246 It even inspired literary work by Lessing: See Würgler (1995).
247 One example is the young Edward Gibbon, discussed in Kapossy (2002).
248 The term ‘status inconsistency’ was coined by Rudolf Braun, describing an inconsistency between economic and political status: Braun, R. (1984).
249 For Davel, see: Mercier-Campiche (1970); Capitani (1998); Capitani (1986): 492.
geopolitical independence based on economic subsistence and self-sufficiency.\textsuperscript{250} Anabaptists could be added as a fourth group of government critics, as they questioned the legitimacy of any secular authority. They were heavily prosecuted in Bern throughout the early modern period for their refusal to serve in the militia and swear an oath of allegiance.\textsuperscript{251}

The Administration of the Canton

As in other patrimonial states, there was no strict separation between government and administration in eighteenth-century Bern; independent bureaucracy or civil service were non-existent. On the other hand, Bern did not have sinecures and all government positions involved clerical work. Since the second half of the seventeenth century, numerous chambers and committees fulfilled the function of advisory councils to the government. They prepared proposals for the Great Council’s final decision on important matters and carried out administrative tasks within their own jurisdiction. Except for the Vennerkammer and the Secret Council, chambers were usually staffed with a combination of Senators, (Great-) Councillors and secretaries. The number of government chambers and committees was increased throughout the century from 29 (1710) to 44 (1798), covering the whole range of state functions from religion to finance. Figure II-7 shows the Bernese government chambers ranked by date of formation as an illustration of this administrative intensification.

\textsuperscript{250} Kapossy (2002).
\textsuperscript{251} This is also discussed in Altorfer (forthcoming).
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The first two decades of the eighteenth century saw the foundation of many new administrative units. The number of civil servants had increased as well, though it remained on a comparatively low level. The 1764 census revealed that 478 citizens worked in the administration, of which 307 were magistrates. However, most of the state-employed were not citizens and thus not covered by this figure. Karl Friedrich Wächchi estimated their number at 1,500 by the mid-eighteenth century, representing less than 0.5% of total population. His figure includes government members as well as clergymen, professors, full-time military personnel and subordinate administrators. Although this estimate does not consider the militia and those employed on a part-time basis, it shows the small scale of the Bernese state. Administrative duties were carried out by a combination of patrician officeholders and their assistants, who were usually locals. As a result, in the whole Pays de Vaud, there were only a handful of Bernese patricians at the very top of the administration as bailiffs and some as clergymen, the remaining state servants were all Vaudois. Against this backdrop, it is obvious that the canton was dependent on the cooperation and compliance of its subjects. A popular saying stated that who ever obeys

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252 Walter (1966): 240-241. The magistrates probably included retired members of the CC.
a mandate of Bern does so voluntarily (Ein Mandat von Bern: Wer es halten will, der tut es gern).\textsuperscript{254}

The number of senior government offices was around 60 by the mid-eighteenth century, depending on how broadly the term is defined. 50 bailiffs represented Bernese rule in the counties for a term of six years.\textsuperscript{255} The Bailiwicks were ranked into four categories by estimated income, and strict rules determined the order in which they were balloted during an election.\textsuperscript{256} In addition to bailiffs, offices in the city included specific functions within the government and directorships for committees administrating salt, grain or public buildings.\textsuperscript{257} Most positions paid well, yet the salary embodied no indication of an office’s political importance. Since part of the remuneration was in kind, comparisons are difficult. The list in Table II-1 is based on a contemporary compilation that contains 230 positions open to citizens, ranging from Mayor to simple messenger.\textsuperscript{258} The most highly paid office within the city was that of State Clerk, who could earn up to 90,000 Bz, which was more than twice the salary of a Mayor (max. 36,600 Bz) and more than thrice that of the Vice-Mayor (26,375 Bz). However, the average bailiff earned at least as much, and the ‘top ten’ made up to 150,000 Bz. In comparison, a craftsman earned roughly 1\% of this sum with his yearly salary of 1,000-1,600 Bz.\textsuperscript{259}

\textsuperscript{254} Quoted from Wälchli (1991): 143.

\textsuperscript{255} The bailiff was usually called Landvogt, occasionally Schultheiss (Thun), Kastlan (Frutigen), Hofmeister (Königsfelden), Gubernator (Aigle); the French word was Bailli: Wälchli (1981): 116. See also Bucher, E. (1944).

\textsuperscript{256} For the ranking: RQBE, vol. 5: 460-461. The classes were reallocated in 1776: Feller (1955): 441.

\textsuperscript{257} Feller (1955): 439.

\textsuperscript{258} There are several copies of the document. I thank Myriam Chuard for giving me access to the archives of Armand von Ernst & Cie, Bern, where I first found this document; it is now kept at the Burgerbibliothek Bern (BBB Nachlass Wagner/von Ernst), along with another copy entitled: Besoldungen aller M.G.H. Aemteren und Diensten [...] gesamlet von Johan Rodolph Gruner V.D.M., A. 1720 (BBB Mss Hist Helv VIII 53). The exact function of these lists is not clear; they were probably used to plan careers and monitor fellow patricians. Payments in kind were capitalised in the list itself.

\textsuperscript{259} Calculated with daily wages for 200 days per year, based on Ebener (1999): 176-183.
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Table II-1: Income of Most Important Government Offices (in Bz)

<table>
<thead>
<tr>
<th>Office</th>
<th>min</th>
<th>max</th>
<th>Office</th>
<th>min</th>
<th>max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mayor</td>
<td>31,600</td>
<td>36,600</td>
<td>State Clerk</td>
<td>75,000</td>
<td>90,000</td>
</tr>
<tr>
<td>Vice-Mayor</td>
<td>26,375</td>
<td>26,375</td>
<td>Building Supervisor</td>
<td>50,500</td>
<td>65,500</td>
</tr>
<tr>
<td>Venner</td>
<td>33,275</td>
<td>37,400</td>
<td>Corn Supervisor</td>
<td>47,275</td>
<td>66,275</td>
</tr>
<tr>
<td>German Treasurer</td>
<td>24,500</td>
<td>25,750</td>
<td>Stiftschaffner</td>
<td>57,500</td>
<td>76,525</td>
</tr>
<tr>
<td>Treasurer for Vaud</td>
<td>41,500</td>
<td>42,250</td>
<td>Great Councillor</td>
<td>24,000</td>
<td>24,000</td>
</tr>
<tr>
<td>Senator</td>
<td>12,600</td>
<td>12,600</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salt-Senator</td>
<td>27,825</td>
<td>27,825</td>
<td>Bailiffs (overall Mean)</td>
<td>72,638</td>
<td>87,963</td>
</tr>
<tr>
<td>Building-Senator</td>
<td>31,975</td>
<td>34,275</td>
<td>Bailiffs (Top-Ten Mean)</td>
<td>108,625</td>
<td>148,563</td>
</tr>
</tbody>
</table>

Source: Besoldungen aller M.G.H. Aemteren und Diensten (BBB Nachlass Wagner/von Ernst, courtesy Armand von Ernst & Cie, Bern), see footnote 258. Bailiffs (Top-Ten Mean) is the mean of the 10 best-paid bailiffs, ranked by maximum income. See also the slightly different figures in Feller (1955): 437-438. All figures are in Batzen (see Section VII-13 in the appendix).

In reference to these generous payments, Abraham Stanyan stated that bailiwicks were

profitable, and some of them so considerable, that the bailiffs [sic] may live splendidly during the six years of their government, and yet put in their pockets five and twenty, or thirty thousand crowns, which is a great sum in a country, where the law retrenches all superfluities in equipage, apparel and furniture, and where oeconomy [sic, here in the sense of: frugality] is so well understood and practiced.\(^{260}\)

However, as there was no strict separation between private and public income, it is unclear how well the real incomes of bailiffs correlated with these expected revenue. We only have fragmented evidence from private patrician accounts.\(^{261}\) In exceptional cases, office-holders could even finish their term in debit.\(^{262}\) Each bailiff was liable with his own fortune for the administration and therefore had to nominate two citizens as guarantors.\(^{263}\) During his six years tenure, he had to live in an official residence on site and could profit from the revenue of the state domain. He collected all revenue, but was accountable to the Vennerkammer that controlled his yearly accounts (discussed below).

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\(^{260}\) Anonymous [Abraham Stanyan] (1756): 81-82. His figures are slightly too high: Kr. 25-30,000 over a six-year period are the equivalent of c. 105-125,000 Bz per year.


\(^{262}\) See for the case of Christoph von Graffenried: Altorf (forthcoming); Keller (1953).

\(^{263}\) Ryser (1956): 14.
A bailiff's duties covered the whole spectrum of state functions from the administration of state finance to maintenance of infrastructure and enforcement of government decrees. He was a judge who presided over trials for minor offences and an investigator of more serious ones. Finally, his responsibilities also included the supervision of the military, judicial and policing tasks of the communes.\footnote{For more systematic accounts of the bailiff's duties: Bartlome (1999): 149-152; Wälchli (1981): 118-119; Wälchli (1991); Bucher, E. (1944). The complete list of tasks for each county can be established from their oaths (StABE B V II25).} During his mandate, the bailiff was controlled by both the Venners and subjects, who had rights to appeal directly to the Great Council in case of malpractice. Co-monitoring between bailiffs of neighbouring counties, as well as reporting through clergymen, were also common practice. Furthermore, the country clerk functioned as an internal check on attempts to exploit his office too ruthlessly.\footnote{Bartlome (1999): 150-152.} The clerk (\textit{Landschreiber}) was elected for life and was usually from a local elite of 'notables' who had held these positions for generations. According to the contemporary list of government positions discussed above, there were 18 such posts open to Bernese citizens; the rest were staffed locally.\footnote{BBB Nachlass Wagner/von Ernst and Mss Hist Helv VIII 53 (see footnote 258 above). In addition to the 18 positions in Bernese counties, the administration of Condominiums offered another three such positions for Bernese citizens.} Bailiffs quite often lacked the tacit knowledge about local customs and were therefore dependent on the co-operation of their subordinates. Thus, together with the clergymen, the local clerks acted as indispensable middlemen between rulers and ruled. A number of minor clerks, often employed on a part-time basis, supported the state administration.

Based on the income estimates in the list of government positions, it is possible to calculate a relative income distribution of state employees in eighteenth century Bern. The 230 positions of the document provide information for 417 recipients of government salaries between 225 Bz and 150,700 Bz. The overall average income was 20,940 Bz, the mean (geographical average) 9,632 Bz. If the incomes are ranked by size and accumulated, they can be shown as a Lorenz curve (see Figure II-8).
Unsurprisingly, the income distribution is heavily skewed, which means that income was unequally distributed. The top earners in Bernese government had significantly higher salaries than their peers, even if we account for inaccuracies of the primary data, since it is very likely that the list compared positions that required full-time attendance with minor duties.

Overall, Bern’s constitutional arrangements were designed to restrain the power of ambitious individuals. A sophisticated system of checks and balances guaranteed equality among those with a stake in government. However, access to the government was strictly limited to a select number of patrician honoratiores. With incomes from their country estates, they could afford to wait until being elected into a profitable office. Their wealth also predestined them to assume top governmental positions that paid less well. While they became a distinctive group from the rest of the population, republican equality within the patriciate was maintained. Patrician rule was often criticised, at times even contested, but never seriously imperilled by rivals. Limits to ‘absolutist’ claims by the government were set by its dependency on the co-operation of local elites and subjects, as it lacked the coercive means to secure rule by force.
Although the eighteenth century saw some intensification of state administration, this remained at a relatively low level.

II-5 Geopolitics and Military Organisation

In a report of 1715, a French ambassador described Bern as a military camp, which 'has everything it needs for war, its granaries have been refilled, and the people are being trained by capable officers.' He could have added that the canton’s army of over 45,000 militiamen was amongst the largest in Europe at the time, albeit on a significantly smaller scale than the French. However, Bern was not an ordinary military state. Its standing regiments served abroad as mercenaries. Furthermore, the canton had not been embroiled in any major wars throughout the seventeenth and eighteenth centuries. This section will outline Bern’s geopolitical situation. I will first consider the canton’s foreign policy in the context of the Swiss Confederation, followed by an account of the incidence of wars. Finally, I will assess Bern’s foreign policy and military organisation, including its overseas mercenary regiments.

Bern and the Pax Helvetica

Swiss cantons of the eighteenth century showed little desire for geopolitical activity and were almost always at peace. For the most part of the century, the cantons were within the French sphere of influence, with the Emperor’s guarantee staving off complete subordination. Overall, the equilibrium was maintained until 1797, when the Imperial army was defeated and ushered in the end of Swiss independence. Throughout the century, the cantons profited from the fact that all sides had an interest in neutralising the Corpus Helveticum. In 1688-1691, when France and the Empire were at war, they even agreed to jointly cover the cost for defending the Northern Swiss border. Neutrality was interpreted as a commitment to non-intervention. Military alliances remained consistent with this concept, as long

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268 Parker (1996): 46 gives the number of 395,000 French troops under Louis XIV in 1696. By 1710, the number of troops simultaneously on foot in Europe is estimated at 1.3m. See also Wilson, P. (1999).
270 Im Hof (1977): 683.
as they were defensive in character.\textsuperscript{271} In addition to a perpetual non-aggression pact with the Empire since 1477 (renewed in 1511), the Confederation had an alliance with France from 1663 to 1723 (renewed only in 1777).\textsuperscript{272} Since 1712, Bern was also allied with the United Provinces.\textsuperscript{273} These alliances secured military assistance against attacks; they also fixed the number of mercenary troops the Swiss provided to their allies. In addition to Swiss soldiers, loans were at times used to create and foster dependencies since the sixteenth century.\textsuperscript{274} By the eighteenth century, Bernese overseas loans had changed in character and become mainly financial investments (see Chapter V).

The military system of the Swiss Confederation was federally organised and coordinated through a treaty that regulated common border defence since 1647 (renewed in 1668).\textsuperscript{275} Without powerful standing armies, the cantons abstained from geopolitical conflicts. Andreas Suter has listed numerous causes for this ‘low military profile’ of the Swiss: their territory was small and relatively poor, authorities lacked the power to tax economic resources and internal antagonisms embodied great potential for internal conflict.\textsuperscript{276} The most important internal conflict in the eighteenth century was between the Protestant and Catholic states of the Confederation, although it was moderate compared to earlier religious conflicts.

Bern at War

After Bern’s response to an attack on Geneva by the Duke of Savoy in 1589, the canton was not engaged in any major geopolitical conflict till 1798. In the meantime, military incidents were limited to civil wars with the Catholic cantons (1656, 1712) and a peasant revolt (1653). All these confrontations were short and inexpensive; they caused few casualties and minimal economic disruption. To borrow

\textsuperscript{271} Im Hof (1977): 678; see also Suter (1998): 141-156. As such, the concept was less strict than its modern interpretation; it was not distinctively Swiss. See Geschichtliche Grundbegriffe, vol. 4: 315-337 (article Neutralität).
\textsuperscript{272} Im Hof (1977): 678. The alliance of 1663 was tenured to stop eight years after the death of Louis XIV (who died in 1715). Shortly before his death, the Catholic cantons had signed a separate alliance with France, containing a secret clause against Zurich and Bern: Im Hof (1977): 701-709.
\textsuperscript{273} See Altorfer (forthcoming) for details.
\textsuperscript{274} See Körner (1980).
\textsuperscript{275} Referred to as Defensionale: Im Hof (1977): 678-680.
\textsuperscript{276} Suter (1998): 152-156.
an expression from Joachim Remak, they qualify as 'very civil wars.' Table II-2 shows the number of troops and casualties as far as the figures can be established. In addition to actual fighting, Bern also mobilised troops at several occasions to intervene in conflicts in allied territories and to defend its borders. Except for the 1790s, however, these incidents were on a small scale.

<table>
<thead>
<tr>
<th>Incident</th>
<th>Year</th>
<th>Bernese Troops</th>
<th>Enemy Troops</th>
</tr>
</thead>
<tbody>
<tr>
<td>First War of Villmergen</td>
<td>1656</td>
<td>c 9,000</td>
<td>4,900</td>
</tr>
<tr>
<td>Second War of Villmergen</td>
<td>1712</td>
<td>35,216</td>
<td>10,000</td>
</tr>
<tr>
<td>French Invasion</td>
<td>1798</td>
<td>c 20,000</td>
<td>c 35,000</td>
</tr>
</tbody>
</table>

Table II-2: Bernese Troops at War


In comparison to other European wars of the eighteenth century, these figures of troops deployed are negligible. Throughout the War of the Spanish Succession (1703-1712), over 1.2m soldiers died on the battlefield, which equals over 100,000 deaths per year for the duration of the conflict. The difference is also instructive when looking at finances. To cover the entire expenses for the Second War of Villmergen in 1712, Bern withdrew approximately 13.125m Bz from its cash reserves and did not levy any additional taxes. In contrast, Britain’s national debt increased almost £30m (about 4bn Bz) during the War of the Spanish Succession and had to be covered by ever-increasing tax burden on its population.

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277 This expression is from Remak (1993), who used it to describe the Swiss Sonderbund war of 1847 compared to the US civil war.

278 In 1707, an army of 4,000 was levied for ten weeks during the Conflict of the Neuchâtel succession: Feller (1955): 226-227. Bern also intervened in Geneva in 1707, 1737, 1768 and 1782, as well as in Fribourg 1781: Walchli (1981): 147-148


280 Feller (1955): 318. The war was entirely paid for by the cash reserve; communal chests for military defence (discussed below) were not used; see also Chapter III below.

Mercenaries and Militias as a *Virtual Standing Army*

For its defence the canton relied on a two-tier system of a domestic militia and mercenary troops that could be recalled in case of a military emergency. Thus, Bern had a *virtual standing army*, positioned abroad and financed by other states. It is questionable how reliable the commitment by other rulers to release their Swiss mercenary troops in wartime really was.

Bernese mercenary troops were owned by private military entrepreneurs from patrician families. They were licensed by the government and served under a contract ('capitulation'), which fixed the terms of service and the yearly payments ('pensions') that their principal had to pay for the right to levy troops in Switzerland. While such contributions had been a cornerstone of Bernese finance in earlier centuries, they had lost importance in the eighteenth century. In fact, pension payments from France were not collected any more for political reasons and the Dutch levied troops without paying pensions.\(^{282}\) Terms of deployment stated that troops could be withdrawn in case of a military emergency at home and ruled out both offensive engagements and attacks on fellow Protestants. The treaties also stipulated that Bernese soldiers should not be transported by sea, which was meant to avoid a deployment beyond Europe. In reality, these terms were often ignored ('transgressed'). To the Swiss Confederation, mercenary troops formed an indispensable tool of foreign policy and guaranteed that rival powers – especially France and the Empire – had no interest in attacking their 'reservoir' of soldiers.\(^ {283}\)

For Richard Feller, they were the price to pay for neglecting Swiss border defence.\(^ {284}\) The cantons also reaped economic benefits from the mercenary contracts by obtaining tariff exemptions. While the cost of this policy was financially low, it was high in terms of individual soldier lives. This is why the trade had been criticised on political, military, economic and ethic grounds since the Reformation.\(^ {285}\)

Throughout the eighteenth century, three Bernese regiments fought for the United Provinces and one each for France and Sardinia-Piedmont. Figure II-9 shows their effective number, based on company registers.

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\(^ {282}\) Discussed in Chapter V (particularly Section V-2).


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The Dutch made more flexible and economic use of their foreign troops, discharging them in peacetime and only recruiting when necessary. At its height in the late 1740s, approximately 10,000 Bernese troops served abroad, of which only 7,000 were from the canton (the others were ‘foreigners’).\(^2\) The average throughout the century was around half this figure, which would be the equivalent of 1-2% of the total population. For all of Switzerland, it has been estimated that in the early eighteenth century, the equivalent of 3% of the male adult population served abroad, some 1-2% towards the end of the century.\(^3\)

The Bernese mercenary regiments were owned by patrician families and commanded by Bernese officers, some of whom came from Vaud.\(^4\) During the second half of the century around 200 members of ruling families served as officers in foreign armies.\(^5\) While over half of them were in the Netherlands, the rest were in France and Sardinia, and some in the British or Imperial armies. In addition to economic benefits, serving abroad provided recruits with an overseas education as

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\(^{2}\) 'Foreigners' could also be non-Bernese Swiss. See the different categories in Pfister, W. (1980-84); see also Feller (1955): 516.

\(^{3}\) Capitani (1986): 450. An estimated total of 350-500,000 served abroad throughout the whole century.


\(^{5}\) Geiser (1891): 99.
well as excellent opportunities to create political networks and gain administrative experience. For the military entrepreneurs, it offered a lucrative investment opportunity, albeit a risky one. It has been argued that in the eighteenth century, mercenary services were in decline and became a political favour granted by the principals. They had certainly lost in overall importance but could still be lucrative for individual families. In 1677, an inquiry by the Bernese government revealed that one company in France had made a profit of Lb 20,000 (150,000 Bz) in six years of war. If the sum covered the whole period of six years – and the source is not entirely clear about this point – then the profit was proportionate to salaries of well-paid Bernese bailiffs, who could earn as much in a single year at a significantly lower risk. Nevertheless, the government realised that military profits abroad might make magistrates susceptible to foreign influence and prohibited relatives of Senators and Mayors to own regiments serving for France.

The canton also profited from its mercenary troops as a training-ground for the higher ranks of the domestic militia. The military modernisation elsewhere also impacted the Bernese army. The traditional militia of patriarchs (‘Hausvätermiliz’) was constantly rejuvenated, unified and better armed. While in the seventeenth century only one member per family was drafted, the Bernese government slowly introduced general conscription. From 1768 every able bodied man aged 16 to 60 had to serve. In 1721, Bern had an Auszug of rapid units comprised of 13,200 men and an overall army of more than 45,000. By the end of the century, the 28,000 rapid units were combined with a reserve of 50-58,000 men. A table of 1787 reported the full capacity of Bernese troops to 93,688 – a figure that included some 20,000 ‘incapables’. Only a fraction of this was actually available during the conflict of 1798.

Based on my own population estimates, about 14.1% of all inhabitants served in the militia in 1732; fifty years later, this share had increased to 16.5% (1782). Compared to the number of men aged 16-60, this is equivalent to 62% (1732) and

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290 Capitani (1986): 472-475. It would be interesting to test these hypotheses with data from private records of families owning a regiment. The overall number of soldiers was certainly not in dramatic decline for Bern (see Figure II-9).
293 Grosjean (1953): 165.
295 StABE B II 271.
296 See Section IV-2 for population estimates and Section IV-5 for militia costs.
72% (1782).\textsuperscript{297} With a soldier to civilian ratio between 1:7 and 1:6.25, Bern looks even more militarised than Hesse-Cassel as the ‘most militarised state in Europe’ of the time, which had a ratio of 1:15.\textsuperscript{298} In Prussia, the ratio was 1:30. Such figures can be misleading, however. The Bernese troops were not well trained and their equipment was relatively backward. Compared to Hessians, Prussians or French, they also lacked fighting practice, with the exception of the returning mercenaries in their ranks. In principle, communes paid for the troops while they were deployed but not for training; throughout the eighteenth century, the state treasury reimbursed them for troop deployments. Each commune had to keep a war chest in cash (Reisgeld), whose amount was fixed by the government. Bailiffs monitored its existence and also supervised the training of militias, which took place for a few days every year.

In summary, the most distinctive geopolitical feature of Bern was the absence of major wars for over two centuries before 1798. Overall, Swiss foreign policy during that period is characterised by inactivity. The Confederation as a whole benefited from the prevailing political equilibrium in Europe, which was the best guarantor for its independence. This system worked well until its collapse in 1797. Despite an isolated attempt to resist the approaching French troops, the events of 1798 showed that the canton’s defence was not only inexpensive, but also ineffective. The combination of domestic militia and mercenary troops abroad that had represented Bern’s \textit{virtual standing army} throughout the eighteenth century proved to be just that – virtual.

\textbf{II-6 The State as Provider of Non-Financial Public Goods}

While most of my research is on actions which are traceable through government accounts, it is crucial to acknowledge that states provide important non-financial public goods. These normative actions include securing property rights in particular. In the first part of this section, I will discuss this for the Bernese state based on the specific examples of cultivation rights, mortgage credit and mercantile law. In a second part, I will analyse the government’s economic policy, mainly with

\textsuperscript{297} Calculated with relative percentages for 1764 from Pfister, C. (1995): table 9.3 (432). I have applied his relative estimates for the canton in its 1980 borders to the whole territory.

\textsuperscript{298} Ingrao (1987): 132.
respect to the textiles industry and grain markets. The role of education and spiritual public goods have been put aside because of a scarcity of information.

Property Rights

The importance of secure property rights is one of the crucial components of a New Institutional approach to economic history (see Section 1-2 above). The basic idea is that agents will only engage in productive economic activity if they feel assured that their assets are safe. Historically, the definition and enforcement of property rights by the state has mostly been related to revenue extraction, with states securing property rights in order to tax more effectively. In the Bernese case, where taxation was minimal, property rights were still relatively secure, although with marked differences.

Cultivation rights determined the kind of agriculture that was carried out on a specific plot of land. In a feudal system, the landlord determined which crop was planted. In Bern, such feudal rights were often held by communal collectives, who decided on cultivation within the framework of a three-field crop rotation system. The degree of feudal penetration differed across regions, however. In the Alps, communal structures were relatively weak, and individual peasants could choose their activity free of constraints. As a result, Alpine agriculture specialised in cattle and dairy farming, selling its products on the market, often abroad. In the lower lands (Mittelland), feudal structures prevailed for longer. This promoted the cultivation of grain, which could be taxed easily in the form of tithes, whose product could then be stored or sold. The most visible change in cultivation rights was the division of communal lands (Allmenden), which were enclosed and exploited individually. In the second half of the eighteenth century, the enclosure movement reached the Mittelland, although it peaked only during the Helvetic Republic after 1798. Individual property rights of peasants provided a powerful incentive for more productive use of land. This ultimately led to an increase in potato and dairy farming in the sub-Alpine zones (Emmental) in the nineteenth century. The government did not actively promote enclosures, but it allowed communes to divide common lands after 1765 and maintained the option to regulate how divisions were carried out.  

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This was fraught with contradiction, since the main interest of the government was to secure its tax (tithe) base, which was to a large extent dependent on feudal arrangements.

The support for securing land titles by the government was more forthcoming. The Bernese capital market consisted almost exclusively of mortgage contracts. These had the form of Güten, which in spite of their wording as rentes had evolved into impersonal mortgages that could be terminated by both sides. Thus, the government had secured mortgage contracts as a reliable and secure form of investment.\textsuperscript{301} For many investors, mortgage credit was used as a pension, generating a steady stream of revenue over time. Accordingly, Güten contracts were usually renewed after their expiry date. In order to protect investors, the government also fixed interest rates by usury laws as part of its prerogatives as a sovereign. Earlier mandates from 1648 and 1658 fixing the interest rate at 5\% were renewed in 1731, in spite of discussions to lower the rate in the light of an oversupply of capital. As the main argument for extending the high rate, the government cited tradition and a desire to avoid capital exports, but also the protection of investors, which included widows and orphans alongside the government itself. The argument was that lowering interest rates would deprive investors of sufficient returns.\textsuperscript{302} Securing mortgage contracts enabled the establishment of a domestic capital market that allowed peasants to use land as collateral for loans. Andreas Ineichen has found that in the Lucerne countryside, agricultural mortgages were rarely used to fund productive investment, but rather to avoid dividing up lands for inheritance or even out financial life-cycles.\textsuperscript{303} Credit from citizens of a republic to their rural hinterland has also been identified as a major avenue for clientelistic relations in early modern Switzerland.\textsuperscript{304} This applied to Bern, where patricians were important holders of lands, titles and financial claims throughout the territory of the republic. Interestingly, in contrast to the situation in most other European states, the government of Bern was interested in the capital market as a lender, not a borrower.

While agricultural property rights were secured, the government's support for commercial titles was far less enthusiastic. In the aftermath of a severe banking crisis

\textsuperscript{301} See also Pfister, U. (1994).
\textsuperscript{302} Quoted in Schmidt, G.C.L. (1932): vol. 2, 66 (prerogative) and 122-123 (1731 report).
\textsuperscript{303} Ineichen (1992); Ineichen (1996); it can be argued that the situation in most of the Bernese territory was similar.
in 1720, the Great Council attempted to reform Bernese mercantile law. The new commercial code modernised and facilitated aspects of commercial transactions. Business associations, bankruptcies and bills of exchange were largely regulated following the model of the Geneva *Règlement sur le commerce*. By 1728, a final draft of the bill was ready; it was vetoed by the Great Council after a dispute about bankruptcy courts. At the heart of the matter lay the interest of city courts (*Stadtgerichte*) staffed by patricians, who were not willing to lose their income from bankruptcy cases to a newly established mercantile court. Nikolaus Linder interprets this failure to create a suitable infrastructure for business and commerce in the context of Gary D. Liebcap’s argument that any (re-)definition of property rights reflects underlying political bargaining structures. Applied to the Bernese case, the lack of a vested commercial interest of patricians – and their interest in maintaining the current solution in their favour – was an impediment to reform. A commercial code that would enable the accumulation of proto-industrial and commercial wealth might even represent a potential threat to patrician rule. The Great Council adopted a strategy of ‘non-regulation’ to avoid adverse redistribution effects.

The same argument can also be used for the contrasting case of Gütten, where patricians had a vested interest in making these securities safe. Government members were willing to provide instruments for facilitating transactions because of their involvement in this market. In addition to the perspective on patricians as an interest group, from a ruler’s perspective, the government’s neglect of commercial regulation can be interpreted in a similar way. Since state revenue did not chiefly depend on taxation of industrial and commercial activities, they were not the government’s primary concern. This contrasts with the situation in mercantile republics, where both the state (through taxation) and its power elites gained from promoting commerce.

Nevertheless, in spite of the absence of a fully fledged mercantile law, Bernese courts were relatively efficient and fair by early modern standards. Merchants did not benefit from special protection, but suffered little discrimination from government members defending their vested commercial interests. Abuses of property rights through arbitrary taxation or forced loans were entirely absent. Overall, the government defined and secured property rights relatively well, even if the degree of

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judicial fragmentation between social groups was high compared to modern legal systems in which all citizens share equal rights.

Economic Policy

The Bernese government adopted its first consistent economic programme in the late seventeenth century by introducing a Commercial Council (Kommerzienrat), modelled after the French Conseil de Commerce under Colbert. Its intentions were to attract manufacturing industries, mainly by encouraging the settlement of Huguenot refugees after the revocation of the edict of Nantes. The strategy had limited success, as most refugees used the canton as a temporary base before migrating to the Netherlands or Britain. The ‘mercantilist’ spirit of Bernese economic policy prevailed for decades, in spite of a fading importance of the Commercial Council. With the manufacturing mandate of 1719, Bern had shifted entirely to a territorial economic policy, which granted little privilege to the capital over its territory. In this, the canton differed significantly from other Swiss republics in which mercantile elites managed to impose important protection vis-à-vis of their hinterland. With the exception of salt, the government avoided the control of commercial activities, although it set boundaries for agricultural commodities. Grain mandates declaring temporary export bans provided a ‘fine and flexible’ instrument for securing sufficient supplies.

Physiocratic ideas became prominent in the second half of the century; they centred on the Ökonomische Gesellschaft of the Economic Patriots, in which numerous patricians were active members. The Gesellschaft promoted agrarian modernisation, considering productivity increases within the existent agricultural system as the solution to the canton’s autarchy. Physiocrats recognised that free grain trade could create incentives for higher productivity. However the Economic Patriots failed to see that changing the agricultural pattern of early-modern Bern also meant questioning the way the state was funded and legitimised. Given that their members

307 Lerch (1908); Schneider, H. (1937); Bodmer (1951) and Bodmer (1973).
308 See also Küng (1993) on the Huguenot refugees.
309 See the comparison in Bodmer (1951) or Braun, R. (1984).
310 Bodmer (1973): 27; see his list of grain mandates in Table 1 (94-101).
311 Baeschlin (1913); Pfister, C. (1975) and Pfister, C. (1995); Kapossy (2002). The Bernese physiocrats did not necessarily share orthodox views on taxation [see Bonney (1995a): ch. 6.5]. I understand physiocracy in this context as a stream of thought that considers agriculture as the main economic activity and key contributor to state finance.
were mostly from patrician families, this blindness was not a surprise. The enclosure of common lands went hand-in-hand with untying production, which implied that cultivation should be free from any feudal constraint. Therefore, in its ultimate consequence agricultural reforms would have undermined the state in its existing form. Christian Pfister argues along the lines of William Abel that the changing doctrine towards Physiocracy needs to be considered in the context of falling rents for patricians since the 1740s. Demographic stagnation or even decline led to a decrease in profits for large landowners and rentiers. In this situation, the incentives to increase production were absent because demand was not growing. This situation was considered dangerous for both the state and patrician families.

While urban guilds had little influence on the state’s economic policy, they often held important local privileges and wielded strict control over their own trade. They set standards for the quantity and quality of products, regulated apprenticeships and settled commercial disputes. However, an important limitation to the guilds’ economic power was the government’s similar treatment of urban and rural producers. Secondly, it promoted the establishment of rural guilds in the countryside. These were similar to their urban counterparts, although usually even less successful in enforcing privileges. In practice, this led to the co-existence with a non-guild sector (‘Stümper’) in rural areas. It consisted of day labourers who worked in agriculture and industry, as well as itinerant craftsmen (‘Störarbeiter’).

With its territorial economic policy that did not favour the capital city, the Bernese case provides a counter-example to Ulrich Pfister’s explanations about the political protection of markets outlined in the introduction. His model accurately describes the situation of the largest part of the textile industry in eastern Switzerland dominated by the guild-run cities of Zurich and St. Gallen, as well as the response by their rural competitors in Appenzell or Glarus. In Bern, the absence of an urban merchant elite pushing for protection might explain why proto-industry only happened at a time when ‘ruralisation’ had already set in elsewhere. The political elite had no direct interest in textiles, arguably because their alternatives for obtaining incomes through government offices and mercenary services were profitable enough.

315 Meier (1986); Graf-Fuchs (1940).
316 Pfister, U. (1996a); see the discussion in Section I-2 above.
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The government supported the introduction of export industries as a way of generating employment and improving its negative balance of trade. Tax reasons were not important, since this sector was virtually untaxed. From its late start in the seventeenth century, the state did little more than securing the working of a domestic market for semi-finished and finished products and left the rest to private initiative. Compared to the other textile centres, Bern did not successfully transit to industrial production in the early nineteenth century, for which arguably a lack of marketing know-how and ‘entrepreneurial spirit’ was responsible.317

The Bernese manufacturing mandate of 1719, while banning textile imports, stated explicitly that its production was free.318 State-employed clerks (commis) policed the import ban and reported the amount of domestically produced cloth to the Commercial Council. It is not clear for how long these reports were actually produced as only few have survived.319 In 1758, the government regulated the production of linen by mandate, followed by a regulation for cotton three years later.320 The aim was to secure exportability of the final product, deemed necessary for the balance of payments; the government did not intervene in the organisation of production as a belated acknowledgement of the existing market-based system. While the Bernese manufacturing mandates left methods and quantities unregulated, they imposed standards for textile products which divided them into different qualities.321 State-employed controllers (Tuchmesser) had to measure and certify all cloth sold on the market, for which they received duties. Based on controllers’ records, Jean-Jacques Siegrist estimated their cost at less than 1% of the final product price.322 As my empirical analysis will show, they were also unimportant for Bernese state finance.323 Since duties were neither levied on the textile industry, nor on the income from this activity, it can be considered tax-free.324

Assuming ‘Smithian’ market expansion as the main form of economic growth in early modern times, the degree of market integration would be the test for the

318 Graf-Fuchs (1940): 189.
320 RQBE, vol. 8/1: 614-618; 171-172; 175-179 (for cotton).
322 Siegrist (1957): 15-18. For an analysis of production volumes based on the Tuchmesser lists, see footnote 213 above.
323 See Chapter IV below.
324 This was the same for textiles in Britain, see O’Brien (1994): 212; O’Brien/Hunt (1999): 64-65.
effectiveness of the Bernese territorial economic policy.\textsuperscript{325} If the policies were successful, the level of market integration defined as the absence of arbitrage profits and stable transaction costs for the same good in different markets should decline over time. Even for the most important commodity of the time, grain, information is scarce; hence empirical results should be considered very carefully. Anton Brandenberger has found that Bernese grain markets were well integrated with each other, confirming earlier statements by Christian Pfister.\textsuperscript{326} Brandenberger has further found that the Bernese market was less well connected with grain markets in neighbouring countries. It is not clear to which extent the difference can be attributed to distance (transportation cost) or to political factors.

In summary, property rights were well defined and secured, although commercial rights did not benefit from particular protection. The degree of judicial fragmentation was certainly high by modern standards, but Bern was not an outlier in an eighteenth-century context. The government's economic policy was mainly characterised by inactivity, leaving ample room for individual initiative, though this was not sufficient to create a dynamic economy. Some possible explanations for this failure are the lack of social and political mobility for successful entrepreneurs and the lack of protection in a mercantilist world, in which market access was not free. Also, the size of the domestic market was small, and there was little integration beyond the cantonal boundaries.

\textbf{II-7 The Fiscal Constitution}

To modern scholars, the fiscal constitution of early modern Bern was rife with inaccuracies. The accounting system was not transparent, responsibilities were ambiguous, and the distinction between official and private fortunes flawed. In short, it was a patrimonial structure, burdened by a long tradition of path dependent institutions. While the government promoted standardisation throughout the eighteenth century, changes were incremental and slow. The aim of this section is to provide the necessary background information for the empirical analysis of state


\textsuperscript{326} Brandenberger (2004): ch. 4. Pfister had argued that grain prices of Bern and Nidau were highly correlated, without explicitly referring to market integration: Pfister, C. (1975): 151 (footnote 7).
finance in subsequent chapters. It focuses on accounting practices, which can also be considered as an illustration of how reforming the Bernese state was ongoing and incomplete. While the government tried to impose some standardisation and transparency, it was reluctant to go the full way, for this had the potential to undermine its own legitimacy. I will start by briefly explaining the two-tier system of monetised and non-monetised transactions, then discuss the use of accounting techniques and auditing.

Collecting Revenue with a Partly Monetised Accounting System

As will be discussed in more detail in the next chapter, the Bernese state did not have a central budget (see Section III-3 in particular). The word ‘budget’ has to be qualified in this context as the government did not have any explicit financial forward-planning; or if it had, the documents have not survived. In the Bernese accounting system, different types of accounts co-existed and their content partially overlapped. The Deutsch- and Welsch-Standesrechnung were the closest equivalent of a central account, but they did not contain all revenue and expenditure of the state. In particular, numerous transactions that occurred at a local level were not included. They were recorded in bailiff ledgers, from where an eventual surplus was transferred to the Standesrechnung. The system is symptomatic for the incomplete separation between government office and private fortunes in the patrimonial Bernese administration.

As explained above, each bailiff was accountable for his office with his private fortune. An incumbent bailiff had to purchase the inventory from his predecessor. This was recorded as his debt towards the state (Restanz), to which all revenue that he collected were added and expenditure subtracted. An eventual surplus in his account showed as an increased debt of the officeholder towards the state and vice versa. Bailiffs were the cornerstones of Bernese revenue collection. The administration relied on a sophisticated accounting system that combined monetised transactions with transactions in kind because a large number of revenue accrued in grain and wine. The main source of revenue in kind were tithes, which had to be delivered in grain and could not be paid in cash. The Bernese government auctioned off tithe

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collection to the highest bidder in each county, following a system of checks and balances to ensure achieving the highest possible price.\textsuperscript{328} Tithe collectors then delivered a fixed amount of grain and wine to the local bailiff, regardless of the outcome of the harvest. As a safeguard against moral hazard, the bailiffs themselves were not allowed to bid for tithe collection, nor were their relatives.\textsuperscript{329}

Part of the state's revenue in grain was used directly for expenditure, ranging from salaries to subsidies for the poor or payments for services. In years with abundant harvests, part of the tithe receipts went to the public granary which the bailiff administered. In June and January, bailiffs received instructions from the Vennerkammer about the exact amount of grain they were allowed to sell on the market; selling grain without explicit permission was strictly forbidden.\textsuperscript{330} From 1731, bailiffs had to record their grain sales on behalf of the government. As remuneration, they received a share of the proceeds, usually one fifth, seventh or ninth, depending on the amount sold.\textsuperscript{331} Bern thus adopted a system that was based on market prices and set an incentive for high prices for the bailiff. Its effects will be discussed in more detail in Section III-6 below.

The Use of Numbers and Tables

All Bernese accounts were kept in handwritten ledgers. They varied in format, size and quality, ranging from relatively simple booklets to luxurious leather-bound volumes illuminated with coats of arms and lavish calligraphy. In general, the more important the office was, the more intricate and ornate was its ledger.\textsuperscript{332} Typically for a patrimonial administration was the way in which accounts were written as personal statements ('My account as Treasurer in year X') rather than 'the accounts of the Treasury for year X'). The books listed revenue and expenditure by category, usually distinguishing between ordinary and extra-ordinary transactions.\textsuperscript{333} Ledgers finished with an account balance and auditing remarks by the Vennerkammer, for which the officeholder would leave a few blank pages. Some accounts also contained an

\begin{flushleft}
\textsuperscript{329} StABE B VII 25: §17.
\textsuperscript{331} This was called the fifth (seventh, ninth) penny. The larger the amount sold, the smaller was the share. See Bucher, E. (1944): 107 and StABE B VII 25: §9b.
\textsuperscript{332} For the formal aspects of the Deutsch Standesrechung: Leuenberger-Binggeli (1999).
\end{flushleft}
appendix that specified the content of public inventories or gave details about transactions, such as grain sales or collected fines. Double-entry bookkeeping with T-style accounts was only used for offices with a commercial nature, such as salt ledgers, overseas investment or grain chamber accounts. Bailiff accounts and Standesrechnungen did not use this technique. For the former, this can be explained by a lack of accounting know-how by Bernese patricians. For the latter it is more surprising, since the Treasury used double-entry bookkeeping for its daily work, as evidence from a control ledger and journal for the years 1720-1733 proves. The booklet contains credit and debit statements for each office, listing all transactions between the Treasury and this office in chronological order; records were crossed out when counter-booked.

Arabic numbers were introduced into Bernese accounting in the late seventeenth century, which overtook the use of roman letters in the eighteenth century. Transactions were recorded in separate columns for each currency subunit, of which there were normally two (see Section VII-13 in the appendix for details). This made adding page sums and grand totals (‘summa summarum’) easier and more reliable. In many cases the sums were first added by pencil for a final check before being written down in ink.

The list of categories in the Bernese ledgers became more standardised over time. Regional differences vanished, and bailiffs increasingly had to follow the same practice. There never was a full set of rules applied to all offices, however, and the change was gradual. Grain mandates had instructed bailiffs about how to look after public granaries for centuries. These regulations also dictated a strict separation between private and public grain inventories. In 1757, public grain policy was reformed and unionised throughout the canton. Grain mandates released in this year were more detailed than any of their predecessors. The historian Ernst Bucher has accused the government of ‘schematism’ and a willingness to control every minute detail of administration. However, imposing some degree of standardisation and consistency through enforceable accounting standards was probably the only way to avoid officeholders taking advantage of their powers.

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334 StABE B VII40.
336 StABE B VII25: §7-17.
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Further along the process of standardisation, the government compiled a consistent collection of all bailiff oaths of office in 1779. This gave an overview of their duties, which were unified in a similar fashion. Up till that time, decrees and instructions had been collected unsystematically in large volumes. It can be presumed that before the reform, most bailiffs learnt their duties either through custom or from relatives. They also benefited from the fact that the local clerks (Landschreiber) enjoyed lifelong tenure and accumulated significant practical knowledge. Although accounts officially were in the name of the officeholder, most were probably written by their clerks. Format and phrasing were usually copied from predecessors and therefore changed little over time. Parallel to the reformation of the bailiff oaths, their superiors – the Venners – also received new and more concise instructions. To make the break from previous ‘path dependent’ traditions more obvious, the new set of rules was organised by topics, rather than chronologically by simply adding new rules in the order they were issued by the Great Council.

Since the 1760s, the Bernese administration made widespread use of tables to compile data. With this new system, proto-statistical surveys were made much easier. For a grain inventory enquiry in 1757 and the 1764 population census, the government even printed forms for bailiffs and priests to complete. Similar tools were later applied for collecting financial data from across the canton; I will use them for my long-run analysis of state finance (see below, Section III-4). It is not clear if these tables were written in retrospect or constantly updated. What matters in this context is the sheer existence of such compilations, which prove how the government tried to overcome the problems of a fractured financial organisation. This was driven by a desire for more transparency and the need to obtain better information for political decisions. The fact that this conflicted with the principle of secrecy in financial matters can probably explain why the ultimate reform, to introduce a central budget for the state, was not taken.

338 StABE B VII 25 and 26.
339 StABE B VII 21 and 444.
340 StABE B VII 5 and 6. For example, the new version of 1778 left blank pages for later additions.
342 StABE B VII 2179.
Auditing

The Bernese accounts were formulated to be read before the Great Council as the ultimate institution that every officeholder was responsible to. Accordingly, the opening paragraph sounded similar to that of the Aarberg bailiff in 1782:

Mine, Johann Rudolff Wagner’s, bailiff of the county of Aarberg, second account and report of all my revenue and expenditure concerning this office, from new year’s day 1782 until the same time 1783.343

Before reaching the Great Council, each ledger was presented to the Vennerkammer for auditing in a process called passation. This took place in spring, usually a few weeks after the end of the financial year of an office.344 The Venners scrutinised each account for accuracy and calculation errors; they also made sure that all relevant revenue and expenditure was included. Finally, they subtracted expenditure from revenue and, if necessary, included previous arrears to determine each bailiff’s new debt towards the state. If they discovered irregularities, the Venners made comments, which were then referred to the Great Council along with the details of the account. A copy of their comments was kept in the Abusen-Buch, which served as reference for future controls.345 For the above mentioned example of Rudolf Wagner’s 1782 account for Aarberg, the passation record reads as follows:

On Monday, 10th of February 1783, His Excellencies the German Treasurer and Venners listened to Mr Johann Rudolff Wagner’s, currently bailiff in Aarberg, 2nd official account, and under the usual caveat of (fraudulent) miscalculation, [have] passed and accepted [his account], through which, after [(...) minor corrections], Mr the bailiff has been gratified with some grain[,] then revenue [has] been compared to expenditure, and been settled, the same [bailiff], including his previous arrears in grain, owes to His Excellencies 669 Crowns, 20 Mt of wheat, 20 Mt of mill com, 75 Mt of rye, 1769 Mt of spelt [and] 540 Mt of oats. Actum ut Supra.346

The formula for Vaud ledgers differed slightly in wording, stating the account was accepted as an ‘honourable and true business under the caveat of (fraudulent) miscalculations.’347 It ultimately contained the same disclaimers. The crucial point is

343 StABE B VII 862. For the orginal text, see Section VII-3 in the appendix.
344 See Section VII-5 in the appendix for the starting dates of the financial year.
345 StABE B VII 27.
346 StABE B VII 862. For the orginal text, see Section VII-3 in the appendix.
347 Moudon account 1782: ACV Bp 34/38.
that the *Venners* passed the account under the caveat of good bookkeeping, which allowed them to turn on the officeholder if fraud was detected at a later date.

The *Venners* also calculated deductions for weight loss of the granary that each bailiff was entitled to. They were fixed at 5% for the current harvest (*Kastenschweinung*) and 2.5% of all previously stored grain (*Abgang*). The 1757 grain mandate instructed bailiffs to carry out the calculations themselves. Even before the reform, some office holders had already deducted grain maintenance. While the *Venners* considered this fact in their calculations – and hence did not compensate the bailiff twice – the *passation* text occasionally mentioned a deduction.\(^{348}\) In other words, the text did not accurately describe the calculation but followed a formula that was simply copied from the previous year. There are also instances where the *passation* text mentions a deduction on a new harvest when none was recorded.\(^{349}\) While this points to a copy-and-paste approach to repetitive formulas, the *Vennerkammer* rarely made mistakes in their calculations. On the other hand, taking these *passation* texts at their face value can lead to important miscalculations.

Another crucial part of the patrimonial system worth mentioning is that the *Vennerkammer* always kept some discretion to reward a bailiff rather than adhering to strict guidelines. As the *passation* of Wagner's account mentions, some grain was left to him as a ‘gratification’. While the whole auditing process was scrupulous, the *Venners* were interested in keeping a veil of non-transparency over the whole process, which ensured some discretion in determining the exact claims that the government had towards its officeholders. This opaque structure opened the door for clientelistic relationships and support for family members that could only be checked for by the rivalry between different factions within the *Vennerkammer*.

The bailiff received a copy of the *passation* comments, intended as a lesson in good governance to avoid future mistakes. Accordingly, the comments were often that certain expenses ‘will not be admitted in the future.’\(^{350}\) Most accounts only triggered minor corrections by the *Venners*. On occasion, their concerns could be more severe. An example for particularly bad accountancy was Franz Ludwig Müller, the freshly appointed caretaker of the *Mushafen*, a charitable institution in the city.\(^{351}\) When he presented his second account in 1733, the *Vennerkammer* not only rectified

\(^{348}\) *Yverdon* account 1732: ACV Bp 42/33.
\(^{349}\) *Bauherr Burger* account 1732: StABE B X 47.
\(^{350}\) *Trachselwald* account 1782: StABE B VII 2076.
\(^{351}\) StABE B III 1158.
his errors carefully one by one, it also included a special report containing observations on his lack of accuracy. Müller in turn responded with his own defence. As Richard Feller suggested, family relationships could be more important than accuracy during a passation.\footnote{Feller (1955): 126. It might not be a coincidence that the above mentioned Müller came from a relatively unimportant family.} That a relatively small and unimportant charitable institution was scrutinised in such detail could even reflect the parsimonious nature of the Bernese government. However, there were numerous examples of high-standing officials who also found their accounts criticised in detail.\footnote{Nyon account 1782: ACV Bp 35/33.}

Calculation errors were remarkably rare, given that most accounts contained several currencies that were all non-decimal. Stephan Hagnauer found that in the four counties he studied for the seventeenth century, 1.4% (1630s) and 0.75% (1680s) of all transactions were added wrongly. On average, this affected 0.3% of the total sums accounted for. Intriguingly, however, he also found that mistakes which favoured the bailiff occurred more often than those favouring the state.\footnote{Hagnauer (1995): 56-57 and 133. I have not carried out systematic research on this in my database.}

To sum up this section on Bern's fiscal constitution, the government relied on a sophisticated accounting system that reflected the patrimonial nature of the state. Officeholders were responsible with their own fortune. To determine their final debt to the state, accounting processes were tailored to the needs of recording transactions in kind and monetary units. The administration followed a strict set of rules, which seem customary in character rather than systematic. Detailed instructions for bookkeeping were only common towards the later part of the century, although there might be a tradition bias in this respect. In general, there was a trend towards more standardised forms of accounting. The increasingly frequent use of tables illustrates that magistrates of the late eighteenth century were struggling to get an overview of the financial situation of their state. In spite of this drive for standardisation, a number of old customs were left untouched, and innovations like double-entry bookkeeping only partially adapted. These developments mirror the characteristics of the Bernese government, torn between the desire to build a modern state and their adherence to traditional, legitimate forms of administration.
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II-8 Conclusion: An Assessment of Patrician Rule

By the eighteenth century, Bern had been safely established as a territorial republic and most powerful member state of the Swiss Confederation. The government was staffed by an oligarchy of patrician *honoratiores*, who successfully claimed exclusive access to power. Although this government had no competitors for its monopoly of legitimate violence, attempts to intensify state activity – state-building, in short – were checked for by a lack of resources for coercion. In Bern, the scope at which state-building could happen was smaller than in other European states, as the empirical results will later confirm (see Section IV-5 in particular). Despite a tendency to unify the canton, jurisdictional fragmentation remained important, not only within the canton, but even more so with other states of the Swiss Confederation. The government depended on the co-operation of its subjects, which it secured in two ways. First, local elites could participate in the lower levels of administration and, second, the population was taxed moderately. If the state never imposed a coercive machinery to extract revenue from its subjects, this was on one hand because it did not need to; on the other hand, it did not have the means to do so. Thus, Bern survived at a low-level equilibrium, where small expenditure and little revenue went hand in hand. Such an equilibrium could only work if the state’s financial needs were curtailed, for which the absence of warfare was crucial. This in turn was secured by a combination of geopolitical inactivity (‘neutrality’) within the European balance of power and far-reaching co-operation with the most threatening rival, France. Bernese mercenary troops were an exported service that also provided education and investment opportunities for patricians. In addition, they contributed to foreign policy and were a necessary completion to the domestic militia in the canton’s defensive strategy. They did not generate any direct revenue for the state, however.

An advantage of patrician rule was that the heredity of government offices ensured that coercion was applied with moderation. Government members recognised their dependence on co-operation from their subjects and wanted to sustain the basis of their rule for future generations. Patricians were generally well prepared for holding office, which was their professional objective for life. For the most part, they were relatively well-educated, incorruptible and carried out administrative tasks efficiently. This was guaranteed by numerous internal checks and balances, of which peer-monitoring by envious fellow patricians was probably the most effective. Government offices were well remunerated, which limited the incentives for
corruption — especially since the consequences of opportunistic behaviour were an exclusion from future office holding for an entire family. Also, the fact that the top-level administration was staffed by government members resulted in an alignment of interests between the two, curtailing agency problems and moral hazard. In this sense, the Bernese administration compared favourably with the situation in monarchic states.

The negative aspects of patrician rule were that the system of seniority and lifelong office holding in top positions led to a lack of internal renewal and ossified political structures. Insurmountable barriers of nepotism and co-optation limited the access to both government and top-tier administration for all but a small fraction of the population. The result was a distorted selection for the manning of offices, which was ultimately an inefficient way of allocating talent. The exclusion of wealthy and well-educated subjects from important positions in the republic made them suffer from status inconsistency. From today’s perspective, there was also an obvious lack of individual freedom and political participation. However, it is not clear what the eighteenth-century alternative to Bernese rule was for the subject territories. Although independence and self-government might have been an option, it was unlikely to be in a more liberal and democratic state. Most subjects were probably better off living under a paternalistic but largely benevolent patrician rule, rather than being part of an absolutist monarchy or a guild-dominated city state, where political elites pursued their vested economic interests. This is illustrated with the provision of property rights, which was relatively free and fair in Bern, although mercantile contracts were not specifically protected.

When using Hilton Root’s distinction between cronyism and corruption, Bern’s political institutions tended more towards the former.\textsuperscript{355} Corruption in the form of bribes was relatively negligible, but the distinction between private and public finance of administrators was blurred. Co-monitoring and hereditary office holding had the effect that short-term exploitation by officeholders was curbed. Patricians had not become pure rent-seekers holding sinecures. In spite of securing exclusive access to offices, they still had to perform vital administrative tasks. As simony had been successfully contained, the only cost of access to office was the waiting time that patricians incurred. Therefore, the personal expenses that an officeholder had to cover during his term were significantly lower. Furthermore, the scope of private

\textsuperscript{355} For the distinction, see Root (1991), discussed in Section 1-2 above.
appropriation was curtailed by the sheer fact that state revenue was relatively moderate. Bern's fiscal constitution is indicative of the government's half-hearted attempts to reform and unify administrative procedures.

When comparing these findings with the matrix of European state-building by Ertmann, infrastructure of the canton was patrimonial in character, since magistrates carried out administrative tasks without the support of a bureaucratic structure. Bern's political regime can less clearly be described as either absolutist or constitutional. Despite being formally organised as a parliament, it had absolutist traits.\(^{356}\) The government was only accountable to fellow patrician government members and citizens, which were only a fraction of the total population. If we classify this as absolutist, this leaves us with the intriguing conclusion that — still according to Ertman's model — Bern was part of 'Latin Europe'. Based on his explanatory variables, with an early onset of geopolitical competition and its participative form of local government in the early days of state-building, the model predicts Bern to develop into a patrimonial-cum-constitutional state.

\(^{356}\) See Ertman (1997): 10 (Table 1), discussed in Section 1-2 above.
III Bernese State Finance in the Eighteenth Century
(Analysis of Long-Term Developments)

III-1 Chapter Content and Analytical Framework

Abraham Stanyan, writing in 1714, gave the following account of Bernese state finance:

The revenue of the Canton of Berne arise from five Branches. First, the Lands or Demesnes [sic] of the Sovereign. Secondly, The Tenths [sic] of the Fruits of the Lands. Thirdly, a certain Tax upon Rural Lands, which they call in French, Censes Foncières. Fourthly, Duties and Customs upon merchandize. And Fifthly, the Revenue arising from the Sale of Salt [...] I have not been wanting in my Endeavours, to find out what Sum these several Taxes may produce yearly in the Canton of Berne; but could not get any Satisfactory Account, because its Revenue, consisting chiefly in the Sale of Corn and Wine, are more or less, according to the Price those Commodities bear; and, as the Sovereign sells none in cheap Seasons, it happens, that, during some Years together, they put little or no Money into the Treasury, and at other times lay up in one Year the Revenue of many.357

In spite of the lack of detailed information, Stanyan’s description was accurate and raised the thorny issue of the collection of revenue in kind. Essentially the aim of my empirical analysis is to address the gaps in his account. The primary objective in this is to provide quantitative data underlying the concept of Bern as a Surplus State which was outlined in the introduction. The first part of the analysis – this chapter – will discuss the long-run developments in Bernese state finance. This is followed by a detailed study of the state’s financial structure in two sample years in the next chapter (IV). Finally, Chapter V will discuss one of the most salient features of government finance: overseas capital investments.

The remainder of this section will provide a historiography of Bernese state finance. I will then present the framework that underlies my analysis. The empirical presentation starts in Section III-3 with an overview of the accounting system. Section III-4 is a discussion of the major long-run financial developments; it is mostly

357 Anonymous [Abraham Stanyan] (1756): 171-173 (his italics). Stanyan wrote that the state domain produced ‘great Quantities’ of grain and wine, which were then stored and sold at the government’s discretion; the tithes had to be ‘very high’ in such a rich country, and salt sales were ‘very considerable, because the Sovereign alone sell it by retail to the Subject, and imposes upon it what price he thinks proper’. The other sources of revenue were less important.
based on so-called *General-Bilanzen*, which can be taken as a proxy for the overall state budget. A subsequent section (III-5) will examine how some of the prime government assets contributed to overall revenue and expenditure. The cash reserve, financial investments, salt trade and public granaries will all be discussed in this context. How government agents acted on the grain market is the topic of Section III-6, which will investigate this matter based on a sample from Nidau county. The main findings of the chapter will be summarised in the conclusion.

A Brief Historiography of Bernese State Finance

The financial history of *Ancien Régime* Bern has not been investigated in a comprehensive and thorough way. A number of studies discuss particular aspects of the topic. Early in the twentieth century, authors writing in the spirit of the German historical school of economics have investigated public salt trade (Guggisberg), customs (Beck) or overseas investment (Landmann). More recently, social and economic historians have studied refugee support (Küng), public building activities (Ebener), poverty relief (Flückiger Strebel) and economic policy (Brandenberger) using financial data. Körner has included material from Bern for his work on state finance in the Swiss Confederation, which was part of a larger research project on European state finance.

Based on the published literature, it appears that scholarly attention to Bernese state finance has been inversely related to the amount of primary data available. Only a small percentage of the original documents stored in the archives of Bern, Argovia and Vaud have been edited so far. To address this situation, a research project at the University of Bern has compiled a database of transcripts from primary documents covering the canton’s finances from the sixteenth to the eighteenth century, which I have used extensively for this study. The project was supervised by Martin Körner and ran from 1995 to 2002. Many of the recent publications on the topic spun off from this project.

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358 Beck (1923); Guggisberg (1933); Landmann (1903); Landmann (1904).
359 Küng (1993); Ebener (1999); Flückiger Strebel (2002); Brandenberger (2004).
360 Körner (1999); For the overall research project: Bonney (1995b); Bonney (1999b); see also the European State Finance Database with empirical data: http://www.le.ac.uk/hi/bon/ESFDB/.
361 Forschungsprojekt BeFin (Bernische Staatsfinanzen in der Frühneuzeit): http://www.befin.hist.unibe.ch. See also Körner (1997).
In line with the approach Körner took in analysing state finance in Lucerne, Niklaus Bartlome and Stephan Hagnauer developed a set of analytical tools geared towards investigating Bernese public finance in the sixteenth and seventeenth centuries. To this date, the main thrust of their work is still in progress; only a summary article, preliminary findings and methodological issues are published. A number of Körner’s other students have employed this methodology to investigate bailiff accounts for selected counties.

Bernese financial accounts have also been used as a rich source for cultural history. In this respect, Adolf Fluri’s pioneering work has not been surpassed. Jolanda Leuenberger-Binggeli has written about the formal aspects of treasury accounts without a thorough analysis of their content. Finally, Béla Kapossy has approached the topic of state finance from a non-quantitative perspective, focusing on ideological and political aspects. His studies of foreign capital investments and the Bernese agricultural-military state without taxation offer an alternative to my quantitative-empirical angle.

III-2 A Framework for Analysing Financial Developments

In this section, I will explain the basis on which I have analysed financial developments in eighteenth-century Bern. Parts of this discussion will be covered in more detail in the following chapter, when the state’s financial structure will be scrutinised (Section IV-1).

Martin Körner pioneered the application of analytical criteria based on the modern understanding of public accounting to the study of early modern state finance. This has been refined by Niklaus Bartlome and Stephan Hagnauer. I will use a similar approach with some minor adjustments. In general, my framework is

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362 Hagnauer (1994); Hagnauer (1995); Hagnauer/Bartlome (1998); Bartlome/Hagnauer (2006). Both authors are currently working on their dissertations on Bernese state finance in the sixteenth and seventeenth centuries respectively. I am indebted to them for support and advice for my own research.
367 Körner (1981): 389-392, who relied in particular on Wittmann (1970-74); Hagnauer (1994); Hagnauer (1995); Hagnauer/Bartlome (1998); Bartlome/Hagnauer (2006). Their main results are still unpublished and cannot be used for comparison. I have adapted their accounting plan (Kontenplan) slightly to suit my purposes: see Figure IV-2 and Section VII-12 in the appendix.
based on modern-day public accounting in Switzerland.\textsuperscript{368} This allows a more precise and structured consideration of historical transactions than relying solely on eighteenth-century categorisation. My analytical framework can in theory be used to study every state and I have made a few adaptations to make it more applicable to the particularities of eighteenth-century Bern. Accordingly, some categories that would be prominent in other polities, such as the cost of keeping up a royal court, expenses for the standing army or income from seignorage are insignificant.\textsuperscript{369} For a comparative study, these aspects could very easily be accommodated by the model. The main disadvantage of this approach, aside from it being very labour intensive, is that it is anachronistic. Eighteenth-century administrators did not employ the analytical categories described in my thesis. However, social science has to go beyond this limitation in order to answer meaningful questions. For this, an anachronistic framework is sometimes unavoidable. The alternative would be to limit the analysis to pre-enlightenment methods, which would hardly be a more accurate way of doing research.

A further limitation is that the distinction between categories is not always easily established. I have tried to be consistent in my analysis, noting cases without proper identification as \textit{unspecified}. In practical terms, my approach is constrained by the trade-off between the use of easily accessible, aggregated data with less accuracy versus the disaggregated material which would be more time consuming. To derive a balanced perspective and mitigate the shortcomings of the data, I have opted for a two-pronged approach which combines the long-term study of aggregated data (this chapter) with a detailed analysis for two sample years (next chapter). The first step in conducting a long-term analysis of Bernese state finance is the consideration of which account transactions were recorded in, which can be an effective proxy for the functions they performed. For example, if the salt trade account recorded expenditure, it can be reasonably assumed these were connected to the government's entrepreneurial activities. The only problem with calculations on the account level is that transfer payments (\textit{assignations}) between accounts in the sample have to be excluded to avoid inflating the figures.

\textsuperscript{368} This is known as the \textit{Neues Rechnungsmodell (NRM)} for public accounting in Switzerland: Finanzverwaltung des Kantons Bern (c. 1989).
\textsuperscript{369} I have excluded gains from \textit{seignorage} completely for my analysis. These were not important any more in the eighteenth century, although they had played an important part earlier and led to the peasants' revolt of 1653 (see Section II-2). See also Furrer (1995).
Categorising transactions by nature is more complex. The main distinction is between current and inventory transactions. Current transactions embody all revenue and expenditure that did not have an impact beyond the accounting period, whereas inventory transactions were like investments, for which a future return could be expected. Inventory transactions can therefore be defined as capital formation that produces a stream of goods and services beyond its recorded period. Such investments in the public inventory could also be negative; they would then be divestments. This is illustrated in Figure IV-2 with T-style accounts, representing revenue on the right and expenditure on the left-hand side.

![T-style accounts](image)

**Figure III-1: Analytical Framework: Nature of Transactions**

Based on Hagnauer (1995): 22-23 For a more detailed version, see Figure IV-2 and Section VII-12 in the appendix.

The distinction between current and inventory transactions can also be referred to as that between *state consumption* and *investments*. Using an analogy from corporate finance, the former is the profit and loss statement of a firm, the latter its balance sheet. However, unlike for a company’s balance sheet parts of the public inventory are not measurable. Any quantification of state sovereignty in particular, including the right to legislate and tax, is impossible. The state’s accounts only contain information about the relative change in the stock of public assets and liabilities without information about their overall value. Between different types of current revenue, the first distinction which should be made is between taxes and returns. These can come from sovereign (or non-entrepreneurial) and entrepreneurial

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371 Similar to a company’s balance sheet, assets of a state would contain property in real estate and movables, financial assets and reserves. In addition, it would also include sovereignty and judicial rights.
activities of the state. Entrepreneurial returns are incomes from previous investments. *Current expenditure* consist of personnel cost, public consumption and welfare transfers. Inventory transactions of the state describe relative changes affecting its assets, such as financial claims (loans as a lender or debts as a borrower) and real capital (buildings, infrastructure, titles, etc.). A special form of inventory transactions is the withdrawal from and deposits into a cash reserve.

The distinction between the current and inventory transactions reflects the sustainability of a state’s financial position. If current revenue exceeded expenditure, a government could invest and benefit from future returns. The opposite situation applied when assets had to be sold to cover current expenditure (‘selling the family silver’). Figure III-2 shows the relation between the key figures profit, net investment and budget surplus with stylised T-accounts.

### Figure III-2: Profit, Net Investment and Budget Surplus

First, *profit* is defined as the difference between current revenue and current expenditure. It can be positive or negative. A profit can either be invested or put aside as a reserve (‘retained earning’). *Net investment* is defined as the difference between inventory expenditure and revenue: it describes the amount of profit used for investment. The remainder of the profit is a *budget surplus*, which is the equivalent of the difference between total revenue and expenditure. It is equivalent to a relative change in the state’s retained earnings, which in Bern had the form of financial claims.

372 These are not to be confused with accounting transfers, which are excluded from the analysis (see above).
towards government members (Restanzen or arrears). These could be purely financial (monetary arrears) or inventories leased out to officials (grain arrears).\textsuperscript{373} For single accounts, Hagnauer defines the difference between current revenue and expenditure as the 'skimming potential' (Abschöpfungspotential) for the government.\textsuperscript{374} I use the term \textit{profitability} to describe the ratio of an account's profits to its current revenue.

III-3 The Bernese Accounting System

This section will present different types of accounts that were used by the government. Instead of relying on a central budget covering all state revenue and expenditure, Bern followed a complex system of accounts that had grown and overlapped through time. I will first discuss the absence of a central account and then present how different ledgers were connected. Some accounting practices have already been discussed in the previous chapter (see Section II-7 above).

The Absence of a Central Account

The Bernese republic did not have a central budget which covered all activities of the state. One reason for this was the absence of a written constitution. Since the Bernese state had grown organically from a medieval city state, there was no clear division between offices and many administration problems were solved on an \textit{ad hoc} basis. This was mirrored by a fiscal constitution in which responsibilities were not always clearly assigned and often overlapped. The exclusive nature of the government also implied a low level of transparency in state decision making processes. The introduction of a financial structure with clear accountability might have exposed the government to what it perceived as undesirable public scrutiny. Therefore all internal auditing was carried out behind closed doors. A strategic reason for such secrecy was the connection between finance and national defence, as budgetary information would be valuable to Bern's opponents.

The closest Bern had to a central budget was the Deutsche Standesrechnung, translated literally as the Account Covering the German Speaking Canton (Estate). As

\textsuperscript{373} For a detailed discussion of Restanzen, see Section VII-5 in the appendix.

\textsuperscript{374} Hagnauer (1995): 156-158. This potential consists of the realised skimming (in the form of a transfer to the central government) and retained earnings within the county.
Chapter III: Bernese State Finance (Long-Run Analysis)

the name implies, this only covered the German speaking territories; for French-speaking Vaud, the *Welsche Standesrechnung* was its equivalent. For simplicity, I will refer to them as central accounts. Contrary to their name, the *Standesrechnungen* were not all-encompassing and only recorded a limited number of state transactions. The rest were recorded in accounts with either limited or no connection to the central accounts (see below).

The *Standesrechnung* was also referred to as the *Säckelmeister-Rechnung*, named after its bookkeeper, the Treasurer (*Säckelmeister*). Each *Standesrechnung* covered a period from 26 December until the same date the following year. The Treasurer had to submit his accounts to the *Vennerkammer* for scrutiny within two months of the end of the financial year. From there it was passed on to the Great Council, who normally passed it after the Easter elections.

Since 1683, the ledger had been recorded in Arabic numbers. Prior to that year, Roman numerals were used, which increased the likelihood of calculation mistakes. Throughout the eighteenth century, the sums were consecutively listed in one currency, with one column for each sub-unit. Until 1770, the currency was the Bernese Pound, after 1770 the Bernese Crown (see Section VII-13 in the appendix). During the first few years of this change, the ledger contained all figures in both currencies to avoid confusion.

The *Standesrechnung* was not organised chronologically, but by content. The categories varied slightly over time, but generally followed the same structure. Table VII-1 in the appendix lists these categories for the year 1732 as an example. They can be grouped together into the main categories shown in Figure III-3 as a T-style account, with revenue on the left and expenditure on the right-hand side of the balance.

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375 For a list of Deutsch-Säckelmeister, see Leuenberger-Binggeli (1999): 158. There were 22 office holders in the eighteenth century.
377 There was a complete re-organisation of the Deutsch-Standesrechnung in 1796, which will not be considered here in detail: Leuenberger-Binggeli (1999): 175-176.
### Chapter III: Bernese State Finance (Long-Run Analysis)

#### Standesrechnung

<table>
<thead>
<tr>
<th>Expenditures</th>
<th>Revenues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries</td>
<td>Bailiff Arrears:</td>
</tr>
<tr>
<td>Expenses</td>
<td>-old</td>
</tr>
<tr>
<td>Bailiff Arrears (passive)</td>
<td>-current</td>
</tr>
<tr>
<td>Purchase of Goods</td>
<td>Fiscal Revenues</td>
</tr>
<tr>
<td>Granted Loans</td>
<td>Regalia</td>
</tr>
<tr>
<td>Subsidies</td>
<td>Interest Payments</td>
</tr>
<tr>
<td>Meals</td>
<td>Loan Redemption</td>
</tr>
<tr>
<td>Construction, Maintenance</td>
<td>Fines and Confiscations</td>
</tr>
<tr>
<td>Quasi-Salaries and Ad Hoc</td>
<td>Contributions</td>
</tr>
<tr>
<td>Military Expenses</td>
<td>Proceeds (sale)</td>
</tr>
<tr>
<td>Currency Account</td>
<td>Assignations</td>
</tr>
<tr>
<td>Assignations</td>
<td>Liquidation of Cash Reserve</td>
</tr>
<tr>
<td>Formation of Cash Reserve</td>
<td>Various Revenues</td>
</tr>
<tr>
<td>Various Expenses</td>
<td>Previous Arrears</td>
</tr>
<tr>
<td>Arrears</td>
<td></td>
</tr>
</tbody>
</table>

---

**Figure III-3: The Bernese Standesrechnung: Main Categories Used in Contemporary Accounts**

**Bailiff Arrears** are debts of officeholders (see Section VII-5 in the appendix); **Assignments** are transfers from other accounts; **Arrears** are debts of the Treasurer to the state; **Bailiff Arrears** are debts by other officeholders.

The **Welsch Standesrechnung** had fewer sub-categories, but followed a similar scheme. In addition to Figure III-3, it had numerous types of expenditure related to wine growing by the state. It is crucial to note that while at a first glance this looks quite comprehensive, there are some conspicuously absent items, most importantly all the revenue and expenditure that was collected locally by bailiffs. These were not recorded directly, but only through the bailiff’s debt to the government, their arrears (*Restanzen*). This will be analysed in more detail in the next two sections.

**Types of Accounts**

Revenue and expenditure of Figure III-3 can be organised according to how the different accounts were related to the *Standesrechnung* as a central account. This is illustrated in Figure III-4, again in a stylised T-account with revenue on the right and expenditure on the left-hand side. Revenue and expenditure could be either: [1] recorded directly in the central account; [2] transferred in total from other ledgers (indirect revenue of the *Standesrechnung*); [3] recorded in different accounts and included through the debt (‘arrears’) of bailiffs; or [4] recorded in accounts entirely...
independent of the *Standesrechnung*, from where transfer payments (‘assignations’) were made. Finally, the balance of the previous year’s account, the arrear (*Vorjahresrestanz*) was also included in the ledger [5], because balances were summed up over the Treasurer’s tenure of five years. If the current arrear was larger than in the previous year, the account was in loss and *vice versa* [5b]. For expenditure, the categories are mirroring revenue.

### The Bernese *Standesrechnung*

<table>
<thead>
<tr>
<th>Direct Expenditure from <em>Standesrechnung</em></th>
<th>Direct Revenue to <em>Standesrechnung</em></th>
<th>Transactions only recorded in <em>Standesrechnung</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Indirect</td>
<td>Indirect</td>
<td>in Figure III-5:</td>
</tr>
<tr>
<td>Debt to Bailiffs (&quot;Passive Arrears&quot;)</td>
<td>Debt from Bailiffs (&quot;Arrears&quot;)</td>
<td>Recorded in accounts fully integrated in <em>Standesrechnung</em></td>
</tr>
<tr>
<td>Transfers (&quot;Assignations&quot;)</td>
<td>Transfers (&quot;Assignations&quot;)</td>
<td>Balance of transactions from bailiff accounts</td>
</tr>
<tr>
<td>Arrears</td>
<td>Previous Arrears</td>
<td>Contributions from entirely independent accounts</td>
</tr>
<tr>
<td>Surplus</td>
<td>Loss</td>
<td>Balance of last year’s <em>Standesrechnung</em></td>
</tr>
</tbody>
</table>

**Figure III-4: The Bernese *Standesrechnung*: Types of Revenue by Nature of Account**

Following this distinction, I have classified Bernese accounts into four types, from A to D (Figure III-5). The Deutsch- and Welsch-*Standesrechnung* are the only central accounts (Type A). Independent Type B accounts, of which there were four, covered the state’s major entrepreneurial activities: salt trade, salt production, gunpowder manufacturing and foreign capital investment. Minor activities were covered by Type C accounts, while Type D accounts included most government offices and bailiffs. Therefore, their number could change with every administrative reform.
Chapter III: Bernese State Finance (Long-Run Analysis)

Type A
Central Account
- Direct Expenditure from Central Account
- Direct Revenue to Central Account
- Indirect Expenditure
- Indirect Revenue
- Passive Arrears
- Assignations
- Surplus + Arrears

Type B
Independent Accounts
- Expenditure
- Revenue
- Assignations
- Assignations
- Surplus
- Loss

Type C
Accounts Directly Integrated
- Expenditure
- Revenue

Type D
Accounts Integrated Through Arrears
- Expenditure
- Revenue
- Arrears
- Passive Arrears
- to Granaries
- from Granaries

Figure III-5: Types of Bernese Accounts

For an empirical distribution of funds to these types of accounts, see below.

The contributions (‘assignations’) of Type B accounts towards the central budget were irregular and happened mainly to level out revenue shortfalls. For example, in 1782 the Vennerkammer ordered the gunpowder administrator Beat Fischer to transfer the content of his trading fund in excess of 30,000 Crowns to the Deutsch-Standesrechnung.³⁷⁸ In addition to such transfers to the central accounts, Type B accounts also contributed directly to the state’s cash reserve (see also Sections III-4 and III-5 below).

Type C accounts were little more than detailed ledgers containing transactions that would have been too voluminous for inclusion in the Standesrechnung. They were relatively small in number and in the sums accounted for. Most revenue and

³⁷⁸ StABE BII 555.
expenditure covered activities that occurred within the city that would normally count as communal finance, such as schools and prisons. Since the city itself was not organised as a separate commune, these transactions were recorded by minor officials, who were directly accountable to the German Treasurer. Accordingly, the overall total of their ledgers was integrated into the central account. Thus, Type C accounts added nothing to total state revenue, but specified transactions in more detail. One example is the account of the Stadt-Physicus, the city doctor. The gross sum of his ledgers appeared in the Deutsch-Standesrechnung, along with fourteen other Type C accounts. The Welsch-Standesrechnung for the same years contained only six Type C accounts.

The bulk of the canton’s finances were registered in Type D accounts, whose balance was transferred to the Standesrechnungen. In 1732, Bern had 52 bailiffs, plus 32 other offices that followed the same accounting technique. The latter were specialised functions, such as customs or hospitals in the city. The transfer to the central account happened through changes in the officeholders’ debts towards the state (‘arrears’), which they settled at the end of tenure. This is explained in detail in Section VII-5 in the appendix. Changes to these debts were recorded yearly in the Standesrechnungen; if locally collected revenue exceeded expenditure, the bailiff’s debt to the state would increase, which showed up in the ledger as a higher arrear.

Some accounts cannot be accurately described by this categorisation. This applies in particular to lower levels of administration which were accountable to a specific officeholder. Examples include the former monastery of Biberstein, which reported to the bailiff of Königsfelden, or the city of Bern’s Kaufhaus, whose accounts were included in the General Customs account. The Great Hospital of the City also contained various smaller outlets with their own ledgers, such as the city mill, the former monastery on St Peter Island or the Hygiene Police (Siechenvogt). All these accounts covered small sums.

The Bernese state used ad hoc accounts for specific exceptional occurrences, such as major land purchases or military campaigns like the 1712 Villmergen war. Ultimately their funds came from other state accounts, usually the Standesrechnungen, or at times directly from the cash reserve. These ad hoc accounts were similar to Type B accounts in character. The difference is that they were not annual and only covered one-off events. Their exact number is not known, since the
government kept no detailed lists of *ad hoc* accounts. However, it can be assumed that this method was only used in exceptional circumstances.

### III-4 Long-Run Analysis of General-Bilanzen

Because the Bernese state did not have a regular budget which encompassed all its accounts, it is difficult to obtain an overview of financial developments throughout the eighteenth century. This is not only problematic for historians; contemporaries struggled with the fragmented nature of state finance as well. As a remedy, the Bernese government established tables with some key figures from its most important accounts for the time after 1764, the *General Bilanzen*. Although this name refers to a balance sheet (*Bilanz*), the character of this document is better described as a profit and loss statement or budget. The Bernese archives contain several attempts of compiling the information from *General-Bilanzen* into tables. Even though most of these would fail modern-day standards of methodological accuracy and consistency, they are proof of a desire by officials to enquire the financial situation of the government (as discussed in Sections II-7 and III-3 above).

I will first discuss the nature of the data, then analyse it by account and category, before ending this section with some additional information from documents similar to the *General-Bilanzen*.

#### The Data

In addition to the *Deutsch- and Welsch-Standesrechnung*, accounts included in the *General-Bilanzen* covered foreign funds (AUS), salt trading (SDI), salt production (ROC) and gunpowder production (PUL). In other words, the *General-Bilanzen* contained information for all A- and B-Type accounts of the Bernese state. While this included C-Type accounts by definition, D-Type accounts were only considered through the transfer of surpluses via *Restanzen*. The *General-Bilanzen* therefore represented rather the gross profits from administrating the canton than total

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379 Examples are: StABE B VII 680, 2179 or 2520a.
380 They also included accounts for the mint (*Münz*) for some years; these are very small quantitatively, however.
381 C-Type accounts were included in the *General-Bilanzen* by definition, although not in detail. See Section III-3 above for details; for *Restanzen* transfers, see Section VII-5 in the appendix.
revenue and expenditure. This distinction is important when comparing relative figures. Since the data only shows the difference of underlying revenue and expenditure, it is likely to overstate relative change. Accordingly, this chapter can only reasonably assert conclusions about seminal trends rather than absolute levels. For the latter, a detailed analysis of all Bernese accounts for two sample years in the following chapter will provide more accurate information.

The General Bilanzen were tables of large format, drawn on information from Bernese accounts, listing them by category headings.\textsuperscript{382} I have re-classified the data, following the empirical framework outlined in Section III-2 as closely as possible. The exact categories used are specified in Section VII-8 in the appendix. I have also added information on salt trading that was not in the original data.\textsuperscript{383} The way in which revenue and expenditure were recorded in the General Bilanzen changed twice, in 1769/70 and 1775/76. The former change was related to the use of Crowns as the major unit of account. It also introduced the idea of real (and non-real)\textsuperscript{384} revenue and expenditure, which bears great similarity to the distinction between current and inventory transactions. The distinction was done away with again in 1775. As explained above, I have excluded all transfers between accounts in the sample to avoid double-counting. Different monetary units were converted using figures in Table VII-11 in the appendix. For the rare conversion of transactions in kind, I have used the most accurate price available from the ledgers, following the proceedings explained in Section VII-13 in the appendix.

I have also extended the General-Bilanzen back to the beginning of the century, drawing on the same sources. The result is a long-run series of Bernese revenue and expenditure by aggregated category from 1700 to 1796.\textsuperscript{385} The Deutsch- and Welsch-Standesrechnung and the salt trade accounts (SDI) were fully integrated.\textsuperscript{386} For foreign capital investments, I relied on data from the Historie der Ausländischen Stands Capitalien of 1776 and on the accounts for foreign funds (AUS), which will both be discussed in more detail in Chapter V.\textsuperscript{387} I have only accounted for overall changes in the sums invested abroad, leaving the discussion of portfolio adjustments

\textsuperscript{382} StABE B VII 2179. There were between 1 and 15 headings for revenue, 1-27 for expenditure.
\textsuperscript{383} The General-Bilanzen only showed profits from salt trade. See Section VII-16 in the appendix.
\textsuperscript{384} Reale and Nicht-Reale Einnahmen (Ausgaben). Before, the distinction was between regular and additional transactions.
\textsuperscript{385} For the period after 1794, some accounts are missing (only DSR, AUS and SDI available).
\textsuperscript{386} See Section VII-6 in the appendix for details.
\textsuperscript{387} StABE B VII 2389 and StABE B VII 2396-2473.
for later. In addition, my database includes figures about deposits and withdrawals from the cash reserve that were recorded in a Treasury Ledger (Gwölbe-Büchli) between 1750 and 1790. Information about transactions with the cash reserve after this date is missing. For earlier years, I relied on figures from corresponding accounts and anecdotal evidence. This data will be discussed in more detail in a subsequent section about the cash reserve itself (Section III-5). The database does not cover salt production (ROC) and gunpowder production (PUL) before 1764 on the basis that the sums involved were small, judged on their post-1764 position. Strictly speaking the data before and after 1764 is not identical. However, the differences are likely to be small.

Overview

As a first overview, Figure III-2 shows total revenue and expenditure and the Budget Surplus Rate, which is the difference between revenue and expenditure expressed as a share of revenue.

Figure III-6: Revenue, Expenditure and Budget Surplus Rate, 1700-1796

388 StABE B VII 2388a (see Section III-5 below for more details).
390 Profits from gunpowder production were occasionally recorded in the Deutsch-Standesrechnung in the early eighteenth century; Salt production in Roche was partly included in the salt trade accounts (SDI) until the late 1730s.
A few things are obvious from Figure III-6. First, the Bernese state consistently ran budget surpluses: in 78 years of the 96 for which information is available, revenue exceeded expenditure. The *Budget Surplus Rate* was on average 11.8%, but fluctuated strongly from year to year. Second, there were remarkable peaks in both revenue and expenditure around 1710. As will be shown later, these were caused by military expenditure (1707, 1712) and massive loans to the Dutch and English in 1710. Finally, with the exception of these particular years, revenue and expenditure increased over time.

A rough distinction between current and inventory transactions – at least as far as the categories of the *General-Bilanzen* allow for – is shown in Figure III-7, with revenue as positive and expenditure as a negative values. Most transactions were current, and the fluctuations for inventory transactions were larger. This is not surprising, given that inventory transactions usually had a one-off character, such as investments or loans.

![Figure III-7: Current and Inventory Transactions, 1700-1796](image)

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391 Minimum = -48.9%, Maximum = 43.9%, Standard Deviation = 17.0%.
392 In 1707, the government also stocked up its salt inventory at a high cost (discussed below).
Chapter III: Bernese State Finance (Long-Run Analysis)

Sources: Long-run Database (see Section VII-6 in the appendix for details). Expenditure shown as negative values. Vertical lines (1764 and 1794) are for changes in the data sample (see Figure III-6).

Some of the extraordinary events mentioned above become clearer in Figure III-7: in 1710, the cash reserve was depleted to cover for overseas loans, which shows as an increase in inventory transactions. In 1712, when the cash reserve contributed towards extraordinary military expenditure, this shows as an increase in inventory revenue and current expenditure. I will discuss the underlying categories for the financial developments in Figure III-7 in more detail below.

Isolating current revenue and expenditure, it is possible to establish the profit of Bernese administration (see Figure III-8). I have also added estimations for current revenue per capita, based on population estimates for 1700, 1732, 1764, 1782 and 1798. The figures for revenue per capita should be considered rough estimates of a long-term trend rather than absolute figures.

Figure III-8: Current Revenue, Expenditure and Revenue per Capita, 1700-1796

Sources: Long-run Database (see Section VII-6 in the appendix for details). Population estimates calculated as in Section II-3, with values for 1732 and 1782 based on linear trends (as explained in Section IV-2). Revenue per capita is calculated based on three-year moving averages for 1701, 1732, 1764, 1782 and 1796. Vertical lines (1764 and 1794) are for changes in the data sample (see Figure III-6).

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393 Based on Pfister, C. (1995); HLS (2002), article Bern; Mesmer (1987) and Schluchter (1988), as discussed in Section II-3. Figures for 1732 and 1782 are based on the assumption of linear population growth (see Section IV-2).
Between 1700 and 1796, Bern made a profit on current transactions in 84 years. The average yearly profit rate was 12.6%, but fluctuated highly. It followed a similar pattern to the Budget Surplus Rate from Figure III-6. Current expenditure markedly exceeded revenue in 1707, 1712 and 1792 only. All three peaks can be explained by military emergencies.

The estimates for current revenue per capita should not be taken at face value because the population figures for 1732 and 1782 are based on the assumption of linear population growth, hence the linearity of revenue per capita might be overstated. When measured in Batzen, current revenue per capita more than doubled over the century (+241% from 1701 to 1796). This is equivalent to a linear growth rate of 1.30% per annum. As will be explained in the next chapter, this is not necessarily representative of an increase of overall state revenue per capita. It might simply reflect the fact that more transactions were covered by the accounts included in the long-run database sample (see Section IV-5). 

Revenue and Expenditure by Account

The most straightforward way of analysing at the long-run database is to consider the accounts in which transactions were recorded. On one hand, this can provide further insights into the administrative organisation of the canton. It can also serve as a proxy for what transactions were used for, if a more accurate categorisation is impeded by the nature of the data. By eliminating transfers between accounts (assignations) from the analysis, the figures are not necessarily representative of how much was recorded in each account, but about where a transaction originated.

Figure III-9 shows the distribution of revenue by account. In order not to overload the graphs, I have used five year averages for this section. The yearly figures can be seen in the appendix (Section VII-7) and will be referred to throughout the text.

---

394 Minimum = -146.0%, Maximum = 48.9%, Standard Deviation = 22.2%.
395 The figure in this chapter only includes transactions from a limited number of accounts. Overall transactions of the state grew by 95.8% from 1732 to 1782, which is equal to a linear annual growth rate of 1.25% (see Section IV-2). See also the discussion in Section VII-10 in the appendix.
A surprisingly small amount of revenue came from the two Standesrechnungen (DSR and WSR). This is partly down to the way in which transactions are categorised. In reality, both accounts recorded larger revenue, which mostly came from transfer payments from other accounts. The biggest contributors to Bernese revenue were accounts about salt trade (SDI). They regularly covered over half of the state’s income and were growing in absolute terms. After 1710, the accounts for the management of foreign funds (AUS) became another major source of revenue as well. In the period 1710-14, the cash reserve was depleted. From the yearly figures it becomes obvious that withdrawals occurred in 1710 and to a lesser extent in 1712.396 This situation was repeated on a smaller scale in 1787, when a loan to the Emperor was covered by a cash withdrawal (see yearly figures in Section VII-7 in the appendix).

The situation for expenditure is shown in Figure III-10.

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396 The fact that there are no contributions of the cash reserve towards revenue between 1715 and 1750 might also be caused by the lack of accurate data discussed above.
The share of expenditure covered by the *Deutsch--Standesrechnung* (DSR) is significantly larger than that for revenue. This illustrates the point about transfer payments made earlier. While it was not the ultimate origin of its funds, the *Deutsch-Standeserchnung* recorded much of the overall government expenditure. This applies to a lesser extent to the *Welsch-Standesrechnung*. As expected, the salt trading account was also a major source of expenditure. The peak in expenditure recorded in the account for foreign funds (AUS) in the 1710-14 period is uniquely down to the loans in 1710. After this date, the Bernese state did not increase its investments by sending money abroad. As will be discussed later, the increase in overseas investment was funded by re-investing interest payments. After 1750, the share of expenditure on foreign funds increased, although some of it was simply due to reallocations within the portfolio of foreign funds, with the noticeable exception of the Imperial loan of 1787 (see Chapter V for details).

As I will discuss later in depth, a categorisation that relies on the account in which transactions were recorded can only proxy state functions (see Section IV-4). A more accurate picture would require a degree of detail that the aggregated categories of the *General Bilanzen* fail to offer. By the same token, a regional breakdown about where in the canton transactions occurred is not possible with this data.
Revenue and Expenditure by Category

The further breakdown of revenue and expenditure follows the structure outlined in Section III-1 above. The nature of the General-Bilanzen did not allow the detailed distinction explained above; for example, non-entrepreneurial returns were not recorded in separate categories. I have classified the data into the main categories listed in Figure III-11.

<table>
<thead>
<tr>
<th>Expenditure</th>
<th>Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel Cost</td>
<td>Salt Monopoly (Profit)</td>
</tr>
<tr>
<td>Salt Purchases (Current)</td>
<td>Salt Sales (Current)</td>
</tr>
<tr>
<td>Military Expenditures</td>
<td>Interest Revenues</td>
</tr>
<tr>
<td>Other Consumption</td>
<td>Other Current Revenues</td>
</tr>
<tr>
<td>Passive Arrears to Bailiffs</td>
<td>Arrears from Bailiffs</td>
</tr>
<tr>
<td>Loans (Redeemed)</td>
<td>Loans (Granted)</td>
</tr>
<tr>
<td>Investments</td>
<td>Divestments</td>
</tr>
<tr>
<td>Salt Inventory: Reduction</td>
<td>Salt Inventory: Increase</td>
</tr>
<tr>
<td>Cash Reserve: Deposit</td>
<td>Cash Reserve: Withdrawal</td>
</tr>
<tr>
<td>General Consumption</td>
<td>Taxation</td>
</tr>
<tr>
<td></td>
<td>Entreprenurial Returns</td>
</tr>
<tr>
<td></td>
<td>Unspecified Current Revenue</td>
</tr>
<tr>
<td></td>
<td>Divestments</td>
</tr>
</tbody>
</table>

**Figure III-11: Categories for Analysing General-Bilanzen**

See Figure IV-2 for comparison.

Some categories require further explanation. Arrears are the debts of office holders towards the state (Restanzen). Passive Arrears are debts of the state towards its officials. They represent the profits of D-Type accounts, as will be explained in more detail in the next chapter (see also Section VII-5 in the appendix). For data from the Bernese salt trading account (SDI), I have separated current Salt Sales and Purchases from changes in inventory, which were categorised separately. In addition, I have deducted the Salt Monopoly Profit from the proceeds of salt sales and categorised as a distinct category. The reason for this is that the government’s monopoly profit on this trade has the character of an indirect tax. This will be discussed in more detail in the next chapter (and in Section VII-16 in the appendix). Other Current Revenue include production, taxes, and non-specified current revenue (General Einnemmen). Consumption includes all other current expenditure, notably
the state’s payments for the maintenance of buildings and purchases of non-inventory goods. Strictly speaking, *Military Expenditure* is not a factual category, but consists of a combination of personnel cost and other current expenditure for ammunition or foodstuffs. Because of its distinct qualities and the fact that military expenditure was sometimes not further specified, I have classified it as a separate category.

Figure III-12 combines expenditure to five-year averages; yearly figures can be seen in Section VII-7 in the appendix.

![Figure III-12: Revenue by Category, 1700-1794 (5-Year Averages)](image)

**Figure III-12: Revenue by Category, 1700-1794 (5-Year Averages)**

Sources: Long-run Database (see Section VII-6 in the appendix for details). All figures are five year means; the last column is for seven years (1790-96). For a yearly breakdown, see Figure VII-5 in the appendix.

The most important contributors to state revenue were proceeds from salt sales. Interest payments and salt monopoly profits steadily increased over time. The share of arrears – the profits from administrating the counties – was surprisingly small. Outflows from the cash reserve were particularly large in 1710-14, when loans were granted (1710) and the second war of Villmergen paid for (1712). In the second part of the century, revenue from the cash reserve could be considerable, but this will have to be qualified in comparison with inflows to the cash reserve.

Expenditure are also shown in five year averages (see Figure III-13, with yearly figures in Section VII-7 in the appendix).
Current salt purchases were the single most important category. Together with expenditure for personnel and other state consumption, the purchase of salt increased steadily over time. Military expenditure was highly volatile, because particular years of activity denoted when Bern used its troops for civil wars or to support allied governments. Such deployments included the second war of Villmergen in 1710, as well as expeditions to prevent riots in Lucerne (1763), Fribourg (1781) or Geneva (1707, 1737, 1768, 1782). However, these interventions were usually small in their financial costs. In the 1790s, the threat from Revolutionary France had an important budgetary impact, with the cost of guarding its Western frontier showing as a significant expenditure. The peak in investment in 1770-1774 was mainly caused by the purchase of grain to alleviate the effects of a severe harvest failure in 1770. This crisis and the government’s reaction have been discussed in much detail by Bernese scholars. Bern mobilised resources from the cash reserve to purchase grain abroad. In the years after 1770/71, the cash reserve was gradually filled again, partly by the proceeds from selling grain at high prices. Overall, the state did not make a profit on

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397 For the political background of these deployments, see Feller (1955): 416-426 and Wälechli (1981): 147-148.
398 Brandenberger (2004); Flückiger Strebel (2002); Pfister, C. (1975); Pfister, C. (1995); see also my discussion in Section III-6 below.
its grain trade during the crisis, as will be discussed in more detail below (Section III-6).

For further analysing the data, we can first look at the *net* contributions of each category. This highlights relative changes and reveals how activities were financed. To establish net contributions, I have subtracted expenditure from revenue for each category. The results are net values for current transactions, arrears, investments, salt inventory, loans and cash reserve. They are represented as five year averages in Figure III-14, where values for revenue are positive and expenditure negative.

![Figure III-14: Net Contributions by Category, 1700-1796 (5-Year Averages)](image)

Figure III-14: Net Contributions by Category, 1700-1796 (5-Year Averages)

Sources: Long-run Database (see Section VII-6 in the appendix for details). All figures are five year means; the last column is for seven years (1790-96). For a yearly breakdown, see Figure VII-7 in the appendix.

Current surpluses have already been discussed earlier (see Figure III-8 for yearly figures). The years 1710-14 are again outliers. The only net expenditure was for overseas loans, but the surplus of current transactions is significantly smaller than in other years with the exception of the 1790s. This was caused by the military campaign of 1712. Net investment for loans resumed from the mid-1750s, peaking with the Imperial loan of 1787. For the period 1770-74, using yearly figures provides a more accurate picture. In 1770, money from the cash reserve was used for food

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399 Please note that *net current transactions* and *net investment* in this context have a different meaning from the way they are normally used in this thesis.
purchases, which I classified as investment in the grain inventory. They could also be considered current expenditure for immediate food consumption. In 1773 and 1774, the cash reserve was refilled. At the same time, the salt inventory increased sharply. It appears that the cash reserve was used as a buffer to cover unforeseen events or large-scale investments, loans in particular.

Additional Data from *General-Tabellen* and *Special-Tabellen* (1785-1794)

Establishing *General Bilanzen* had been a first step by government officials to obtain an overview of their financial situation. They were fully aware of the deficiencies of this approach, in particular the fact that it left out all transactions within the counties. The fragmentation of the data and a lack of capacity by the Bernese administration were impediments to establish a more comprehensive budget. In a heroic attempt to overcome these issues, the government – it is not clear which part or administrative unit, but presumably the *Vennerkammer* – began collecting information from all its accounts in a standardised format, with tables. The so-called *General-Tabellen* included yearly figures for all monetary transactions by the government between 1785 and 1794. Other than the *General Bilanzen*, the tables covered all administrative units of the state. For a breakdown of revenue and expenditure, the *General-Tabellen* divided transactions into 12 types of revenue and 17 types of expenditure. For my analysis, I have classified them into the broad categories *Rents* (for feudal income in general), *Tithes and Production; Duties and Taxes; Interests* and *Entrepreneurial Returns*. For expenditure, I distinguish between *Personnel Costs, Military Expenditure, Transfers* (welfare payments) and *Consumption*. A full list of categories is provided in Section VII-8 in the appendix. Unfortunately, a distinction between current and inventory transactions was not possible with the categories of the original documents.

The overall monetary revenue and expenditure of the Bernese state are shown in Figure III-15.
Initially, the fact that there was a budget deficit seems surprising. This is because Figure III-15 only covers monetary revenue and not transactions in kind. By selling some of the proceeds from its revenue in kind, the government could easily cover this deficit. The relative composition is skewed towards transactions that were monetised, such as interest payments. On the other hand, tithes, which almost entirely were collected in kind, seem negligible in Figure III-15. This was not the case in reality, as a more detailed analysis of the figures shows.

Another set of documents, the so-called Special-Tabellen, compiled information about all transactions, including those in grain and wine, for all accounts in the 61 counties of the time. It listed monetary values for each year, as well as a ten-year average for transactions in kind. It is not clear why this solution was adapted; presumably for administrative reasons, because adding transactions in kind for each type of grain was complicated and time consuming. It could not have been for the argument that transactions in kind fluctuated less, since tithes in particular varied according to the size of the harvest. I have capitalised all these transactions in kind based on yearly market prices from the city of Bern, which have been collected by Christian Pfister. By calculating figures that are based on a ten-year average and yearly prices, changes in the value of transactions are only indicative of grain price fluctuations.

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400 StABE B VII 2521. Interest revenue was also recorded in the General-Tabellen as an average figure for the whole decade, rather than for each single year.

401 For a discussion of tithe data, see Figure III-20 and Pfister, C. (1975).

402 Pfister, C. (1975): table 28/1. I have calculated a yearly price as the mean of all monthly prices per calendar year. Wine prices were only available from January 1784 to April 1786 and from June 1792 to December 1795; I have therefore used a single value throughout the whole period, calculated as the mean of available monthly data. Where grain categories in the General Tabellen differed from Pfister’s, I have converted them as explained in Section VII-13 in the appendix. For unspecified grain, I have used the overall geometrical average (mean).
inflation, which was relatively high in this period. Given the lack of reliable price series, it is not clear how representative price data from the city is for the remainder of the territory.\footnote{See also Section VII-14 in the appendix for more price data.} Because of the inaccuracies of converting values into Batzen and some imprecise recording of the source itself, the following results should only be taken as a rough indication of actual revenue and expenditure in the counties.

If the information from the Special-Tabellen is combined with that of the General-Tabellen, the result is an overview of the state’s financial situation in the period 1785-94 (see Figure III-16). A yearly breakdown of the data was not possible.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure11116.png}
\caption{Revenue and Expenditure by Category, 1784-95 (Yearly Average)}
\end{figure}

Figure III-16: Revenue and Expenditure by Category, 1784-95 (Yearly Average)

Source: General-Tabellen (StABE B VII 2520) and Special-Tabellen (StABE B VII 2521). Grain transactions were only recorded as 10-year averages in the General-Tabellen; I have converted them using an overall mean price for each type of grain based on Pfister, C. (1975): table 28.1. Percentage figures below each category show the share of monetary transactions.

The deficit observed for monetary transactions is transformed to a surplus if all transactions are considered. I will not discuss the relative share of categories in depth here, because a more detailed – and more reliable – analysis of the structure of Bernese revenue and expenditure will follow in the next chapter (IV). Percentage figures below the categories in Figure III-16 show how much transactions occurred in monetary units. Interests and taxes were monetised, rents and tithes were mostly paid in kind. Roughly half of personnel expenses were paid in kind; all other expenses were highly monetised. Isolating the bailiff accounts, the result is remarkably different (see Figure III-17).
In the counties, feudal rents and tithes were by far the dominant revenue categories; taxation and interest payments only counted for a fraction of overall revenue. Most of the money that the state spent through its bailiffs went towards salaries and the consumption of goods and services. Welfare payments and military expenditure were comparably small. While the former were generally unimportant in Bern, the latter was not recorded at a county level, except for fodder for the army’s horses. The difference between revenue and expenditure in Figure III-17 can be a proxy for the surplus of the state’s administration in the counties. This surplus was partly transferred to the government in the form of monetary Restanzen, or it could have the form of increased grain inventories for which the bailiffs were liable (grain Restanzen).

If we consider the data on a yearly basis, the result is shown in Figure III-18, in which revenue are positive, expenditure negative values (the last column is the equivalent of Figure III-17, rotated by 90°).
Figure III-18: Revenue and Expenditure by Category, Counties in *Special-Tabellen*, 1784-95

Source: Special-Tabellen (StABE B VII 2521); see Figure III-17 for details. Revenue is shown as positive, expenditure as negative values.

Yearly differences are difficult to analyse because they are prone to spurious results caused by the inaccurate conversion of grain transactions. This can be illustrated if total revenue and expenditure of the bailiff accounts are separated into a monetary and ‘in kind’ component (see Figure III-19).

Figure III-19: Total Revenue and Expenditure for Counties from *Special-Tabellen*, 1785-1794

Source: *Geneal-Tabellen* (StABE B VII 2520) and *Special-Tabellen* (StABE B VII 2521). Grain transactions were only recorded as 10-year averages in the *General-Tabellen*; I have converted them
using yearly price data from Pfister, C. (1975): table 28/1. The figures for 1785-95 show the original value from the document, converted by an overall mean price for each type of grain.

Since most of the transactions occurred in kind and were only known as averages, changes in revenue and expenditure were mainly driven by grain inflation. For tithe revenue in particular, the yearly fluctuations were high and not identical with prices, as work by Christian Pfister has demonstrated. For the period 1755-1796, the correlation between prices and tithe revenue was significant, but relatively low (0.48). Based on Pfister’s data, Figure III-20 shows tithes collected by the Bernese state expressed by weight and value. The latter series was calculated using wheat prices for the city of Bern, which have also been collected by Pfister. Using a single price for conversion is a very crude measure; ideally, one would use local prices for each type of grain. Unfortunately, these figures were not available for the canton in the long run.

![Figure III-20: Bernese Tithe Revenue by Weight and Value, 1755-1796](image)

Source: Pfister, C. (1975): table 25 (tithes, value for Altbern) and table 28/1 (prices, value for Kernen). Values were calculated based on the price of wheat in the city of Bern. I have converted Pfister’s Doppelzentner (Dz) into tonnes.

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404 Pfister, C. (1975): 159 (table 20). This is significant at a 1% level. With a two-year moving average, the correlation improves to 0.52, showing the effects of grain storage carry-overs.

405 Pfister, C. (1975): table 25 (tithes, value for Altbern) and table 28/1 (prices, value for Kernen). I have used the relative weight of wheat to convert the original data from Bz per ms to Bz per kg.
Compared to the figures from *Special-Tabellen* discussed above, tithe figures followed a distinctly different path in the late 1780s and early 1790s. Yearly fluctuations were very high for tithe revenue, both when measured by weight and by value. The coefficient of variation (standard deviation divided by the mean) is 8.35% for the tithe series measured by weight and 32.7% for the series by value. Grain prices as a time series were also characterised by high volatility, with a coefficient of variation of 32.9%. This illustrates the difficulties of analysing revenue that was collected in kind. In addition, Figure III-20 ignores regional differences, which could be considerable for tithe revenue as well as for prices. This will be discussed in more detail in the next chapter (IV).

Tithe revenue for the period before 1755 is available from a different series by Christian Pfister.\(^4\)\(^6\) For their monetary value, I had to use less reliable prices data from the bailiff accounts of Aarberg.\(^4\)\(^7\) The result is shown in Figure III-21.

![Figure III-21: Tithe Revenue by Weight and Value (including Linear Trend), 1700-1796](image)

Source: Pfister, C. (1984): vol. 2, table 2/7.2; values calculated with prices from gain sales by Aarberg bailiffs (StABE B VII 851-872; price for *Kernen*; missing values extrapolated by relative changes for the price of oats). I have converted Pfister’s Doppelzentner (Dz) into tonnes.

The same caveats for using a single price series to convert tithes into monetary values apply. Adding a linear trend line shows that while tithes measured by weight


\(^{47}\)Prices for grain sales by Aarberg bailiffs from StABE B VII 851-872.
remained stable throughout the century, when measured by value they increased over time, showing the secular price inflation for grain.\textsuperscript{408} The volatility of both series was again very high, with coefficients of variation of 7.6\% (by weight) and 35.7\% (by value).

To sum up the findings of this section, a number of contemporary tables allow for a proximate overview of Bernese state finance throughout the century. They reveal that the canton ran consistent budget surpluses while revenue and expenditure were generally increasing over time. Yearly fluctuations could be high, and extraordinary events, such as the loans of 1710, had a great financial impact. The salt trade was the main contributor to government finance; tithes remained stable over time when measured by weight but increased in monetary value because of grain price inflation. A more detailed breakdown of the structure of revenue and expenditure will be provided in the following chapter (IV).

\textbf{III-5 \ The State's Assets}

This section will discuss the development of the state's most important assets over time. It starts with a general overview based on a contemporary document, then discusses the cash reserve, financial investments, salt trade and grain inventories in more detail. The purchases and sale of property or titles are missing from this analysis because there are no readily available inventories or accounts on them.

To create an overview of changes in the canton's wealth, the government had compiled a table containing information about its major assets between 1750 and 1790.\textsuperscript{409} The data was charted by decade for the 1750s and 1760s and by half decade from 1770 onwards. It noted the overall increase and decrease in each asset category, distinguishing between \textit{Cash Reserve}, \textit{Foreign Funds} and \textit{Domestic Investment}. The latter includes domestic loans and purchases of landed titles.\textsuperscript{410} For Figure III-22, I

\textsuperscript{408} See the discussion in Pfister, C. (1975): ch. 4 and Section VII-14 in the appendix.
\textsuperscript{409} StABE B VII 2520a.
\textsuperscript{410} The document distinguished between capital investments (\textit{angewendetes Capital}) and the purchase of land titles (\textit{erkaufte Lehen, Bodenzinsen und Zehnten}), but combined the two categories for divestments (\textit{Abgelöst oder Verkauff}). For all these categories, a distinction was made between the German and the French-speaking territories.
have converted all values into yearly averages, showing divestments as negative and investments as positive values.

![Figure III-22: Investments and Divestments by Category, 1750-1790 (Yearly Average)](image)

Source: *Tabelle Staatsschatz* (StABE B VII 2520a). The yearly average figures were calculated from data compiled by decade (1750-69) or half decade (1770-1790); the original document did not provide yearly data directly. Negative values (left-hand side) show divestments; positive (right-hand side) values investments. For the category Domestic Investments, see footnote 410.

The figures confirm what was discussed earlier: the money that filled the cash reserve in the early 1770s was used for the Imperial loan of 1787, which shows as an increase in foreign funds in the late 1780s. A decade earlier, the foreign funds also increased considerably. Domestic investments, on the other hand, increased mainly in the early 1780s. The major problem of these results is that they were only calculated by 5- or 10-year averages. In order to determine annual changes, the original accounts should be considered, as far as they have not been destroyed. My discussion begins with the most secretive and glamorous of Bernese assets, the cash reserve.

The Cash Reserve

The Bernese cash reserve (*Staatsschatz*) was legendary in the eighteenth century. The government kept few written records about the contents of its coffers, and the precise amount of the cash reserve was kept secret. Contemporary observers speculated about how much money the government had locked away in the vaults of
the city hall. It can be argued that hunger for bullion was one of the major reasons for
the invasion of Switzerland by Napoleonic troops in 1798. The looted Bernese
treasure, so the legend goes, was used to fund the French campaign in Egypt and sank
with her fleet near Abukir. As with many other legends, one reason for its emergence
is the lack of documents. The circumstances of the French invasion further promoted
the anecdote that the axle of a chariot that a greedy French Maréchal ‘requisitioned’
from the Bernese Mayor broke under the weight of stolen goods soon after he left the
city.411

Early modern states commonly possessed cash reserves as war chests. This was
necessary in an era in which short-term borrowing on capital markets was
complicated, unreliable and slow. The origins of the Bernese cash reserve are
unknown. They probably date back to the late sixteenth century, even though Bern
was still borrowing money as late as 1656.412 There was no inherent contradiction
between borrowing and hoarding a treasure at the same time, as the two were not
perfect substitutes. Credit could not be used immediately to pay for military
necessities, as negotiations with potential lenders needed time, whereas cash from the
government’s vaults was instantly available. Ironically, one of the earlier propellants
of the Bernese cash reserve had disappeared by the eighteenth century: payments by
foreign powers for the use of mercenary troops, the so-called pensions. Its most
important donor, the French crown, had become a political rival during the reign of
Louis XIV. In this situation, it was not opportune to collect pension payments from
the French ambassador and increase Bernese vulnerability to external political
pressure.413 Mercenary troops continued to serve France, but had evolved into a
private enterprise, controlled by patrician families (see Section II-5 above).

Numerous safety features were in place to ensure that the cash reserve could not
be used for illicit purposes. Eight different keys were required to open the vault and
each was kept by an important government official.414 The absence of written
inventories listing the content of the cash reserve was a further precaution, inhibiting
any unnecessary expenditure by the government. In 1697, the Secret Council inquired
if there was enough money in the cash reserve to support an army of 30,000 men for a
year. Four Councillors were ordered to investigate the matter by paying a superficial

412 Landmann (1903): 16; Peyer (1968); For the sixteenth century: Körner (1980).
413 Feller (1955): 207.
414 Landmann (1903): 15.
visit to the vault ‘without counting or touching the money in the treasure.’\textsuperscript{415} Their response to the initial question was a simple ‘no’. Based on the cost of the Second War of Villmergen, Julius Landmann estimated that the amount in question was between 3.125m and 3.25m Thl (93.75-97.5m Bz).\textsuperscript{416} We can therefore assume from this episode that the content of the cash reserve was less than 90m Bz at the turn of the century.

This estimate also qualifies the following statement by Abraham Stanyan form 1714:

Thus much is certain, that this Canton [Bern], and that of Zurich, are the only two [in Switzerland], that may be properly said to have Sums of Money in their Coffers. Berne, in particular, has at this time 300000 pounds Sterling at Interest; yet that Sum, as I am credibly informed, makes not a sixth Part of what remains in the Treasury.\textsuperscript{417}

According to Stanyan’s estimate, the cash reserve would have been worth £1.8m, which is the equivalent of 240m Bz. It is very unlikely that the treasure increased by that much between 1697 and the time of his writing, particularly since the Bernese government had lent 37.8m Bz to the Dutch and English in 1710 and paid 12.75m Bz for the Second War of Villmergen from its cash reserve two years later. The only reliable figure available is that at the French invasion on 5 March 1798, Bern had cash worth 106m Bz. Of this sum, 89.9m Bz was in the cash reserve, the rest with government offices. The French commanders only reported part of the sum to Paris; the rest – over 20m Bz (!) – went into their pockets.\textsuperscript{418}

To estimate the value of the accumulated cash reserve, I have collected all the information on it and subtracted the amount from the 1798 figure (see Figure III-23). The sources used are only reliable for the period between 1750 and 1790, when a ‘vault ledger’ (\textit{GwölB Bächli}) listing all deposits and withdrawals was created.\textsuperscript{419} For previous years, I relied on information from other accounts, notably the \textit{Welsch Standesrechnung} and the \textit{Historie}, as well as anecdotal evidence about the direct withdrawal of cash for military campaigns. This was the case in 1707 (Neuchâtel

\textsuperscript{415} StABE B I 2: 106-112 (quote: 108-109). The original words are: ‘\textit{ohne zedlung oder berührung deß gelds auß denen schatzgewölB.}’ Again in 1723, the vault was sorted without any counting or inventory: Landmann (1903): 15-16.

\textsuperscript{416} Landmann (1903): 17 (note 1).


\textsuperscript{418} Landmann (1904): 18-21.

\textsuperscript{419} StABE B VII 2388a.
Succession) and 1712 (second war of Villmergen). Probably the most important information missing for the period before 1750 is the amount of outflows to the Deutsch-Standesrechnung, which was not reported as a separate category.

For the 1790s, it is not clear if the lack of information about movements in the cash reserve was because they never existed or if documents are missing. The Gwölbi Büchli stopped abruptly. In spite of the geopolitical pressure that Bern was under, according to Richard Feller the Bernese treasure remained 'untouched' until the French invasion. Apparently, the cash reserve was seen as a last resort to secure independence. In 1793, communal funds for defence (Reisgelder) worth 7.4m Bz were released. In a last desperate move in January 1798, the government had asked private funds and charitable institutions to send their cash to the government for the country's defence. This measure was intended to avoid using money from the government vaults. Part of the Bernese overseas assets had been liquidated during the 1790s to pay for troops, as will be discussed below.

For Figure III-23, I have calculated the size of the cash reserve back from the 1798 value, adding deposits and subtracting withdrawals.

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421 They were combined with other 'general' revenue, such as payments for the postal lease and transfer payments.
422 The reason for stopping was certainly not a lack of space, as the Büchli contains ample of empty pages at the end.
423 Feller (1960): 484.
424 Fischer, E.F.v. (1868): 50. This means that communes were allowed to use the money in case of an emergency. See Section II-5 for the communal funds.
Some of the transactions discussed in earlier sections show very clearly. The most massive outflow occurred in 1710 to finance the Dutch and English loans. Two years later, the payment for the Second War of Villmergen incurred another reduction. In the subsequent years, the cash reserve was steadily refilled, although the lack of information on outflows for this period might overstate the rate at which this occurred. The reaction to the 1770 crisis is also evident from Figure III-23, as a withdrawal, followed by a ‘refill’ in subsequent years. This is when revenue for grain sales at high prices started flowing back, although their amount was smaller than the original outflow. The 1787 loan to the Emperor was mostly paid for by money that had accumulated in the preceding years.

With the detailed information from the *Gwölb Büchli*, it is possible to establish the ‘cash flow’ – the term can be used in its literal sense here – from 1750 to 1790 by destination (see Figure III-24).
Figure III-24: Inflows and Outflows of Cash Reserve, 1750-1790

Sources: Gwölbe Büchli (StABE B VII 2520a). Inflows to the cash reserves are to the left (positive scale), outflows to the right (negative scale). The figures for 1750-90* show added values for all years, divided by factor 4 to fit on the graph; DSR is for Deutsch-Standesrechnung; WSR for Welsch-Standesrechnung.

During these four decades, the cash reserve was used by the Bernese mint master regularly, who usually withdrew old coins and bullion for minting, sometimes replacing them with newer coins. The main contributor was the account for foreign funds, which also caused important withdrawals in single years, such as 1787. Overall, the funds were a net contributor to the cash reserve between 1760 and 1790. The Welsch-Standesrechnung also regularly deposited its surplus in the vault, while its sister account, the Deutsch-Standesrechnung benefited from the cash reserve to cover some of its expenditure. The salt trade account benefited from an assignation in 1750, presumably to increase the government’s salt inventory.426 On specific occasions, funds from the cash reserve were used directly for military expenditure: in 1782 and 1783 for the Geneva expedition, and for a last time on 17 September 1790 to form a war chest.427 The Gwölbe-Büchli does not record any transactions after this date. On the eve of its downfall, the Bernese government had not only cash stacked in its vaults, but more importantly, financial claims that were considerably larger in size which the French invaders failed to take advantage of.428

426 The reason for this assignation is not clear, given that the salt account itself made large profits and usually was used to fund expenditure in other accounts.
427 StABE B VII 2388a, Ausgang entry for 17 Sept 1790.
428 For the attempts to save the Bernese foreign funds from confiscation and reclaim assets after the Napoleonic era: Feller (1960): 699-708 and Landmann (1904).
Financial Investment

The Bernese government lent money mainly as a political tool to foster political alliances and create clientelistic dependencies. When it expelled foreign borrowers from the domestic mortgage market in 1677, this was also intended to provide an investment opportunity for government funds (see detailed discussion in Section III-5 above and Section V-2 below). To accommodate its newly acquired domestic loan portfolio, the government established a domestic loan registry (*Inneres Zinsrodel*), but this was never systematically updated. Because mortgages were administered by bailiffs in the county rather than by a specialised unit with its own accountability, it is impossible to obtain an overview about how much money was invested this way throughout the eighteenth century. In 1770, the Treasurer and *Venners* complained that the ledger was in such a state of 'great falsehood and disorder' that all too often financial claims by the government were forfeited because of a lack of proper documentation.429 They resolved to standardise and simplify the domestic loan registry. In addition, a table was compiled which listed all government loans as of 1 January 1769, based on bailiff accounts for the German-speaking territories. The resulting figure of outstanding claims was 5.38m Bz. If we add the Vaud's share of loans, an estimated 35%, the overall sum of loans in the domestic credit registry was around 7.25m Bz.430 Contrary to the original intention, the tables in the domestic loan registry were never updated. It is not clear where Emanuel von Fischer, who reports the sums for loans outstanding in 1798 at 13.3m Bz (German-speaking territory) and 12.0m Bz (Vaud), obtained his information.431

Another way of estimating the size of domestic loans is to use interest payments as a proxy. By multiplying this sum with an interest rate, we obtain the amount of capital invested. It can be assumed that in normal years, the amount of interests that were forfeited was equal to repayment of outstanding interests. What remains unspecified are defaults. Using interest data from my structural analysis for the years 1732 and 1782 (see next chapter), the amount of interest paid by accounts which were included in the domestic credit registry are shown as the category *Registered Loans* in Table III-1. I have calculated the principal by assuming interest rates of 5% and 4%. The former is based on the traditional rate for mortgaged loans, the latter relates to

429 StABE B VII 2338.
430 The figure of 35% is based on Vaud's share in domestic interest payments for the years 1732 and 1782. See discussion below.
431 Fischer, E.F.v. (1868). It is not clear where his figures are from.
anecdotal evidence from early modern capital markets, in which an oversupply of capital put pressure on the price a borrower could charge for lending money.\textsuperscript{432}

\footnotesize{
\begin{center}
\begin{tabular}{|c|c|c|c|c|c|c|c|c|}
\hline
 & Interest  & Capital (at 5\%)  & & Capital (at 4\%)  & & Capital (at 4\%)  \\
 & 1732  & 1782  & 1732  & 1782  & 1732  & 1782  & 1732  & 1782  \\
\hline
Registered Loans (m Bz)  & 0.55  & 0.34  & 10.94  & 6.90  & 13.67  & 8.62  & 18.23  & 11.50  \\
Other Domestic Loans (m Bz)  & 0.23  & 0.16  & 4.60  & 3.24  & 5.75  & 4.05  & 7.67  & 5.40  \\
Total Domestic Loans (m Bz)  & 0.78  & 0.51  & 15.54  & 10.14  & 19.43  & 12.67  & 25.90  & 16.90  \\
Foreign Funds (m Bz)  & 2.59  & 4.44  \\
\hline
\end{tabular}
\end{center}
}

Table III-1: Interest Payments and Estimated Capital with an Assumed Interest Rate of 5\% and 4\%  

Source: Database (see next chapter for details). Registered Loans are loans registered in the domestic loans registry (\textit{Inneres Zinsrodel}); Other Domestic Loans are loans from accounts that were not included in the domestic loans registry; Foreign Funds are the interest payments from the account for foreign investments (AUS). Capital (at r\%) is the principal calculated with the formula $P = I \times 100 / r$, where $I$ is interest payment, $P$ is the principal (capital) and $r$ stands for interest rate (assumed at 5\% and 4\% respectively).

Comparing the estimated value of registered loans to the value of the loan register in 1770, an interest rate of 5\% seems more plausible than 4\%. Around half of the domestic interest payments came from claims by government institutions with no connection to the loan registry. Until 1744, both the Deutsch- and Welsch-Standesrechnung also included interest revenue. After that date, they only registered loan transactions (new loans and repayments), but did not collect interests any more. Once the capital was invested, financial claims were transferred to bailiff accounts.

Overall, domestic interest revenue fell by over a third from 1732 to 1782. During the same time, returns on foreign investments grew by 71\%. This is consistent with other evidence about a shift in the government's portfolio from domestic to foreign lending. A Balance Sheet of the state's assets for the years 1750 to 1770 (discussed at the beginning of this section) failed to mention the level of loans, but stated new outlays and repayments. During the twenty year period covered by the document, the government lent 4.15m Bz while receiving 6.18m Bz from redemption. In other words, domestic loans declined by 2m Bz between 1750 and 1770. During

\footnotesize{\textsuperscript{432} See HLS (2002), article \textit{Kapitalmarkt} and Schmidt, G.C.L. (1932): vol. 2: 66, 122-124. See also the discussion in Section II-6 above.}
the same period, foreign capital investments increased almost tenfold, by 19m Bz.\textsuperscript{433} According to the \textit{General-Tabellen} (see Section III-4 above), between 1785 and 1794 revenue from domestic interests were on average 0.6m Bz per year, those from foreign investments 5m Bz.\textsuperscript{434} The ratio of interest revenue between domestic and foreign loans therefore changed from 1:3.3 (1732) to 1:8.7 (1782) and fell to 1:8.3 (1785-1794).\textsuperscript{435}

Bern's overseas investments began in 1710 with loans to the Dutch and English. In the following two decades, these were converted to portfolio investments on the London capital market. The expansion of overseas assets that ensued was largely funded by retained interest payments. After 1732, the canton also invested money on the Continent, either in the form of government bonds or by granting loans to sovereigns across Europe. I will discuss the details of Bernese investment strategies in a separate chapter (V). In this context, I will consider them a black box and only investigate foreign funds as part of the state's assets. The information for this is from the \textit{Historie der Ausländischen Stands Capitalien} of 1776 and on accounts for foreign funds.\textsuperscript{436}

\textsuperscript{433} StABE B VII 2520. Figures for the \textit{Deutsch-Zinsrodel}: angewandt 120,850 Kr, abgelöst: 145,506 Kr; for \textit{Welsch-Zinsrodel} angewandt 45,127 Kr, abgelöst 101,825 Kr; for \textit{Außer Zins Gel der} angewandt 1,478,709 Kr, abgelöst 686,630 Kr.

\textsuperscript{434} StABE B VII 2521.

\textsuperscript{435} The latter was mainly due to new domestic loans in the early 1780s while foreign funds were reduced.

\textsuperscript{436} StABE B VII 2389 and B VII 2396-2473. I only used nominal data; the value of Bern's foreign funds will be discussed in Chapter V.
Figure III-25: Overseas Capital Investments and Revenue, 1710-1797

Sources: Historie (StABE B VII 2389) and foreign funds accounts (StABE B VII 2396-2473). Interest Revenue are shown on the right scale. Capital Invested (nom.) considers nominal sums only; the value of Bernese assets is discussed in Chapter I (see Figure V-6 in particular).

After the initial loans of 1710, capital investments grew steadily but with high yearly swings until the late 1780s. In 1787, the foreign funds rose to new heights reaching a peak in 1791, after which their sums were in sharp decline. In 1798, the Bernese portfolio had a nominal value of 98.75m Bz and an estimated market value of 104.5m Bz (see Chapter V).\(^{437}\) Interest payments followed roughly in line with these developments. The exact rates of return will be calculated and commented later. The connection of the account for foreign funds with the remainder of Bernese state finance was mostly through withdrawals from and deposits to the cash reserve, as well as assignations. In Figure III-26, I have accumulated all transfers to and from other accounts.

\(^{437}\) Landmann, using nominal values, gets the figure of 116.0m Bz: Landmann (1904): 60-62.
Chapter III: Bernese State Finance (Long-Run Analysis)

Figure III-26: Overseas Capital Investment and Accumulated Transfers from Foreign Funds, 1710-1797

Sources: General-Bilanzen (StABE B VII 2179), Gwöl-Büchli (StABE B VII 2388a), Historie (StABE B VII 2389) and accounts for foreign funds (StABE B VII 2396-2473). For the Capital Invested (nom.) series, see Figure III-25; Accumulated Transfers are payments from the accounts for foreign funds (AUS) towards the cash reserve or other Bernese accounts, accumulated over time. The full amount of deposits to the cash reserve is only known for the period before 1790, that of assignations for the 1764-1790 period (hence the vertical lines).438

As mentioned earlier, the first loans were funded by cash withdrawals from the treasury. During the next few years, interest payments from foreign funds steadily accumulated in the cash reserve. As far as data is available, the break even point at which more money was deposited in the vault than the sums for the original loans was reached in the early 1730s, around the time when Bern started to invest on the Continent.439 In the 1790s, with the imminent military threat from France, the Bernese portfolio was partially liquidated to fund military preparations.

The Salt Monopoly

When introducing the monopoly for the salt trade in 1623, the government failed to mention any fiscal reasons for its actions, arguing that only the state could

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438 I have added the sums that the banker Gruner paid on behalf of Malacrida & Comp (3,247m Bz in June 1722 for interest payments that Malacrida had failed to deliver in 1720): See Landmann (1903): 94 (appendix 2). See also Chapter V below and Linder (2004) for a discussion of the Malacrida crash.

439 This calculation ignores assignations before 1764, as discussed above.
guarantee sufficient supply of this crucial product at a fair price.\textsuperscript{440} Of course such statements have to be considered – literally – with a pinch of salt. The salt monopoly soon became one of the most important sources of income for the Bernese state, as is evident from my analysis. The salt trade was farmed out until 1635.\textsuperscript{441} Thereafter, the Salzdirektion (salt directorate) was responsible for purchasing and selling salt. Parallel to the trading monopoly, a privilege (royalty) for salt production existed, which was also assumed by the state after 1685. Domestic salt mining in Roche was insufficient, however, and most of the salt was imported from France and the Empire.\textsuperscript{442} Bern’s dependence on imports at times proved a sore spot in its geopolitical ambitions. Salt was not only crucial for food consumption, it was also a key ingredient for cattle farming and cheese production. Although it was officially not taxed, the state made a profit by selling salt at a higher price than the costs of purchasing and transporting. The salt ledgers calculated a profit, but this was only for informative purposes. I have deducted this figure as the government’s Monopoly Profit from the proceeds from salt sales, which is comparable to salt duties in other states, such as the French gabelle.\textsuperscript{443}

In its accounts, the Bernese Salzdirektion calculated the profit for each type of salt with the formula

\[ P = (\text{Rev} + \text{Inv}_t) - (\text{Exp} + \text{Inv}_{t-1}) \]

Where \( P \) is profit, \( \text{Rev} \) is revenue, \( \text{Inv}_t \) is the salt inventory at the end of the accounting period and \( \text{Inv}_{t-1} \) the inventory of the previous account (or the opening balance). The figure therefore represents the profit on the amount of salt sold by the state. It is important to note that this profit was not equal to the profit of the accounts of the Salzdirektion, defined as the difference between current revenue and expenditure.\textsuperscript{444} To correct for the effects of inventory changes, I have categorised

\textsuperscript{440} Guggisberg (1933): 21-22.
\textsuperscript{441} Feller (1955): 128-129 and Guggisberg (1933): 26, 31, 39. In some districts, the monopoly remained farmed out after that date until 1651.
\textsuperscript{442} Roche is in the county of Aigle. Salt production there had started in the sixteenth century: Guggisberg (1933): 17-18.
\textsuperscript{442} Bonney (1995c): 494-496.
\textsuperscript{444} The difference consisted of current revenue and expenditure of the account that had no direct connection with its commercial activities.
them separately, deducting inventory increases from current expenditure and inventory reductions from revenue.

My analysis covers summarised versions of the Salzdirektion ledgers from 1700 to 1797. The structure of the accounts changed after 1725. For the years prior to this date, the revenue from salt sales and profits was recorded separately from the overall revenue of the salt account. After 1725, only total revenue was recorded. They included end-of-year inventories as well as revenue that was not directly related to salt sales and accounting transfers. By deducting the inventory from this sum, we can obtain a proxy for revenue from salt sales. For the sample year 1782, only 78.5% of this proxy figure was actual revenue from salt sales, the rest was comprised of loan repayments and pure accounting transfers that occurred when two different types of salt were mixed together which had been inventoried as separate entities.

Ignoring the distinction between current transactions, inventory changes and monopoly profits for the moment, total revenue and expenditure are shown in Figure III-27. These figures exclude payments to and from other accounts (assignations).

![Figure III-27: Total Revenue, Expenditure and Surplus Rate of Salt Account, 1700-1797](image)

**Figure III-27: Total Revenue, Expenditure and Surplus Rate of Salt Account, 1700-1797**

Sources: Salt trade accounts (SDI), 1700-1797: StABE B V 481-578. *Surplus Rate* is the difference between revenue as expenditure as a share of revenue (right scale).
With one exception, the accounts of the *Saltzdirektion* closed with a surplus every year between 1700 and 1797. The exception is 1707, when the inventory was increased, which will be discussed later. In most years, the difference between revenue and expenditure was equal to the amount of *assignations* to other accounts (see Figure VII-12 in the appendix). For the period between 1764 and 1775, the *General Bilanzen* specified the destinations of such transfer payments (see Figure III-28). After this date, they were recorded without destination. For comparison, I have added figures for contributions in 1732 and 1782. Values for the latter year were divided by two to fit the scale.

![Figure III-28: Assignations from Salt Account by Destination, 1764-1775](image)

Source: *General Bilanz* (StABE B VII 2179); salt trade accounts for 1732 and 1782 (StABE B V 512 and 563a). Values for 1782 were divided by 2. After 1775, the destination of *assignations* was not listed in the *General-Bilanzen* any longer. Ave stands for the arithmetic average over all years. The destinations in their original wording were (from bottom to top in legend to Figure III-28): Bau-Amt, Straßenzahl-Rechnung, Oberländer Holz-Entreprise, Stadtzwacht, Garnison Aarburg, Zeughaus, Gross-Almosen-Direktion, Exulaten-Kammer, Deutsch-Standesrechnung, Welsch-Standesrechnung Pferdezucht-Kommission, Spitalgass-Häuser Ankauf, and Gewölbe. The contributions towards Luzernische Unruhen (1764) and Neuenburger Unruhen (1768) were combined to Military Events.

Between 1764 and 1775, the *Salzdirektion* regularly contributed towards government institutions responsible for construction (Bau-Amt, road maintenance and wood production), defence (Stadtzwacht, Aarburg garrison and Arsenal) and welfare (Gross-Almosen-Direktion and Exulanten-Kammer). Other *assignations* seemed to be one-off events, such as house purchases (1770) or military emergencies in Lucerne (1764) and Neuchâtel (1768). From the 1732 figure, it looks as if contributions to
Bau-Amt, Aarburg garrison and Exulant-Kammer were established permanently. There was also a significant transfer of money to the cash reserve in that year. In 1782, the figures were entirely different, with assignations only contributing towards Standesrechnungen. Their figures were more than twice the amount of previous periods. Although figures from single years can be misleading, it seem like the system of transfer between accounts had been simplified and concentrated on the Standesrechnungen, and arrears increased in value.

Returning to the Salzdirektion accounts, one problem of considering revenue and expenditure alone is that this neglects the effects of inventory changes. In years when the stock of salt increased, it would show as if the government spent more money than it actually did. Therefore, we have to consider the salt inventory separately, and ultimately deduct its changes from current revenue and expenditure. Salt accounts provide information of the level of the inventory at the end of each accounting period. In addition, the rate of inventory to sales provides information about how much of a year’s salt supply was covered by the government’s reserves (see Figure III-29).

Figure III-29: Salt Inventory in m Bz and as a Share of Salt Sales

Sources: Salt trade accounts (StABE B V 481-578). For Inventory as a Share of Sales, I have expressed the inventory as a percentage of total salt sales (including profits).

445 If this value does not show up in the structural analysis of Chapter IV this is because as an assignation, it was a transfer between accounts.
A value of 100% means that a full year's supply of salt was stocked by the government. While this was the case until the mid-1720s, the coverage was less than half for most of the remainder of the period. In other words, the government had barely enough salt in stock to survive for a few months. This made it vulnerable to geopolitical pressure. On the other hand, purchasing salt from different regions – France, Tyrolia and Bavaria – could somewhat limit the dangers of being at the mercy of a single provider. It is not surprising that the Bernese stocks reached their highest level in 1707, when Bern was at loggerheads with France over the Neuchâtel succession. At this point, the inventory almost reached the level of two year's consumption. The increase of the 1770s might have been caused by a higher degree of awareness for crisis prevention after the 1770 harvest failure. The alternative explanation, that inventories increased because pre-ordered salt could not be sold during agricultural crisis, is very unlikely given that turnover figures increased sharply during the same period.

To analyse the profitability of the salt trade, changes in inventory have to be deducted from current transactions. The government realised this when calculating its own profits (as discussed above). Figure III-30 compares these profits with the amount of salt sold for each year.

Figure III-30: Profits and Salt Sales, 1700-1797
Sources: Salt trade accounts (StABE B V 481-578). Please note that profits have been multiplied by factor 10 and the data changed in 1725, hence the vertical line. Values before 1725 relate to actual salt sales; for the following years, salt sales were proxied by subtracting incoming assignations, inventory increases and 'other revenue' from total revenue.446

The interpretation of the data is complicated by the lack of reliable figures for revenue from salt sales. Before 1725, these were explicitly mentioned. After this year, they had to be proxied, which makes the data prone to errors caused by accounting practice. Regardless of this, it seems that salt sales slumped in the 1760s and soared by the late 1770s. They increased again in the 1790s. It is not clear what caused the sharp rise in sales in 1778 and the fall in 1779; they might be caused by accounting transfers. The government’s profit on salt sales moved roughly parallel to sales until 1750, after which profits remained stable in absolute terms, though fluctuating strongly in the 1780s. It is plausible that the government was setting absolute profit targets at the time, although there is no proof of such a measure having been taken.

Public Granaries and Wine Cellars

Information about the amount of grain and wine stored in the government’s inventories is scarce. This is mainly because of the de-centralised nature of storage: stocks were usually kept by bailiffs, who also reported them in local units of measurement. It was not easy for contemporary actors to standardise and compile this information in tables. Christian Pfister, Anton Brandenberger and other scholars have discussed the effectiveness of public granaries in stabilising prices.447 The main concern of this sub-section is to discuss the implication that inventories had on Bernese state finance.

As a result of its territorial expansion, the Bernese state started collecting an increasing amount of revenue in kind since the late middle ages. The Grain Chamber (Kornkammer, Getreide-Direction) oversaw collection and storage of cereals. After 1692, it consisted of the ‘Grain Senator’ (Kornherr) and another Senator, three former bailiffs and three ordinary members of the Great Council.448 The Kornherr took over the management of granaries in the cities of Bern and Thun in 1760, soon

446 Inventory reductions bare no role on the amount of salt sold and are therefore ignored. For the years 1730-1737, profits from Roche were missing and had to be calculated in retrospect.
448 RQBE, vol. 9.1: 140.
to be followed by others throughout the territory. This created a ‘dual system’ in which part of the inventory was administered directly by the Grain Chamber, while the remainder was run by bailiffs under the auspices of the Vennerkammer. The Kornherr was also entitled to purchase grain to reach the required target inventory. For selling grain, he depended on permission from the Great Council, which remained the ultimate authority. After 1769 the Grain Chamber was empowered to dispose of a limited amount of the stored grain at its own discretion.

Anton Brandenberger provides some figures about the overall amount of Bernese public granaries. He estimated that in most years, the target inventory was exceeded by 20-30% until the crisis of 1770, when actual figures fell 30% below target. Overall, Bernese grain stores were growing throughout the second half of the century. In 1688, the target inventory had been the equivalent of 6,700 tonnes of wheat, which had fallen to 6,150 tonnes in 1737. By the mid-1760, Bernese granaries were equivalent to 10,000 tonnes of wheat. This was relatively small compared to the granaries of Zurich, estimated at 4,500-5,100 tonnes of wheat for a considerably smaller territory and population. Based on his own population estimates, Brandenberger calculated that the Bernese states stored 20kg of wheat equivalents per capita in 1729, 19kg by the mid-1750s, 33kg after 1758 and 27kg by the 1790s. Including estimated Restanzen as a proxy for public granaries in the counties, his figures increase to 35kg per head in 1755, falling to 30kg in the 1770s, and ‘further falling’ (without figures provided) in the 1790s. When measured in nutritional value (calories) and compared to the need of the overall population, Brandenberger calculates the share of consumption covered by granaries to 10.2-9.5% for the years 1729 to 1757, and 16.8-13.4% for the years 1758 to 1798. In combination with other foodstuffs, this would be sufficient for roughly 2.5 months in the early part of the century and 3-4 months after 1758. This is in line with Christian Pfister’s earlier assessment that Bernese public granaries were sufficient to cover single years of harvest failure, but could not overcome the problems of persistent shortfalls.

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449 In 1760, the Kornherr (KOR) account included inventories in Bern, Thun, Burdgorf, Payerne, Moudon, Laussanne, Vevey, St. Prex, Nyon and Yverdon. In 1772, Aarau was added; Brugg, Lenzburg, Morges and Aubonne followed in 1773: StABE B VI 261-285.
450 Brandenberger (2004): 369; see also his chapter 4.2 in general.
451 Brandenberger (2004): 5.2 (in particular 381 and Diagramm 49). He seems to simply add grain by weight, regardless of its type. This makes his figures prone to large error margins.
Bernese granaries seem less well stocked than those of Lucerne, where up to 80% of one yearly harvest were stored in the 1780s.\textsuperscript{455}

Information is not readily available about the first element of the two-tier granary system, the inventories administered by bailiffs in the counties. They consisted of a statutory target inventory and a floating amount of grain that was used to cover current grain expenses. Taken together, both formed a bailiff's Restanz, as explained earlier (see Section VII-5 in the appendix). Information about the relation between Restanzen and inventories is available for Vaud in the year 1782. In this year, arrears were between 40\% (wheat), 75\% (Mischelkorn), 109\% (barley) and 230\% (oats) in excess of inventories.\textsuperscript{456} In other words, only a fraction of the grain at the bailiff's disposal was stored in the granary.

The overall amount of grain Restanzen is difficult to establish. Because of practical constraints, I have only collected information for limited time periods from the Deutsch- and Welsch-Standesrechnungen (1730-35 and 1780-85).\textsuperscript{457} Figure III-31 shows the result by weight and value, based on price information from the structural analysis of the following chapter. In general, any capitalisation of public granaries has to be considered with the caveat of high grain price fluctuations, both regionally and seasonally. Other than the salt inventories, Bern did not have to purchase grain in normal years, but received it through revenue in kind. There was an opportunity cost of storing grain however, since it could have been sold and the produce invested financially.

\textsuperscript{455}Körner (1981): 348-356.
\textsuperscript{456}ACV Bp 4 and Bp 143.
\textsuperscript{457}Restanzen from the Welsch-Standesrechnung for 1782 only. I have used the overall sum of Säck, multiplied by the mean of all measures in Figure VII-10 in the appendix. For a long-term view, see Brandenberger (2004): 382.
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Figure III-31: Grain Restanzen in *Standesrechnungen* by Weight and Value, 1730-35 and 1780-85

Sources: *Deutsch-Standesrechnungen* (StABE B VII 612-617 and 662-667) and *Welsch-Standesrechnungen* (StABE B VII 790-795 and ACV Bp 4). Grain types have been converted to wheat equivalents following Pfister, C. (1975): table 24. Prices are from my database (discussed in the next chapter and Section VII-13 in the appendix).

Overall it appears that the Restanzen did not change significantly from the 1730s to the 1780s when measured by weight. However, they nearly doubled in value. This was the effect of grain inflation, which will be discussed in more detail below (Section IV-2 and Section VII-14 in the appendix). The value of Restanzen for two sample years should only be considered a proxy, since grain prices varied strongly by region and even more throughout the harvest year.

For the county of Aarberg, I have collected information on how Restanzen in grain changed over time throughout the century. One problem is that in the years with an office handover, Restanzen were normally reduced to minimise the cost of inventory for an incumbent bailiff (see Section VII-5 in the appendix). Handover years are therefore marked with vertical lines in Figure III-32.
In the early part of the century, fluctuations were much larger; after 1730, the weight of Restanzen seemed to fluctuate around a value just below 200 tonnes of wheat. This was significantly larger than the target inventory for Aarberg, which was the equivalent of 122 tonnes of wheat, according to the Venner-Reglement of 1778.\textsuperscript{458} The actual granary was about 1.5 times that amount in the 1780s, falling to around 1.3 times for the 1790s. The reasons for the dramatic fall in 1723 are not clear, thought it could be speculated that the bailiff was forced to dispose of the inventory quickly because of a storage problem, such as loss, theft or decay. A local harvest failure could be an alternative explanation, but seems unlikely.\textsuperscript{459} The 1770 crisis can be seen in Figure III-32 as a sharp fall in Restanzen by weight; the fall in value was much smaller because of price increases in that year.

For Vaud, a contemporary table (Getreid Etat) shows values for target and actual inventories by county for the years after 1771 (see Figure III-33).

\textsuperscript{458} StABE B VII 6. The target inventory was 1349 Mt of spelt, 55 Mt of rye and 250 Mt of oats.
\textsuperscript{459} According to the tithe series collected by Christian Pfister, there was no significant decline in the neighbouring county of Nidau in the early 1720s: Pfister, C. (1984): vol. 2, table 2/7.1.
Figure III-33: Grain Inventory in Vaud by Weight, 1771-1796

Source: Welsch Getreide-Stat (ACV Bp 143); grain measures converted to wheat equivalents based on Pfister, C. (1975): table 24. I have used the litre equivalents for each county specified in Section VII-13 in the appendix.

After the 1770 crisis, Vaudois inventories were severely short of the target value, covering only 21% in 1771 and 52% in 1772. Once the stocks had been refilled by the late 1770s, they remained stable for over a decade, with the exception of a brief dip in 1782. After 1791, the Vaud public granaries were depleted once again, in spite of grain transfers from other parts of the canton. This was the effect of harvest failures, a French export ban in 1790 and the increased need to support Bernese troops. For the French export ban: Brandenberger (2004): 395-397. The value of Vaud granaries can be established with price information for each county from a contemporary spreadsheet based on bailiff accounts from 1772 and 1791.461

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461 StABE B VI 228.
The overall value of the bailiffs' grain store was usually around 200,000 Bz; it occasionally peaked in years of high prices. This sum was roughly a tenth of the estimated domestic loans in Vaud, which were just under 2m Bz in the 1770s (see above, p. 144). Christian Pfister has estimated that the Argovia granaries covered around 14% of a normal annual harvest in 1767 and Vaud granaries covered 19% in 1779.\footnote{Pfister, C. (1975): 161, based on Bucher, E. (1944): 107 and Chevallaz (1949): 114.}

Inventories overseen by the Grain Chamber – the second tier of the dual granary system – offer more reliable information than granaries administered by bailiffs. The Grain Chamber stocks represented the disposable part of the overall inventory. From 1760 onwards, the Kornherr accounts provide yearly figures for their value, which are shown in Figure III-35 by type of grain.
The disposable grain inventory had been reduced in the early 1760s from a high in 1763. At the time of the 1770 crisis, the Kornherr could not offer grain from his stores to a starving population. Instead cereals were purchased from abroad at high prices and local inventories were depleted to meet the demand. After this shock, the granaries were quickly refilled in the 1770s and 1780s. A peak of grain inventories administered by the Grain Chamber was reached in 1793. In terms of the grain used, spelt was important in the early years. After 1773, most stocks were kept in the form of wheat. A special oven was procured in 1758 which dried the wheat. Before purchasing the oven, the government calculated its potential savings from using when using this equipment and decided that it was a worthwhile investment to make storage both easier and cheaper by avoiding weight loss or decay.463

As all the values in Figure III-35 have been converted into wheat equivalents, they can be capitalised by using wheat prices. Ideally this would be done for each region with its own public granary. Since the relevant data is not available, I have used wheat prices from the city of Bern for all conversions.464

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464 These are the market prices collected by Pfister, C. (1975): table 28.
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Figure III-36: Grain Inventory of Kornherr Account by Weight and Value, 1760-1796

Sources: Kornherr accounts (StABE B VI 261-285, see Figure III-35 for details); values were calculated with wheat prices for the city of Bern from Pfister, C. (1975): table 28.

Through most of the time, the two series appear remarkably parallel, indicating that prices were stable. This is quite surprising, given the high volatility of grain prices, but an essential point is that during the years with price shocks around 1770, the grain inventory did not change as it was virtually empty. The other price peak in 1793 shows quite clearly: in spite of a reduction in inventory by weight, the value of public granaries increased. However, the overall value of the Kornherr inventory was not very high. In most years it was in the same order of magnitude as the yearly revenue from foreign funds.

As noted above, the canton was self-reliant in its grain production in years of normal harvest. Only in exceptional circumstances was it necessary to purchase cereals from abroad to feed the Bernese population. This was the case in 1750, 1757, 1770 and 1789/90. During the catastrophic years 1770 and 1771, the government reportedly purchased 5,411 tonnes of wheat from as far away as Sicily and Africa. The cost of this was 16.0m Bz, which equals an average price of 32.25 Bz/ms. By the end of 1772 the Grain Chamber had sold 3,407 tonnes for 7.7m Bz. The average price of 24.83 Bz/ms signified an overall loss of 7.41 Bz per ms sold. The government

465 The cash reserve contributed the following sums for grain purchases (in Bz): 1.6m (1750); 1m (1757); 6.3m (1770); 3.7m (1789) and 4.4m (1790). See discussion of the cash reserve above.
466 B VI 253-258, see also Brandenberger (2004): 390-396. I have added deductions (Abgang) to the amount of grain sold. According to the Grain Chamber, by 1775 the overall loss on grain trade since 1770 had been 3.36m Bz, which would be the equivalent of 7 Bz/ms in price.
was willing to cover such losses as a measure of economic policy. For regular years, the Grain Chamber was expected to make a profit on its grain inventory that covered at least the cost of capital. Contemporary documents clearly point towards this understanding.\footnote{See documents quoted in Brandenberger (2004): 385-386.} The objective was to buy or store grain in abundant years at a low price and sell it when prices were high, normally in years with bad harvests. This seems to have worked quite well; overall the Grain Chamber did not rely on assignments by other accounts to fund its expenses. Only for major grain sales did it receive money from other sources within the state, as explained in the discussion of the General Bilanzen and the cash reserve above.

The Bernese republic stored not only grain, but also wine. Information about wine inventories and their price is even more difficult to find than for grain. The only available figures are that in 1782, the Deutsch-Standesrechnung recorded 0.94m litres of wine (5,644 Säum).\footnote{StABE B VII 664 (DSR 1782). In the previous year, the value had been 5183 Sm (= 0.87m ltr): StABE B VII 663 (DSR 1781).} Roughly the same amount was stored in Vaud, as the inventories of the Welsch Weinschenk confirms. These inventories were listed semi-annually from 1781 (see Figure III-37).

![Figure III-37: Wine Inventory in Vaud, 1781-1798 (Semi-Annual Figures)](image)

Source: Etat Welscher Wein (ACV Bp 146). Figures exclude wine stored in bottles and Zufullwein. I have converted Säum in litres on the basis of the Bernese Saum (1.67 ltr).

The overall amount of wine in Bernese cellars was relatively stable throughout the 1780s and 1790s. Valuing this wine inventory is difficult because of a lack of...
reliable data on prices. Using prices from the city of Bern, the overall value of the Vaud wine cellars was roughly 1m Bz, the overall inventory consequently worth about 2m Bz.\textsuperscript{469} However, these figures are crude estimates.

This section has considered the state’s most important assets for which information is available. The value of the legendary Bernese cash reserve can be estimated back from its amount in 1798. From the scarce documentary evidence it follows that the 1710 loans depleted the treasure of about 40\% of its value; four decades later, the reserve had been replenished to its level at the start of the century. Foreign capital investments were another major asset of the canton (see Chapter V for details); they surpassed domestic loans by far. Inventories of salt, grain and wine were comparatively less capital intensive.

\section*{III-6 Grain Sales by Bailiffs}

Part of the state’s revenue in grain was used directly for expenditure, ranging from salaries to subsidies for the poor or payments for services. As the state normally spent less grain than it received in tithes, a bailiff could sell an annual surplus. In June and January, he received instructions from the \textit{Vennerkammer} about the exact amount to be sold on the market.\textsuperscript{470} Selling grain without permission was strictly forbidden. Considerable sums were at stake, but determining the best price for the state was not an easy task. A low price might make subjects happy, but it would cost the treasury dearly. Furthermore, if grain was sold cheaply, there was a chance that bailiffs might sell to their favourites, who could then make large profits on such government-subsidised grain. On the other hand, high prices were considered exploitative and could undermine the legitimacy of a government. They could also cause inflation and, finally, the bailiff might not be able to sell all public grain at a sufficiently high price. From 1731, bailiffs had to record their grain sales on behalf of the government. As remuneration, they received a share of the proceeds, usually one fifth, seventh or

\textsuperscript{469} Pfister, C. (1975): table 28/1, wine prices from January 1781 to July 1797 (with gaps). My price is the mean of all monthly prices available (overall 131 price quotes): 6.12 Xr/maas (=0.92 Bz/ltr). The Vaud inventory would be worth between 811,321 and 1,060,550 Bz (mean = 922,596 Bz).
\textsuperscript{470} Bucher, E. (1944): 107.
nineth, depending on the amount sold. Bern thus adopted a system that was based on market prices and set an incentive for high prices for the bailiff.

There is too little data on Bernese grain markets to investigate the role of the government systematically (see Section VII-13 in the appendix). For the county of Nidau, a market register contains prices and volumes traded from December 1738 to December 1785, albeit with gaps in 1742/43 and 1744/45. Based on this document, Erika Flückiger Strebel has calculated monthly market prices for wheat, taking the average between recorded maximum and minimum prices for each day, weighting them by the amount sold. Her data can be compared to the government grain sales, recorded in bailiff accounts. During the same period from December 1738 to December 1785, Nidau bailiffs recorded a total of 794 wheat sales on 625 different days (with several sales per day possible). To compare these with the market data, I have calculated 213 monthly aggregates, weighted by the amount of grain sold each month. For 194 cases, both a market price and a price recorded by the bailiff are available. In 153 of these observations (78.9%), the price charged by the bailiff was below the market price; in 41 (21.1%) it was higher. Although most of these instances where the bailiff sold grain more expensively than the market rate occurred in the early and mid-1760s, no clear trend emerges (see Figure III-38).

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471 This was called the fifth (seventh, ninth) penny. With a larger amount sold, the bailiff’s share decreased, hence the tariff had a progressive structure. See Bucher, E. (1944): 107 and StABE B VII 25: §9b.  
472 There is no data for the following months: July 1742 to September 1743; July 1744 to September 1745; May 1746; May 1755 and October 1758.  
473 Flückiger Strebel (2002): Table 45. Prices are for Kernen.  
474 The bailiff’s accounts for Nidau from 1738-1785: StABE B VII 1633-1640.  
475 For the years 1749 and 1752, the amount of grain sold was not recorded by month (only prices were). I therefore had to assume an equal amount of grain sold in each month for which a price was recorded.  
476 The rest of the bailiffs’ transactions fall in periods where the market series has gaps.
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Figure III-38: Grain Prices in Nidau: Market and Bailiff, 1738-1786

Sources: Market prices from Flückiger Strebel (2002): table 45; Bailiff prices from StABE B VII 1633-1640 (Amtsrechnungen Nidau). All prices are weighted prices for Kernen (wheat). Price Ratio is the ratio between the bailiff’s price and the market price.

One explanation for the generally lower prices charged by the bailiff might be that most sales were transacted with millers and not made on the open market. However, it might also describe the government policy of providing cheap grain as a matter of economic policy. It could further depict different trends in seasonality, or simply the inaccuracies of monthly aggregated data. Calculating a statistical measure of correlation between the two series is possible but would give a spurious result. The reason is that monthly fluctuations for grain prices followed a particular pattern over the harvest year.\footnote{For seasonal price fluctuations: Pfister, C. (1975): 152-153.} In theory, this could be eliminated using 12-month moving averages, but as the bailiff’s series does not cover consecutive months, this is impossible. Nonetheless, because we know the amount of grain sold on the market and by the bailiff, we can compare selling patterns over the year, grouping the data by month (Figure III-38). It is best not to show this by calendar year, but by the harvest year, which starts in August and ends in July.
The two series follow distinctly different patterns, both in terms of prices and the average amount of grain sold. The bailiff consistently sold grain at a cheaper price than the market except in January when he charged a market price. However, the January figure, as well as the below-market price for December, are both based on few observations. While December was the busiest month in the market, average grain sales by the bailiff peaked in January. However, the selling pattern of the government was less consistent that that of the market; using average figures can therefore be misleading. This is illustrated in Figure III-40.
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Figure III-40: Grain Sold by Bailiff, Nidau 1735-1785: Total and Average (Harvest Year)

See comments to Figure III-39. *Total sold* is the accumulated total over time for each month.

When comparing the accumulated total sold per month with the average, the picture that emerges is quite different. Overall sales of bailiffs peaked in June, shortly before the harvest, and not in January, as average numbers suggest. If we combine these observations, it can be said that at the rare occasions a bailiff sold grain in the winter months, the amounts were substantial. The differences between average and cumulative total are trivial for the market series (not shown here).

Combining the amount and price of the sales, we can also investigate the connection between these two variables. For example, did the government sell more grain when prices were higher? Figure III-41 shows a scatter plot of price and amount sold in all months for which market and bailiff data is available.

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478 The years concerned (1753, 1766 and 1767) were not handover years for the office either.
Figure III-41: Grain Sold per Price (Scatter Plot), Bailiff and Market, Nidau 1738-1785

Sources: see Figure III-38. Only data for months with both market and bailiff data (N=194). Linear stands for the linear trend line.

Figure III-41 shows all monthly sales and a trend line for both series. For the market series, the amount sold did not depend on price, whereas for the bailiff series, there seems to be a positive correlation, although the statistical significance is small.\textsuperscript{479} This means that more grain was sold if prices were higher. An interpretation of this result could be that the government tried to maximise revenue by selling grain when it was expensive. It can also be argued that the government sold grain when prices where high to stabilise prices as a measure of economic policy.

If we consider the bailiffs' grain sales by year, we can compare this number with Christian Pfister's data on tithe revenue, collected from 1755 onward (see Figure III-42).

\textsuperscript{479} Correlation between price and amount sold (Pearson’s, significance level in brackets): for market series 0.003 (0.961, i.e. not significant); for bailiff series 0.147 (0.041).
Figure III-42: Grain Sales and Tithes, Nidau 1738-85

Sources: For grain sales, see Figure III-38; tithes from Pfister, C. (1975): table 25/2 (value for Nidau). All figures are for wheat (*Kernen*).

Yearly fluctuations in the amount of grain sold are considerable, with a coefficient of variation of 46.98%. The series seems to roughly follow trends in tithe revenue, except for the years after 1770; however the correlation is not statistically significant. In 1770, the government had used some of its public granaries for alleviating the severe agricultural crisis. The resulting inventory reduction needed to be balanced in the following years, when grain surpluses were stored rather than sold. This is also apparent from Figure III-43, which shows data on public granaries in Nidau from 1759 to 1783.

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480 The coefficient of variation is the standard deviation (SD = 648.214) divided by the mean (= 1379.74).
481 Correlation coefficient (Pearson): 0.063 for whole series (significant at the 0.743 level). Even if the years 1771-1775 are excluded, the figures are little better, with a correlation coefficient of 0.350 (sign. 0.087).
482 See Flückiger Strebel (2002): 144, 150-162 (and Table 22).
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Figure III-43: Wheat Revenue, Granary and Bailiff Sales, Nidau 1759-1783

Sources: same as Figure III-38. Net Revenue are revenue of bailiff accounts, excluding previous year’s arrears and reduction of public granaries. Granary content is shown in Bernese mass (ms) on the secondary axis.

For the years following the 1770 crisis, grain sales came to a standstill until the public granary was filled once again. From 1759 to 1783, the bailiffs sold half of the net grain revenue, but this share could range from zero to almost 100%. If we compare this to a sample of counties for 1782, they sold 11% of the net wheat revenue, while Nidau sold 44%. It would be interesting to replicate the findings for Nidau to the actions of the Kornherr throughout the territory. Unfortunately, the information on grain markets is too scarce to cover more than the city of Bern itself, for which prices have been collected by Christian Pfister. From all grain sales by the Grain Chamber, I have isolated sales of wheat in the city and compared them to a median yearly market price (see Figure III-44).

483 If accumulated totals are used, bailiffs sold 50.0% of net revenue; the arithmetic average is 50.4%. It is impossible to calculate a mean with some values being 0. Please note that in 1764, when the bailiff sold almost 100% of net revenue, the public granary was reduced.
484 See Section VII-15 in the appendix and Chapter IV for details about the sample.
Figure III-44: Wheat Prices in Bern, Market and Kornherr, 1765-1790

Sources: Kornherr accounts (StABE B VI 261-285), Grain sales for Bern only, values for Weizen and Kernen; Market prices are from Pfister, C. (1975): table 28/1 (Kernen, yearly price calculated as mean of monthly prices). Price Ratio is the ratio between Kornherr and market price.

Prices are only available on a yearly basis and are missing for the years 1769-1772, when the Kornherr did not sell grain from his granaries, which were empty at the time. The number of observations is relatively small to make conclusive statements. In 12 of the 21 years with data, the government sold at a higher price than the market, but there seems to be no clear trend. If we relate the amount of grain sold to its price, the result is shown in Figure III-45.

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486 During that time, the Kornherr sold grain purchased abroad (discussed above).
Figure III-45: Wheat Sold per Price (Scatter Plot), Kornherr 1765-1790

Sources: Kornherr accounts (StABE B VI 261-285), Grain sales for Bern only, values for Weizen and Kernen. The number of cases (N) is 21. The outlier (63,372 ms sold) is the value for 1779.

As for the discussion of grain sales in Nidau, I have included a linear trend line. Unfortunately there is no data for the amount of wheat sold on the Bernese market, but judging from the Nidau series, the amount of grain sold on the market was independent of its price. For wheat sales by the Grain Chamber, there seems to be a positive correlation, although the result is not statistically significant.487

This section has considered grain sales by the government through its agents. Based on the case of Nidau, it seems as if bailiffs sold on average half of their grain revenue, but this share varied substantially. The government sold grain slightly below the market price, usually when prices were high and especially in the months before the harvest in July. Selling grain from public granaries thus had a stabilising effect on prices while generating a good return on storage investment. Sales by the Grain Chamber seem similar, although the information is less reliable than for Nidau.

487 The correlation coefficient (Pearson) of 0.059 is only significant at the 0.799 level (i.e. not statistically significant).
III-7 Conclusion: Bern as a Surplus State

The empirical analysis of long-term financial developments of the Bernese state illustrates how Bern functioned as a surplus state. Underlying all the trends I have discussed was the government’s willingness to limit expenditure to the means available from traditional sources of revenue and entrepreneurial activity. On one hand, the Bernese followed the traditional pattern of a patrimonial state in building up reserves for contingency. On the other, this was the only way for the government to avoid sliding into a tax-and-spend cycle in which increasing expenditure would force the opening of new revenue sources. In the context of the Bernese republic, additional tax revenue could hardly be obtained without any consent from subjects. Building a state that generated revenue independent of such consent was therefore the cornerstone of patrician financial policy.

The Bernese state ran consistent budget surpluses throughout the century. Revenue was larger than expenditure in 78 years between 1700 and 1796. In particular, profits (defined as the difference between current revenue and expenditure) could be invested. Investments, in turn, generated future revenue, though they were highly volatile. They could be several times the amount of ordinary expenditure, as the loans that were granted to the Dutch and English in 1710 illustrate. In other years, investments could be negative, when assets were liquidated, as was the case in the 1790s. Entrepreneurial returns were increasing throughout the century. The two main contributors to government finance were profits from the salt monopoly and interest payments on foreign capital investments; they were the ‘cash cows’ that fed Bernese administration. For extraordinary needs, the cash reserve provided a backup. When the government purchased grain overseas to avoid starvation during the 1770/71 harvest crisis, this venture was largely financed by a withdrawal from the cash reserve. Public granaries, which were normally used to cover harvest failures, had been emptied previously. As far as information is available, Bernese public granaries seemed relatively small compared to the annual harvest, and also compared to the sums that the canton had invested financially.

Granaries were mainly fed by another main contributor to Bernese revenue, tithes. Because they were not monetised, it is very difficult to determine their exact value. This is why most contemporary attempts to generate an overview of the canton’s finances ignore revenue in kind entirely. An additional reason for this
neglect is that they were collected – and spent – locally by bailiffs, since transporting grain to the central government would have been cumbersome and costly. For a long-run observation, tithe returns fluctuated with the size of harvests, which made them prone to climatic shocks. The seminal trend in tithe revenue was stable if they are measured by weight; when expressed in monetary units, tithe revenue increased because of grain inflation. The next chapter will discuss this in more detail, along with transactions that occurred throughout the canton in its counties. The sale of grain surpluses by bailiffs was analysed for the county of Nidau, where market prices are available for comparison. Bailiffs usually sold grain when prices were high, which can be interpreted as an anti-cyclical economic policy of stabilising prices, as well as an attempt to achieve a high return on grain storage investment.

If these findings are discussed in the context of the model of a surplus state outlined in the introduction, all the elements are present. The state ran budget surpluses and invested in various ways to generate returns; defence expenditure was relatively small, taxes were low compared to entrepreneurial returns; and there was no trace of national debt. The state had important assets in the form of cash, financial investments and granaries, the former two contributing considerably to the overall budget. The situation in the 1790s illustrates how much the Bernese equilibrium had been based on low levels of defence expenditure. To cover the additional costs of defending its borders with France, Bern had to liquidate some of its overseas financial assets. But ultimately the cash reserve could not prevent the downfall of the republic in 1798. Ironically, it might even have attracted undue attention by French army commanders.
IV Fiscal Redistribution (Structural Analysis)

IV-1 Introduction and Chapter Contents

This chapter offers an in-depth analysis of the structure of Bernese state finance for two sample years and complements the overview of long-term trends discussed in the previous chapter (III). The remainder of this section defines the term *fiscal redistribution* and outlines the analytical framework used, as far as it differs from the one featured in the previous chapter. I will subsequently explain the data, selection criteria and conversion of transactions in kind into monetary values (Section IV-2). The body of the chapter represents an empirical analysis of fiscal redistribution by nature of transaction (Section IV-3), as well as by state function, economic sector and region (Section IV-4). The fiscal burden, including extraction through the militia system, will be covered in a separate Section (IV-5). A conclusion will consolidate the most important findings.

I will begin with a definition of fiscal redistribution to avoid misunderstandings about the scope of my analysis. In modern-day economics, fiscal redistribution is normally understood as the amount of money that is taxed from the rich and used for social transfer payments to the poor by comparing a pre-tax income distribution with the post-tax situation. For my analysis of eighteenth-century Bernese state finance, I understand fiscal redistribution in a broader sense as the way in which a state extracts revenue and spends it as expenditure. The pattern which ensues determines how resources that would have been used for different purposes in the absence of a fisc end up being redirected by the state. Other than many studies of fiscal history that focus on revenue and taxation in particular, my definition explicitly includes expenditure as well. In short, I define fiscal redistribution as the effect of accumulated revenue and expenditure by the government.

An Analytical Framework for Fiscal Redistribution

This section will explain the framework I have used for analysing the structural breakdown of Bernese accounts for the sample years 1732 and 1782. As far as the approach is identical to that of Chapter III, it will not be discussed in detail (see Section III-1 above). My analysis of fiscal redistribution is based on four dimensions:
factual, functional, sectoral and regional. While they will all be considered in detail later, the aim here is to provide an overview about how these dimensions were interrelated. A special case of quasi-fiscal redistribution was the militia army, which extracted resources in the form of forced labour and spent it as days served for the army. This will be discussed in a separate section (IV-5).

The basic principle of my approach is simple. All transactions of the state can be categorised according to an analytical framework that allows for a ‘mapping’ of fiscal redistribution along several axes. To this end, every transaction was labelled with different attributes, such as the time and place it occurred, the currency used, its factual nature, the function it fulfilled or the economic sector that was involved. I call these the dimensions of state finance, along which fiscal redistribution can be measured by collecting, aggregating and comparing data.

In theory, defining fiscal redistribution is possible for each attribute listed in Figure IV-1. For instance, it would be interesting to consider the gender dimension of Bernese state finance. However, eighteenth-century accounting data provides little information in this respect and makes such an analysis impossible. Except for some parameters defined by the sample that I only consider briefly – such as currencies – the main focus will be on factual, functional, sectoral and regional redistribution. Figure IV-2 shows a more detailed breakdown for each of these dimensions. It is important to note that each transaction of the state has to be categorised along each dimension. Comparing the sums of inflows (revenue) with the outflows (expenditure) determines fiscal redistribution for each parameter. The categories for the factual dimension are identical to what was discussed in the previous chapter (see Section III-2).

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488 I use the term ‘quasi’ because these transactions were not recorded in the state’s accounts. See Section IV-5 below for details.
Figure IV-2: Analytical Framework for Fiscal Redistribution

For a more detailed version see Section VII-12 in the appendix and Hagnauer (1995): 22-23 (for the dimension factual, functional and sectoral only). Region includes the administrative unit in which transactions were recorded. For factual redistribution, see also Figure III-1 above.

To illustrate how the distinctions of Figure IV-2 work in practice, I will use the example of the government purchasing a new desk for its treasurer. When determining the nature of a transaction for the factual dimension, the distinction between current and inventory transactions has already been discussed in the previous chapter, along with their main sub-categories (see Section III-2 above). If the state is buying a desk, this would be categorised as the purchase of an item of inventory goods. The functional dimension investigates which of the state’s activities was affected by a transaction. Using the example of the state purchasing a desk for the treasurer again, this involves the state function Finance and Taxation. For sectoral redistribution, the economy consists of three sectors: agriculture (primary sector), crafts and industry (secondary sector), as well as services and administration (tertiary sector). In order to determine sectoral redistribution, every single transaction must be allocated to one sector. Buying a desk for the treasurer is an expenditure that flows to the second sector, more specifically to carpentry or wood work. Once all transactions are categorised and compiled, the difference between revenue and expenditure in each sector determines sectoral redistribution through the state. Finally, I have proxied regional redistribution by the account in which transactions were recorded. This allows for a distinction between transactions carried out by central government and those of its representatives in the city or the territory. The territory itself is separated in its main regions (see Section II-3). The example of the treasurer’s new desk would presumably be recorded in the Deutsch-Standesrechnung and therefore count as central government expenditure.

If all information on inflows and outflows for each dimension is considered, this provides an encompassing view about how the Bernese government redistributed resources. In addition to the direction of fiscal redistribution, it is also crucial to consider how much of an economy was affected by the government budget. In modern economies, this is expressed with the state quota, defined as the share of the gross domestic product (GDP) controlled by the state. Because reliable GDP estimates for early modern Bern are missing, I can only use a proxy figures for this in my section about the fiscal burden (IV-5). Other key figures, such as budget surplus,
profitability of accounts or net investments have been discussed in the previous chapter (Section III-1, in particular Figure III-2).

iv-2 Data Selection and Conversions

The aim of this section is to provide the necessary background for understanding what data is underlying my empirical analysis. As a general rule, I have tried to place all non-essential points to the appendix. I will start by explaining the sampling techniques for constructing a database for fiscal redistribution in the two sample years 1732 and 1782. This will be followed by a discussion of how all transactions were converted into monetary values. Finally, the overall amount of Bernese revenue will be compared to other states and the problem of measuring inflation between the two sample years addressed.

Sampling, Account Types and Error Quotas

To analyse redistribution by the Bernese state, it would be ideal to consider all accounts throughout the eighteenth century, or indeed throughout the whole early modern period. The abundance of primary sources renders this task quasi impossible. I have therefore focused my structural analysis on a cross-section of accounts for two sample years, 1732 and 1782. They were chosen randomly by the research project BeFin.489 Both sample years were reasonably close to the overall average in terms of climatic conditions, grain prices and political events to qualify as 'normal' financial years.490 The most extraordinary events with a large budgetary impact were the purchase of Castelen county in 1732 and a small military expedition to Geneva in 1782 (see also Chapter III above). Exact population figures for the sample years are not available and have to be extrapolated from the 1764 and 1798 population censuses, as well as from Christian Pfister's estimates for the canton in its modern shape. If we assume a stable population distribution and linear growth, the Bernese state had about 317,000 inhabitants in 1732 and 388,000 in 1782.491 Incidentally, the

489 The research project collected data for 1581-85, 1631-35, 1681-85, 1732 and 1782 (primary data for the eighteenth century was too abundant to carry out a 5-year analysis). This will allow for a long-run analysis with data every 50 years once all the primary material has been categorised.
490 For the climatic conditions, see Pfister, C. (1984), vol. 2.
491 Berhist Database [Pfister, C. (1995), for the canton in its 1980s borders only]; Schluchter (1988) and HLS (2002), article Bern: 267. I have used the actual ratio for modern to Ancien Régime Bern from the
contemporary observer Gerhard Philipp Heinrich Norrmann had estimated the canton’s population for 1783 at 384,000.\textsuperscript{492}

For both 1732 and 1782, I have collected summary financial information for all known Bernese ledgers and analysed a sample of accounts in more detail in a separate database. For this purpose, records were transcribed as full-text documents and then re-categorised using customised software for historical accounting.\textsuperscript{493} The methodology for categorisation was explained in Section IV-1. For simplicity, I will refer to the sample analysed in detail as \textit{database}, while all accounts of the Bernese state for 1732 and 1782 are referred to as \textit{extended database}. The term \textit{summary accounts} is used for accounts which are not included in the detailed database (see Figure IV-3).

![Database (Sample) Extended Database Summary Accounts](image)

\textbf{Figure IV-3: Database, Summary Accounts and Extended Database}

Figure IV-4 illustrates how different types of accounts were included in the database, referring to the distinction made in Section III-3. While the most important accounts of the Bernese state (Type A and B accounts) were fully included, a selection was made for D-Type accounts.

\begin{itemize}
\item 1764 census and Pfister’s estimate for 1700, assuming linear growth. For the 1782 figure, I have used the actual growth rate for the whole canton between 1764 and 1798, assuming linear growth. These are only crude estimates.
\item Norrmann (1795): 425. He admitted having doubts about the reliability of this estimate. Norrmann referred to \textit{Meiners Br. B IV, S. 39}.
\item This software, \textit{Schupper-Logic}, works as Micro-Commands for MS Word 2000. It has been programmed by Stephan Hagnauer and adapted by myself. See Hagnauer (1994) and Hagnauer (1995) for details.
\end{itemize}
Chapter IV: Fiscal Redistribution (Structural Analysis)

Type A
Central Accounts
Deutsch-Standesrechnung (DSR)
Welsch-Standesrechnimg (WSR)

Type B
Independent Accounts
Salz-Direktion (SDI)
Salzproduktion La Roche (ROC)
Ausländische Gelder (AUS)
Pulver-Rechnung (PUL)

Type C
Accounts Directly Integrated
Offices / Institutions: 0/21*

Type D
Accounts Integrated Through Arrears
Counties: 25/52
Offices / Institutions: 14/32

Figure IV-4: Accounts Included in Database (by Type)

*) The overall sums of Type C accounts are per definition included in Type A accounts (transfers to and from these accounts were classified as net transactions, see below). See Section VII-9 in the appendix for details, and Figure III-5 above for A-B-C-D-Type accounts.

The sample for D-Type accounts was designed to represent all main regions of the canton and a number of institutions within the city itself. To avoid a sample bias, I have weighted the included accounts by the total figure for revenue and expenditure for each region, which is known from the extended database. This is explained in more detail in section VII-9 in the appendix. Together with the two A-Type and four B-Type accounts, the database covers material from 46 different sources. The total of accounts in the database is not identical with the number of offices included, because some recorded more than one ledger when there was a handover in the sample period; others did not exist in both sample years. The database covers 49 ledgers for 1732 and 55 for 1782. With every single transaction categorised, it contains 31,493 records.494

Once all transactions that were only made for accounting purposes are excluded, slightly less than 25,000 records in the database cover net transactions by the government (see Table IV-1). By defining net transactions as revenue and expenditure that affected the financial position of the state, the main exclusions concern arrears, grain sales, as well as transfers, both between and within accounts.

---

494 Repetitive transactions with the same characteristics, such as lists of interest payments or sales of the same type of grain, were sometimes entered as one record, in order not to inflate the number of records.
This is explained in detail in Section VII-9 in the appendix. Unless otherwise stated, all my numbers for the structural analysis refer to such net transactions.

<table>
<thead>
<tr>
<th></th>
<th>1732</th>
<th>1782</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Records</td>
<td>16,756</td>
<td>14,737</td>
<td>31,493</td>
</tr>
<tr>
<td>Transfers, Arrears</td>
<td>532</td>
<td>619</td>
<td>1,151</td>
</tr>
<tr>
<td>Grain Sales</td>
<td>550</td>
<td>241</td>
<td>791</td>
</tr>
<tr>
<td>Sums</td>
<td>2,476</td>
<td>2,318</td>
<td>4,794</td>
</tr>
<tr>
<td>Net Transactions</td>
<td>13,198</td>
<td>11,559</td>
<td>24,757</td>
</tr>
<tr>
<td>Net Revenue</td>
<td>3,745</td>
<td>2,846</td>
<td>6,591</td>
</tr>
<tr>
<td>Net Expenditure</td>
<td>9,453</td>
<td>8,713</td>
<td>18,166</td>
</tr>
</tbody>
</table>

Table IV-1: Number of Records in the Database

Source: Database. See Section VII-9 in the appendix for excluded transactions (transfers, arrears, grain sales, sums).

I have used the excluded transactions to calculate overall error quotas of the database, based on a methodology explained in Section VII-11 in the appendix. With values of -0.03% (1732) and 0.08% (1782), these are remarkably low. For the extended database, they are slightly higher (0.37% and 0.40%), which is still low by overall standards for early modern data. Overall, it can therefore be assumed that the data is reliable. One major caveat is the assumption that records provide a complete and accurate depiction of facts. Any ‘under the table’ transactions that were not recorded in official accounts cannot be considered for my study. There is no evidence that such transactions took place in eighteenth-century Bern, but of course this is subject to a strong tradition bias, as such dealings would normally not leave traces in public archives. A special case of non-recorded transactions are the militia duties, which are discussed in a separate section (IV-5).

Currencies, Revenue per Capita and Inflation

The plethora of currencies in which transactions were recorded in Bernese accounts ranges from several monetary units to different measurements for transactions in kind. For my empirical analysis of fiscal redistribution, I have converted all transactions into Bernese Batzen (Bz). This sub-section will briefly explain the conversion prices used. I will also discuss the effect of varying inflation rates on comparing figures that are half a century apart. While the conversion of monetary values is simple, the calculation of transactions in kind is more complex.
because Bernese officials did not systematically record prices. Whenever available, I used a weighted annual price for each of the goods calculated from transactions in the same ledger. If this information was not available, I have used weighted regional prices, calculated from other accounts. The results are discussed in detail in the appendix (Section VII-13). What matters is that my prices for 1732 and 1782 are consistent with other information on Bernese prices. Also, it seems that both sample years were not outliers, although price volatility was generally very high for foodstuffs in the eighteenth century. As discussed in Section III-6, government prices for grain could differ from market prices. For an analysis of state finance this matters little, since prices recorded in the accounts represent the value that the government could expect for its goods. For the same reason, issues of seasonality, which are particularly important for grain prices, do not matter at this level, as it can be argued that the overall weighted price represents the government’s timing preference.\(^{495}\)

With the conversions from Section VII-13 in the appendix, the net revenue and expenditure of the Bernese government are shown in Table IV-2 in absolute terms and as a per capita estimate. These figures will be qualified later; for now, they provide a first overview and allow for a comparison with other states through the European State Finance Database.\(^{496}\)

<table>
<thead>
<tr>
<th></th>
<th>1732</th>
<th>1782</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total (Bz)</strong></td>
<td><strong>Revenue</strong></td>
<td><strong>Expenditure</strong></td>
</tr>
<tr>
<td></td>
<td>24,939,454</td>
<td>22,791,477</td>
</tr>
<tr>
<td>Fine Silver (tonnes)</td>
<td>18.40</td>
<td>16.81</td>
</tr>
<tr>
<td>Bz per capita</td>
<td>78.67</td>
<td>71.90</td>
</tr>
<tr>
<td>silver (g) per cap.</td>
<td>58.03</td>
<td>53.04</td>
</tr>
<tr>
<td><strong>Revenue</strong></td>
<td>24,939,454</td>
<td>32,220,535</td>
</tr>
<tr>
<td><strong>Expenditure</strong></td>
<td>22,791,477</td>
<td>30,633,382</td>
</tr>
<tr>
<td><strong>Fine Silver (tonnes)</strong></td>
<td>18.40</td>
<td>23.32</td>
</tr>
<tr>
<td><strong>Bz per capita</strong></td>
<td>78.67</td>
<td>83.04</td>
</tr>
<tr>
<td><strong>silver (g) per cap.</strong></td>
<td>58.03</td>
<td>60.10</td>
</tr>
</tbody>
</table>

Table IV-2: Total Net Revenue and Expenditure in Bz and Silver

Source: Extended database. For conversion to silver, see appendix (Section VII-13); population estimates as discussed earlier in this section.

Between 1732 and 1782, government revenue increased by 29.2%, expenditure by 34.1%. This is equivalent to linear annual growth rates of 0.51% and 0.59% respectively. The budget surplus (the difference between revenue and expenditure, as a percentage of revenue) was 9.42% in 1732 and 5.18% in 1782. On a per capita

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\(^{495}\) It can be argued that in practical terms, the government might not be able to dispose of its inventory according to its own timing preference.

\(^{496}\) ESFDB; Bonney (1995b); Bonney (1999b).
basis, the increase in revenue was small, about 5.6% over 50 years. When expressed in grams of fine silver, the increase was even smaller because of a relative loss in silver value of the Batzen (+3.6%).

With an expenditure of 17-22 tonnes of fine silver, the Bernese budget was considerably larger than all other eighteenth-century city states with the exception of Venice (118 tonnes in 1783). Their expenditure ranged from one tonne (Überlingen, Hanover, Lucerne) to several tonnes of silver (e.g. Basel 5.3 tonnes, Zurich 8 tonnes, Milan falling from 7 to 4 tonnes and Nuremberg from 11.3 to 5.7 tonnes). The figure for Bern was roughly on par with smaller territorial states like Sicily and Genoa (27 tonnes each), but significantly smaller than that of Piedmont (45 tonnes), Bavaria (41-73 tonnes) or Lombardy (49-66 tonnes around 1720). The expenditure of the large European monarchies such as Denmark (from 86 tonnes to 360 tonnes in 1801) or Prussia (from 112 tonnes to 485 tonnes) were larger by several orders of magnitude, as were the United Provinces’ (439 tonnes in 1795). France (3,000 tonnes in the 1790s) and Britain (8,500 tonnes) were playing in a completely different league. Derived from these figures, I have proxied expenditure per capita as far as population estimates allow for, to compare them with the Bernese figure of about 55g of fine silver per capita. The detailed sources for this are discussed in Section VII-19 in the appendix. It is important to note that the figures are very rough estimates with large error margins. The European league table in expenditure per capita shows a clear lead by large monarchies, with Britain spending a whopping 810g of fine silver per capita, followed by Denmark (from 11 lg to 389g) and France (115g). Prussia tails the rear of major powers with 84-78g. The United Provinces were also amongst the big spenders with 214 gram of silver per capita. Republics seem generally more in line with Bern’s expenditure: Venice spent 42g, Milan between 56g and 30g. While the territorial states of Lombardy (42-56g), Bavaria (28-58g) and Genoa (44g) are similar to Bern, Sicily spent clearly less, with only 19g of silver per capita (see Section VII-19 in the appendix for details).

497 The use of expenditure (rather than revenue) is purely motivated by the better availability of comparative data. It should not matter much in the long-run, since all expenditure had to be covered by revenue.

498 Köhner (1995a): 401. The figure he provides for Bern (14 tonnes of silver) understates expenditure considerably, because it is based on General-Bilanzen (see Section III-4 above). Accordingly, his estimate for the Swiss Confederation (40 tonnes of silver) also has to be increased by 10 tonnes.

Returning to the situation in Bern, we can first consider the distribution of total revenue and expenditure by the currency they were recorded in. Figure IV-5 shows this for the extended database, which includes summary accounts.\(^{500}\)

**Figure IV-5: Revenue and Expenditure by Currency, 1732 and 1782**

Source: Extended Database (including grain sales). *Foreign (conv.*) are transactions in foreign currency that have been transferred into Crowns by the government itself. *Rev* is for revenue, *Exp* for expenditure.

In both sample years, monetary revenue constituted the largest part of revenue (1732: 80.9%, 1782: 77.8%) and expenditure (77.5% and 76.2%), with a clear shift from transactions in Pounds to Kronen. Revenue and expenditure in wine and grain increased over time, both in absolute and relative terms. When considering different types of grain, it is sufficient to look at revenue alone, since there was no significant redistribution between grain types. Grain revenue expressed in Batzen grew by 59.2% from 1732 to 1782. All major types rose over the period, the most remarkable being wheat (+100.3%) and rye (+77.5%).\(^{501}\) When expressed by weight and not in monetary units, the growth looks less impressive. This is illustrated in Figure IV-6.

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500 These figures differ slightly from the weighted sample in the database. They include grain sales, which are relevant in this context.

501 See also Table VII-21 for details.
To analyse how much of this increase was due to grain price inflation, we can consider grain transactions by weight. Simply adding grain across different cereals can produce spurious results. If the relative composition changed towards more expensive cereals over time, this would alter net revenue for the state, but not show up as an increase in weight. I have therefore corrected for relative price differences by using price-adjusted weights, calculated on the basis of an arithmetic mean of the 1732 and 1782 overall price for each grain type (see Table VII-13 in the appendix). With this measure, the total increase in grain revenue by weight was 12.9%. This is higher than the non-adjusted weight increase, which was 8.3%. In other words, the composition of the canton’s grain revenue had indeed changed towards more expensive cereals. Nevertheless, the growth in grain measured by weight was significantly smaller than in Batzen, which was 55.6%. This means that grain price inflation existed, which poses the question about how stable the Bernese Batzen really was. To discuss this, we have to look at different ways of measuring early modern inflation rates and discuss their impact on state finance.

To consider the effects of grain price inflation on government revenue, one option is to calculate grain inflation adjusted revenue for both sample years. I have used a mean inflation rate for all cereals, which was 60.9% over the whole period, equivalent to an annual inflation rate of 0.96% (see Table VII-21 in the appendix). Such a ‘grain deflator’ should only be used for monetary revenue, since revenue collected in kind was – per definition – not affected by grain inflation. If we correct for this, government revenue did not increase from 1732 to 1782, but fell by 10.1%; this is shown in the row stable of Table VII-13.

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502 This is shown in the row stable of Table VII-13.
503 Un-weighted means that kg of grain are simply added across all grain types.
504 The relative increase for each grain type is – per definition – equal to the increase in weight.
Chapter IV: Fiscal Redistribution (Structural Analysis)

expenditure fell by 5.8%. In other words, the government could buy less grain with its 1782 revenue than half a century before. Of course this result needs to be interpreted with care, since grain prices were very volatile and comparing two single years can provide misleading results.

Deflating all values by grain prices would not represent the reality of an early modern economy either, since its very essence was to combine different currencies in order to cope with relative price changes. Compared to other items, grain appreciated most in value in the eighteenth century, with the possible exception of livestock and dairy products.505 This is illustrated in Table IV-3, which shows changes in revenue and expenditure based on several inflation rates for the Bernese Batzen. The calculation is explained in more detail in Section VII-14 in the appendix.

<table>
<thead>
<tr>
<th>Index</th>
<th>Inflation</th>
<th>p.a.</th>
<th>Δ Rev</th>
<th>Δ Exp</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bz</td>
<td>n/a</td>
<td>n/a</td>
<td>30.46%</td>
<td>35.39%</td>
</tr>
<tr>
<td>Bullion</td>
<td>-1.23%</td>
<td>-0.02%</td>
<td>32.08%</td>
<td>37.07%</td>
</tr>
<tr>
<td>Wages</td>
<td>22.90%</td>
<td>0.41%</td>
<td>6.15%</td>
<td>10.16%</td>
</tr>
<tr>
<td>Tiles</td>
<td>16.30%</td>
<td>0.30%</td>
<td>12.17%</td>
<td>16.41%</td>
</tr>
<tr>
<td>Grain*</td>
<td>60.89%</td>
<td>0.96%</td>
<td>-10.10%</td>
<td>-5.83%</td>
</tr>
<tr>
<td>Grain (all)</td>
<td></td>
<td></td>
<td>-18.92%</td>
<td>-15.85%</td>
</tr>
</tbody>
</table>

*) only monetary transactions indexed

Table IV-3: Changes in Revenue and Expenditure with Different Inflation Rates

See Section VII-14 in the appendix for details. Inflation stands for the price difference between 1732 and 1782; p.a. for the (linear) annual inflation rate; Δ Rev (Δ Exp) for the increase in revenue (expenditure) if the 1782 figure is discounted by the inflation rate. For Grain* only monetary transactions were indexed as explained in the text, Grain (all) is when grain inflation rates are used for all transactions.

While stable in bullion content, the Bernese Batzen lost 22.9% of its value when compared to builders’ wages or 16.3% when measured in tiles as a relatively inflation-free item.506 Annual inflation rates were small by today’s standards. Even for grain, they were below 1%. Depending on the way inflation is measured, the value of government revenue and expenditure can change quite dramatically. Using bullion inflation (deflation) rates, the growth of state finance seems slightly larger than in Batzen and shows an increase by 32.1% for revenue and 37.1% for expenditure. Based on construction workers’ wages, the increase in state revenue from 1732 to

505 Pfister, C. (1975): 158. My figures for grain inflation are similar to his.
1782 was 6.1%; expenditure rose by 10.2% over the time same period. When measured in tiles, the state’s revenue increased by 12.2%, expenditure by 16.4%.

To sum up the findings of this section, according to most calculations Bernese government finance increased slightly from 1732 to 1782. This is in spite of the inherent problems which might arise when comparing two random sample years, which the long-term analysis in Chapter III mitigates to some extent. However, the absolute increase in revenue and expenditure dwindles when measured on a per capita basis. The divergence of figures for state revenue depending on the type of inflation rate applied illustrates the caveats of converting transactions into a single unit. Comparing numbers across time is a complicated process and is vulnerable to large error margins, regardless of the unit used.

IV-3 Redistribution by Nature of Transaction

This chapter will discuss fiscal redistribution by comparing revenue and expenditure made by the Bernese state in terms of their nature. This follows the analytical scheme outlined in Section IV-1. I will begin with a general overview of factual redistribution (by nature of transaction) before discussing the sub-categories in turn, starting with current revenue and expenditure and closing with inventory transactions. 

Overview

The factual categories for revenue and expenditure have already been described in the previous chapter (see Section III-1 in particular) but are refined for the structural analysis. Figure IV-7 provides a first overview.

507 In a strict sense, using the term redistribution for this section can be misleading, since it is rather a structural analysis of the structure of Bernese state finance.
Chapter IV: Fiscal Redistribution (Structural Analysis)

Revenue and Expenditure

Inventory Transactions
(Exp=Investment, Rev=Divestment)

- Loans
- Investment Goods
- Cash Reserve

Current Expenditure
- Personnel Cost
- Public Consumption
- Transfer Payments

Current Revenue
- Taxes
- Non-Entrepreneurial Returns
- Entrepreneurial Returns

Figure IV-7: Categories for Factual Redistribution

As noted above, the main distinction is between current and inventory transactions, which have their own sub-categories. Figure IV-8 shows factual redistribution by the Bernese state for the sample years 1732 and 1782.

Figure IV-8: Redistribution by Nature of Transaction (Simplified), 1732 and 1782

Source: Database, net transactions. All striped fields are for current transactions. Δ Restanz is the change in arrears in kind (grain and wine), Restanz (M) is the net arrear of bailiffs in monetary units, which represents an increase in retained earnings.

If current and inventory transactions are separated, the former were in surplus, with profits of 20.0% (1732) and 19.9% (1782), the latter in deficit with net investments of 8.55% (1732) and 30.2% (1782). In other words, in both sample years the government received more funds than it spent for its current affairs and could invest. The remaining budget surplus was 9.42% in 1732 and 5.18% in 1782. This figure represents an increase in the government's retained earnings in the form of claims towards its own officials, the so-called Restanzen (arrears). 36.6% of these claims were in kind (grain and wine) in 1732, 88.7% in 1782; this was equivalent to

---

508 If figures for summary accounts are fully included (and not based on the weighted database sample), the profit rate is 7.92% (1732) and 5.77% (1782). The difference can be explained by the inclusion of grain sales (which could not be excluded for summary accounts), the use of regional prices for grain conversion, and the mixing of profitable with less profitable counties in the sample.
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2.3% and of net revenue in both years.\textsuperscript{509} The residual was an increase in monetary Restanzen of government officials.\textsuperscript{510} The discussion of long-run development has illustrated how strong inventory transactions fluctuated throughout the century (see Chapter III). Most of my structural analysis will therefore focus on current revenue and expenditure.

Current Revenue

The three main categories for current revenue are taxes, entrepreneurial and non-entrepreneurial returns. For my analysis, I have broken them down further as shown in Figure IV-9.

![Figure IV-9: Categories for Current Revenue](image)

See also Hagnauer (1995): 22-23 for a slightly different breakdown.

Among the numerous ways by which to categorise taxation, I have opted for a distinction between direct and indirect taxes, categorising tithes separately.\textsuperscript{511} This separation is based on a combination of analytical criteria and practical concerns. Direct taxation is a forced payment to the government on wealth or income, indirect taxation is a surcharge on circulating goods, which includes customs duties in particular. As a distinctive form of tax, the tithe was levied on agricultural revenue

\textsuperscript{509} Negative changes are shown as revenue for $\Delta$ Restanz. Percentages in the text are based on the net figure (positive minus negative values of $\Delta$ Restanz).

\textsuperscript{510} See Section III-1 for a discussion of these key figures. See also Section VII-5 in the appendix on arrears. The change in grain Restanzen has been calculated as the difference between the previous year's and current grain Restanz; net Monetary Restanzen were calculated as a residual (their figure in reality was slightly different because of transfer transactions).

\textsuperscript{511} For possible categorisations of taxation (or, taxation taxonomies): Bonney (1995c); Körner (1994).
and thus has the characteristics of an income tax. However, it was not levied on personal income, but on specific lands. Tithes were also perceived differently in terms of their legitimacy, being a historically important tax that derived its credence from mention in the Bible. Tithes also had an important impact on the physiocratic self-understanding of the Bernese patriciate. I have further classified the monopoly profit from salt trade as an indirect tax, since this had the same effect as a specific salt tax (see Section VII-16 in the appendix for details).

Entrepreneurial returns resulted from the government’s commercial activities. As discussed in the previous chapter, this includes the state domain, as well as state-run manufactures or monopolies. The most important monopolies that the government ran itself were gunpowder production, salt mines and salt trade. The final sub-category for entrepreneurial returns consists of interest payments. These are the result of loans or financial investments at home or abroad (see Chapter V).

Non-entrepreneurial revenue include income from the state’s rights and titles as a sovereign. These were mainly duties and feudal rents (Recognitionen). Duties are payments for government services or privileges; rents are payments due to the state because of a political subordination and did not entail any direct service. They had originated as feudal payments for state protection, regardless of how effective this protection was. By the eighteenth century, rents had become fees payable for the exploitation of resources; they did not necessarily bear any connection with the value of that resource. If paid for by other states they were classified as external rents, all rents paid by the state’s own subjects are internal rents. As an overview, Figure IV-10 shows the empirical result for this breakdown of current revenue.

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Figure IV-10: Current Revenue (Breakdown by Main Category)

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513 I have only included current revenue from salt sales as trading income (see Section VII-16 in the appendix for details).
514 For a detailed discussion, see HLS (2002), article Feudallasten.
While direct taxation was negligible, indirect taxes grew considerably over time. Tithes were also an important contributor to state revenue, as were interest payments and internal rents. All other types of revenue were of minor importance. On a per capita basis, current revenue was 55.7 Bz in 1732 and 63.5 Bz in 1782, which will be discussed in more detail in the context of the fiscal burden (Section IV-5). The largest growth rates over time are for indirect taxes and duties, which more than doubled over the fifty year time period. A further disaggregation of the data by category can illustrate where the underlying changes were most important. I will only highlight a few key aspects of Table IV-4 in my discussion.

|                      | 1732 (in Bz) | in % | 1782 (in Bz) | in % | Δ (%)
|----------------------|--------------|------|--------------|------|------
| **TAXES**            |              |      |              |      |      
| Direct Taxes         | 443,823      | 2.5% | 742,762      | 2.9% | 67.4%
| Handover Tax         | 424,401      |      | 732,315      |      | 72.6%
| Other Direct Taxes   | 19,422       |      | 10,447       |      | -46.2%
| Indirect Taxes       | 2,329,565    | 13.2%| 4,840,736    | 18.7%| 107.8%
| Alcohol Tax          | 249,500      |      | 501,920      |      | 101.2%
| Salt Monopoly        | 1,825,324    |      | 2,010,475    |      | 10.1%
| Export Duties        | 27,850       |      | 76,094       |      | 173.2%
| Transit Duties       | 185,683      |      | 1,481,905    |      | 698.1%
| Other Customs Duties | 41,208       |      | 770,342      |      | 1769.4%
| Tithes               | 3,576,349    | 20.3%| 5,102,183    | 19.7%| 42.7%
| Grain Tithe          | 2,994,049    |      | 4,821,573    |      | 61.0%
| Wine Tithe           | 491,682      |      | 171,627      |      | -65.1%
| Other Tithe          | 90,618       |      | 108,983      |      | 20.3%
| **ENTREPRENEURIAL RETURNS** |      |      |              |      |      
| Production            | 1,321,370    | 7.5% | 2,068,023    | 8.0% | 56.5%
| Trade: Salt (Current)| 3,878,538    | 22.0%| 4,424,768    | 16.4%|      
| Interests             | 3,678,725    | 20.9%| 5,076,078    | 19.6%| 38.0%
| Domestic Interests    | 1,062,558    |      | 512,925      |      | -51.7%
| Foreign Interests     | 2,588,565    |      | 4,435,698    |      | 71.4%
| Other Financial Returns| 27,602      |      | 127,455      |      | 361.8%
| **NON-ENTREPRENEURIAL RETURNS** |      |      |              |      |      
| Duties                | 93,688       | 0.5% | 128,796      | 0.5% | 37.5%
| Internal Rents        | 2,307,378    | 15.1%| 3,652,338    | 14.1%| 58.3%
| Fixed Land Rents      | 109,294      |      | 93,937       |      | -14.1%
| Other Land Rents      | 1,529,825    |      | 2,786,587    |      | 82.2%
| Fiefs                 | 192,350      |      | 26,166       |      | -86.4%
| Privileges (Economic) | 368,906      |      | 553,433      |      | 50.0%
| Marechausse           | 0            |      | 92,169       |      | n/a
| Other Rents           | 107,003      |      | 100,146      |      | -6.4%
| External Rents        | 13,193       | 0.1% | 3,767        | 0.0% | -71.4%
| TOTAL Current Revenue | 17,642,629   | 100% | 25,857,451   | 100% | 47%  

Table IV-4: Detailed Breakdown of Current Revenue, in Bz and %

Source: Database, current revenue. \(\Delta(\%)\) stands for a relative change between 1732 and 1782.
Chapter IV: Fiscal Redistribution (Structural Analysis)

The handover tax was levied on specific land sales and was almost exclusively concentrated on French-speaking counties. Bern had taken over these so-called Lods from Savoy when conquering Vaud.\textsuperscript{515} Other direct taxes were levied on moving property abroad and in certain areas upon inheritance; both were not important in quantitative terms. Alcohol taxes were mostly levied in the city of Bern and not the territory.\textsuperscript{516} Customs duties in all forms multiplied more than nine-fold between 1732 and 1782. Particularly important were transit duties, whose increase was related to improvements in the Bernese road network attracting additional traffic, and the more efficient organisation of customs administration.\textsuperscript{517}

Tithes also increased overall (+42.7%), with the tithes levied on grain revenue as the most important contributor by far. The growth rates in Table IV-4 can be misleading in two ways. First, when calculated in price-adjusted weight, grain tithes only increased by 13.99%, and not the 61.1% when measured in Batzen.\textsuperscript{518} Wine tithes, which declined by 65.1% in value, only fell by 51.05% when calculated in litres. Second, tithes were prone to high yearly fluctuations, as discussed above (see Section III-4).\textsuperscript{519}

The main components for revenue from production were wine harvests in the state domain and salt production. The figure for salt sales is limited to current revenue and only shows part of the government’s income from selling salt; the rest is categorised as monopoly profit and inventory change (see Section VII-16 in the appendix). Duties, defined as payments made for state services, were minimal in their impact for Bernese finances.\textsuperscript{520} The same is true for External Rents. The state only obtained nominal sums from its involvement in administrating Condominiums of the Swiss Confederation (Gemeine Herrschaften).\textsuperscript{521} The most important Internal Rents were irredeemable land rents paid in cash. Since their monetary value was usually

\textsuperscript{515} 99.8% (1732) and 98.6% (1782) of the tax came from Vaud as Lods. The distinction to certain types of fiefs is not always clear, and the increase might have been slightly smaller. See also Monbaron (1998a).

\textsuperscript{516} 93.79% (1732) and 87.25% (1782) was taxed in the city, the rest in Argovia and Vaud.


\textsuperscript{518} For price-adjusted weights, see above, Section IV-2.

\textsuperscript{519} See also the discussion in Pfister, C. (1975) and Gmiör (1954).

\textsuperscript{520} Customs duties are taxes which can also be classified as duties.

\textsuperscript{521} The counties that Bern administrated together with Fribourg – Schwarzenburg, Orbe/Echalens, Grandson and Murten - were probably more profitable. However they had to be excluded from my analysis because they did not make regular contributions to Bernese government finance, and their contributions were not recorded in the Standesrechnungen. It would be reasonable to assume that these territories would on average contribute the equivalent of a small county.
fixed, the rent-payer would profit from inflation.\textsuperscript{522} Fixed land rents (ablösige Bodenzinsen) were redeemable, which means that the payment could be stopped by paying off a fixed sum of capital to the government.\textsuperscript{523} The relative cost of redemption declined with inflation, which is why most such rents had been redeemed by the eighteenth-century and only played a minor financial role by then. For earlier centuries, such fixed and redeemable loans had been more important source of government revenue.

For Table IV-4, I have also classified payments for economic privileges (Ehafte) as internal rents, because they can be considered feudal contributions to the government as a sovereign. By far the most costly privilege was the franchise fee for postal services paid by the von Fischer family.\textsuperscript{524} Finally, there were a number of special duties owed to the state for specific services. They usually varied between counties and included fiefs that the government had inherited when acquiring territory, or the newly introduced Marechausée payment to cover local policing expenditure.

Current Expenditure

For current expenditure, the rough distinction between personnel cost, public consumption and transfer payments from Figure IV-2 can be refined by using more detailed categories (see Figure IV-11).

\textbf{Current Expenditure}

\begin{itemize}
  \item \textbf{Personnel Cost}
    \begin{itemize}
      \item Salaries: Regular and \textit{Ad Hoc}
      \item Bonus and Welfare Payments
      \item Forced Labour (incl. Militia)
      \item Expenses
    \end{itemize}
  \item \textbf{Public Consumption}
    \begin{itemize}
      \item Inventory Maintenance
      \item Purchases
      \item Services
      \item Rent and Lease
    \end{itemize}
  \item \textbf{Transfer Payments}
    \begin{itemize}
      \item Welfare: Contributions and Subsidies
      \item Deductions
    \end{itemize}
\end{itemize}

\textit{Figure IV-11: Categories for Current Expenditure}

\textsuperscript{522} It is not clear how large a proportion of land rents had a fixed amount, but this was probably the majority.
\textsuperscript{523} HLS (2002), article \textit{Feudallasten}.
\textsuperscript{524} See the discussion in Section II-3 and in Kloti (1990). The postal lease was 225,000 Bz in 1732 and 450,000 Bz in 1782 (Database).
See Hagnauer (1995): 22-23, who classifies expenses as a category of public consumption. Those welfare payments listed under *Personnel Cost* are only for government personnel.

*Personnel Cost* consists of four sub-categories: salaries; bonus and welfare payments to officials; the (monetary) cost of forced labour; and expenses. *Public Consumption* is whatever the government spent on goods and services to upkeep the running of the state without increasing the public inventory. This includes maintenance, the purchase of goods for immediate consumption and services, as well as payments for rent and lease. *Transfer Payments* were welfare expenses for and inventory value adjustments (deductions).

The distinction between the sub-categories for *personnel cost* is not always clearly specified in the accounts, and has therefore to be considered with a pinch of salt. \(^{525}\) Salaries could be regular and fixed payments, or occur *ad hoc* whenever a specific service was needed. *Ad hoc* salaries include variable components of officeholder remuneration, such as the bailiffs’ share in grain sales (see Section III-6 above). Bonus payments for government employees were also a variable part of salaries; they were paid without specific statutory requirement, depending on the Venner’s goodwill. Bonuses were often granted to recognise specific services or personal hardship. Given the paternalistic nature of the government towards its employees, a distinction between bonuses and welfare payments for its personnel was not always possible; I have therefore combined these two categories. The Bernese accounts also included some expenses for forced labour and – as a special form of this – the militia army. This only covered monetary payments and not the number of days spent, which will be discussed separately in Section IV-5.

*Public consumption* combines expenses for goods and services that only had a short-term impact and therefore did not affect the public inventory. Most importantly, this category excludes all purchases of salt, grain and wine that were categorised as inventory transactions (see next sub-section). On the other hand, the cost of maintaining public buildings and granaries counts towards public consumption. Purchases of goods such as office supplies or food for immediate consumption were

\(^{525}\) Hagnauer (1995) classifies expenses as state consumption, not as personnel cost.
also classified under this heading. When the government paid for services, this counts as public consumption as well, alongside costs for rent and lease.\textsuperscript{526}

Finally, transfer payments were welfare expenses of the state and deductions for any loss in inventory value. Welfare payments took the form of contributions towards other political institutions – states or communes for instance – or subsidies, which were payments towards individual families. Hence the meaning of ‘subsidy’ is slightly different from the current understanding as a monetary assistance to support specific firms or industries. In an economy where the family was not clearly distinguished from its economic activities, subsidies were only geared towards a specific industry in exceptional circumstances; they were more an issue of welfare policy.

Figure IV-12 gives an overview of the empirical incidence of these categories.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure12.png}
\caption{Current Expenditure by Category}
\end{figure}

Source: Database, current expenditure. See also Table IV-5 for a more detailed breakdown.

The greatest amount of expenditure was related to personnel costs, and within that overwhelmingly to regular salaries. Expenditure for the militia increased dramatically from 1732 to 1782. This is related to the dispatch of troops to Geneva, for which the militia was compensated.\textsuperscript{527} If all transactions that explicitly refer to this event are excluded, expenses for the militia increased by less, but they still more than doubled (+105.1%). Current purchases by the government were also relatively large, while welfare payments were not important. The Bernese state spent about as much for the upkeep of its buildings as it did on poverty relief. I will only comment on a few sub-categories from the detailed breakdown of current expenditure shown in Table IV-5.

\textsuperscript{526} These rents – defined as the cost for using property – are different from feudal rents, such as the land rents discussed under current revenue.

### PERSONNEL COST

<table>
<thead>
<tr>
<th></th>
<th>1732 (in Bz)</th>
<th>in %</th>
<th>1782 (in Bz)</th>
<th>in %</th>
<th>Δ (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries</td>
<td>4,958,392</td>
<td>34.6%</td>
<td>8,022,221</td>
<td>37.0%</td>
<td>61.8%</td>
</tr>
<tr>
<td>Regular Salaries</td>
<td>3,729,968</td>
<td></td>
<td>5,752,363</td>
<td></td>
<td>54.2%</td>
</tr>
<tr>
<td>Ad Hoc Salaries</td>
<td>886,638</td>
<td></td>
<td>1,524,715</td>
<td></td>
<td>72.0%</td>
</tr>
<tr>
<td>Bonuses</td>
<td>341,786</td>
<td></td>
<td>745,143</td>
<td></td>
<td>118.0%</td>
</tr>
<tr>
<td>Bonuses and Welfare</td>
<td>133,426</td>
<td>0.9%</td>
<td>225,331</td>
<td>1.0%</td>
<td>68.9%</td>
</tr>
<tr>
<td>Welfare*</td>
<td>121,317</td>
<td></td>
<td>78,455</td>
<td></td>
<td>-35.3%</td>
</tr>
<tr>
<td>Other Salaries (unspec.)</td>
<td>12,109</td>
<td></td>
<td>146,876</td>
<td></td>
<td>1112.9%</td>
</tr>
<tr>
<td>Forced Labour</td>
<td>93,961</td>
<td>0.7%</td>
<td>1,683,366</td>
<td>7.8%</td>
<td>1691.6%</td>
</tr>
<tr>
<td>Corvee Labour</td>
<td>58,143</td>
<td></td>
<td>53,022</td>
<td></td>
<td>-8.8%</td>
</tr>
<tr>
<td>Militia</td>
<td>35,818</td>
<td></td>
<td>1,630,344</td>
<td></td>
<td>4451.7%</td>
</tr>
<tr>
<td>Expenses</td>
<td>698,782</td>
<td>4.9%</td>
<td>2,154,104</td>
<td>9.9%</td>
<td>208.3%</td>
</tr>
</tbody>
</table>

### PUBLIC CONSUMPTION:

<table>
<thead>
<tr>
<th></th>
<th>1,243,476</th>
<th>8.7%</th>
<th>1,289,514</th>
<th>5.9%</th>
<th>3.7%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building Maintenance</td>
<td>851,285</td>
<td>926,412</td>
<td>8.8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Road Maintenance</td>
<td>281,138</td>
<td>47,309</td>
<td>-83.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grain Maintenance</td>
<td>41,044</td>
<td>54,849</td>
<td>33.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Maintenance (Movables)</td>
<td>70,009</td>
<td>260,944</td>
<td>272.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purchases</td>
<td>3,986,083</td>
<td>27.8%</td>
<td>4,972,866</td>
<td>22.9%</td>
<td>24.8%</td>
</tr>
<tr>
<td>Construction Goods</td>
<td>174,101</td>
<td>62,514</td>
<td>-64.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy (Heating, Light)</td>
<td>292,739</td>
<td>154,704</td>
<td>-47.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foodstuffs</td>
<td>614,137</td>
<td>1,415,680</td>
<td>130.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Armament</td>
<td>160,712</td>
<td>86,786</td>
<td>-46.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salt</td>
<td>2,516,817</td>
<td>2,911,015</td>
<td>15.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Purchases</td>
<td>227,577</td>
<td>342,167</td>
<td>50.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Services</td>
<td>1,188,542</td>
<td>8.3%</td>
<td>776,102</td>
<td>3.6%</td>
<td>-34.7%</td>
</tr>
<tr>
<td>Transport</td>
<td>607,177</td>
<td>313,193</td>
<td>-48.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commercial Services</td>
<td>235,163</td>
<td>26,707</td>
<td>-88.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Services</td>
<td>346,202</td>
<td>436,202</td>
<td>26.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rent and Lease</td>
<td>30,269</td>
<td>0.2%</td>
<td>55,507</td>
<td>0.3%</td>
<td>83.4%</td>
</tr>
<tr>
<td>Other Consumption</td>
<td>127,538</td>
<td>0.9%</td>
<td>14,844</td>
<td>0.1%</td>
<td>-88.4%</td>
</tr>
</tbody>
</table>

### TRANSFER PAYMENTS

<table>
<thead>
<tr>
<th></th>
<th>982,083</th>
<th>6.8%</th>
<th>1,613,676</th>
<th>7.4%</th>
<th>64.3%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welfare</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contributions</td>
<td>422,454</td>
<td>711,027</td>
<td>68.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subsidies</td>
<td>559,629</td>
<td>902,649</td>
<td>61.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deductions</td>
<td>901,064</td>
<td>6.3%</td>
<td>817,744</td>
<td>3.8%</td>
<td>-9.2%</td>
</tr>
<tr>
<td>Grain and Wine Deductions</td>
<td>628,322</td>
<td>680,025</td>
<td>8.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shared Revenues</td>
<td>155,064</td>
<td>122,447</td>
<td>-21.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discounts (Rebate)</td>
<td>86,297</td>
<td>10,883</td>
<td>-87.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss on Bills of Exchange</td>
<td>31,381</td>
<td>4,389</td>
<td>-86.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Transfer Payments</td>
<td>4,564</td>
<td>0.0%</td>
<td>85,494</td>
<td>0.4%</td>
<td>1773.2%</td>
</tr>
<tr>
<td>TOTAL Current Expendit.</td>
<td>14,348,180</td>
<td>100%</td>
<td>21,710,769</td>
<td>100%</td>
<td>51.3%</td>
</tr>
</tbody>
</table>

*) Welfare Payments for Government Officials only

Table IV-5: Detailed Breakdown of Current Expenditure, in Bz and %

Source: Database, current expenditure. Δ % stands for a relative change between 1732 and 1782.

Overall, the Bernese state spent 53.3% more on regular salaries in 1732 than in 1782. This figure can be qualified in several respects. As explained above (Section II-7), the government paid its employees in both money and kind to balance out price fluctuations for foodstuffs. In 1732, 54.3% of all regular salaries were paid in...
monetary units, the rest in grain (35.5%) and wine (10.4%). The 1782 figures are 66.8% (money), 28.0% (grain) and 6.9% (wine). Determining how much of this increase in salary payments is due to a loss in purchasing power of the Batzen is difficult. If we isolate their grain component, salaries increased by 21.7% (measured in Batzen). When measured in price-adjusted weight, the figure actually fell by 6.2%. The salary component paid in wine also increased by 1.9% when measured in Batzen and declined by 18.2% when measured in litres. The monetary component of salaries increased by 88.6% over the period. This is more than the inflation rate for grain or increases in construction worker salaries (see Section IV-2). If we divide total salary expenditure by the mean daily wage of a construction worker, the state-employed earned the equivalent of 489,789 daily wages in 1732, and 611,156 in 1782. In other words, there was an overall increase in salary payments by the Bernese state. This can be explained by above-average growth of officeholders’ salaries or a larger number of people working for the state. The latter seems more plausible, but for a lack of full government employee lists, this cannot be quantified any further. A functional breakdown of these salaries will be discussed in the next section.

**Maintenance costs** went mostly towards the upkeep of government buildings (68% in 1732, 72% in 1782). One problem is that maintenance was not clearly distinguished from new building activity. Even the research of Hans-Anton Ebener on building by the Bernese state does not provide a reliable breakdown of how important the two were in relative terms. From Table IV-5, it looks as if road maintenance declined, although this might be because this category was not always specified as such. Road maintenance and -building were largely delegated to communes, which covered it in the form of cash and forced labour (*Tagwerk*). Hence, the maintenance cost is likely to be under-represented in government accounts. The maintenance of movables was relatively less expensive.

For contributions, it would be interesting to distinguish between different recipients of Bernese contributions, but a detailed breakdown is not available. Most important were probably those to communes within the canton, but other Swiss cities

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528 The respective inflation rates are 60.9% (grain) and 22.9% (construction worker salaries). See above, Section IV-2
529 Ebener (1999). While he distinguished between new building and maintenance, he does not provide conclusive figures comparing the two.
531 These costs were mainly for grain maintenance. Grain had to be sieved and aired regularly when stored over long periods of time.
and states received donations as well, as did places overseas. As far as information is available, subsidies were payments in support of victims of fires (17% in 1732 / 4% in 1782), invalids (11% / 14%), students (13% / 14%) and widows (4% / 2%). This result does not allow testing for Erika Flückiger Sterebel’s hypothesis that families with many children emerged as a new category of support-worthy poverty. These cannot be separated from others in my classification.

The main deductions were for weight loss of the public granary discussed above (Section II-7 above). For wine, a similar allowance was made. Further deductions included third-party shares in revenue, which ranged from fixed quotas for informants in criminal proceedings (Verleider) to the division of land rents with communes, noblemen or other states. The Bernese government also allowed rebates on outstanding taxes, duties or rents in case of financial hardship. These were recorded in the accounts as deductions. Finally, losses on bills of exchange were classified in this category as well. They were not very important quantitatively, however.

Inventory Transactions and Comparison to Other States

This section only provides a rough overview of relative changes in the inventory in 1732 and 1782. For these transactions, a long-term view is more accurate (see previous chapter). It is possible to discuss revenue in tandem with expenditure because they both followed similar categories (see Figure IV-13).

![Inventory Transactions Diagram](image)

Figure IV-13: Categories for Inventory Transactions

---

532 55% (1732) and 65.5% (1782) of subsidies could not be classified.

533 See Flückiger Strebel (2002): 69-76 and Tab. 26. Her results are based on the number of observations, not the amount of the subsidy.
Loans and Public Debt mirror each other as increase and decrease of the state’s financial position and could therefore be combined. On a conceptual level, however, the distinction between the state acting as lender or borrower is significant. As in the previous chapter, a deposit to the cash reserve (increase) should be classified as expenditure, a withdrawal (reduction) as revenue. The empirical results for the years 1732 and 1782 are shown in Figure IV-14.

![Figure IV-14: Inventory Transactions by Category](image)

Source: Database, inventory transactions. See also Table IV-6. Public Debt was not included (value = 0). A monopoly rent has been deducted from the proceeds of salt sales. Grain and wine sales were excluded because they were net transactions (see Section IV-2).

The most important inventory transaction in 1732 was the sale of the county of Castelen in Argovia from Barons Döringenberg and Riedesel, for which Bern paid 90,000 Thaler (2.7m Bz).\(^{34}\) This purchase was funded by taking 22,000 gold coins (Dublonen) from the cash reserve. In the same year, the government invested heavily in bonds issued by the Vienna City Bank (see Chapter V). Inventory transactions in 1782 were marked by a reduction in the government’s salt inventory. At the same time, the state offered domestic loans on a large scale, of which over half were recorded in the Welsch-Standesrechnung.\(^{35}\) This was part of the increase in domestic loans discussed above (Section III-5). A detailed breakdown of inventory transactions is shown in Table IV-6.

\(^{34}\) Feller (1955): 475.

\(^{35}\) It is possible that these loans were in connection with the deployment of troops in the region, which were on their way to Geneva.
## Table IV-6: Detailed Breakdown of Inventory Transactions

Source: Database (see Figure IV-8). See also Figure IV-14. $\Delta R (\Delta E)$ stands for a relative change in revenue (expenditure) from 1732 to 1782.

Overall, the Bernese state had made net investments of 0.7m Bz (1732) and 2.3m Bz (1782). The most remarkable fact is that none of this was financed through borrowing.

Combining all the information on factual redistribution, we can compare the financial structure of the canton of Bern with that of other states, for which data is available from the European State Finance Database.\textsuperscript{536} I will only focus on a small number of comparative cases here; additional figures are provided in the appendix (Section VII-19). For Figure IV-15, Bern’s expenditure were re-classified to be comparable.

\textsuperscript{536} ESFDB and Bonney (1995c); Körner (1995a).
Figure IV-15: Bernese Expenditure Compared to Other European States

Sources: Database (for Bern figures); ESFDB and Körner (1995a). The full list of Körner’s data is represented in Figure VII-15 in the appendix.537

As expected, the Bernese structure of expenditure is most similar to the other two Swiss cantons in the sample group, Basel and Lucerne. Both the latter states were also territorial city republics, albeit on a smaller scale than Bern. When compared to other European states, Bern has by far the largest share of investments in its budget, and its proportion of public works was also high. The most noticeable difference is the small proportion of security expenditure, as well as the absence of any debt servicing costs. These features are similarly shared with the other two Swiss states.

This comparison to European states also sums up the most important findings of my analysis of factual redistribution. The canton was not burdened by heavy military expenditure or a large national debt. Instead, it leveraged on its assets which generated healthy profits, enabling the state to keep its income from taxation relatively low. Bern made a profit on its current transactions, which it then invested in financial claims and property. Current revenue came mainly from salt trade, interests

537 In his text, Körner also includes figures from Bern, which are based on the General-Bilanzen (see Section III-4 above).
and tithes, plus increasingly from indirect taxes. Roughly a third of current expenditure was used for salaries, another quarter for salt purchases; the rest was divided amongst a multitude of expenses. For an in-depth analysis of the state’s investments, the long-term view that was presented in Chapter III is more suitable.

IV-4 Functional, Sectoral and Regional Redistribution

Results of the factual analysis of the Bernese financial structure can be qualified by considering the other dimensions of fiscal redistribution outlined in Section IV-1. In this section, I will first distinguish transactions of the Bernese government by state functions, then analyse the economic sectors involved, and end with the regional dimension based on where revenue and expenditure was recorded.

Functional Redistribution

In addition to the factual consideration about how the state spent its funds, it is worth investigating why they were spent. In modern states, administrative units (ministries) normally have a specialised portfolio and are therefore a reliable indication of state functions. For early modern Bern, this would be difficult since the main administrative units were bailiffs, who carried out a multitude of functions. To analyse the purpose of revenue and expenditure, transactions were therefore categorised according to the major functions that the Bernese state fulfilled.

Such state functions are the outcome of a polity’s main duties as a provider of public goods. Fernand Braudel saw three main obligations of the state: firstly, to implement a Weberian monopoly of legitimate violence; secondly to control, regulate and facilitate economic activities; and thirdly, to play a part in cultural and spiritual life. Following Braudel, one could speak of political, economic and spiritual dimensions of the state, though measuring the achievements of any government along those dimensions should not solely rely on accounting ledgers, but include an analysis of normative sources. The amount of money allocated and expended on each task gives some indication of whether a government actually implemented its stated plans.

538 A breakdown by accounts is therefore more appropriate for regional redistribution, as discussed below. For the multi-tasking of bailiffs, see also Bucher, E. (1944).
To measure how the Bernese state redistributed resources among the different functions it fulfilled, I have chosen a classification which mirrors Braudel's list, although the distinctions are not always clear. Similar to the factual analysis, my categories are based on modern-day public finance, following Stephan Hagnauer.\textsuperscript{540} Redistribution is defined as the difference between inflows (revenue) and outflows (expenditure) to any of the state functions from Figure IV-16 (see also Figure IV-2).

\begin{figure}
\centering
\includegraphics[width=0.5\textwidth]{functional_redistribution.png}
\caption{Functional Redistribution: Categories and Definitions}
\end{figure}

The most problematic category is \textit{General Administration}, which comprises all transactions that could not be categorised more specifically. For example, a bailiff's salary was classified this way because of the numerous functions the officeholder fulfilled. In case of \textit{ad hoc} salary payments, the task was usually specified and the payment could be classified properly. Figure IV-17 shows the functional redistribution for all net transactions of the Bernese state.

\textsuperscript{540} My categories follow Hagnauer (1995), who in turn relies on the \textit{Neues Rechnungsmodell} (see note 368 above). The changes are minimal. In the NRM, \textit{Justice and Police} are combined with \textit{Defence ("Military")} to form \textit{Public Security}; \textit{Environment} and \textit{Traffic} are separate categories. Additions to the NRM are: \textit{Foreign Affairs}, \textit{Religion}, as well as \textit{Domain and Production}. 
Chapter IV: Fiscal Redistribution (Structural Analysis)

Figure IV-17: Functional Redistribution, All Transactions
Source: Database, net transactions. See Table VII-23 in the appendix for details.

At a first glance, for both sample years revenue was less fragmented than expenditure. As expected, most revenue derived from the state function *Finance and Taxation*. Considerable expenditure also arose from the same function. It largely consisted of inventory transactions, as a comparison with current transaction illustrates (Figure IV-18).  

Figure IV-18: Functional Redistribution, Current Transactions only
Source: Database, current transactions. See Table VII-23 in the appendix for details. Please note the different scale form Figure IV-18.

Revenue from the state function *Finance and Taxation* comprised 29.5% (1732) and 25.5% (1782) of interest payments. The only transaction classified as revenue from *Economy* were salt sales. Interestingly, the state function *Domain and Production* was only profitable in 1782 and made a slight loss in 1732. This was caused by large expenditure for salt production in Roche. This should not be overstated, as the state domain almost certainly produced more than what was recorded in the accounts. For example, if wood was directly used for heating, this

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[^541]: The share of inventory transactions for finance and taxation is 92.6% (1732) and 88.6% (1782) for revenue, 94.0% (1732) and 92.5% (1782) of expenditure. The remaining inventory transactions were for defence (purchases and sales of military equipment).
would not always appear in a bailiff ledger. Overall, the state’s entrepreneurial activities (functions *Economy* and *Domain*) represented 29.2% (1732) and 23.2% (1782) of current revenue. If we add the interest revenue their share accounts for 49.9% (1732) and 42.6% (1782). The Bernese state therefore received between four-fifths and half of its current revenue from entrepreneurial activities.

For expenditure, the sharp increase in defence spending is remarkable. This was only partly a structural development and was largely driven by the cost of sending auxiliary troops to Geneva in 1782. If costs with an explicit reference to this event are excluded, defence expenditure still more than doubled (+134%). This figure might include some costs that were in connection with the Geneva expedition without explicit mention. The overall share of defence expenditure (3.8% in 1732, 6.0% in 1782) is remarkably low when compared to the figures of other European states, where this was often by far the most important post in the budget (see Figure IV-15 and Figure VII-15). As will be discussed later on, the Bernese figures underestimate forced labour that went to the militia army (see Section IV-5).

In addition to analysing functional re-distribution, a breakdown by state function for specific categories of transactions – in other words, functional distribution – can provide further insights in the nature of the Bernese state. Sometimes such a breakdown is of little use, as in the case of tithe payments, which are by definition classified as *Finance and Taxation*. The following analysis focuses therefore on transactions that covered a broader range of state functions, such as personnel cost (see Figure IV-19).

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**Figure IV-19: Functional Distribution of Personnel Cost**

542 The 1782 figure excludes defence expenditure for the Geneva expedition. If they are included, the figure is 13.2%, which is still very low.

543 For example, eighteenth-century Prussia spent 70-80% of its budget on defence; the situation in Britain is not very different, once interest payments for the national debt – which in itself was the result of warfare – are included: For Prussia: Körner (1995a): Fig. 62 (425). For Britain: Mann (1988); O’Brien/Hunt (1999). See also the comparative numbers in Mann (1986-1993), Vol. 2, Tab. 4.4 (373).
Chapter IV: Fiscal Redistribution (Structural Analysis)  

As for the previous graph, the value for 1782 is skewed towards defence. For the other personnel cost, it went mostly to administration (which includes the salaries of government officials) and the state-employed clergy. The increase in judicial salaries can be explained by the establishment of the *Marechausee*, a forerunner of a professional police force. For a further breakdown of these personnel costs into regular, bonus and *ad hoc* payments, the results are shown as percentages because of the large differences in absolute numbers (see Figure IV-20).

![Figure IV-20: Functional Distribution of Personnel Cost, Further Breakdown](image)

While the categories I have proposed should be applied with some reservations because of limitations that were mentioned earlier, some insights can be obtained. The administration’s share in bonuses was larger than for regular salaries, while the clergy obtained relatively less. The large proportion of *ad hoc* salaries spent for finance consisted mostly of payments towards officials for their share in grain sales and other government revenue. Judiciary and police work had changed from an activity remunerated on an *ad hoc* basis to a regular, salaried profession.

The functional breakdown of property maintenance can be used as a proxy for the cost of infrastructure. My figures are comparable to those of Hans-Anton Ebener, who investigated the state’s building activities with a sample of bailiff accounts.\(^{544}\)

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\(^{544}\) Ebener (1999): ch. 8 (esp. table 4.11). His exclusion of institutions results in a difference in the share of expenditure for the function *Domain*. Ebener’s figures are (in %, 1730s/1780s): Education...
Figure IV-21: Functional Breakdown of Property Maintenance Cost

Source: Database, Expenditure for Property Maintenance (excluding movables).

In 1782, the state spent less on maintaining its general-purpose buildings than fifty years earlier, whereas the cost of production facilities and the state domain increased. The latter was mainly due to expenses for the salt mines in Roche. Government expenditure on maintaining religious property was mostly for vicarage buildings, for which the state was responsible. The upkeep of churches was left to parishes; the state occasionally contributed towards major expenses. The increasing maintenance cost of buildings with a financial function was a result of the multiplication of public granaries in the second half of the century. This might be partly overstated by the fact that previously, granaries had been considered part of general public administration; with their increase, they were recorded as separate entities.

Sectoral Redistribution

The structural composition of an economy is both a function and a determinant of its growth. Analysing this structure can provide clues about the stages of development of an economy and its potential to grow. There is no statistical information on how important the three main sectors agriculture, industry and services were in terms of output and employment in eighteenth-century Bern. Such data would enable a comparison between the distribution of incomes before and after taxation. As it stands, an analysis of fiscal redistribution is limited to considering how sectors contributed to government finance and benefited from it.

0.2/3.2; Domain 0.7/5.9; Finance 4.5/8.9; Judiciary 0.6/2.2; Defence 0.6/0.5; Religion 45.8/39.5; Welfare 0.0/0.2; Environment 3.3/1.6; Admin 42.6/37.6, unspecified 1.7/0.1.
Ideally, a breakdown of economic sectors would follow the four-digit Standard Industrial Classification (SIC) used in contemporary statistics. In reality, applying this system to early modern times on a one-to-one basis is both impossible and misleading. It is impossible because primary documents often did not record economic activities accurately. It is misleading because most economic actors were engaged in more than one category and could have seasonally changing occupations. Also, the economy as a whole was less specialised. Data problems are a further obstacle to the use of more sophisticated classifications, such as the dual-economy model by Arthur Lewis, which distinguishes between a dynamic market-oriented and a subsistence sector.\footnote{Lewis (1954); Lewis (1955). For Switzerland, see Bernegger (1990).}

For my empirical analysis of sectoral redistribution, I have adapted a simplified sector model that takes into consideration the distinct characteristics of early modern, pre-industrial economies. It broadly follows modern classification, based on the breakdown by the Swiss Federal Office of Statistics.\footnote{Bundesamt für Statistik (1985),} For the adaptation to the situation of an eighteenth-century economy, I have relied on Stephan Hagnauer’s work.\footnote{Hagnauer (1995), ch. 6.} The resulting breakdown of categories is shown in Figure IV-22. Sectoral redistribution is defined as the difference between revenue from a sector and expenditure for it. The categories are most detailed for industry, where different crafts and industries were quite clearly distinguished in the records. A further breakdown of agriculture by activity into cattle farming, grain production or wine growing was not possible with the quality of information from accounting sources. A regional breakdown by agricultural zones can be used as proxy for agricultural specialisation; this will be discussed in the following sub-section.
The largest segment of the population was engaged in primary production. The secondary sector consisted of craftsmen and those working in proto-industry. The former could – but did not have to – be organised in guilds and enjoy local privileges. The number of artisans and tradesmen (Professionisten) working as blacksmiths, butchers or bakers in the countryside was considerable. With 103 craftsmen per 1,000 inhabitants towards the end of the century, their density in the rural areas was significantly higher than in all German territories for which comparable numbers are known. The canton’s proto-industry was limited to textile production in Upper and Lower Argovia. The tertiary sector consisted of a small number of administrators and tradesmen, whose numbers are not known. They ranged from city-based wine merchants and bankers to itinerant hawkers. The only attempt to quantify sectoral distribution is from Christian Pfister, who has analysed occupational information from the 1798 government census for a sample of 12 counties. The data has important limitations, as far as it only considers full-time employment of males who took an oath on the new constitution. According to this...
estimate, 54% were active in the primary, 37% in the secondary and 9% in the tertiary sector.551

It is impossible to categorise all revenue and expenditure of the Bernese state because the identification of the economic sector in which a transaction took place was not a major concern of early modern governments. If any information on this was recorded, it was by accident rather than intentionally. It was possible to determine the economic sector for 83.3% of all transactions in my database for 1732 and 89.6% for 1782. However, they only cover 69.5% (1732) and 73.8% (1782) of values. This is because state activities for which the economic sector was either not recorded or did not matter involved large sums. For loan transactions (including interest payments) and salt sales in particular, the payer or recipient was not recorded systematically. When occupations appear in the accounts, they are frequently intended as homage ('baker master John Smith') or to describe a person ('John Smith, the baker'). In order to avoid a sample bias towards those professions for which the sector was recorded in such manner, I have classified them as non-specified. Among the non-specific categories are subsidies, duties, customs duties (except for transit duties),552 alcohol taxes and direct taxes on property.553 If all records that are non-specific by default are excluded, the share of transactions without sectoral information falls to 2.6% (1732) and 3.0% (1782), covering 16.9% and 11.8% of total transaction value.

The large number of unspecified transactions causes problems, since it is conceivable that they altered redistribution by the state substantially. As a result, the values in Figure IV-23 are only true under the assumption that government revenue from non-specific transactions (salt purchases and financial loans in particular) were not biased in terms of economic sector. Overall, these results for sectoral redistribution confirm the image of Bern as a physiocratic state, based on agricultural production.

551 Pfister, C. (1995): 239. His figure for the primary sector includes those without specific job title (13%).
552 The sector which ultimately bears customs duties can only be established for transit goods, which by definition were only paid for by traders; individuals would not transit goods in the eighteenth century.
553 Grain sales have been excluded from net transactions, as explained in Section IV-2. Loan transactions include interest payments.
I have classified administration as a separate category in Figure IV-23 because of its importance, both quantitatively and in the context of state-building. The primary sector was clearly the main contributor to Bernese state finance, but received little funds in return. Even with the allowance for a large share in unspecified expenditure there was a large net outflow from the primary sector. On the other hand, the main benefactors of the state's transactions were government members and the state administration. This is hardly surprising as a result. Industry also seems to get a larger share of expenditure than its revenue contribution. The results for the service sector are more complex, showing it as a clear beneficiary in 1732 and a net contributor in 1782. When using current transactions alone, the share of unspecified transactions for expenditure declines, and revenue from administration virtually disappear (see Figure IV-24).554

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554 The revenue from administration was mainly repaid loans (arrears) of previous office holders.
Transactions for the primary sector cannot be specified into further categories, but in combination with the factual categories discussed above, some specifications are possible.\textsuperscript{555} Revenue from the primary sector was mostly derived from tithes (49% for 1732, 50% for 1782), land rents (26% and 29%) and production (10% and 15%). By far the most important post for expenditure towards the primary sector was the purchase of movables (65% and 59%). The main product bought by the state was wood, which was used as a building material and for heating. These purchases do not represent the whole wood consumption of the state, since an unknown amount was consumed directly from the state domain forest.

If we use Christian Pfister’s estimate of the number of Professionisten (10% of the total population) as an indicator of the industrial sector’s size, its contributions towards state revenue were small. On the other hand, they obtained slightly more than their share from the state’s expenditure (12.8% in 1732, 10.5% in 1782, including unspecified transactions). Using the 37% estimate from the 1798 census, industry’s share in both revenue and expenditure was below its economic importance.

For the industrial and service sectors, the figures can be specified in more detail (see Table IV-7).

<table>
<thead>
<tr>
<th>Sector</th>
<th>1732 Revenue</th>
<th>1732 Expenditure</th>
<th>1782 Revenue</th>
<th>1782 Expenditure</th>
<th>Δ R (%)</th>
<th>Δ E (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIMARY SECTOR</td>
<td>5,830,982</td>
<td>398,141</td>
<td>9,534,182</td>
<td>387,008</td>
<td>63.5%</td>
<td>-2.8%</td>
</tr>
<tr>
<td>SECONDARY SECT.</td>
<td>825,868</td>
<td>1,839,436</td>
<td>665,672</td>
<td>2,284,748</td>
<td>-19.4%</td>
<td>24.2%</td>
</tr>
<tr>
<td>Food</td>
<td>124,726</td>
<td>171,793</td>
<td>74,584</td>
<td>848,880</td>
<td>-27.4%</td>
<td>394.1%</td>
</tr>
<tr>
<td>Textiles</td>
<td>85,091</td>
<td>4,263</td>
<td>202,865</td>
<td>24,086</td>
<td>-95.0%</td>
<td>-23.1%</td>
</tr>
<tr>
<td>Wood Work</td>
<td>233,632</td>
<td>163,288</td>
<td>24,086</td>
<td>24,086</td>
<td>-87.4%</td>
<td>-22.3%</td>
</tr>
<tr>
<td>Graphic Industries</td>
<td>31,302</td>
<td>143,538</td>
<td>691,931</td>
<td>691,931</td>
<td>-100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Chemicals and Mining</td>
<td>684,904</td>
<td>463,288</td>
<td>24,086</td>
<td>24,086</td>
<td>-95.0%</td>
<td>-22.3%</td>
</tr>
<tr>
<td>Metal Industries</td>
<td>243,203</td>
<td>143,538</td>
<td>691,931</td>
<td>691,931</td>
<td>-100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Vehicles</td>
<td>3,374</td>
<td>7,524</td>
<td>123,091</td>
<td>123,091</td>
<td>123.0%</td>
<td>17.0%</td>
</tr>
<tr>
<td>Construction</td>
<td>620,697</td>
<td>691,931</td>
<td>725,931</td>
<td>725,931</td>
<td>-94.3%</td>
<td>-10.3%</td>
</tr>
<tr>
<td>Other Industries</td>
<td>16,238</td>
<td>287,056</td>
<td>257,407</td>
<td>257,407</td>
<td>-94.3%</td>
<td>-10.3%</td>
</tr>
<tr>
<td>TERTIARY SECT.</td>
<td>10,780,762</td>
<td>2,802,821</td>
<td>17,525,625</td>
<td>17525,625</td>
<td>511.4%</td>
<td>62.6%</td>
</tr>
<tr>
<td>Trade</td>
<td>441,548</td>
<td>2,777,715</td>
<td>2,960,589</td>
<td>2,960,589</td>
<td>-84.1%</td>
<td>6.6%</td>
</tr>
<tr>
<td>Hotel and Restaurant Ind.</td>
<td>650</td>
<td>21,478</td>
<td>1705.6%</td>
<td>2105.6%</td>
<td>-100.0%</td>
<td>-100.0%</td>
</tr>
<tr>
<td>Transport</td>
<td>653,580</td>
<td>365,249</td>
<td>29,582</td>
<td>29,582</td>
<td>-94.1%</td>
<td>257.7%</td>
</tr>
<tr>
<td>Communication</td>
<td>8,271</td>
<td>314,767</td>
<td>28.0%</td>
<td>28.0%</td>
<td>-99.8%</td>
<td>95.3%</td>
</tr>
<tr>
<td>Other Service</td>
<td>245,831</td>
<td>13,855,438</td>
<td>-99.8%</td>
<td>95.3%</td>
<td>-99.8%</td>
<td>95.3%</td>
</tr>
<tr>
<td>Administration</td>
<td>16,253</td>
<td>7,095,329</td>
<td>16,222</td>
<td>16,222</td>
<td>-99.8%</td>
<td>95.3%</td>
</tr>
<tr>
<td>UNSPECIFIED</td>
<td>10,527,382</td>
<td>1,329,841</td>
<td>12,854,776</td>
<td>1,513,388</td>
<td>22.1%</td>
<td>13.8%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>17,642,629</td>
<td>14,348,180</td>
<td>25,857,451</td>
<td>21,710,769</td>
<td>46.6%</td>
<td>51.3%</td>
</tr>
</tbody>
</table>

Table IV-7: Sectoral Redistribution by Category for Current Transactions

Source: Database, current transactions. Δ R (Δ E) stands for a relative change in revenue (expenditure) from 1732 to 1782.

\textsuperscript{555} This was done via crosstab queries in the database. The detailed results are not shown.
Chapter IV: Fiscal Redistribution (Structural Analysis)

There was redistribution even within the secondary sector. Chemicals and mining were the most important contributors to the government's revenue. Production from the salt mines of Roche was responsible for 83% (1732) and 86% (1782) of industrial revenue, the rest came from payments for privileges. The lion's share of government funds towards industry went to construction and related industries, such as wood work and metal. This is confirmed by the fact that a large portion of the outflows to the industrial sector (55% in 1732 and 41% in 1782) went to construction and maintenance. Other industrial expenditure was for armaments (26% and 18%) and products of the food industry (7% and 28%). These were purchases made by the state's hospitals and charitable institutions.

Virtually all revenue from the service sector came from trade. In 1732, most trade revenue were payments for privileges (41%), followed by transit duties (34%) and loans (20%). By 1782, the share of transit duties (47%) surpassed that of privilege payments (14%) and loans (13%) by far. This sharp increase reflects the introduction of new transit duties discussed above. Even the raising income from the hotel and restaurant industry is related to this, since it was mainly caused by a privilege payment from an inn connected to the customs office in Aarwangen. In terms of payments towards the service sector, the share of trade was also high (76% in 1732 and 69% in 1782). The most important single expenditure consisted of salt sales (68% and 79% of all trade expenditure). It can be assumed that a large proportion of expenditure towards the transportation sector (16% and 8%) was caused by salt trading as well.

With these results in mind, the explanation for the change of the service sector from being a net recipient (1732) to a net contributor (1782) of fiscal redistribution becomes clearer. It was a combination of higher revenue from transit duties and increased expenditure for salt purchases which brought about this situation. One important factor of sectoral redistribution can only be considered indirectly. Bern's proto-industry (discussed in Section II-3 above) is conspicuously absent from this section's results. This is not the result of inaccurate data categorisation, but because the sector was hardly taxed at all. Even in the accounts of areas with specialisation in textile production, there were no specific fiscal incomes from this proto-industry.

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556 The industries that paid most of these privileges were in the food sector (mills). Some service providers (inns, taverns, post) also paid for their privileges.

557 Early modern hospitals were less medical institutions than asylums or homes for the elderly.

558 StABE B III 176.
Regional Redistribution

Information on the regional patterns of revenue and expenditure have not been categorised systematically for each transaction, but they can be classified reliably by the account recorded in. In a strict sense, my analysis of regional redistribution is therefore one of redistribution by account. This has the advantage that it also covers financial flows between the government itself (the Treasury) and its agents in the counties (mostly bailiffs). As a downside, transactions that had an effect beyond where they were recorded are not categorised properly. For example, all transactions in the *Standesrechnungen* count towards central revenue and expenditure, even if they were collected or spent in the territory. The amount of mis-specified transactions is likely to be small, however, since in most cases locally handled payments were recorded by bailiffs to whom the centre would transfer funds via *assignation*.\(^{559}\) Another problem is that the database uses a sample of counties which might not represent their region properly (see Section IV-2).

For an analysis of transactions by account we can return to the distinction between A-, B- and D-Types discussed previously (Section III-3 above). C-Type accounts were not included in the database because they did not contribute to the government’s net revenue.\(^{560}\) For D-Type accounts, I have separated bailiff accounts in the counties (\(D_1\)-Types) from institutions within the city of Bern (\(D_2\)-Types).

![Region / Account Type](image)

**Figure IV-25: Categories for Regional Redistribution**

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\(^{559}\) *Assignations* have been excluded from net transactions by definition. See above, Section IV-2.

\(^{560}\) Transfer payments to and from C-Type accounts were classified as revenue.
See Section III-3 above and Section VII-9 in the appendix for details.

Only the territorial accounts can be located geographically. For transactions recorded by the central government or institutions within the city itself, the geographical scope is not clear.\textsuperscript{561} I have distinguished the main agricultural regions following the work by Christian Pfister.\textsuperscript{562} Figure IV-26 shows revenue and expenditure by account with A- and B-Types listed individually, D\textsubscript{1}-Types aggregated by region and D\textsubscript{2}-Types as a category of their own.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure IV-26.png}
\caption{Figure IV-26: Total Net Revenue by Account Type and Region}
\end{figure}

Source: Database, net transactions. For abbreviations, see Figure IV-25.

Only a small part of net transactions were recorded in the \textit{Standesrechnungen}.\textsuperscript{563} The most important sources of revenue were accounts covering the state’s entrepreneurial activities, notably salt trade (SDI) and foreign capital investment (AUS). The geographical distribution of bailiff’s accounts shows that Argovia and Vaud were large contributors, alongside institutions of the city itself (D\textsubscript{2}). The other regions were less important financially.

This result does not necessarily show the flow of funds between different types of accounts, it only represents in which ledger the transactions were recorded. This might be more representative of political power – where decisions were taken and recorded – than of financial redistribution. The results in Figure IV-26 support the hypothesis that the degree of centralisation in Bern was not very high. This argument can be refined by separating current and inventory transactions. Figure IV-27 shows

\textsuperscript{561} It is not clear how far into the territory activities of city institutions reached (they held important tithe rights outside the city); I have therefore excluded them from the regional analysis, rather than considering them as representative for financial activities within the city itself.


\textsuperscript{563} Of course the gross amount of both accounts was much larger, since many of the transactions recorded in the DSR and WSR were transfers which are not included in the net transactions.
the relative distribution by type of account in which transactions were recorded (revenue on the right, expenditure on the left).

![Table and Graph](image)

**Figure IV-27: Relative Share of All, Current and Inventory Transactions by Account Type**

Source: Database, current transactions. D1 are counties, D2 institutions. For the total (absolute) figures of each type of transaction, see Section IV-3.

The data does not allow reliable testing of the hypothesis that money was redistributed from the territory to the city. Regional patterns can only be compared between D1-Type accounts, since these alone formed a homogeneous group from an accounting point of view.564 For current transactions, the share of D1-Type accounts (bailiff accounts) was up to 40%; on the other hand, nearly all inventory transactions were recorded in either A- or B-Type accounts.565 This is a predictable result, since important investment decisions can be reasonably expected to have been taken and recorded directly by the central government, rather than by its representatives in the counties. The result points towards some "skimming off" of current profits made in the territory, which were then invested by central government.

Profitability rates varied enormously between different accounts (see Table VII-18 in the appendix).566 For A- and B-Type accounts with their large and fluctuating inventory transactions, profitability was already discussed in a long-run perspective (see Chapter III). Unsurprisingly, they were also amongst the most profitable accounts of the Bernese state in 1732 and 1782. Considering only the

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564 D1-Type accounts are only homogeneous in accounting terms, not in what they recorded. This makes a comparison possible.

565 The only significant inventory revenue in Type D1 accounts were loan repayments.

566 Summary statistics (1732 / 1782) are: Min -176.48% / 1.20%; Max 75.54% / 334.85%; Standard Deviation: 0.58 / 0.76; Average: -8.86% / -9.86; a mean cannot be calculated with positive and negative values.
current revenue and expenditure, the accounts for foreign funds had profit rates of 86.3% (1732) and 90.2% (1782), salt trade 42.2% and 32.15% respectively. Profit rates from D-Type accounts can more readily be compared with each other, which is done by region in Figure IV-28.

![Figure IV-28: Current Revenue, Expenditure and Profit Rate by Region (D-Type Accounts Only)](image)

Source: Database, current transactions (unweighted) and profit rates. See appendix (Table VII-18) for details.

The emerging regional pattern is inconsistent. Argovia accounts were profitable in both sample years, Vaud only in 1732, Seeland in 1782. The Oberland was spending more than its current revenue in both sample years. These results might not be representative for their regions because all figures are based on a sample of five ledgers per county. For the further analysis of regional differences, I will only consider current transactions. The distribution for inventory transactions (not shown) is virtually identical, with the sole difference that in 1782 Vaud’s share in all transactions was slightly higher; in other words, Vaud profited from higher investments in this year. This was related to an increase in the domestic loan portfolio (see Section III-5 above).
Transactions in Vaud made up for roughly two-fifths of the total and in Argovia about one-fifth. I have also weighted these figures by the relative share of the total population living in each region, based on the 1764 and 1798 censuses. This relies on the – admittedly slightly unrealistic – assumption that relative population distribution did not change between 1732 and 1764. The figures should therefore be considered rough estimates only. Since transactions in kind were relatively important in D2-Type accounts, Table IV-8 shows values in Bz and stable grain prices (row 1782*). 568

<table>
<thead>
<tr>
<th></th>
<th>Argovia</th>
<th>OberAG/E.</th>
<th>Oberland</th>
<th>Seeland</th>
<th>Vaud</th>
</tr>
</thead>
<tbody>
<tr>
<td>1732</td>
<td>18.38</td>
<td>19.95</td>
<td>13.77</td>
<td>14.92</td>
<td>17.72</td>
</tr>
<tr>
<td>1782</td>
<td>33.11</td>
<td>17.21</td>
<td>8.88</td>
<td>23.46</td>
<td>25.98</td>
</tr>
<tr>
<td>1782*</td>
<td>27.14</td>
<td>11.47</td>
<td>5.47</td>
<td>15.26</td>
<td>20.94</td>
</tr>
</tbody>
</table>

Table IV-8: Estimated Revenue per Capita Recorded in D1-Type Accounts by Region (in Bz)

Not only is there a marked regional difference in the level of revenue per head, the developments also vary substantially. For 1732, differences were relatively small. But while locally recorded revenue per capita more than doubled in Argovia and grew considerably in Seeland and Vaud, it stagnated in Oberaargau/Emmental and declined sharply in Oberland. The relative order of regions changed as well, with

567 Raw data from Bernhist [Pfister, C. (1995)]; HLS (2002), article Bern: 267; and Schluchter (1988). I have applied the 1764 distribution for the 1732 figures, and a medium distribution (calculated as the mean of the 1764 and 1798 distributions) for the 1782 figures.

568 I have discounted all transactions recorded in grain by the overall mean grain inflation rate. This is less precise than discounting for each grain type separately.
Oberaargau/Emmental falling from the highest revenue per capita in 1732 to a value below that for all other regions except Oberland in 1782. With grain inflation corrected for, the value for Seeland is stable, Argovia and Vaud increase, Oberaargau/Emmental and Oberland fall. These divergences can partly be explained by the fact that a lot of state revenue was not directly dependent on the number of subjects and was instead levied on objects. If population is kept stable at the 1798 level, then there are still noticeable differences in level, but less in relative change.\textsuperscript{569}

It would be incorrect to understand the figures in Table IV-8 as total revenue per capita for each county; they only show what was recorded locally. Contributions of locals towards revenue recorded in central accounts are not included. I will discuss the fiscal burden per capita in the next section (IV-5).

We can also consider regional differences in terms of the nature of transactions. For this, I have focused on the most important categories for revenue from above, which are shown in Figure IV-30. They are tithes (grain and others); taxes (excluding tithes); interests; land rents; other rents; and all the remaining current revenue.

For all regions, \textit{Grain Tithes} were the most important single category, usually followed by \textit{Land Rents}. The situation in Vaud was notably different, with \textit{Other Taxes} playing an important role. These were handover taxes levied on property transactions (\textit{Lods}). The 1782 \textit{Other Revenue} consisted almost exclusively of an

\textsuperscript{569} With 1764 population figures applied to both years, the results are for 1732 / 1782: AG 17.98 / 37.99; OAE 18.51 / 26.32; OBE 13.47 / 15.99; SEE 14.60 / 20.79; VD 17.34 / 20.23 (all in Bz).
increase in wine production in the counties of Nyon and Romainmôtier. This might not have been a real increase, but the result of a different accounting technique in which wine production was recorded more accurately and not in combination with wine tithes (note the sharp decrease in wine tithes).

Expenditure also differed regionally in both sample years, as illustrated in Figure IV-31.

**Figure IV-31: Relative Share of Current Expenditure in D₁-Type Accounts by Region**

Source: Database, current revenue of D₁-Type accounts. *Other Pers.* is for personnel cost other than regular salaries; *Other (Consumption)* includes all remaining current expenditure, mainly government consumption.

Personnel costs were usually about two-fifths of all current expenditure except in Vaud, where their share was almost two-thirds in both sample years. The high amount of *ad hoc* payments in Vaud in 1782 might be related to the military expedition to Geneva. This category also included the bailiff’s share in revenue, *Lods* and grain sales in particular. Unfortunately, the data does not allow us to differentiate between the portion of personnel costs which were paid to locals and what went towards Bernese patricians. Therefore, any statements about the redistribution of resources towards patricians is purely speculative.

This section has analysed fiscal redistribution in Bern in terms of state function, economic sectors and regions. The results confirm and qualify what was said about factual redistribution earlier. Regarding state functions, unsurprisingly most of the canton’s revenue was generated by finance and taxation, but there was an important
entrepreneurial component as well. Expenditure covered a broad array of functions, which is particularly noticeable in comparison to other European states spending most on defence. In sectoral terms, redistribution occurred from the primary to the tertiary sector, in particular to administration. With a lack of reliable data on the relative size of sectors in the economy, it is difficult to explore which parts of the economy contributed more than their 'fair share' to government revenue. The regional analysis has confirmed that most investment transactions were recorded by central government accounts discussed in the previous chapter. For locally recorded revenue, there were important regional differences in both level and development. Argovia, Vaud and Seeland had higher per capita revenue which grew over time, while Oberaargau/Emmetal revenue stagnated; the already low Oberland revenue fell. Evidence on differences in profitability by region is inconclusive.

IV-5 The Fiscal Burden and Militia Transactions

This section is dedicated to two issues that are directly related to the analysis of fiscal redistribution in the previous sections. First, I will discuss the fiscal burden on the Bernese population in more detail, relying on the classifications made above. In the second part of the section, I will include estimates for the militia as a 'hidden tax' that should be added to the fiscal burden.

The Fiscal Burden

With all categories fully explained, I will now analyse the fiscal burden of Bernese taxpayers in more detail. As a cautionary note on such calculations, Juan Gelabert has rightly pointed out how inaccurate the idea of an average taxpayer is for early modern times.\(^\text{570}\) Even today it is difficult to define what 'average' stands for. The situation was worse in early modern economies because taxes were deliberately discriminating by legal status. For example, inhabitants of the city who were not citizens paid special fees for residency. Alcohol taxes, on the other hand, were only levied in the city and not throughout the territory. There were no personal exemptions, but wine was taxed when consumed by the jar and not when it was traded in barrels. The situation in early modern states is further complicated by the

fact that many taxes were not personal in character, but levied on objects or transactions. The most important of them all, the tithe, fell on agricultural returns on certain plots, but only when specific types of grain were cultivated regardless by whom. As the ‘average taxpayer’ is an abstract and artificial concept, so too is the ‘average tithe-payer’ an even greater abstraction from reality. When analysing the fiscal burden of Bern’s population, it is crucial to keep in mind how limited such an approach is. The incidence of taxation could differ significantly between groups of population. Calculating average figures can only be used as a proxy for reality, but it is the only way of making meaningful comparisons between states and across time.

I define the fiscal burden as all current government revenue that was not directly from commercial activities. This notably excludes proceeds from salt sales, except for the percentage classified as monopoly profit, which counts as indirect tax. It also excludes revenue from interest payments. Overall, the fiscal burden was 27.4% of total revenue in 1732, 38.8% in 1782. This is equivalent to 39.8% (1732) and 48.1% (1782) of net revenue. For Table IV-9, I have calculated the tax burden (only direct and indirect taxes) and as well as the fiscal burden. The results are in Batzen, metric units of silver and a percentage of total revenue.

<table>
<thead>
<tr>
<th>Fiscal Burden</th>
<th>Total</th>
<th>per Capita</th>
<th>Share of Total Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Million Bz</td>
<td>Silver (tons)</td>
<td>Bz</td>
</tr>
<tr>
<td></td>
<td>1732</td>
<td>1782</td>
<td>1732</td>
</tr>
<tr>
<td>of which: Taxes</td>
<td>6.94</td>
<td>12.46</td>
<td>5.12</td>
</tr>
<tr>
<td></td>
<td>4.52</td>
<td>8.68</td>
<td>3.34</td>
</tr>
<tr>
<td>of which: Tithes</td>
<td>3.58</td>
<td>5.10</td>
<td>2.64</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table IV-9: Fiscal Burden in Bz and Silver
Source: Extended Database, Fiscal Revenue only. Silver prices and population from Section IV-2.

As already discussed above, the ratio of fiscal to total revenue was relatively small, compared to the state’s entrepreneurial activities. Additionally taxes on property were quasi-inexistent in Bern. The fiscal burden per capita increased by 46.7% between 1732 and 1782. The figure for 1732 is the equivalent of 3.6 daily wages of a construction worker, the value for 1782 of 4.4 daily wages. By this measure, the fiscal burden per head increased 19.4%. Using Paul Bairoch’s proxy formula for calculating GDP based on an estimated 200 days of work per year, the

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571 The difference between fiscal revenue and taxation are mostly rents. See Table IV-4 for details.
fiscal quota (government revenue as a share of GDP) in Bern was low, between 1.8% and 2.2%.572

These figures are in line with what Stephan Hagnauer found for a sample of Bernese counties in the 1630s and 1680s, when on average, current revenue per capita was equivalent to 2-3 days' wages.573 They are also similar to Martin Körner’s results for Lucerne, where overall state expenditure per capita were 17.3g of fine silver in the 1780s, which is the equivalent of a state quota of 1.6%.574 Comparing the fiscal burden between countries is challenging because of insurmountable difficulties in measurement. Therefore, such comparisons should not be taken at face value; they can only give a rough indication about how heavily the population was taxed. In France, tax revenue per capita in 1730 was the equivalent of 46g of fine silver; by 1770, the value had risen to 69g. French subjects paid twice the amount of the Bernese fiscal burden for taxes alone. When measured in grain, the proportions are similar: the Bernese fiscal burden was equivalent to 30.0 litres of wheat in 1732 and 26.8 litres in 1782, while the average Frenchman paid taxes worth 92.2 litres in 1730 and 84.6 litres in 1770.575 Other comparative figures are from Charles Ingrao, who estimated that in Hesse-Cassel during the reign of Landgrave Frederick II (1760-1785), the per capita fiscal burden fell from an equivalent of 78 Bz to 57 Bz. This was lower than in other German states: 107 Bz in Prussia, 99 Bz in Bavaria, 109 Bz in Baden, 138 Bz in Cologne, and a staggering 162 Bz in Zweibrücken.576 The Bernese values were only a fraction of this.

To calculate the overall fiscal burden, communal levies should be added to state revenue. As discussed in Section II-2 above, the Bernese republic had delegated specific tasks, most importantly poverty relief, to its communes. To fund their expenses, communes levied a variety of taxes, corvée labour and payments in kind, such as the forced housing of destitute community members. A systematic comparison of the fiscal situation across communes is not possible because financial information was not consistently recorded. The Bernese state did not interfere directly

573 Hagnauer (1995): table 42. His figure only represents locally collected revenue, not the contribution of the counties to central revenue.
574 Körner (1981): Table 64. He estimated GDP figures with the Bairoch method (see note 572 above).
575 Figures from ESFDB and Gelabert (1995): 563. Conversions of French taxes are based on figures collected in the ESFDB as well, assuming a bushel of wheat holding 36 litres. For Bernese values, I have used the overall price for wheat from Table VII-12 and Table VII-13.
576 Ingrao (1987): 127. I have proxied his Taler figures with the parity rate of the Reichstaler at 26 Bz (see Section V-1 below).
with communal finance, nor did it collect systematic data about this matter. For specific communes, information on the fiscal burden per capita was collected in Table IV-10. The provenance of the data is discussed in detail in Section VII-20 in the appendix.

<table>
<thead>
<tr>
<th>Commune</th>
<th>Tax (Bz/cap)</th>
<th>Year(s)</th>
<th>Population</th>
<th>Type</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aarberg</td>
<td>5.00</td>
<td>1772</td>
<td></td>
<td>Small City</td>
<td>Daily wage of unskilled labourer</td>
</tr>
<tr>
<td>Worb (Viertelgemeinde)</td>
<td>6.02</td>
<td>1745-1760</td>
<td>768</td>
<td>Village</td>
<td>Net revenue only (11 accounts)</td>
</tr>
<tr>
<td></td>
<td>7.78</td>
<td>1761-1773</td>
<td>772</td>
<td>Village</td>
<td>Net revenue only (12 accounts)</td>
</tr>
<tr>
<td></td>
<td>6.26</td>
<td>1776-1794</td>
<td>1,221</td>
<td>Village</td>
<td>Net revenue only (16 accounts)</td>
</tr>
<tr>
<td>Langnau</td>
<td>6.21</td>
<td>1763</td>
<td>2,894</td>
<td>Village</td>
<td>Poverty relief revenue only</td>
</tr>
<tr>
<td>Menziken</td>
<td>6.40</td>
<td>1773/74</td>
<td>1,098</td>
<td>Village</td>
<td>Without poverty relief (?)</td>
</tr>
</tbody>
</table>

Table IV-10: Communal Tax Burden in Bz per Capita (Yearly Figures)

Sources: Bartlome (1999); Holenstein (2005); Bietenhard (1988); Steiner (1956). The data is discussed in detail in see Section VII-20 in the appendix.

Compared to levies by the state, the communal tax burden was light. It varied both across communes and within the population of the same polity. Usually, cities were better off than their hinterland, and residents without citizenship were taxed heavily. The disaggregated data for the village of Langnau illustrates how much the tax burden changed according to political status, which is another case in point for the inaccuracies of the idea that there existed an ‘average’ taxpayer. In Langnau, landowners’ property was taxed at a rate of 0.05% (for each 7,500 Bz), mobile property at 0.08%. Citizens without landed property paid 0.22%, which should compensate for the fact that they did not provide any poverty relief in kind. Residents (i.e. non-citizens) were taxed at 0.24% and paid an additional flat fee of 75 Bz per year. Of the 530 households in Langnau, only 315 paid taxes. For those, the yearly average was 38.825 Bz, with averages in the different districts ranging from 33.375 to 47.8 Bz. If non-taxpayers are included, the average household paid 23.075 Bz, with a range per district from 19.475 Bz to 27.65 Bz. The commune’s total revenue was 17,985 Bz; citizens contributed 67.8%, the rest came from residents. It is not clear how representative the differences in Langnau are for the rest of the territory. Overall,

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577 For early modern communal finance in the Empire, see Thomes (1994); Thomes (1995); Fouquet (1988).
578 See Bietenhard (1988) for details. His figures include only revenue for poverty relief. For a critique on the concept of the ‘average taxpayer’, see footnote 570 above.
579 If Bietenhard’s error margin is included, the figure rises to a maximum of 340 households.
the information on communal finance is too scarce and unreliable to include it in the
detailed discussion of the fiscal burden.

The figures on the fiscal burden levied by the Bernese state (excluding
communes) from Table IV-9 can be further qualified in several ways. To start, we can
correct for the share of the inactive population. If children and the aged are excluded,
the result is the actual fiscal burden on the economically active. Based on the 1764
census analysed by Christian Pfister, 30% of the population was younger than 16 and
7% older than 60.\footnote{Pfister, C. (1995): Tab. 9.3 (432). His figures are for the canton in its 1980 borders only.}
If we exclude these and assume that part of the 16-60 year old
were not active due to illness, wedlock or other reason, we can proxy their share at
half of the total population.\footnote{The figure of half the population being active is probably a conservative estimate for an economy in
which child labour was common. Excluding women from the active population would be a mistake,
since most of them actively contributed to the economy.} In other words, the fiscal burden on the active
population would be twice as high as the above figure, nearing 7-9 daily wages per
year, or 3.5 to 4.5% of their annual income – which still seems very low.

This figure also puts severe restrictions on the scope for redistribution through
the government, at least when the focus is on overall per-capita figures. The impact of
fiscal redistribution on the overall economy was relatively small. In certain cases –
for example for farmers which paid the tithe on their grain harvest – taxation could be
substantial. The importance of fiscal redistribution was therefore less in its quantity
than its incidence. The other importance of taxation was that implementing levies in
cash could force monetisation of the economy. Peasants were made to sell crops to
pay for such taxes, which ultimately favoured labour division and hence ‘Smithian’
growth. This development towards a monetisation and specialisation of the economy
was undermined if taxes could be paid in kind. For Bern, the number of taxes that
were paid in kind was declining. In 1732, 63% of the fiscal burden accrued in grain,
31% in monetary units, and 6% in wine. By 1782, monetary fiscal revenue (48%) was
larger than in grain (44%), while wine slightly increased its share (7%). In absolute
terms, monetary fiscal revenue grew by 158%, grain revenue by 38% when measured
in Batzen, and wine revenue doubled (+102%). If fiscal grain revenue is discounted
by the mean grain inflation rate, it fell by 16%.

When analysing the fiscal burden by economic sector, it would again be ideal to
compare a pre- and post-tax sectoral distribution, which is not possible with
eighteenth-century data. A sectoral breakdown of fiscal and tax revenue by sector is the only possible proxy.

Unsurprisingly, the primary sector contributed most to Bernese fiscal revenue. The contribution of the secondary sector was almost non-existent, while the share of the tertiary sector increased rapidly from 1732 to 1782 as a result of raised transit duties (discussed above). Christian Pfister has estimated that in the period 1762-1771, a share of 57% of the cereal production in the canton was subject to tithes by the Bernese state. On average, the agricultural sector therefore paid a 5.7% tax to the state ($0.57 \times 10\%$) for tithes alone. This did not represent the entire burden on grain producers, however, since many tithes were due to private landowners, who were often patrician families. Pfister has also calculated that as an overall average, 14-19% of a harvest was used for tithes and rents. This was still much lower than the rough estimates for feudal duties and taxes in the Empire, which range from 22% to 40%.

The regional distribution of the fiscal burden was calculated in Figure IV-33.

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583 Pfister, C. (1975): Table 27/1. On a further 33.2%, tithes were levied by other institutions, such as communes or particulars. With 5.8% of the harvest subject to foreign tith-holders, only 4% of the Bernese harvest were free from taxation through tithes.

Most fiscal revenue was recorded in accounts of institutions that were based within the city. Of the bailiff accounts, Vaud and Argovia contributed most. They were also the most populated. I have corrected for this by calculating per capita fiscal burdens for all D1-Type accounts, based on the population distribution described earlier, and discounted for grain inflation by calculating 1782 figures with deflated prices for grain revenue (row \(1782^\ast\)).

<table>
<thead>
<tr>
<th></th>
<th>Argovia</th>
<th>OberAG/E.</th>
<th>Oberland</th>
<th>Seeland</th>
<th>Vaud</th>
</tr>
</thead>
<tbody>
<tr>
<td>1732</td>
<td>15.28</td>
<td>18.74</td>
<td>11.00</td>
<td>13.18</td>
<td>16.22</td>
</tr>
<tr>
<td>1782</td>
<td>31.63</td>
<td>17.16</td>
<td>8.38</td>
<td>22.58</td>
<td>22.27</td>
</tr>
<tr>
<td>1782*</td>
<td>28.47</td>
<td>14.09</td>
<td>5.56</td>
<td>18.79</td>
<td>19.00</td>
</tr>
</tbody>
</table>

Table IV-11: Locally Collected Fiscal Revenue per Capita by Region (in Bz)

Strictly speaking, Table IV-11 does not show the total fiscal burden for each region, but the part of it that was locally recorded. The figures can only be compared under the assumption that all other fiscal revenue was equally distributed. The relative regional distribution looks similar to total revenue per capita, discussed above (see Table IV-11). Fiscal revenue increased in Argovia, Vaud and Seeland and declined in Obaraargau/Emmental and Oberland. By 1782, Argovians carried by far the highest fiscal burden, followed by Vaudois and Seelanders. The inhabitants of Oberland, on the other hand, only contributed little towards Bernese fiscal revenue. In Obaraargau/Emmental, fiscal revenue per capita declined over the period.

For grain tithes as one of the most important source of revenue of the Bernese state, it is worth considering the regional distribution in absolute terms as well. Institutions in the city collected 35% (both 1732 and 1782) of total tithe revenue for the state. The league table for tithes by region shows Vaud on top (22% and 24%), followed by Obaraargau/Emmental (13% and 14%), Argovia (12% and 12%),

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585 The fact that in some instances fiscal revenue per capita seems higher than overall revenue per capita in Table IV-11 is caused by the use of a mean inflation rate for grain. This can overstate overall inflation if the true inflation rate was lower than the mean.
Seeland (13% and 11%), and Oberland (4% and 5%). These figures seem consistent with Christian Pfister's figures for tithe revenue measured by weight. With the population distributions taken into account, Table IV-12 shows tithes paid per inhabitant for each region. Since tithes were not levied on people but on land, I have also included tithe revenue per surface of arable land.

<table>
<thead>
<tr>
<th>Per Capita</th>
<th>Argovia</th>
<th>OberAG/E.</th>
<th>Oberland</th>
<th>Seeland</th>
<th>Vaud</th>
<th>Bern**</th>
</tr>
</thead>
<tbody>
<tr>
<td>1732</td>
<td>5.94</td>
<td>9.24</td>
<td>5.44</td>
<td>8.18</td>
<td>6.09</td>
<td>34.16</td>
</tr>
<tr>
<td>1782</td>
<td>8.18</td>
<td>10.22</td>
<td>4.88</td>
<td>12.17</td>
<td>8.74</td>
<td>32.88</td>
</tr>
<tr>
<td>1782*</td>
<td>4.98</td>
<td>6.22</td>
<td>2.97</td>
<td>7.41</td>
<td>5.33</td>
<td>20.03</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Per Hectar</th>
<th>Argovia</th>
<th>OberAG/E.</th>
<th>Oberland</th>
<th>Seeland</th>
<th>Vaud</th>
<th>Bern**</th>
</tr>
</thead>
<tbody>
<tr>
<td>1732</td>
<td>6.14</td>
<td>3.57</td>
<td>0.65</td>
<td>7.71</td>
<td>3.02</td>
<td>4.80</td>
</tr>
<tr>
<td>1782</td>
<td>9.92</td>
<td>6.17</td>
<td>1.07</td>
<td>10.39</td>
<td>5.16</td>
<td>7.65</td>
</tr>
<tr>
<td>1782*</td>
<td>6.04</td>
<td>3.76</td>
<td>0.65</td>
<td>6.33</td>
<td>3.14</td>
<td>4.66</td>
</tr>
</tbody>
</table>

Table IV-12: Grain Tithe Revenue per Capita

Source: Database, grain tithe revenue. Population distribution calculated as for Table IV-8, figures on arable land from Schluchter (1988). 1782* is for figures with grain revenue discounted by the overall mean grain inflation rate. Bern** stands for the residual of the country.

The figures for institution from the city (row Bern**) are not fully comparable with those for the territory, since they are only based on a residual calculation for population and surface. Tithe revenue by institutions within the city could also include lands in the territory. The 'tithe burden' seems to have been highest in Seeland and Argovia when measured per capita; when measured per surface, Oberrargau/Emmental and Seeland look like the most taxed regions. Unsurprisingly the Oberland, where grain production and feudal duties were less prevalent, contributed significantly less in relative terms. Table IV-12 confirms the earlier finding that any increase in tithe revenue from 1732 to 1782 was caused by grain inflation rather than growing revenue in kind.

586 See Pfister, C. (1975): Table 25/1. His figures for 1782 are: Bern 30.7%; Aaretal (=Oberland) 4.2%; Oberrargau and Emmental 18.1%; Unterrargau (=Argovia) 15.1%; Seeland 5.8%, Vaud 25.7%. Differences can be explained by sampling (mine is a selection of accounts for each region; he did not include all types of grain), conversion prices, and different categorisation of regions. For the period 1762-71, Pfister also gives the breakdown for the state's tithes, which are slightly different (Table 27/1, series MGH Zehnten): BE 23.9%; AG 16.7%; OAE 17.2%; OBE 4.9%; SEE 7.0%; VD 30.3%.

587 I have calculated this from the 1798 figures in Schluchter (1988), assuming there was no increase in arable land.
Militia Duties as a Hidden Fiscal Burden

For my empirical analysis so far, I have only considered revenue and expenditure that was recorded in government accounts. One issue that is systematically excluded by this approach are transactions for the Bernese militia. Because information about this is not reliable and detailed enough, I have decided to address it in a separate section rather than include it in my database. For an overall consideration of the fiscal burden, forced labour extracted by the militia should be included. The militia system not only raised revenue in the form of corvée labour, it also ‘spent’ it as days served for defence of the canton. The direct costs involved were small, since regular training was not remunerated, although communes usually contributed a token salary and food supplies, for which the government fixed maximum payments.588 When calculated as an opportunity cost, however, redistribution through the militia system was considerable.589 Added to this should be the cost of equipment that soldiers had to purchase and maintain at their own expense. Since all these transactions were not recorded in detail, I have to rely on estimates to calculate the ‘militia burden’. The variables involved are army size, training frequency, opportunity cost of serving and the total cost of equipment (see also Section II-5 above).

Exact figures for the size of the Bernese army in 1732 are unknown. I assume effectives of 45,000 men, based on the army size in 1721. In 1782, the army consisted of some 64,000 men.590 The militia usually trained for 40 days a year in spring and autumn, before and after the harvest season.591 The opportunity cost for serving in the militia can be proxied with wage data for construction workers (discussed in Section VII-14 in the appendix).592 The state subsidised the purchase of military equipment and provided ammunition, but the expense for a soldier could be considerable. In 1782, a full set of infantry gear cost L. 70-72 (700-720 Bz), which is the equivalent of

588 Feller (1955): 506. If the militia served for longer periods, soldiers received a daily allowance.
589 Other types of forced labour were not important in Bern, except for a few days of communal service (Gemeinwerk) in Seeland: Hagnauer (1995). On a communal level, citizens were required to work for road maintenance: Holenstein (2005).
590 Rodt (1831-1834): Vol. 1, 186-189. The exact figure is 63,697, of which 27,218 were Auszug troops.
592 Based on Ebener (1999): Tables 5.2 and 5.3. See the discussion my Table VII-17 for details. The exact figures are 6.00 Bz (for 1732) and 7.37 Bz (for 1782).
almost 100 daily wages.\textsuperscript{593} Figures for 1732 are not known. We can assume that on average one in forty soldiers had to buy this equipment every year. This figure is obtained by considering the years of service (44, from 16 to 64), corrected by a lower life expectancy, plus the fact that some soldiers inherited rather than bought their equipment (see Table IV-13).\textsuperscript{594}

<table>
<thead>
<tr>
<th></th>
<th>1732</th>
<th>1782</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soldiers</td>
<td>45,000</td>
<td>63,697</td>
</tr>
<tr>
<td>Trainings days per year</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Days served</td>
<td>1,800,000</td>
<td>2,547,880</td>
</tr>
<tr>
<td>Wages</td>
<td>6.00</td>
<td>7.37</td>
</tr>
<tr>
<td>Days served in Bz</td>
<td>10,800,000</td>
<td>18,777,876</td>
</tr>
<tr>
<td>Equipment per soldier</td>
<td>578</td>
<td>710</td>
</tr>
<tr>
<td>Replacement rate</td>
<td>0.025</td>
<td>0.025</td>
</tr>
<tr>
<td>Cost of Equipment</td>
<td>650,271</td>
<td>1,130,622</td>
</tr>
<tr>
<td>Total Cost</td>
<td>11,450,271</td>
<td>19,908,497</td>
</tr>
</tbody>
</table>

Table IV-13: Cost of the Bernese Militia Army

Sources: see Table.

If we add all regular costs of the Bernese militia army, they account for 11.4m Bz in 1732 and 20.0m Bz in 1782 (excluding the Geneva expedition). These sums are sizeable when compared to other revenue and expenditure figures recorded in government ledgers (see Figure IV-34).

\begin{tikzpicture}
\begin{axis}[
    width=\textwidth,
    ybar, ymajorgrids, symbolic x coords={1732, 1782},
    xtick=data,
    ylabel={Revenue or Expenditure},
    xlabel={\text{m Bz}},
    xticklabels={1732, 1782},
    ytick={0, 10, 20, 30, 40},
    yticklabels={0, 10, 20, 30, 40},
    legend style={at={(0.5,-0.2)}, anchor=north},
]
\addplot coordinates {(1732, 0) (1782, 0)}; \addlegendentry{0}
\addplot coordinates {(1732, 10) (1782, 10)}; \addlegendentry{Monetary}
\addplot coordinates {(1732, 15) (1782, 15)}; \addlegendentry{in Kind}
\addplot coordinates {(1732, 20) (1782, 20)}; \addlegendentry{Militia}
\addplot coordinates {(1732, 25) (1782, 25)}; \addlegendentry{Militia}
\addplot coordinates {(1732, 30) (1782, 30)}; \addlegendentry{Militia}
\addplot coordinates {(1732, 35) (1782, 35)}; \addlegendentry{Militia}
\addplot coordinates {(1732, 40) (1782, 40)}; \addlegendentry{Militia}
\end{axis}
\end{tikzpicture}

Figure IV-34: Revenue and Expenditure by Currency, including Militia

Sources: Database, net transactions (including grain sales, see Figure IV-5) and estimates for militia cost (see Table IV-13).

\textsuperscript{593} Rodt (1831-1834), Vol. 2: 250.
\textsuperscript{594} I have assumed that the cost of equipment at 710 Bz in 1782, and – based on a fixed ratio to wages (1 equipment = 96 daily wages) – at 580 Bz in 1732.
Chapter IV: Fiscal Redistribution (Structural Analysis)

The militia accounted for 29.1% (1732) and 31.1% (1782) of revenue, as well as 35.8% (1732) and 36.7% (1782) of expenditure by the Bernese state. Adding militia duties also alters the results for fiscal redistribution discussed in this chapter. Militia revenue consisted of a tax levied in labour and a special tax for the equipment. Both had the state function Finance and Taxation. The sectoral distribution would follow the occupation of the soldiers. In theory, the conscription system should be non-discriminatory with respect to economic sectors. It is not clear if this was really the case, since information on which professions were over- or under-represented in the Bernese army are missing. In terms of expenditure, days served in the militia would count as special salaries, and the cost of equipment as military inventory. This would be categorised as expenditure for the defence function of the state.

With militia expenditure included, defence becomes by far the most important state function, covering 46.5% (1732) and 54.7% (1782) of current expenditure. If the expenses for the Geneva expedition are excluded from the 1782 figures, defence spending was 51.0% of current expenditure. These figures have to be qualified in two ways. First, their value cannot easily be compared to other states where military services had to be purchased. The frugal Bernese government would certainly have limited its defence budget if it actually had to pay for its army in cash. Second, when expressed in absolute terms, the Bernese figures were still low. Defence expenditure was equivalent of 8.9 (1732) and 16.5 (1782) tonnes of silver, which is a fraction of the hundreds of tonnes monarchical states paid for their standing armies.595

The fiscal burden on the Bernese population considerably increases if militia duties are included. The revised estimates are shown in Table IV-14.

<table>
<thead>
<tr>
<th>Fiscal Burden</th>
<th>Total</th>
<th>per Capita</th>
<th>Share of Total Revenues</th>
</tr>
</thead>
<tbody>
<tr>
<td>of which: Militia</td>
<td>Million Bz</td>
<td>Silver (tons)</td>
<td>Bz</td>
</tr>
<tr>
<td>1732</td>
<td>1782</td>
<td>1732</td>
<td>1782</td>
</tr>
<tr>
<td>18.39</td>
<td>32.37</td>
<td>13.56</td>
<td>23.43</td>
</tr>
<tr>
<td>11.45</td>
<td>19.91</td>
<td>8.45</td>
<td>14.41</td>
</tr>
<tr>
<td>50.0%</td>
<td>62.2%</td>
<td>31.1%</td>
<td>38.3%</td>
</tr>
</tbody>
</table>

Table IV-14: Revised Estimates for Fiscal Burden (including Militia)

Source: See Table IV-9 and Table IV-13.

595 Proxied by figures from the ESFDB: Multiplying the share of defence spending (see Figure VII-15) by overall expenditure from Körner (1995a): 401, the figures are as follows (in tonnes of silver, see years from Figure VII-15): Piedmont 17; Britain 2,500; Denmark 65-360; France 3,000; Prussia 112-485; United Provinces 439. These are very rough estimates with large error margins.
Chapter IV: Fiscal Redistribution (Structural Analysis)

The fiscal burden increases by 165% (1732) and 160% (1782) with militia duties included (measured in Batzen). Probably a more accurate way is to add the 40 days of militia training per year to the average fiscal burden on the active part of the population of roughly 7-8 days’ wages. Much like the fiscal burden in general, the main importance of the ‘militia tax’ was in its incidence. Serving more than a month per year in unpaid military training could be an important extraction of labour that represented considerable foregone earnings for many individuals.

The figures on militia duties presented here are highly dependent on the number of days served, for which there is only anecdotal evidence. As a result, they are little more than a ‘back of the envelope’ calculation. It would be interesting to consider regional differences in contributions to the militia in more detail, and to find more accurate estimations for the cost of equipment.

iv-6 Conclusion: Fiscal Redistribution

This chapter analysed how the Bernese state redistributed resources through its revenue and expenditure. The main source of data is a compilation of government accounts covering two sample years, 1732 and 1782. With regards to bailiff or county accounts, I have used a regionally weighted sample. For the calculations, units in which transactions were recorded were converted into stable monetary values, expressed in Batzen (Bz). The results have been discussed separately for different inflation rates for wages, foodstuffs and goods. Most measures indicate that the absolute amount of revenue and expenditure of the Bernese state increased between 1732 and 1782, but the figures show a fall when expressed in grain equivalents. This is the effect of grain inflation, which the government was shielded from by their transactions that were directly collected in grain. This was certainly the case for between one fifth and a quarter of the total amount recorded. On a per capita basis, the differences between the two sample years were small; the overall state budget per capita remained roughly the same.

I have analysed fiscal redistribution among the four dimensions factual (by nature of transaction), functional, sectoral and regional. In terms of the nature of transaction, the most important findings are that the Bernese state made a net profit in both years, which it proceeded to invest in financial claims and property. The returns
from previous investments also contributed significantly to the government’s current revenue, mainly in the form of interest payments. Other important sources of revenue were the salt trade, tithes, land rents and indirect taxes. The latter increased substantially over time because of additional road tolls, which were in turn the outcome of previous infrastructure investments in road building. Current expenditure went to a broad array of categories, with salaries (c. 35%) and salt purchases (c. 20%) being the most important.

The most significant and distinguishing features of the Bernese republic only surface through comparison with other states. The absence of any debt servicing cost – the absence of a national debt – is remarkable, as is the low level of expenditure geared towards defence. This is confirmed by my analysis of redistribution by state function. In addition to revenue from finance and taxation, Bern had significant entrepreneurial returns; and its defence expenditure was low. Even in 1782, when a small military expedition to Geneva was launched, defence was only responsible for 6% of overall expenditure. The investigation of economic sectors which contributed to and profited from the Bernese fisc is challenged by the lack of information on professions, which results in a large number of unspecified records. For transactions which have sectoral information, the data show that resources were mostly levied from the primary sector and spent for the tertiary sector, with administration as the main beneficiary of state expenditure. This is an expected result, given the reliance of the Bernese state on tithes and land rents. Regional differences were also to a large extent caused by the traditional differences in feudal penetration. The relatively unburdened inhabitants of the Oberland generated significantly less government revenue per capita. While in Argovia, Seeland and Vaud revenue per capita grew from 1732 to 1782, they stagnated in the Oberaargau/Emmental region and fell in Oberland.

The fiscal burden on Bernese subjects increased from the equivalent of 3.6 days’ wages in 1732 to 4.4 in 1782. In spite of an almost 50% increase, these figures are very low by comparison. Using 200 days’ wages as a rough proxy for GDP, it would be the equivalent of a state quota of about 2%. Bernese subjects paid to their state about a third of what their French neighbours paid in taxes alone. Compared to a number of German states, the fiscal burden in Bern appears very low as well. However, as the militia army extracted resources in the form of forced labour which was not recorded in government accounts, these figures can be misleading. Based on
a rough estimate, militia duties increase the fiscal burden by 38%. It would therefore still be much smaller than in other European states. Since most revenue extraction was dependent on personal circumstances, average figures can give an inaccurate rendition of reality. Taxes were often levied on objects rather than people, as the examples of tithes or land rents illustrate. As a result, differences in fiscal burden were significant, but they are difficult to measure.

The wider implication of the findings in this chapter is that the financial scope for state-building was limited in Bern. While the government had more resources to spend in absolute terms, the increase was roughly at par with population growth. When measured in grain equivalents, its spending power even declined over time. In other words, the Bernese state in the eighteenth century was ‘built’ with stable resources. The government also forfeited the possibility of introducing new taxes on property, relying mostly on traditional methods of extraction such as tithes and militia duties. In addition, returns from entrepreneurial activities were very important contributors to state finance. This confirms the image of Bern as a physiocratic state, depending to a large extent on its revenue in kind. This role was combined with the Cameralist postulate of the state acting as entrepreneur.
V The State as an Overseas Investor

V-1 Chapter Content and Background

On 22 June 1720, Samuel Müller sold 261 shares of the South Sea Company on behalf of the Bernese government for £198,730 (c. 26.5m Bz) in London. These titles were bought for roughly a seventh of the selling price a year earlier. This made 22 June 1720 arguably the most profitable day for a Bernese treasurer since the battle of Grandson in 1467, when Swiss troops looted the war chest of Duke Charles the Bold of Burgundy.596 Unfortunately for Bern, Müller failed to deliver the spectacular profit and was declared bankrupt; most of the speculative windfall was lost. Even though it was not representative of the government’s investment strategy, the episode of summer 1720 illustrates how important foreign investments had become for the Bernese treasury.

This chapter will investigate how Bern acted as an investor in overseas capital markets. The remainder of this section will provide the historical and technical background. In Section V-2, I will discuss the ideas behind the canton’s first overseas investments, including the situation on the domestic capital markets, the origin of its first loans in 1710 and the transition to purely financial investments a decade later. Bern’s reaction to the South Sea Bubble – the events of summer 1720 mentioned in the opening paragraph – is the focus of Section V-3. Section V-4 is an analysis of the portfolio’s administration on the basis of principal-agent theory. Subsequently, I will consider the investment strategy of the canton using tools of portfolio analysis, before concluding the chapter. The contribution of foreign capital investments to overall Bernese state finance has already been covered by Section III-5 and will only be referred to briefly throughout this chapter.

Historiography, Data and Currency Conversion

Since Julius Landmann’s seminal study of Bernese overseas investment over a century ago, the issue has received little scholarly attention.597 Landmann’s findings have been integrated into several other studies, but have never been complemented

596 Deuchler/Bernisches Historisches Museum (1963).
597 Landmann (1903) and Landmann (1904).
with further analysis.\textsuperscript{598} William Monter's research on Swiss overseas investment in England even ignored the activities of the Bernese state completely.\textsuperscript{599} More recently, the collapse of the Malacrida bank, which was closely involved in overseas investments of the canton, has been studied in detail by Nick Linder.\textsuperscript{600} Béla Kapossy has investigated the impact of overseas lending on Bernese political thought.\textsuperscript{601} I have published some of my research of Bern's dealings during the South Sea Bubble, along with a working paper on its role as an overseas investor, on which part of this chapter is based.\textsuperscript{602}

The primary data for my analysis is drawn from a contemporary book entitled \textit{Hisotire der Ausländischen Stands Capitalien} (History of the Foreign Capital of the State), written in 1776.\textsuperscript{603} The function of this document is not entirely clear; it was presumably intended to educate future government officials about one of the cornerstones of Bernese state finance. Landmann's study relies heavily on the text and offers a closely edited version of its core parts.\textsuperscript{604} In addition to the \textit{Historie}, I have used the accounts of foreign funds and government reports on the topic.\textsuperscript{605} To set Bernese investments in the context of the \textit{Financial Revolution} in northern Europe, I have relied on asset prices collected by other scholars, mainly from Larry Neal and Gary Shea.\textsuperscript{606}

A major problem with establishing the value of Bernese overseas assets is the plethora of currencies that were used across Europe and which were only partly standardised in Bernese government accounts. Sums were recorded in Pounds Sterling, Reichstaler and Bernese Crowns separately because the relative values of these currencies were not stable. This is similar to the current system of floating exchange rates with the major difference being that slow and scarce information during the early modern period made the establishment of reliable exchange rates difficult. One option was the use of parity rates defined as the ratio between the

\textsuperscript{599} Monter (1969).
\textsuperscript{600} Linder (2003); Linder (2004). See also the older publications on Malacrida, particularly Müllinen (1896).
\textsuperscript{601} Kapossy (1998); Kapossy (2002).
\textsuperscript{602} Altorfer (2003); Altorfer (2004a); Altorfer (2004b).
\textsuperscript{603} StABE B VII 2389.
\textsuperscript{604} Landmann (1903).
\textsuperscript{605} StABE B VII 2396-2473; StABE A V 1470-1490; StABE B I 107.
\textsuperscript{606} Their material is only partly edited: Neal (1990) and ICPSR Study 1008: \url{http://webapp.icpsr.umich.edu/cocoon/icpsr-pra/01008.xml}; Shea (forthcoming-b). Many thanks to both authors for allowing me the use of their databases, as well as for their valuable comments on earlier drafts of this chapter.
bullion content of minted ‘heavy’ coins for two currencies. These ratios were relatively stable over time, but differed from market exchange rates whenever there was a premium on a specific currency. Unless otherwise stated, I will use parity rates throughout this chapter and convert all transactions into Bernese Taler (abbreviated with the symbol $\text{Thl}$), with one Taler being the equivalent of 30 Batzen. I have opted for the Taler rather than the Batzen because the former was the main currency in which foreign funds were recorded. For London investments, I will also use Pound Sterling (£). The parity rates used for conversion are shown in Table V-1.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Currency</th>
<th>Place</th>
<th>Parity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thl.</td>
<td>Taler</td>
<td>Bern</td>
<td>1</td>
</tr>
<tr>
<td>Kr.</td>
<td>Krone (Crown)</td>
<td>Bern</td>
<td>1.2</td>
</tr>
<tr>
<td>BE-Lb.</td>
<td>Pound (Bernese)</td>
<td>Bern</td>
<td>4</td>
</tr>
<tr>
<td>L.</td>
<td>Livre Suisse (‘alter Franken’)</td>
<td>Bern</td>
<td>3</td>
</tr>
<tr>
<td>£</td>
<td>Pound Sterling</td>
<td>Britain</td>
<td>0.225</td>
</tr>
<tr>
<td>R.</td>
<td>Reichstaler</td>
<td>Empire</td>
<td>1.153</td>
</tr>
<tr>
<td>fl.</td>
<td>Guilder (Imperial)</td>
<td>Empire</td>
<td>2</td>
</tr>
<tr>
<td>Hfl.</td>
<td>Dutch Guilder</td>
<td>Netherlands</td>
<td>2.5</td>
</tr>
<tr>
<td>Bz.</td>
<td>Batzen</td>
<td>Bern</td>
<td>0.333</td>
</tr>
</tbody>
</table>

Table V-1: Conversion of Currencies to Bernese Taler at Parity Rates

Sources: Furrer (1995); Körner/Furrer/Bartlome (2001); McCusker (1978); Schneider, J. et al. (1992); Tuor (1977). See also Section VII-13 in the appendix for other Bernese currencies.

Real exchange rates tended to diverge from the parity course in times of financial crises or war; the two often came together. In this situation, flows of funds from one currency to another altered the relative position of offer and demand and hence their relative price. This resulted in an increase in the exchange rate for the currency in low demand, for which a premium had to be paid. However, in peacetime, exchange rates stayed reasonably close to parity courses to justify their use.\textsuperscript{607}

V-2 Towards a Productive Use of the Cash Reserve

By the turn of eighteenth century, the Bernese government had a sizeable cash reserve secured in its vaults. The reserve had originally been intended to serve as a

\textsuperscript{607} For the use of parities see also Ashton (1966): 188-196.
war chest but had outdated this function in two ways. First, the need for contingency in cash declined because of the growing possibility of resource mobilisation on capital markets and through loans. Second, because Bern never had to use its reserves, they continued to accumulate beyond the coverage of immediate needs. The government’s hoarding of cash excluded funds from productive use and was therefore subject to opportunity costs. This section will compile an overview of how the government became increasingly concerned with putting its reserves to productive use. I will present my case chronologically beginning with the Bernese government’s earlier attempts to invest on the domestic mortgage market to the loans of 1710 and their conversion into portfolio investments.

Early Investments from the Cash Reserve

In spite of the investments described in this chapter, the Bernese cash reserve served its original purpose as a war chest on a number of occasions. During the Neuchâtel succession of 1699, Bern opposed French aspirations and had to protect the principality by sending troops. An anonymous citizen from Bern penned a mocking letter to the French ambassador that the half-rotten money from the treasure would be unearthed to finance a militia that was in serious need. In his words ‘pour faire manquer une couple de 100m ecus à nostre Canton qui en fera la depense sans beaucoup de peine puisque ces escus à demi moisis dans les coffres serviront à dresser et à exercer une milice, qui en a fort besoin.’ The second war of Villmergen against the Catholic cantons of the Swiss Confederation was also funded solely by a withdrawal from the cash reserve. As discussed in Section III-5, the military needs of the 1790s were mainly financed through the sale of overseas assets rather than the bullion from the government vaults.

Some government officials had realised that hoarding cash limited monetary circulation and might exert an adverse effect on state finance. They also discussed this as a problem of the Bernese economy as a whole, arguing that an outflow of bullion was harming domestic trade. Their worries were largely unfounded, as I will explain in more detail below. At a time when the Bernese capital market was

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608 Unknown Bernese citizen to Castella (11 January 1708), quoted from Feller (1912): 46 (note 1).
609 See Section III-5 above. Bern withdrew 437,500 Thl (13.125m Bz).
610 Such arguments are also made for Prussia’s treasure; see Henning (1974). He argues that hoarding cash has harmed the economy.
Chapter V: The State as an Overseas Investor 240

caracterised by problems of abundance rather than shortage, the effects of a cash drain were probably minute. Contemporary authors cited the negative trading balance and scarcity of 'good money' as aggravating factors. This view was expressed in 1687 by the newly founded Commercial Council, which was a government chamber modelled after the French Conseil de Commerce under Colbert. In an exposé to the Great Council, the Commercial Council described money as the blood that kept the political body alive:

As the ordinary circulation of blood in the natural human body maintains the health and life of the natural human body, its congestion conversely causing illness and even death; so can the liquid wealth in money and circulating ready cash maintain the well-being of the political body of the republic; yet the lack of cash and poverty [can create] big inopportuneness, and sometimes even its decline, as can be amply seen from history.611

The report then tried to establish a trading balance for Bern. All imported goods were listed and their value estimated at 700,000 Thl. This sum was set against virtually no exports. The Commercial Council added profits generated by the salt monopoly and the state administration to this negative balance for being 'excluded from circulation, as if they were alienated outside the country.'612 To address the negative situation, the report proposed to encourage the settlement of Huguenot refugees, who would engage in commercial and industrial activities throughout the country. The ultimate goal of this policy was the export of manufactured goods. In spite of comparing the effects of the cash reserve to a cash drain, the report of 1687 did not suggest an investment, let alone an overseas investment. The government took more than two decades to come to this conclusion. When a visit to the vault in 1697 found that there was not enough money to support an army of 30,000 for a year, the Secret Council pondered over ways to achieve this objective.613 Their suggestions are not known, but large-scale investments took another twelve years to materialise in the form of loans to the Dutch and British discussed below.

There were predecessors to these loans: from its early existence as a medieval city-state, Bern had lent money to noblemen in the surrounding areas. Subsequent

612 StABE B V 2: 48.
613 See Section III-5 above for the episode of the 1697 inspection.
governments were well aware of the political leverage that could be exerted this way. The seizure of lands and titles that had been pawned as collateral for loans was one of the main expansion strategies for the nascent territorial state. The most impressive coup was landed in 1554/55, when Bern and Fribourg took over the lands of the Duke of Gruyère for failing to service his debts towards the two republics.\textsuperscript{614} Lending money was both an investment and a political tool. This did not only apply at the inter-state level, but also within the state itself. Strategic loans buttressed clientelistic relations and enhanced political influence over subjects or rivals. Ulrich Pfister has argued that the financial dependency of borrowers on their lenders was more important than feudal links in early modern Switzerland.\textsuperscript{615}

Throughout the sixteenth century, Bern was heavily engaged in lending to other Swiss states and Protestants across Europe.\textsuperscript{616} The French crown was also a recipient of funds which were largely generated by French payments for Bernese mercenary troops. The notorious credit habits of the French gave the Bernese government also some experience in dealing with reneging debtor states. The best solution was deemed to be avoidance of such loans, which the Bernese government did for most of the seventeenth century; though the French crown still maintained outstanding dues. This thorny issue was a constant point of contention between the Bernese and the French ambassador based in Switzerland.\textsuperscript{617} Throughout the seventeenth and eighteenth century, claims on outstanding interest payments were usually settled by Bern demanding salt supplies for a few years, which were then delivered until the next default. In 1720, Bern estimated its claims against France at 630,000 Thl.\textsuperscript{618} These debts were never repaid, nor did they yield any interest payments. The write-off is illustrated by the fact that neither the accounts for foreign funds nor the Historie document mentions a single claim on France. To the French, beyond their well-known financial problems, maintaining debts with the canton represented a tool for tempering anti-French feelings in Bern. The potential repayment of outstanding debts was viewed a trump-card in political negotiations. Overall, financial credibility was of little concern to both the Bernese and French when it came to the latter’s loans. Things took an interesting turn in 1794, when the Bernese government was asked to

\textsuperscript{614} Körner (1980); Körner (1995b).
\textsuperscript{615} Pfister, U. (1992b).
\textsuperscript{616} Körner (1980): 277-290.
\textsuperscript{618} Feller (1955): 329 (the exact figure was 2,524,786 BE-Lb). The debt had been re-negotiated in 1787: StABE B VII 2465/2.
register its loans for a conversion into paper money *assignats*. When confronted with the dilemma of either accepting the Revolutionary government or forfeiting its claims, the Bernese decided to wait and see. As a government report put it, it was 'better to wait with patience for better times than to take a step that could have severe political consequences.'

Another option for investing funds from the cash reserve was the purchase of territories or jurisdictional powers which could be integrated into the republic. The problem was that such lands within close geographical proximity rarely appeared on the market. If a local title was put up for sale, patricians were often more interested in making a purchase for their own families rather than the state. The canton had acquired several small territories throughout the century, such as the County of Castelen in 1732. There had also been attempts in the 1700s to make the Emperor sell the Fricktal, a neighbouring county. Bern proposed to buy this territory, whereas the Habsburgs preferred to use it as collateral for a loan. The canton wanted to avoid having the Emperor as debtor because of his poor credit history and reputation for not paying interests regularly. During a second attempt to buy the Fricktal for Bern in 1737, only a political uprising prohibited the closure of a deal.

Finally, the government could also invest on the domestic capital market. With the virtual absence of commercial and industrial credit, this market consisted almost exclusively of mortgages, which the government had secured in its function as a lawmaker (discussed in Section II-6 above). Most of the mortgage credit was on agrarian land. Since patricians were important players in this market, there was a conflict of interest. In finding the best investment opportunities, patricians as private investors competed with the government which tried to find a productive use for the financial surplus of the state. The government significantly increased its domestic loan portfolio with the so-called *Auskauf* (buyout) of 1677. In that year, an edict declared the mortgage of Bernese lands to foreigners illegal. The government offered to discharge the mortgages of all affected parties and lend them money at the conditions they had previously enjoyed. Put simply, the Bernese government evicted foreign lenders and took over their mortgages. The risk of default for these loans was

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619 StABE B VII 2465/57.
620 See the list in footnote 181 above. For Castelen, see also Section III-5 above.
621 Landmann (1903): 80-97.
622 Foreigners were defined as non-residents of the canton.
low because the foreign lenders had already screened their borrowers. The government took advantage of its law-making powers to acquire and secure a safe loan portfolio. The Auskauf had been funded by an assignation of 1m Bz from the salt trade account and the withdrawal of half this sum from the cash reserve.\textsuperscript{623} Compared to the overall size of financial transactions, the funds which could be invested in the domestic mortgage credit market were limited. From the late seventeenth century onwards, the state started granting loans to private borrowers and companies to stimulate domestic economic development.\textsuperscript{624} This exacted a negative effect on the capital market, as there were insufficient investment opportunities to absorb the credit on offer. Economists use the term crowding out to describe when government borrowing absorbs money that would ordinarily have been invested productively.\textsuperscript{625} In eighteenth-century Bern, there was a reversed crowding out, since the government was active as a lender, not as a borrower. The Auskauf of 1677 magnified this problem.

Government decrees and usury laws fixed the interest rates for mortgages in Bern (discussed in Section II-6). Philip T. Hoffmann, Gilles Postel-Vinay and Jean-Laurent Rosenthal describe a similar situation in eighteenth-century Paris as a ‘priceless market’.\textsuperscript{626} With interest rates fixed by law, the capital market could not be coordinated through the interest rate as the price for money. Information about the borrowers’ ability to service debt was crucial in lending decisions because investors could not apply a premium for riskier loans. As their only options, investors had to either lend at the fixed rate or withhold their funds, referred to as credit rationing.\textsuperscript{627} The main adverse economic effect of credit rationing is a lack of capital, which was not severe in the Bernese case, as there was a consistent oversupply in the market. Credit rationing only affected lenders, who failed to find sufficiently secure investment opportunities for their funds. With its jurisdictional and administrative records, the Bernese state benefited from the enormous information advantage it had over other investors. This information could also be utilised by individual government members who acted as bailiffs and wanted to enter the local capital market. As in the rest of the Swiss Confederation, a lack of productive investment opportunities curtailed the demand for capital. Combined with wealth accumulation

\textsuperscript{624} Landmann (1903): 13-23; Bodmer (1973).
\textsuperscript{625} Temin/Voth (2005).
\textsuperscript{626} Hoffman/Postel-Vinay/Rosenthal (2000).
\textsuperscript{627} Temin/Voth (2005); Hoffman/Postel-Vinay/Rosenthal (2000).
that was not hindered by war or taxation, this led to an oversupply of capital. The result was a massive capital export, facilitated by a banking sector specialised in these operations.\textsuperscript{628}

From the situation of oversupply on the domestic capital followed the investment of funds in Paris, London, or Amsterdam by patricians. For the state to trail the same path, the decision making process was complex and solicited criticism both within the government and from outside. Abraham Stanyan shared the view of the Commercial Council about a lack of circulating money (discussed above) and was at the same time sceptical about the economic impact of foreign investment: ‘Whoever will take the Pains to compare their [i.e. Bern’s] Exportation, must by this Account cast up such a Balance against them, that he will rather wonder to find that there is any Money left in the Country, than that it is a poor one.’ Two centuries of peace may have enabled Bern to hold out against a capital drain, but bullion was scarce because of the public treasure ‘which, for want of Circulation, is lost to the Country […] [and because of] the Want of Conveniences, in placing Money at Interest upon good Security, which forces the People to put it in foreign Banks; and so the Country is deprived of the use of it.’\textsuperscript{629} As mentioned in the previous subsection, in reality the canton suffered less from a lack of capital than from an insufficiency of productive investment opportunities.

The Loans of 1710

In 1709, the Secret Council was ordered to investigate investment opportunities for a ‘considerable sum of idle government money […] for the drain to be stopped and [money] to be returned to the whole country.’\textsuperscript{630} The increasingly impersonal nature of public credit throughout the eighteenth century had reduced some of the earlier political importance of loans between governments and made investment for simple financial reasons possible. This transition was gradual, as the first foreign loans by Bern were motivated not only by economic, but also political goals. When the Great Council decided to start credit negotiations with Great Britain and the United Provinces in 1709, both these states were at war with the canton’s geopolitical

\textsuperscript{628} Körner (1999); Ritzmann (1973); HLS (2002), article Kapitalmarkt.

\textsuperscript{629} Anonymous [Abraham Stanyan] (1756): 165-166.

\textsuperscript{630} STABE A II 626: 19-20. The original words are: ‘\textit{eine Nahmhaffte Summa mäßig liegenden Oberkeitl. Gelts […] damit der ausßlauff gestoppt werden that deß ganzen landts an gelt retroviert seye.’ The same argument was used in the Historie of 1776 (discussed below).
rival of the time, Louis XIV, in the extremely costly war of the Spanish Succession. Bern had a weak military alliance with the Dutch and was negotiating a defence treaty with Britain which never materialised. The *spiritus rector* behind these activities was Mayor Johann Friedrich Willading, leader of the anti-French party in the government and also the wealthiest citizen of Bern.631 Support for fellow Protestants was fuelled by religious solidarity as well as personal contacts with Holland through mercenary regiments. The Queen of England finally received a credit of £150,000 (666,666 Thl) from Bern against yearly interest payments of 6%, guaranteed by future revenue of taxes on wine and other consumables.632 As for the Dutch loan, the treasury in the Hague issued six bonds on the republic of Holland, each worth R. 100,000 (115,300 Thl), with a maturity of 15 years at 4% interest.633 The final sum granted was almost a fifth in excess of the sum that the Great Council had originally intended to lend overseas (1m Thl).634 The difference in interest rates is remarkable and was a risk premium that Britain had to pay for its less sound financial administration.635

The transfer of money to its destination proved to be a complicated matter, since bills of exchange from Bern to Holland or London could not be easily purchased. According to Markus Denzel, none of the Swiss cities was integrated into the European system of exchange.636 This was mainly a result of the low level of commercial activity which rarely required facilities for large overseas payments. The purchase of bills of exchange directly from merchant bankers would only be possible with exorbitant handling fees. For the loan to Queen Anne, her ambassador to Protestant Switzerland, Abraham Stanyan, was willing to receive the £150,000 in cash on her behalf.637 He could then transfer the funds to Italy where it was used to pay Britain’s allies. The Dutch on the other hand, insisted that Bern pay the loan directly to their treasury in the Hague.

632 StABE B I 94: 194 and StABE B VII 2389.
633 StABE B VII 2389; Landmann (1903): 24-30; see also Altorfer (2003).
634 The actual loans cost 1.232m Thl because of favourable exchange rates: StABE B VII 2389 and StABE B I 94: 194.
635 This is also interesting in the light of discussions about the impact of the Glorious Revolution on borrowing costs: North/Weingast (1989); Epstein (2000): ch. 2; Sussman/Yafeh (2003).
636 Denzel (1998). He measures market integration by the regularity of published exchange rates, which is a proxy at best.
637 StABE B VII 2389. It was the same Abraham Stanyan who wrote an anonymously published *Account of Switzerland* a few years later (see footnote 219 above).
The Bernese envoy to the peace negotiations in the Hague, François Louis de Pesmes de Saint Saphorin, relied on information from Dutch merchants and advised the government on this matter. St Saphorin’s correspondence with Mayor Willading presents interesting information about financial transactions in the height of the Financial Revolution. St Saphorin devised a sophisticated plan for transferring the funds to their destination by purchasing bills of exchange on Amsterdam in Genoa, making a profit on favourable exchange rates along the way (see Figure V-1).

Figure V-1: Transferring Money from Bern to Amsterdam for the 1710 Loan

Source: based on Livre Argent Anabaptistes (StABE B I 94). See also Altorfer (2003): 65 (Fig. 1).
St Saphorin suggested a cash transfer to Genoa, where bills of exchange drawn on Amsterdam could be bought on the open market. The government was careful not to disrupt the exchange rate by transferring too much money at a time. It also kept the market uninformed since an anticipation of the money transfer by speculators would entail a deterioration of conditions for the exchange. The government worked closely with the only bank in Bern, *Malacrida & Comp* for this operation. The bank was founded by patricians who were barred from holding office for religious reasons. With the ongoing war in Italy, money to pay troops was scarce and thus highly valued. This allowed the purchase of bills of exchange on Amsterdam at a premium as these funds ran against the general flow of transfers. In peacetime, the reverse situation would be expected because the Italians had a negative trading balance with the Dutch and English. Thus, Bern profited from an *agiotage* profit on the transfer. For the second instalment of the Dutch loan, Stanyan received £100,000 in cash against bills of exchange drawn on London, from where the money could be easily transferred to Amsterdam. This second route was riddled with problems, as the English defaulted on their bill payment.

As discussed in Section III-4, the loans of 1710 comprised the largest single transaction undertaken by the Bernese government in the eighteenth century and had a large impact on its cash reserve. But while the loan capital was important to the canton, its amount was miniscule compared to the size of the British national debt, which had increased by £37.29m during the war of the Spanish succession. The overall debt was roughly 250 times greater than the Bernese loan. Even in per capita terms, that difference was significant. In 1722, the British national debt per (British) capita was c. £10.5, whereas Bern invested c. £0.5 per (Bernese) capita in London. For other comparative figures for the 1710 loan to Britain, see Table V-2.

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640 In this context, the Italian word *aggio* refers to the difference between the actual exchange rate and their parity rate that is based on the bullion content of coins.
641 See Altorfer (forthcoming) for details.
642 Hamilton (1947): 127; see also O'Brien/Hunt (1999); Brewer (1989); Ferguson (2001).
643 The total value of Bernese foreign investment was therefore about £1 per capita in 1710-1720; it was about £2.15 in 1764 and had fallen to £1.35 by the time of the French invasion. The British per capita figures are based on a national debt of £55.283m (in 1722) and a population of 5.25m.
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<td>Second War of Villmergen 1712</td>
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<td>Feller (1955): 318</td>
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<td>Bernese Claims on France 1720</td>
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<td>Feller (1955): 98</td>
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<td>British National Debt 1713</td>
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<td>Neal (1990): 52</td>
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<td>&lt; 118,000</td>
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<td>0.79</td>
<td>Monter (1969): 290-291</td>
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<td>123,491</td>
<td>Assets of Peter Henriquez jun. 1709</td>
<td>0.82</td>
<td>Dickson (1967): 263</td>
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</table>

Table V-2: Comparative Figures to Bernese Loan to England in 1710 (all in £)

Sources: see Table. Ratio is the relation between the sum and the Bernese loan to England.

If Bern became one of the largest single investors in the London capital markets, at least until the middle of the century, this was also because the market had become extremely fragmented as a result of the financial revolution. When the canton lent Britain £150,000 in 1710, even the wealthiest individuals of the city were worth considerably less. The biggest investor mentioned by Peter Dickson was Peter Henriquez Jr., a member of the ‘cosmopolitan mercantile plutocracy of the City’, with total assets worth £120,000 (excluding any South Sea stock for which there is no information). The total Swiss investment in London according to William Monter was £25,000 in 1709 and slightly more than £150,000 in 1718. In 1712, Bernese citizens held £16,813 in Bank stock and subjects from Vaud an additional £8,705 in shares of the East India Company. The ledgers of the Bank of England account for £9,446 shares in possession of Bernese citizens in 1720 and £11,920 in 1725; Vaudois holdings were £3,924 and £6,001 respectively. As the stock ledgers of the South Sea Company have not survived, holdings and transaction of individual investors in these securities cannot be traced. The only available record for 1723 shows 44 shareholders who were citizens of Bern, with total assets of £35,126 compared to the canton with £235,000 (discussed below).

644 Dickson (1993): quote 263. The assets of Peter Henriquez jun. in 1709 were: £20,500 Lottery Annuities, £46,591 East India stock, £25,500 Bank stock (plus £20,500 new subscription in 1709).
645 Monter (1969): 290-291. His numbers include Lottery Annuities, Bank and East India stock, but not South Sea stock.
646 This data is from Ann Carlos and Larry Neal, based on the Bank stock ledgers from the BERO [see also Carlos/Neal (2006)]. The authors have kindly supplied me with this information.
647 The BERO possesses the only list of shareholders of the South Sea Company. It is a subscription list for the capital split in midsummer 1723. I thank Larry Neal for letting me use his database of investors for this query.
Investment on Foreign Capital Markets

*Malacrida & Comp* played an important role as advisors when the government made a significant change in its investment strategy in April 1719. For the first time in its financial history, Bern bought shares of a private company on the capital market.648 Less than a decade earlier, treasurer Alexander von Wattenwyl had written to St Saphorin that English shares were not suitable for the canton: *'Les actions en Angleterre, quoit que d'un profit considerable, nous paraissent requerir trop de mouvements et de soin – de sorte que nous ne pensons point d'en acheter.*"649 It is not clear what caused the government to change its view. The Great Council was informed that the loan to Queen Anne would be redeemed prematurely as part of a conversion scheme of the British national debt in January 1719.650 As Bernese protests to the English ambassador were futile, the government had two options: to withdraw its money or invest it in securities of the chartered companies that managed the British national debt. For the latter, a Bernese government report to the Great Council proposed to buy 5%-Lottery Annuities, a parliamentary fund ‘and solid as nothing else.’ Stocks of the Bank of England, the South Sea Company, or the East India Company were not advised since they were all ‘subject to revolutions [i.e. changes in price].’651 *Muller & Comp*, the partner of *Malacrida & Comp* and Bern’s banker in London, did not carry out the orders from the Great Council to purchase Land Tax tallies. Instead, they recommended a purchase of South Sea stock.652 The government decided to purchase some shares ‘as a test’ initially, and eventually invested the entire £150,000.653

In this way, Bern joined the ever-increasing circle of investors in joint-stock companies which were mostly engaged in government financing. Their emergence had been a result of the so-called *Financial Revolution*.654 Investors could profit from

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648 Bern had already bought Bank stock from interest payments in 1711 because the exchange rate was unfavourable. These assets were sold shortly afterwards and the money transferred to Bern: StABE A II 631: 188.
651 StABE A V 1506: 38.
652 StABE B VII 2389; PRO C 11/483/2.
653 StABE A VII 665: 358. The original words were: *'zu einem probier streich.'*
654 For the *Financial Revolution*, see in particular Dickson (1993); Roseveare (1991); Tracy (1985); see also footnote 98 above.
an array of innovations that had enabled capital markets to expand rapidly in width and depth. At the root lay a system of government finance based on parliamentary commitments to secure the national debt with regular interest payments. This ‘funded’ national debt was then issued in tradable securities, such as annuities or bonds. In a second step, the British government started to sell its debt to private joint-stock companies rather than on the open market. Joint-stock companies, like the Bank of England and the South Sea Company, were privileged by parliamentary edicts and enjoyed close ties with important government officials. They financed the takeover of public debts by floating shares on the capital market. Such a debt-for-equity swap had the advantage that investors did not have to buy government debt directly but could purchase shares in companies instead. These shares were easier to resell, hence investors benefited from a liquidity premium for which they were willing to pay lower interests than for direct loans to the government itself which were comparably cumbersome to trade and administer. The advantages for the government were the lower interest payments which ultimately allowed the pursuit of geopolitical interests through borrowing on an unprecedented scale. The price was a commitment to play by the rules of the capital markets: paying interests regularly and not reneging on public debt were supposed to maintain the government’s reputation and credibility.

As a function of these developments in public credit and the financial innovations related to long-distance trade, Amsterdam and London had emerged as the most advanced and important European financial markets of the eighteenth century. The two cities were well integrated through a reliable network of payments, information and legal action. Beyond this London-Amsterdam axis, capital markets were still badly integrated and information communicated slowly. Because the innovations were so radical in character, ‘teething problems’ were unavoidable and financial crises appeared to loom around every corner. Depending on an author’s standpoint with respect to market efficiency theory, crises are either the outcome of irrational speculative manias and exuberances (Kindleberger, Chancellor), or a reaction to the uncertainties linked to economic transition and thus the necessary

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655 Carswell (2001) stresses the political differences between Whig supporters of the Bank of England and Tories in support of the South Sea Company.
659 For the latter: North (1991). See also Section I-2 above.
660 Neal (2000).
and useful learning experiences on the way to a sounder financial system (Neal). Even with the benefit of hindsight it is often difficult to separate change from crisis. Contemporary observers are not always congruent with statistical indicators; their writing is often biased and had a tendency to over-dramatise. Rumours about Britain not being able to service her national debt were common, with David Hume being among the most prominent advocates of a voluntary state bankruptcy. In spite of all these inconveniences and uncertainties, the new capital markets offered relatively safe investment opportunities. Compared to investments in land, trade or foodstuffs, financial investment was the best way to generate regular and reliable returns, an opportunity that the Bernese government was anxious not to miss.

As a government-cum-shareholder, Bern was almost unique. Some other Swiss republics had followed its example, but on a considerably smaller scale. The only state that possibly preceded Bern in foreign investment was the canton of Solothurn. As early as 1698, this state held bonds of the Paris City Hall, most of which became worthless during the Mississippi crisis of 1720. It is unclear from the sources if these bonds were purchased on the capital market or simply obtained through debt conversion. As the closest ally of the French king within the Swiss Confederation and host of his ambassador, it is likely that Solothurn’s investment was more political than financial in nature. There were a number of other institutional investors from Bern itself, such as the butchers’ guild, which held South Sea Company shares after 1725, as did associations and family funds. Although there are no detailed studies about this issue it can be argued that these institutions followed the example of the government belatedly and on a smaller scale. The same is true for individual investors from Bern. Monter mentions one single Bernese shareholder of the Bank of England in 1709 (although there were at least two in reality) and 15 in 1712.

661 Kindleberger (1989); Chancellor (1999); Neal (1990); Neal/Weidmenmier (2002).
662 For a possible definition of financial crises: Kindleberger/Laffargue (1982): 2; See also Hoppit (1986): 39-42 and for a critical view Garber (2000). The literature on early modern financial crises is abundant. For a selection, see: Ashton (1959); Kindleberger (1989); Neal (1990); Flood/Garber (1994); Chancellor (1999); Schnabel/Shin (2004); Duckenfield/Altorfer/Koehler (2006), vol. 1.
665 For the conversion schemes: Bély (1996), article Rentes sur l’hôtel de ville.
667 Monter also misspells the name of the first Bernese holder of Bank stock (Graffenreid instead of Graffenried), which might be due to a spelling error in the original ledger. In addition to the citizens
According to the stock ledgers, there were 13 Bernese holding Bank of England stock in 1720 and 20 in 1725.\textsuperscript{668} Other institutional investors in London were from the United Provinces. Dutch orphanages, hospitals, or family funds often held English assets.\textsuperscript{669} Another state that participated in the London capital market of the late eighteenth century was Hesse-Cassel, where the Landgrave purchased stocks using the proceeds from selling mercenary troop services to Britain. Interestingly, the Landgrave himself had obtained loans from Bern in 1738-1750 and 1758-1763. Another credit request was declined in 1774 because, as an internal report put it, 'this court [has] too big a war machine and is not sufficiently economical [with its resources].'\textsuperscript{670}

To sum up this section, by investing abroad, the Bernese government had drawn the ultimate conclusion from the dilemma it faced through limited domestic investment opportunities and the resulting low returns. Since it tried to limit the unproductive hoarding of cash in its vaults and could not invest at home, going overseas was the only option left. While the first foreign loans had to a large extent been politically motivated, their conversion to purely financial investments was not. This was facilitated by innovations which made capital markets more impersonal and secure.

V-3 Reaction to Crisis: The South Sea Bubble

Problems of investor behaviour often become most tangible in times of crisis. In studying crises however, a potential bias of tradition should be kept in mind. Contemporaries – and historians – are more likely to register extraordinary events than uneventful ones which are considered regular business. As Edwin Perkins noted,
This section will analyse the government’s reaction to financial crises using the example of the South Sea Bubble of 1720, which was mentioned in the opening paragraph of this chapter. This crisis had a substantial impact on where and how Bern invested its money abroad.

The difficulties of defining and interpreting financial crises have already been discussed. The South Sea Bubble of 1720 was one of the most dramatic financial events of the century, particularly for those involved in government securities. The crisis was driven by the issue of shares by the Governor and Company of the Merchants of Great Britain trading to the South Seas and other Parts of America and for Encouraging the Fishery. In spite of its name, the main activity of the South Sea Company was the administration of the British national debt. The company had secured a contract for taking over all government short-term debt in 1719, which was later extended to large parts of the remaining government debt. This was an example of the debt-for-equity swap which was described earlier. The company released four subscriptions for government debt holders to sign up for South Sea stock between April and August 1720. Since the term of conversion between government debt and South Sea stock was not fixed, the company directors had an interest in boosting share prices, which translated into a more favourable conversion price. All instruments available, legal and otherwise, were used to convince investors that trading their claims on the government for South Sea stock would be profitable. This was certainly the case for as long as share prices rose until June 1720. When it became apparent that the company directors could not honour their commitments, the bubble burst and South Sea share prices fell rapidly. Figure V-2 shows market prices for South Sea Company shares in 1720 as noted in Castaing’s Course of the Exchange, edited by Larry Neal. Prices between 24 June and 22 August are not

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671 These words were used by Perkins (2003).
672 This section is based on Altorfer (2003) and Altorfer (2004b).
673 See previous Section (V-2) and footnote 662 in particular.
674 For Hopitt, the South Sea Bubble had little impact on the rest of the economy, except for those inexperienced investors who suffered most. He argues with the number of bankruptcies of non-landholding proprietors: Hopitt (1986): 47-48.
676 For details: Shea (2004a); Shea (2004b).
spot prices, but forward prices for the opening of the books, as the company closed its transfer ledgers between these dates.\textsuperscript{678} Vertical lines represent the four subscriptions.

Figure V-2: Share Price of the South Sea Company and the Assets of Bern, 1720

Sources: Neal (1990): appendix, based on Castaing’s Course of the Exchange; daily courses are from ICPSR Study 1008: \url{http://webapp.icpsr.umich.edu/cocoon/ICPSR-PRA/01008.xml}. The nominal value of a South Sea Company (=SSC) share was £100. Prices from 24 June until 22 August are forward prices for the opening of the books: Neal (1990): 101 (see also footnote 678). Vertical lines are for subscriptions.

To Larry Neal the South Sea bubble, in conjunction with the virtually parallel Mississippi crisis in Paris, was ultimately the result of converting fixed-interest, irredeemable national debt into tradable, variable-yield securities. The bubble occurred because of problems with the adaptation of new market instruments. In the beginning, during the ‘rational bubble,’ the share price rose because investors were prepared to pay a high liquidity premium for these securities.\textsuperscript{679} The crisis laid the basis for London’s international capital market: ‘The South Sea Bubble proved to be the “big bang” for financial capitalism in England.’\textsuperscript{680} This interpretation is rejected by Edward Chancellor, who argues that the liquidity premium could not have been so great as investors with a desire for liquidity before 1720 could have held other assets.

\textsuperscript{678} Neal (1990): 101. For the discussion on forward prices, see the exchange between Dale/Johnson/Tang (2005) and Shea (forthcoming-a).

\textsuperscript{679} Neal (1990): 62-71.

like Bank of England or Million Bank shares. The attempts of the South Sea Company in 1720 were not the first to convert public debt into private stock either.\footnote{Such debt-for-equity swaps had occurred in 1697 (Bank of England), 1711 and 1719 (South Sea Company). The first South Sea conversion even led to a fall in the share price: Chancellor (1999): 93.} Since the company had no prospects for profitable trade, the value of its shares was derived entirely from government payments that would fix it around £150. For Chancellor, the bubble was therefore entirely irrational and speculative; it was nothing but an investment strategy in which everyone hoped to find a ‘greater fool’ who would pay a higher price for shares later.\footnote{Chancellor (1999): 92-95. In his critique, he fails to cite Neal’s most important work [Neal (1990)].} Most economists tend to agree with Neal’s view.\footnote{In particular: Garber (2000); Temin/Voth (2004).}

When Bern bought South Sea Stock in April 1719, the Great Council had expected an increase in share price if Britain could overcome the commercial war with Spain and negotiate a peace.\footnote{StABE A II 666: 37-39. For the brief war and the peace with Spain: Dickson (1993): 90-156.} The government was surprised by the actual rise in share prices, which it did not anticipate to be on such a scale.\footnote{For share prices: Neal (1990): appendix.} When Muller & Comp reported in April 1720 that prices in London were rising dramatically, the Great Council decided to sell its shares.\footnote{StABE A II 670: 77.} On 22 June, the day before the books of the South Sea Company were closed for dividend payments and when the share price was almost at its apex, Bern sold its South Sea stock, resulting in a profit of almost 660% compared to the original cost of its investment! Calculated on a yearly basis, the 261 shares sold that day made a staggering return of 571.2%. The last orders from Bern were to sell the remaining stock at prices between 1,200% and 1,500% of par (see Table V-3).

<table>
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<td>19/06/1720</td>
<td>08/06/1720</td>
<td>200</td>
<td>£100 each</td>
<td>300</td>
</tr>
<tr>
<td>26/06/1720</td>
<td>15/06/1720</td>
<td>300</td>
<td>0</td>
<td>800</td>
</tr>
<tr>
<td>21/08/1720</td>
<td>10/08/1720</td>
<td>239</td>
<td>200</td>
<td>1200</td>
</tr>
<tr>
<td>21/08/1720</td>
<td>10/08/1720</td>
<td>200</td>
<td>0</td>
<td>1500</td>
</tr>
<tr>
<td>23/09/1720</td>
<td>12/09/1720</td>
<td>0</td>
<td>1000</td>
<td>0</td>
</tr>
</tbody>
</table>

Table V-3: Bernese Orders to Sell South Sea Stock 1720
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Sources: StABE B VII 2389; StABE A II 670; PRO C 11/483/2. O.S. is for dates in old style (Julian calendar, used in Britain), N.S. is for new style (Georgian calendar, used in Bern). Shares is for the amount of shares concerned by the order, remains is the number of Bernese shares after the order was carried out.

The final Bernese orders reached London when share prices had already started to fall.\textsuperscript{687} The South Sea share price never reached the levels at which Bern intended to sell its remaining stock. In Figure V-3, the Bernese assets are compared with the South Sea Company share price from Figure V-2.

\begin{figure}[ht]
\centering
\includegraphics[width=\textwidth]{figure_v3.png}
\caption{Share Price of the South Sea Company; Assets and Orders of Bern, 1720}
\end{figure}

Sources: South Sea share prices as Figure V-2 (see discussion there); Bernese assets from StABE B VII 2389. For a list of orders, see Table V-3.

By the end of June 1720, the canton had made the enormous profit of £416,558. Bern, which ironically has the bear as its national symbol, followed a highly successful bull strategy during the bubble. To outsiders it seemed like a splendid operation: King George congratulated the republic for its financial operations and Applebee’s Weekly Journal blamed it as a foreign profiteer of the speculative mania.\textsuperscript{688} However, the qualitative evidence from Bernese government archives paint quite a different picture. The success was largely unintended and its stark contrast to

\textsuperscript{687} StABE A II 671: 2, 22, 62, 284.
\textsuperscript{688} StABE A II 670: 292-293; Applebee’s Weekly Journal, 16 July 1720; See also Dickson (1993): 150 (who misinterprets it as a wrong rumour) and Carswell (2001): 137 (note 29).
well-informed speculators like Hoare’s bank which was actually ‘riding the bubble’ cannot be exaggerated.689 The motivation for the Bernese sale was a worry that the sudden rise in share prices could render the investment unsafe.690 Thomas Manning, the English ambassador in Bern at the time, also shared this view. On 19 June 1720, he wrote to his secretary of state James Craggs about the government of the canton:

Their apprehension that a fall of the stock may be as sudden and as great as the rise has been[,] has caus’d this resolution [to sell the shares]. [...] Contented with their present gain and distrustful of the future, they think it a wise part to secure the former, and not to tempt their fortune, or rely wholly upon the latter.691

During the summer of 1720, the Bernese were badly informed and constantly lagged behind current market developments. In fact, most of the profit was made because of the time that orders took to be transferred to Britain and carried out. The canton at first benefited magnificently from opportunistic behaviour of their London agent Muller & Comp who had expected prices to rise further and therefore delayed the sale of shares.692 To the English public, however, this was of little importance. In February 1721, two members of the Bernese government wrote home from London that ‘everywhere people complain that the machinations of the South Sea directors has caused big losses in England [...] and some speak [...] more than we would like about the profit that our estate [i.e. Bern] is said to have made.’693

Most of the windfall which was made during the summer of 1720 was lost in the bankruptcies of Muller & Comp in London and Malacrida & Comp. in Bern.694 They had used the canton’s shares as collateral for speculative credits without consent of the principal. This happened despite the fact that the bankers were members of government families and risked drastic consequences for their families’ wealth, influence and honour.695 As a first reaction to this crisis, the government sent two representatives to London to manage its foreign assets. One of them, Samuel

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689 See Temin/Voth (2004).
690 StABE A II 67: 77.
691 Manning to Craggs (19 June 1720): PRO 95/50.
692 PRO C 11/483/2; Altorfer (2004b); Linder (2004).
695 For the concept of honour see Muldrew (1998). After the bubble, all property of the Malacrida associates was confiscated and they were banned from the city.
Tscharner, was appointed *Commissioner for the English funds* soon after, a newly introduced office that existed until 1765 (discussed in the next section).\(^{696}\)

The reason why Bern did not choose the more drastic solution of a complete withdrawal from foreign capital markets was because the government had only lost a speculative profit and not the invested capital. The canton made an overall profit, as can be seen from Figure V-4, which shows the value of Bernese investments in London from 1719 to 1724 on a monthly basis. Market values were calculated with data from *Castaing’s* published by Neal.\(^{697}\)

![Figure V-4: Bernese Assets in London, 1719-1724 (Nominal and Market Value, Monthly Figures)](image)

Sources: *Historie* (StABE B VII 2389 and accounts foreign funds (StABE B VII B VII 2396-2473); see also Landmann (1903); prices from Neal (1990), appendix and Dillen (1931); see footnote 697 for details.

During the time of the Bubble, the market value of Bern’s assets soared in spite of asset sales that show by their decreasing nominal values in Figure V-4. After all the bankruptcy trials of the early 1720s, the funds of the canton were still worth considerably more than the original sum of £150,000 invested four years before (the dotted line in Figure V-4). If we add the sums that were delivered to the Treasury in

\(^{696}\) RQBE, vol. 9/1: 201-206.

\(^{697}\) Edited by Neal (1990), appendix. Prices for South Sea annuities (old and new) have been edited for Amsterdam by Dillen (1931). His data is very reliable and is almost perfectly correlated with the London series for prices quoted in both spots [see Neal (1990): 146].
Bern before the Malacrida bankruptcy, the overall profit during the South Sea Bubble was well in excess of £100,000.\textsuperscript{698} This makes the profit of Hoare's bank (£28,000) look less impressive in scale, even if it was achieved with a much smaller initial capital.\textsuperscript{699}

By midsummer 1723, when the South Sea Company divided its capital, Bern was by far its largest single stock holder, with assets worth £255,214 (nominal value: £253,000).\textsuperscript{700} Had the government simply kept its original stock from the beginning of 1720, its shares would have been worth £131,138 by then.\textsuperscript{701} Even though other London investors had more balanced portfolios, only one of them is known to have had more money invested on the capital market.\textsuperscript{702} The strong concentration of Bern's assets in South Sea stock is remarkable and can only be explained as a very particular form of risk aversion. Commissioner Tschamer considered annuities too risky, because they were not registered in stock ledgers.\textsuperscript{703} In a report of 1725, he also explained that Bank of England and East India Company stock were insecure because of their involvement in trade.\textsuperscript{704} Tschamer failed to recognise that spreading investment would help to curtail investment risk.\textsuperscript{705}

The reaction of the Bernese government to later crises of the eighteenth century was much less dramatic. In fact, it usually did not react at all, as the constant investment in nominal terms shows (discussed below).\textsuperscript{706} During the crises that Hoppit classified as crises of public finance (i.e. 1745 and 1761), the Bernese reaction was even anti-cyclic.\textsuperscript{707} In 1745, the government decided to profit from low share prices and sent 50,000 Thl to London to buy 3%-annuities. These were considered 'pure parliamentary funds and thus best secured, and because of their very low interest are the last to be redeemed, [and] at the moment [they] can be purchased at

\textsuperscript{698} See also Landmann (1903): 94.
\textsuperscript{699} Temin/Voth (2004): 1655.
\textsuperscript{700} Data for a comparison with other investors is from Larry Neal, who has kindly provided me with this data.
\textsuperscript{701} Altorfer (2004b). These calculations do not consider any dividend payments.
\textsuperscript{702} Holdings in South Sea stock (nominal): Sir Denis Dutry £141,600 (overall asset market value: £202,779), Sir Peter Delme £122,103 (overall £325,222), Bank of England £150,000 (overall assets unknown), Million Bank: £136,147 (ditto). See Dickson (1993): 270-284. Market values were calculated with Neal (1990): appendix.
\textsuperscript{703} StABE B VII 2389.
\textsuperscript{704} StABE B VII 2465/1.
\textsuperscript{705} Other eighteenth-century investors were more aware of this: Carter (1975): 48-49; Bernstein (1996): 6.
\textsuperscript{706} See the figures in Landmann (1903).
\textsuperscript{707} Hoppit (1986): 45.
15% below their true and intrinsic value.\footnote{Landmann (1903): 47. Similarly, in 1740 the Financial Commission expected that an immediate outbreak of war with Spain would bring a fall in prices for public funds and provide the opportunity to buy at low prices: StABE A V 1486: 49-56.} The main consideration of the government was its fear of debt redemption by the British, to the point that the canton’s authorities were willing to invest in lower yield securities to avoid being paid back. As an additional measure of security against redemption, Bern bought annuities issued in different years (1744, 1745, and 1750). Ashton argued with evidence from exchange rates that Dutch investors had the same bullish strategy of buying during a financial crisis, in the hope of a price increase.\footnote{During crises, the foreign exchange rate did turn in favour of the pound. Ashton explained this by the bull investment from Dutch investors and a run for liquidity in London when merchants sold foreign bills of exchange at very low prices: Ashton (1966): 194.}

To summarise Bern’s experience during the South Sea Bubble, the canton had made enormous profits from selling its assets when share prices were at their height in summer 1720. This was the unplanned outcome of a series of uninformed decisions, slow communication and opportunistic behaviour by the canton’s London agent. Although most of the speculative profit was lost shortly afterwards, Bern emerged from the troubled 1720s with a more valuable portfolio and was arguably one of the largest investors in London by 1723.

\section*{V-4 Portfolio Administration as a Principal-Agent Problem}

The case of Bern’s investment in London presents typical features of a principal-agent relationship, where the government as an investor (the principal) uses an agent to manage its portfolio. Microeconomics offers a broad range of principal-agent theory to deal with this issue.\footnote{For an overview: Milgrom/Roberts (1992), esp. ch. 6. Agency theory is often combined with concepts from game theory to explain the strategic behaviour of actors: Dixit/Nalebuff (1991); McMillan (1992); Hart, O. (1995). For an explicit use of agency theory in a comparison of early modern fiscal systems in Europe: Kiser (1994).} The main concerns are with problems that arise because of opportunistic behaviour, when the agent has differing individual objectives and the principal cannot ensure that the task is carried out in pursuit of her goals. The risk of self-interested behaviour by the agent (moral hazard) increases if a task is impossible or too expensive to monitor; if differences in incentives between
principal and agent cannot be resolved by designing and enforcing a complete contract; or if information is asymmetric.\textsuperscript{711} Several studies of early modern European capital markets explicitly use agency theory.\textsuperscript{712} Avner Greif's analysis of principal-agent problems in long distance trade has found that problems of imperfect monitoring, especially in non-repeated transactions, can be overcome by group cohesion that provides an informal contract enforcement institution (second party enforcement).\textsuperscript{713} In contracting with their agents, principals of the early modern period had to overcome the same basic problems as their modern counterparts. However, there were also significant differences: transaction costs were much higher and coordination mechanisms were slow. Information was extremely costly, and the legal framework for the contract enforcement was only partially available.\textsuperscript{714} With the fundamentals of principal-agent theory and their constraints in mind, we can formulate a set of working hypotheses for investments made by Bern. First, government officials can be expected to show awareness to problems of contract design, such as agent remuneration or monitoring. Second, in the absence of a universally enforceable legal system for Bern, the government was likely to use alternative informal enforcement mechanisms. Third, if changes in administration occur, they can be expected in response to agency problems. It is possible to test these hypotheses using documents about the administration of Bern's foreign portfolio.

The loans of 1710 had been prepared by the Secret Council as a matter of foreign policy.\textsuperscript{715} After the South Sea Bubble, the Secret Council was expanded to include the Mayor and two experts ('councillors') for matters concerning foreign investments. It was then referred to as \textit{Geheime Räte und Beigeordnete}, which I will call the \textit{Financial Council} for simplicity. The Great Council was the ultimate decision maker for all investment decisions; the Financial Council had to prepare decisions and report on important issues.\textsuperscript{716} The minutes of the Financial Council have not

\textsuperscript{711} Milgrom/Roberts (1992): ch. 6.
\textsuperscript{712} Hoffman/Postel-Vinay/Rosenthal (1999); Hoffman/Postel-Vinay/Rosenthal (2000); Neal/Quinn (2001).
\textsuperscript{713} Greif (1996); Greif (2005); Greif (2006). Compared to a legal system, they were only a second-best solution, because group membership was not free. See Weber, M. (1978); Sugarman (1996).
\textsuperscript{714} North (1991).
survived, but some of its discussions about the administration of foreign funds were recorded in a collection of government reports, the *Responsa Prudentum*.\(^{717}\)

As explained above, the first loan to England in 1710 was transferred by Ambassador Stanyan.\(^{718}\) Bankers *Malacrida & Comp* from Bern were entrusted with the administration of interest payments for the loan. *Malacrida* was a company founded by young members of patrician families who had converted to Pietism. As followers of this faith, they refused to swear an oath on the Second Helvetic Confession and Unity of Faith that Bern had introduced in 1699.\(^{719}\) As a result they became ineligible for government office. Robbed of their political ambitions, they founded a bank with close ties to the government. They were associated with Saumuel Müller, a citizen from Bern active as banker in London, and together they formed *Muller & Comp*. The original purchase of South Sea stock in 1719 was in part a result of their opportunistic behaviour, when they did not carry out orders by the government but advised the purchase of securities instead; the same holds true for much of the profit made in summer 1720 (discussed above). The actions of Samuel Müller seem like a classic case of opportunistic behaviour, where an unmonitored agent does not follow the principal’s orders. However, the outcome was not always benign. When Müller mortgaged the assets of the republic without the principal’s consent to grant speculative credits, these became non-performing loans once the asset price bubble burst.\(^{720}\) As a result, both *Muller & Comp* and *Malacrida & Comp* were declared bankrupt. The government was worried about its London assets and sent two members of the Great Council, Marx Morlot and Samuel Tschamer, as ‘commissioners’ to handle the matter. Morlot was a lawyer with knowledge of foreign languages and administrative experience, Tschamer was an officer in a Bernese mercenary regiment positioned in the Netherlands.\(^{721}\) It is not known how good their financial expertise was. From their correspondence with the treasury, it can be argued that they were acquainted with most investment tools of the time, though they did expect the government to despatch an accountant to London for assistance.\(^{722}\)

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717 An accountant or secretary carried out minor administrative duties. He was not part of the government, but usually a young member of a ruling family: RQBE, vol. 9/1: 83.
718 See Section V-2 above and StA BE B VII 2389. For Stanyan see footnote 219 above.
720 This episode is also referred to as the *Malacrida* crisis: Mülinen (1896); Landmann (1903): 24-50; Linder (2003); Linder (2004).
721 HBLS (1921-1934), articles *Morlot* (# 8) and *Tschamer* (#10).
The way in which the office of a commissioner for the English funds was established as an *ad hoc* solution to a problem and then perpetuated further illustrates the patrimonial character of Bernese administration.\(^{723}\) Tscharner remained in London until 1724 to manage the assets, as well as to attend the bankruptcy trials of Muller & Comp.\(^{724}\) Shortly before his return, the government sent instructions for the future administration of English funds: a member of the Great Council should be elected and sent to London for two years, with a yearly salary of £600 (c. 2,666 Thl). He had to collect interest payments and report to the Financial Council, was accountable to the Great Council and would be accompanied by a secretary-cum-accountant.\(^{725}\) Thus, financial intermediaries were excluded from the administration of the portfolio as a reaction to a crisis. Contractual relations to banks were replaced by a direct line of command from the Great Council to one of its members, linked to the republic by both birth and oath.\(^{726}\) The sanctions for opportunistic behaviour included the exclusion from future government offices as well as the loss of both fortune and honour; this also threatened his whole family.\(^{727}\) Private banks only became involved in the administration of the English funds after 1765, when London bankers Van Neck & Comp managed the assets and informed the government about financial matters.\(^{728}\)

For investments on the continent after 1732 the Great Council relied on banks from Vienna, Frankfurt, Dresden, Amsterdam and Geneva, as well as domestic banks.\(^{729}\) By sending one of its members to London, the government paid a high security premium for the administration of its English funds. This do-it-yourself solution was more expensive than contracting the task to a third party, and it impeded gains from specialisation. This move stirred a lively discussion within the frugal Bernese government.\(^{730}\) Before the commissariat for the English funds was formally established in 1730, the Financial Council would have preferred contracting with a

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\(^{724}\) For the trials: PRO C 11/483/2.

\(^{725}\) STABE A II 682: 347.

\(^{726}\) One document also mentions his 'duty to the estate' (*Standespflicht*): STABE A V 1479: 365-380. See also Linder (2003): 164-184.

\(^{727}\) The loss of honour is not to be neglected in a pre-modern society: Muldrew (1998).

\(^{728}\) Van Neck & Comp was a Dutch-English-Huguenot partnership. It was one of the most important and influential actors on the London capital market around 1760: Wilson, C. (1941): 111-114; Carter (1975): 99.

\(^{729}\) See the (incomplete!) list in Landmann (1904): 4.

\(^{730}\) Landmann (1903): 6-7.
London bank, but it was outvoted by the Great Council, who insisted on introducing this new and profitable office for one of its members.\textsuperscript{731}

The commissariat was an office similar to the post of bailiff in one of the more profitable counties of the canton.\textsuperscript{732} The commissioner was elected amongst the members of the Great Council by majority, served for four years and received a fixed salary.\textsuperscript{733} The appropriate remuneration for the office was controversial. The Financial Council considered a yearly salary of £600 largely sufficient, citing that most ambassadors in London were not paid even half as much. Furthermore, this pay rise could attract ‘all kinds of subjects’ to stand for office who may not ‘carefully examine themselves if they have the necessary capacity [for this task].’\textsuperscript{734} In microeconomics a situation where high remuneration attracts the wrong economic agent is referred to as adverse selection, or a ‘lemon problem.’\textsuperscript{735} The Great Council did not share this concern and decided to pay the commissioner £800 a year, but abolished the post of a secretary at the same time. This relatively high salary was also intended to compensate for the prohibition of other sources of income for the commissioner during his tenure as a measure to prevent opportunistic behaviour. The commissioner was neither allowed to trade assets for himself or others, nor to collect interest payments or perform any other duties for third parties.\textsuperscript{736} This awareness of agency problems arose from the negative experiences encountered in the past. Apart from the case of Muller & Comp, the secretary Samuel Schneider had cheated several government members in 1729 and absconded with their private money.\textsuperscript{737}

After the commissariat was established, discussions about the administration of foreign funds did not come to a halt. As early as 1737, suggestions of its abolition were raised.\textsuperscript{738} In the 37 years of its existence there were at least 13 attempts to

\textsuperscript{731} StABE A V 1470: 899, 1000-1001; After the abolition of the commissariat in 1765 a report against its re-introduction estimated that this would mean to ‘satisfy a farfetched private interest’: StABE A V 1479: 357-364.
\textsuperscript{732} The commissariat was classified as an office of the second class in the four-class system of government offices: Feller (1955): 106-129; Anonymous [Abraham Stanyan] (1756): 81-82.
\textsuperscript{733} For bailiffs, see Section II-4 above.
\textsuperscript{734} StABE A V 1470: 999-1007, quote: 1002. It is not clear if the statement about ambassadors was true.
\textsuperscript{735} Akerlof (1970).
\textsuperscript{736} StABE A IV 215: 912-916, edited in RQBE, vol. 9/1: 201-206. See also StABE A V 1473: 285-297.
\textsuperscript{737} One victim was future Mayor Christoph Steiger: BBB Mss. Hist. Helv. L67; see Linder (2003): 173.
\textsuperscript{738} StABE A V 1472: 133-158.
reform the commissariat and its instructions changed several times.\textsuperscript{739} The critique centred on two issues: the lack of candidates and the problem of security. The lack of candidates was the result of several factors that made this office unattractive. A commissioner was stationed far away from home; the high salary did not make up for missed career opportunities in Bern, where an even more profitable bailiff position could be obtained (see figures in Section II-4). In contrast to this, living in London was expensive and, as one report had it, a commissioner had to live ‘amongst people whose language he [the commissioner] neither knows nor understands.’\textsuperscript{740} Furthermore, tasks undertaken in normal times were repetitive, since a commissioner only had to collect dividends and write ‘increasingly sterile’ letters, a duty that the Financial Council considered both unaccustomed and unworthy of a government member.\textsuperscript{741} As a remedy against all these unappealing aspects, there were attempts to raise the salary for the commissioner.\textsuperscript{742}

To address the lack of candidates, the abolition of the existing limits in eligibility and a reduced term of office were discussed.\textsuperscript{743} A diplomat from Basel had suggested the transformation of the commissariat into a fully fledged embassy in London in 1750, but this option was never seriously considered within the Bernese government.\textsuperscript{744} The major subject of debate was the security of funds and interest payments – or the agency problem of opportunistic behaviour. One proposal sought to establish an additional guarantee for commissioners, as they were dealing with considerable sums on behalf of the treasury.\textsuperscript{745} Such a guarantee would have had to cover at least one years’ worth of dividends to be effective, approximately £10,000 (or 1.3m Bz). Such a huge sum made it difficult to find someone willing to stand as guarantor, ‘considering that the office is so remote, and there are so many fatalities,
temptations and dangers a friend [i.e. the commissioner] is exposed to.\textsuperscript{746} The Financial Council was also aware that such collateral would further reduce the field of potential candidates.\textsuperscript{747} Having said that, the discussion reveals how important the security of its investment was to the government.\textsuperscript{748} The Great Council did not trust the internalised sense of duty of its own members whole heartedly, in spite of the existence of both formal and informal enforcement mechanisms.\textsuperscript{749} After all, the fraudulent activities of Muller & Comp had happened even with informal inter-group sanctions in place.\textsuperscript{750}

When the commissariat was finally abolished in 1765, Bern paid considerably less for the administration of its English funds. According to the contract with \textit{Van Neck}, they received £200 per year, which was not even a quarter of what a commissioner had been paid previously if travel expenses are included. The bankers had to inform Bern in good faith about ‘news that is likely to have an influence on [Bern’s] interests.’ As security (collateral) for dividend payments, \textit{van Neck} had to mortgage £10,000 in 3%-Consols to Bern.\textsuperscript{751} A report by the Financial Commission of 1737 shows that an earlier, stalled project had expected bankers Boissier & Selon from Geneva to mortgage real estate as a security, which they apparently refused.\textsuperscript{752} Improved monitoring possibilities, such as a well established legal infrastructure in London, and the availability of more reliable and faster information helped reduce the costs of contracting out.\textsuperscript{753} Even after the commissariat was abolished, discussions were continued for a short time. There were concerns that the financial know-how within the government was disappearing or that information provided by bankers was unreliable. These arguments were dismissed with reference to the ‘great many books

\textsuperscript{746} StABE A V 1478: 902-909.
\textsuperscript{747} StABE A V 1472: 133-158 and 1478: 902-911.
\textsuperscript{748} See also StABE A V 1473: 285-297.
\textsuperscript{749} Greif (1996).
\textsuperscript{750} The property of the bankers was confiscated and they were banned from the city. For the trials: Linder (2003): 135-147.
\textsuperscript{751} In case of a capital transaction they would have to do the same for the sum involved. The convention is edited in: Landmann (1904): 63-64 (annex 32).
\textsuperscript{752} StABE A V 1472: 133-158. As a reply to this, David Gruner as the successor of Malacrida & Comp had proposed his services, but considered that mortgaging property could harm his credibility. It is according to his proposal that Boissier & Selon had finally refused this form of collateral: BBB Mss. Hist. Helv. II.9 (35).
\textsuperscript{753} See North (1990); North (1991).
written and published in all languages’ and to existing contacts to London through both merchants and private investors.\textsuperscript{754}

To analyse the inherent problems of portfolio administration, I have used micro-economic principal-agent theory. The main findings are that the government was well aware of the underlying agency issues. By carrying out financial administration through a member of the Great Council sent to London rather than relying on foreign bankers, the government was willing to pay a high security premium for this costly do-it-yourself solution. Throughout its period of existence, the office of commissioner for the English funds attracted much critique, as the government was trying to find a balance between adequate remuneration and incentives to avoid issues of moral hazard. The commissariat was largely the outcome of the painful experiences Bern had made during the South Sea Bubble. After several uneventful decades in which communication and information improved, the time was finally right for a return to contracting out the administration of foreign funds to London banks in 1765.

V-5 Early Modern Portfolio Analysis

Financial economics offers a set of sophisticated tools for analysing investment portfolios and their performance.\textsuperscript{755} In this section, I will use some simple methods to analyse the risk profile of the Bernese investment strategy. I will first explain the applied techniques, then discuss the London portfolio and finally Bernese investments on the Continent.

The basic principle of portfolio management is for an investor to diversify holdings in order to maximise the expected return for a given amount of risk.\textsuperscript{756} The underlying assumption is that yields are inversely related to risk, or that investors have to pay a negative risk premium for safe assets. The capital asset pricing model (\textit{CAPM}) suggests that markets will adjust to ensure that returns compensate investors for the risk of their assets when held with a perfectly diversified portfolio. It

\begin{itemize}
\item \textsuperscript{754} StABE A V 1479: 357-364 and 365-380.
\item \textsuperscript{755} See for example: Elton/Gruber (1995) or Kohn (2004).
\item \textsuperscript{756} The basic concept was presented by Markowitz (1952); Markowitz (1959).
\end{itemize}
calculates an expected return for any asset as a function of the rate of return of risk-free assets, plus a risk premium (called Beta coefficient) for this particular asset.\footnote{For the basic CAPM: Elton/Gruber (1995): 294-310; Neal uses a simplified version for the eighteenth century: Neal (1990): 125-131.}

The problem when applying these models quantitatively to early modern times is to find the necessary data. London and Amsterdam asset prices have been edited, but there is little information about markets on the Continent.\footnote{For Amsterdam and London: Neal (1990); Dillen (1931).} For example, prices for bonds issued by the Vienna City Bank, one of Bern’s major investments, are anecdotal.\footnote{Records before the establishment of the Vienna stock exchange in 1771 are uncertain. After this date, bond prices had to be posted by official brokers, the Sensale. It is not clear if these prices were published; they have not been edited so far. See Chaloupek/Eigner/Wagner (1991): 930; Baltzarek (1973): 1-32; Fuchs (1998). I thank Dana Stefanova (Vienna) and Markus A. Denzel (Leipzig) for information about this matter.} Some of the canton’s assets were not traded at all. It was therefore impossible to calculate their real value. Furthermore, it is difficult to define a risk-free return for the eighteenth century; the fact that there was never a state bankruptcy in Britain does not mean that government securities were safe \textit{ex ante}. Innovations in government finance were still relatively recent and the governments’ commitment to follow the new rules of the capital market was not always beyond any doubt. As a proxy for risk-free assets, Neal uses the Consol, a fixed interest government bond that was introduced in 1751.\footnote{Neal (1990): Consols were perpetual and redeemable (‘consolidated’) annuities. For the time before Consol prices are available (i.e. before 1753), Neal extrapolated back using 3%-Bank annuities until 1723 and South Sea annuities for earlier years: Neal (1990): 127 (note 16).}

Given the imprecise nature of the raw data, the use of sophisticated econometric techniques would suggest an inappropriate degree of accuracy. Because my figures are largely based on non-market values and parity courses (see Section V-1), I only use basic models of financial economics, such as yearly holding-periods rate of return (HPR). The HPR is defined as

$$HPR_t = \left[ \frac{(P_{t+1} - P_t) + D_{t+1}}{P_t} \right]$$

Where $P$ is the price per share as a percentage of par, and $D$ is the dividend as a percentage of par. A regression of the HPR series for a single stock against that of the market as a whole provides the beta coefficient as a measure for the risk of an asset. Beta coefficients usually range between 0.5 for low-yield, low-risk securities and 1.5 for high-yield, high risk assets.\footnote{Neal (1990): 55. HPR regressions are usually made with monthly data.} I will use HPR regressions for the London
portfolio, for which market data is available. For the canton’s Continental portfolio, gross returns on investments were calculated by setting the revenue recorded in Bernese accounts in relation to the capital. Standard deviations for these gross returns are an indication of the underlying risk of assets. These quantitative results will be compared with unsystematically collected qualitative data about portfolios of other investors and with government reports about the foreign funds.

The London Portfolio

The early investments in London and their transformation into portfolio investments have already been discussed (see Sections V-2 and V-3 above). Figure V-5 provides an overview of Bernese investments at market value, calculated with data from Castaing’s Course of the Exchange published by Neal.762

![Figure V-5: Investment of Bern in English Funds 1718-1798, Market Value](image)

Sources: Historie (StABE B VII 2389) and accounts for foreign funds (StABE B VII B VII 2396-2473); Landmann (1903); calculated with prices from Neal (1990), appendix and Dillen (1931) as discussed in Figure V-4. The category others consists of short-term investment, such as Land-Tax bills. SSC Annuities combines old and new South Sea Annuities.

Investment in England increased until 1730 and remained constant for about six decades, despite some fluctuations. The two troughs of the 1760s and the late 1770s

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762 Edited by Neal (1990), appendix and Dillen (1931). See also footnote 697 above.
were due to low share prices. In the 1790s, the value of English funds fell rapidly when Bern liquidised its funds (see Section III-5 above). In 1719, the entire portfolio consisted of South Sea stock. After the South Sea Bubble, the canton also held Bank stock, South Sea annuities and several short-term assets. All these bearer bonds were sold for South Sea stock in 1722. When the South Sea Company split its capital a year later, half of the assets became South Sea annuities. The redeemed Dutch loan was invested in Bank stock between 1725 and 1730. After the mid-1730s, there were no more significant changes in the portfolio. If new assets were bought, they were Consols. From 1792 to 1796, the government sold mainly Bank stock.763

To assess the risk of this portfolio, it would be ideal to regress its HPR against the HPR of an average market portfolio, but since dividend payments for its calculation have not been edited, I have use fixed interest annuities as an alternative. As a result, HPR of the Bernese portfolio were regressed against the HPR of a Virtual Consol in a linear regression.764 Thus, only a relative beta coefficient (relative to the Consol) can be established. We would expect the portfolio of Bern as a risk averse investor to have a similar beta coefficient to the Consol, considered to be the safest asset of the time. The regression results in Section VII-21 in the appendix indicate that the Bernese portfolio was almost identical to the Consol and therefore rather low-risk, with a relative beta coefficient of 0.9702 (the results are highly significant but have a relatively low value for R squared of 0.7890). The HPR series themselves had a very high volatility.765 The conclusion from this quantitative analysis is that the London portfolio of the canton was a low-risk and low-yield investment. This interpretation can now be verified with qualitative evidence from government sources.

The security of its investment was always of major concern to the government. For example, Bern bought Bank stock in 1725 because this was believed to be the safest of the English funds. In addition, bearer bonds (such as annuities) were considered less safe than the registered stock, because they could be sold more easily by an agent without the consent of the principal.766 In May 1730, the Great Council

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763 See Landmann (1903) for the nominal values.
765 With an arithmetic average of 3.66%, the standard deviation is 9.16% (min. −29.66%, max. 28.49%); a mean cannot be calculated with negative values.
766 StABE B VII 2389.
ordered the Financial Commission to report on different investment opportunities. They suggested to abstain from further investing in South Sea stock because Bern already held £158,700 at this time. It was considered the most endangered and uncertain of all the English funds in the case of war. Moreover, the company directors were not held in high esteem. Overall this is a remarkable assessment of the fund in which the republic had most of her money invested. The report also dissuaded the government from buying shares of the *East India Company* that were supposedly overpriced, despite a yearly dividend of 8%. More suitable for Bern were annuities of the *South Sea Company* or the *Bank of England*, because they were ‘a parliamentary fund and not involved in risky commercial ventures.’ In particular, titles of the Bank were said to have an excellent reputation, being the most profitable assets despite their relatively high price.

When the government thought about withdrawing money because of the ‘uncertain times’ in 1792, the assets in London were considered the easiest to liquidate. A high price and an advantageous course of exchange made them suitable for such an operation, even though they were also the canton’s most secure investment. According to the Financial Commission, bonds of the *Vienna City Bank* were less volatile and should thus be saved for ‘urgent necessities.’ Another major concern of the government was the fear that Britain might repay her national debt. In a report of 1732, commissioner Lerber was worried that South Sea stock could be repaid as soon as the British started to redeem debts. The Great Council discussed the possibility of increasing its continental assets, but finally decided to leave the money in England, where ‘the whole nation is liable, to pay a little more, and to be safe.’ But the government was still concerned about the commitment of the English to play by the rules of the capital market, at least in the way the Bernese understood them. In 1736, there were complaints that the English parliament – with ‘deceit and force’ – tried to get rid of foreign creditors by repaying them through the sinking fund while

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767 StABE B VII 2465/1. The Great Council decided to invest in Bank stock on 7 June 1730.
768 StABE B VII 2465/56. It is not possible to test this quantitatively with HPR regressions, since bond prices for the Vienna City Bank are not edited. The standard deviation of their gross returns was lower than that of the English funds (median gross return: 4.57%, std dev: 0.90%; for the English funds: 3.79% and 1.10% respectively); see Section VII-21 in the appendix for details.
769 See also Steiger, C.F. (1952); Kapossy (1998).
770 Quotes from Landmann (1903): 53.
taking up loans at lower interest rates; in the opinion of the Bernese government this was only harming the old creditors.\footnote{StABE B VII 2465/2; Landmann (1903): 51-52.}

Continental Investments

Given that the Bernese strategy for its London investment was to maintain a low risk profile, the continental portfolio will be analysed with the hypothesis that the government was willing to take a greater risk by starting to invest there. This hypothesis will first be discussed quantitatively, then against the background of qualitative evidence.

Figure V-6 shows Bernese foreign investment from 1710 to 1798 based on contemporary accounts. Its assets in London are at market prices, the rest are at nominal value with currencies converted at parity rate.\footnote{For parity rates, see Section V-1 above.}

**Figure V-6: Foreign Investments of Bern by Geographic Distribution, 1710-1796**

Sources: Historie (StABE B VII 2389) and accounts of foreign funds (StABE B VII B VII 2396-2473); see also Landmann (1903): 90-91. England (value) calculated as explained in Figure V-5. See Table V-4 for the full list of investments and their classification.
The general trend of the overall sums invested increased until the middle of the century and then remained constant for some 30 years. This was followed by a short and steep rise in the 1780s and a drastic fall in the 1790s. Geographically, most of the assets were concentrated in London. After 1732, investment was made in the Empire, first in bonds of the Vienna City Bank, later in bonds and loans to cities, princes or estates. In the second half of the century, the king of Denmark became one of the largest debtors; he was joined in 1787 by the Emperor (see also Sections III-4 and III-5 above). In Table V-4, I have calculated the gross returns on all Bernese loans and funds.

<table>
<thead>
<tr>
<th>Date</th>
<th>Security</th>
<th>N</th>
<th>max</th>
<th>min</th>
<th>mean</th>
<th>median</th>
<th>std dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>English funds</td>
<td>1718-1798</td>
<td>77</td>
<td>5.89%</td>
<td>1.22%</td>
<td>3.79%</td>
<td>3.77%</td>
<td>1.10%</td>
</tr>
<tr>
<td>Vienna City Bank</td>
<td>1732-1798</td>
<td>65</td>
<td>6.54%</td>
<td>1.69%</td>
<td>4.57%</td>
<td>4.59%</td>
<td>0.90%</td>
</tr>
<tr>
<td>Tax Office Leipzig</td>
<td>1737-1781</td>
<td>38</td>
<td>5.96%</td>
<td>0.00%</td>
<td>2.74%</td>
<td>2.96%</td>
<td>1.47%</td>
</tr>
<tr>
<td>Count of Hesse-Cassel</td>
<td>1738-1763</td>
<td>19</td>
<td>6.92%</td>
<td>2.33%</td>
<td>4.13%</td>
<td>4.65%</td>
<td>1.18%</td>
</tr>
<tr>
<td>City of Leipzig</td>
<td>1746-1798</td>
<td>46</td>
<td>9.31%</td>
<td>0.00%</td>
<td>4.08%</td>
<td>3.97%</td>
<td>2.09%</td>
</tr>
<tr>
<td>Electorate Estates of Saxony</td>
<td>1746-1776</td>
<td>25</td>
<td>7.49%</td>
<td>0.00%</td>
<td>2.95%</td>
<td>3.30%</td>
<td>1.99%</td>
</tr>
<tr>
<td>Duke of Wurttemberg</td>
<td>1750-1798</td>
<td>48</td>
<td>8.10%</td>
<td>2.45%</td>
<td>5.28%</td>
<td>5.40%</td>
<td>0.86%</td>
</tr>
<tr>
<td>King of Sardinia</td>
<td>1750-1764</td>
<td>14</td>
<td>4.00%</td>
<td>2.28%</td>
<td>3.84%</td>
<td>4.00%</td>
<td>0.47%</td>
</tr>
<tr>
<td>King of Denmark</td>
<td>1757-1798</td>
<td>40</td>
<td>6.77%</td>
<td>1.24%</td>
<td>4.55%</td>
<td>4.82%</td>
<td>1.22%</td>
</tr>
<tr>
<td>Duke of Mecklenburg-Schwerin</td>
<td>1769-1798</td>
<td>29</td>
<td>5.07%</td>
<td>2.58%</td>
<td>3.78%</td>
<td>3.90%</td>
<td>0.76%</td>
</tr>
<tr>
<td>Bishop of Speyer</td>
<td>1770-1778</td>
<td>9</td>
<td>3.88%</td>
<td>2.59%</td>
<td>3.53%</td>
<td>3.88%</td>
<td>0.54%</td>
</tr>
<tr>
<td>Count of Nassau-Saarbrucken</td>
<td>1770-1798</td>
<td>24</td>
<td>5.90%</td>
<td>0.00%</td>
<td>4.02%</td>
<td>4.36%</td>
<td>1.59%</td>
</tr>
<tr>
<td>City of Ulm</td>
<td>1772-1788</td>
<td>17</td>
<td>5.82%</td>
<td>1.94%</td>
<td>3.81%</td>
<td>3.88%</td>
<td>0.73%</td>
</tr>
<tr>
<td>Abbot of St. Gallen</td>
<td>1772-1798</td>
<td>25</td>
<td>6.47%</td>
<td>1.29%</td>
<td>3.83%</td>
<td>3.92%</td>
<td>0.91%</td>
</tr>
<tr>
<td>Count of Hesse-Darmstadt</td>
<td>1775-1798</td>
<td>21</td>
<td>6.47%</td>
<td>0.00%</td>
<td>4.97%</td>
<td>4.81%</td>
<td>1.24%</td>
</tr>
<tr>
<td>City of Nuremberg</td>
<td>1776-1798</td>
<td>16</td>
<td>6.27%</td>
<td>0.00%</td>
<td>3.89%</td>
<td>4.61%</td>
<td>2.32%</td>
</tr>
<tr>
<td>Duke of Zweibrücken</td>
<td>1777-1798</td>
<td>13</td>
<td>3.96%</td>
<td>0.00%</td>
<td>2.33%</td>
<td>3.88%</td>
<td>1.95%</td>
</tr>
<tr>
<td>Duke of Saxony-Weimar</td>
<td>1779-1790</td>
<td>9</td>
<td>6.52%</td>
<td>0.00%</td>
<td>4.35%</td>
<td>4.35%</td>
<td>1.77%</td>
</tr>
<tr>
<td>Emperor</td>
<td>1787-1798</td>
<td>10</td>
<td>6.12%</td>
<td>4.01%</td>
<td>5.72%</td>
<td>6.12%</td>
<td>0.78%</td>
</tr>
<tr>
<td>Duke of Schwarzenberg</td>
<td>1788-1798</td>
<td>9</td>
<td>3.88%</td>
<td>3.88%</td>
<td>3.88%</td>
<td>3.88%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Commune of Le Locle</td>
<td>1789-1792</td>
<td>3</td>
<td>4.80%</td>
<td>4.80%</td>
<td>4.80%</td>
<td>4.80%</td>
<td>0.00%</td>
</tr>
</tbody>
</table>

Table V-4: Bernese Overseas Capital Investment: Funds and Loans

Sources: Historie (StABE B VII 2389 and accounts foreign funds (StABE B VII B VII 2396-2473); see also Landmann (1903): 90-91. In the column Security, B stands for bonds, M for loans secured by mortgage, C for loans secured by collective guarantee; N stands for the number of observations (i.e. years). The values for All Bonds, All Mortgages, and All Collective Guarantee were calculated as the yearly sum of interest payments divided by the capital invested at the given year. I have not included the loan sums because they were changing over time. See Figure V-6 for an overview by region.

When comparing gross returns, we would expect the continental assets to have a higher yield and higher standard deviation than the English funds as an indicator of their risk. Table V-5 provides aggregated data for investment categories defined by the type of security offered. We would expect higher risk for investments in loans.
secured by mortgage (usually to princes) or by collective guarantee (cities and estates).

<table>
<thead>
<tr>
<th>Investment / Security</th>
<th>N</th>
<th>Gross Return</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean</td>
</tr>
<tr>
<td>English funds</td>
<td>77</td>
<td>3.79%</td>
</tr>
<tr>
<td>Investment in bonds (Continent)</td>
<td>167</td>
<td>3.87%</td>
</tr>
<tr>
<td>Loans secured by mortgage</td>
<td>205</td>
<td>3.96%</td>
</tr>
<tr>
<td>Loans secured by collective guarantee</td>
<td>107</td>
<td>3.49%</td>
</tr>
</tbody>
</table>

Table V-5: Gross Return on Different Investments

Sources: Historie (StABE B VII 2389 and accounts foreign funds (StABE B VII B VII 2396-2473); see also Landmann (1903): 90-91. N is for the number of yearly interest payments for each type of investment, SD for standard deviation. See Table V-4 for the full list of investments and their classification.

A direct comparison between the different types of investments is difficult because loans had fixed interests while the return on funds – at least on some of the funds – varied. The investment in continental bonds had a slightly higher yield than the English funds, but their standard deviation was smaller. Loans secured by mortgage were slightly riskier, with higher average returns and standard deviation. Loans granted against collective guarantee paid a lower interest rate and had a higher standard deviation. This was also because most non-performing loans of Bern were of this type.

My quantitative analysis of government documents focuses on the most interesting of the continental investments.\textsuperscript{773} The hypothesis is that Bern used a (proto-) country risk assessment for its decisions.\textsuperscript{774} After the Dutch loan of 1710, the canton’s first investment outside London was made in 1732, when bonds issued by the Vienna City Bank (VCB) were chosen to diversify the portfolio. This bank issued bonds guaranteed by the city of Vienna in order to finance the Imperial debt, modelled after the French Rentes sur l’Hôtel de Ville de Paris.\textsuperscript{775} Bern bought these

\textsuperscript{773} For a chronology and a complete list: Landmann (1903).
\textsuperscript{774} Proto in the sense that it was used before the concept was formally invented. For country risk assessment: Calverley (1985); Haner/Ewing (1985). For a historic example from the late eighteenth century: Ortuba (1963); Ortuba (1975).
bonds shortly before the *Vienna City Bank* suffered a severe crisis in 1733.\(^{776}\) It is not clear what other investment opportunities were discussed for this first investment on the continent, but shortly afterwards the Financial Council was asked to report about possibilities for further diversification. These included estates in the Empire (Silesia, Nürnberg, Württemberg), princes (the Count of Isenburg and Bündingen, the Margrave of Baden-Durlach) and even a commercial project of a merchant from Geneva (M. Port, for salt trade).\(^{777}\)

Despite its investment in bonds of the *Vienna City Bank*, the Bernese government avoided direct financial relations with the Emperor. He repeatedly offered the Fricktal as collateral for a loan, but Bern was more inclined towards purchasing the county (see Section V-2 above).\(^{778}\) In 1728, a report by the Financial Council recommended against providing an Imperial loan in order to avoid having great lords as debtors, from which, 'as is known, it is difficult to obtain one's capital, and no republic wants to provoke their antagonism.'\(^{779}\) To avoid this issue, the government concealed its identity for the 1787 loan. When the Emperor issued loans in Frankfurt a few months earlier, the printed prospectus did not arrive timely enough for Bern to participate in the subscription.\(^{780}\) For the second loan, the Financial Council proposed an investment of fl. 250,000 (125,000 Thl), but the Great Council decided to take up the whole sum of fl. 500,000 (250,000 Thl). Bonds were issued in Vienna to the name of Frankfurt bankers *Bethmann Bros.* and then endorsed to Bern. The intention was to leave the Imperial treasury uninformed about the true nature of its creditor.\(^{781}\) It is doubtful that the strategy worked, given that the decision to invest was made by the Great Council within which secrecy was difficult to maintain.

The government usually applied a country risk assessment to its investment decisions, although it was not always as explicitly stated as in the report about Duke of Hesse-Cassel in 1774 mentioned above (see p. 252). In exceptional circumstances,

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\(^{776}\) Fuchs (1998): 71-91. He mentions a 'spectacular drop' of bond prices without providing quantitative data.

\(^{777}\) StABE B VII 2465/2. Part of the Financial Council wanted to concentrate the investment in Vienna, others to spread the money evenly over different investments.

\(^{778}\) Landmann (1903): 80-97. In 1703, St Saphorin was the Imperial agent for negotiations with Bern: Mensi (1890): 417. For St Saphorin, see Section V-2 above and Altorfer (forthcoming).

\(^{779}\) The original text says: '[..] will man sich anders nicht mit ihrer Feindschaft beladen, die [sic, should be: *der*] doch jeder republikanische Staat sorgfältig ausweichen soll'; Landmann (1903): 82. For similar demands of the Emperor to Zurich (1706-1737): Peyer (1968): 125-127.

\(^{780}\) The prospectus is reprinted in Landmann (1903): 126-127.

\(^{781}\) The same procedure was applied for the interest payments: Landmann (1903): 85-87.
security standards were not strictly applied for political reasons. For example, a loan to the city of Ulm was granted despite concerns about security because of the credibility of its citizens, geographical proximity and the purpose of the loan being a grain purchase to avoid starvation.\textsuperscript{782} The same generosity was applied for some loan extensions, where lower interest rates were conceded, mostly at times when the debtors were at war. In 1787 – before investing in the Imperial loan discussed above – several investment opportunities were assessed. According to the report of the Financial Council princes, cities and estates with the appropriate guarantees were unlikely to take up loans at 4\%, which was considered the minimum interest rate when lending overseas. Therefore, the money should be invested in public funds, of which the most appropriate were in France, England, Saxony and Vienna. With regards to an investment in France, the possibility was not even seriously discussed. Bern had so far ‘adopted a system of which no reason for change seems to be existent.’\textsuperscript{783} There were already important sums in England, and conditions were not particularly favourable at this moment. Funds in Saxony were accorded a good reputation, but the interest payment (3\%) was deemed too low. The interest rate paid by the \textit{Vienna City Bank} (4\%) was considered more attractive and the funds safer.

Apart from studying investments which were made, it is perhaps more interesting to look at gaps in the portfolio and explore why Bern bypassed some prime investment opportunities. A number of demands from small states were declined upfront.\textsuperscript{784} More strikingly, France did not receive a single Batzen in the eighteenth century, arguably because the canton’s old claims from the sixteenth century were still outstanding (as discussed in Section V-2 above). The Bourbon kings were notoriously unreliable debtors and the French capital markets was less well developed than in England and Holland.\textsuperscript{785} Geneva, with which Bern had close ties, was the major centre for French financial ventures that were sometimes of dubious nature.\textsuperscript{786} Despite – or rather because of – its nature as a high-risk business, several private investors from Bern were heavily involved with their personal money in life annuities and other French assets. Government members appear to have been less risk averse with their private investment than public funds, even though

\textsuperscript{782} Landmann (1903): 73.
\textsuperscript{783} STABE B VII 2465/36.
\textsuperscript{784} Landmann mentions the Duke of Mecklenburg-Strelitz, the City of Dünckelsbühl in Swabia, the City of Milan, or the Republic of Wallis: Landmann (1904): 6.
\textsuperscript{785} See Hoffman/Postel-Vinay/Rosenthal (1999); Hoffman/Postel-Vinay/Rosenthal (2000).
\textsuperscript{786} See Lüthy (1959); Sayous (1935); Sayous (1937).
systematic numbers on this cannot be established.\textsuperscript{787} Other Swiss Cantons were less scrupulous than Bern. Solothurn's investment in bonds of the Paris City Hall was already mentioned (see Section V-2 above) and Zurich increased its French assets after Necker became finance minister in 1778. The Zurich investment consisted of bonds issued by cities in Burgundy and Artois county, as well as life annuities.\textsuperscript{788}

None of the arguments used for France can explain the absence of Bernese investment in the most important and developed capital market of the eighteenth century, Amsterdam.\textsuperscript{789} After the 1710 loan ran out in 1725, Bern did not make further investments with the Dutch, whose funds were not even evaluated in the investment proposals. This was probably because there were hardly any new issues of Dutch government bonds; those that were issued were usually oversubscribed despite bearing relatively low interest rates. However, foreign governments used the Amsterdam capital market to issue their own bonds. The absence of Bern in these ventures can probably be attributed to low interest rates in the overcrowded capital markets of the Netherlands.\textsuperscript{790} The Dutch themselves were net capital exporters, even though Amsterdam regularly outperformed London in terms of net capital returns.\textsuperscript{791}

In the second half of the century, a public debate ensued around the safety of the canton's investments.\textsuperscript{792} The key issue was that overseas investment created a new form of dependency as Bern had to rely on the commitment of its debtor states to service their debts. This was noted by several contemporary critics of the state's foreign investments, of which Adam Smith was certainly the most prominent. In the \textit{Wealth of Nations}, he mentioned the Bernese case, highlighting the inherent danger for the canton of

\begin{quote}
placing it [i.e. money] in the public funds of the different indebted nations of Europe, chiefly in those of France and England. [...] The security of this revenue must depend, first upon the security of the funds in which it is placed, or upon the good faith of the government which has the management of them; and secondly, upon the certainty or probability of the continuance of peace with the debtor nation. In the case of war, the
\end{quote}

\textsuperscript{787} One example would be Friedrich Karl Ludwig Manuel: BBB Mhh. XXII.59. Thanks for Andrea Schüpbach and Manuel Bigler (Bern) for providing this data.
\textsuperscript{788} Peyer (1968): 135-138, 140-141. Some of the assets were held by the state-run bank \textit{Leu & Comp}; see Landmann (1905).
\textsuperscript{789} Wilson, C. (1941): 195.
\textsuperscript{790} For the low interest rate: StABE B VII 2389.
\textsuperscript{792} See Kapossy (1998).
very first act of hostility, on the part of the debtor nation, might be the forfeiture of the funds of its creditor.\textsuperscript{793}

As explained above, Bern never invested in French funds, but the difficulty of getting regular interest payments on its outstanding loans is a case in point for Smith's argument. Reformers from the Bernese Economic Society were also sceptical about the dependence on foreign debtors and doubted their stability. In addition, they saw economic dependence as being incompatible with the political self-determination of a free state.\textsuperscript{794} On the other hand, the fact that Bern was profiting from the high tax burden and the constant warfare of other states was not considered a moral issue by the Economic Patriots. Even the state as a potential speculator was apparently not criticised. Patricians in favour of foreign funds defended the state's policy to invest. In the view of Karl Friedrich Steiger, it was only with the additional revenue from foreign interest payments that the Bernese government could maintain the freedom it inherited from its forebears and maintain a low tax burden on Bernese subjects while establishing a welfare state that was generous in his view.\textsuperscript{795}

The government's dilemma was that in order to secure sufficient funds for a war chest to help maintain geopolitical independence, it had to rely on foreign debtors to service their national debt. The reasons why Bern decided to undertake the risk of investing overseas were economic and political. Economically, issues of monetary circulation and the lack of productive domestic investment opportunities were push-factors.\textsuperscript{796} Politically, the government gained internal independence from its subjects and their claims for political participation by generating 'tax-free' returns from investing, as was discussed under the heading of a representation cycle in the introduction (see Section I-3 above). From this perspective, the promise of safe and generous returns from investing on impersonal capital markets abroad was too attractive to let go.

In this section, I have analysed Bernese overseas investments with qualitative and quantitative methods. The results of the former show the canton as a risk-averse investor that obtained returns that were roughly in line with the most secure assets of

\textsuperscript{793} Smith (1976): 819-820.
\textsuperscript{794} Kapossy (2002): 245. See also Kapossy (1998).
\textsuperscript{795} Steiger, C.F. (1952), based on a speech made in 1784.
\textsuperscript{796} This is discussed in Section V-2 above.
the London market. On the Continent, the government took slightly more risk but can still be qualified as a ‘widow-and-orphan’ investor. Qualitative evidence supports this view, as the government used embryonic forms of country risk assessment in its investment decisions and preferred steady returns to high interest payments. The most interesting gaps in Bern’s overseas portfolio are France for political and the Netherlands for financial reasons.

V-6 Conclusion: An Assessment of Bernese Overseas Investments

The importance of overseas investment to Bernese state finance was addressed in Section III-5. The sums invested in 1710 represented about the same amount as all other transactions recorded by the A- and B-Type accounts that were later listed in the General-Bilanzen. They were also significant compared to the amount of cash stored in the government vaults: according to my own estimate, the loans of 1710 reduced the cash reserve by roughly two fifths (see Figure III-23 above). Interest revenue from overseas investments was also considerable, reaching 14.7% of current revenue in 1732 and 17.1% in 1782 (10.3% and 13.8% of total revenue respectively). Although this is not the third of the canton’s income that Landmann had estimated, it was still a significant contribution to the Bernese surplus state. While the sum invested was large by Bernese standards, it was only a fraction of the national debt of the recipient states. Nevertheless, Bern was one of the largest single investors in London, where the capital market of the city was fractured as a result of financial innovation that lowered entrance barriers for investors. By the late eighteenth century the canton had become one of many investors with similar sums at stake and was surpassed by the big players.

Another way of assessing the importance of Bern’s overseas investments is their role in the surplus state model. Foreign loans generated returns that were independent of taxpayers’ consent, making them an attractive option for the government to secure its independence. The foreign investments started as a

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797 Database (as in Chapter III above); see also Table IV-2 and Table IV-4 above.
798 Landmann (1904): 9. He used information from General-Bilanzen and General-Tabellen from 1785-1795 (discussed in Section III-4 above).
geopolitical tool to bolster relations with political allies during the time of the War of the Spanish succession, when Bern was at loggerheads with France. The government was willing to bear the risk of investing its money abroad because of the overcrowded domestic capital market, political motives and the desire for independence from its own taxpayers. If we assess Bern’s relationship to risk as an investor, it acted very cautiously, both in terms of portfolio administration and investment strategy. The impersonal nature of the early modern capital markets helped the government to downplay the political importance of its investments, but the independence of taxpayers came at the cost of an exposure to market movements and uncertainties. Having no national debt itself, the canton profited from the indebtedness of other European states which relied on capital markets to finance their warfare expenditure, and thus qualifies as a free rider of the *Financial Revolution*.

In 1720, the government made enormous windfall profits during the South Sea Bubble, which were lost almost immediately afterwards though the bankruptcies of her London agents. If the canton did not withdraw from capital markets entirely as a reaction, this was because the losses affected only a speculative gain and not the original capital invested. The crisis had a major impact on how Bernese funds in London were administrated and led to the replacement of financial intermediaries by government members. This was a costly solution to avoid agency problems. Diversification through investment on the continent a decade later was not only a late reaction to the South Sea Bubble, but also a way of averting dependency on a single borrower. The creditworthiness of Britain as the most important recipient of Bernese funds was questioned at several occasions. After 1732, Bern had a balanced portfolio of mostly low-yield (low-risk) securities, with slightly higher risk taking on the Continent. With its investment strategy, the government acted as a widow-and-orphan investor, seeking a steady interest payment rather than a quick profit. Qualitative data from its decision-making process supports this view. Issues of security were the central guideline when the government compared investment opportunities in a (proto-) country risk assessment. Thus, the quantitative and qualitative evidence on investor behaviour demonstrate Bern’s low-risk profile as an investor. If we assume that the government acted as a rational actor – and there is no reason why we should not – it can be argued that it was willing to pay a negative risk premium in the form of missed opportunities from higher returns. The safety of its investment was a highly valued utility in both the canton’s investment strategy and portfolio administration.
With respect to the ongoing debate about how integrated early modern capital markets were, evidence from the Bernese case points out how uninformed one of the largest ‘institutional investors’ of the time was. It might well be that the canton was representative for widow-and-orphan investors who invested in financial assets without much knowledge about how the market worked. The lack of information and know-how also points out severe limitations of early modern capital markets, once the scope is broadened beyond Amsterdam and London as the most advanced and integrated financial centres.
VI  Conclusion: State-Building without Taxation

The Bernese state was a puzzling entity for both contemporary observers and historians alike with its absence of warfare and taxation. My thesis proposes solutions to parts of this puzzle. This conclusion consolidates the empirical findings and discusses their wider implications for the study of early modern state-building. The first section summarises the main points of the empirical analysis in the context of the surplus state model outlined in the introduction. Section VI-2 discusses the physiocratic nature of the Bernese government, both with respect to state-building and economics. In Section VI-3, theoretical explanations that were discussed in the introduction will be used to put Bern into a European context, giving an overall assessment of the canton’s alternative way of state-building.

VI-1 Bern as a Surplus State

The Bernese fiscal constitution was overtly patrimonial. It evolved to comprise a structure with numerous coexisting accounts, all of which were interconnected through a complex system of transfer payments. Every officeholder was responsible for all transactions he carried out on behalf of the state with his private fortune. A sophisticated system of checks and balances limited moral hazard and ensured that agents behaved in the government’s interest. While the logical way to secure this would have been the establishment of a consistent and transparent budgeting process, this was never attempted by Bern. Instead, the government assessed its financial situation by compiling accounting information in tables, which revealed its half-hearted approach to the reform of fiscal institutions.

My empirical analysis of Bernese state finance takes a two-pronged approach, combining the long-term consideration of the most important government ledgers with a structural breakdown including all accounts for the sample years 1732 and 1782. In absolute terms, the canton’s expenditure was comparable to that of other small territorial states in Europe. With an estimated government expenditure of 17-22 tonnes of fine silver per annum, Bern spent about as much as Genoa or Sicily, but considerably more than other Swiss states.\textsuperscript{800} In per capita terms, Bernese expenditure of 55g of fine silver was roughly half of France’s, but slightly more than that for

\textsuperscript{800} Figures for Bern are for 1732 (17 tonnes) and 1782 (22 tonnes); see Section IV-2 for details.
Italian or German states of comparable size (see Section IV-2). The overall increase in public revenue, which more than doubled over the course of the century, was extensive in character, as it only mirrored population growth. With an annual growth rate of 1.3%, government finance was also roughly in line with secular grain price inflation in Bern (see Section III-4). Between the sample years 1732 and 1782, revenue grew by 30% when measured in the stable Batzen currency, by 6% when compared to wages, by 12% relative to tiles as a price-stable item; in grain equivalents, revenue even fell by 10%, which because of the high yearly fluctuations of grain prices requires careful interpretation (see Section IV-2). The government used a dual system of monetary payments and contributions in kind to avoid negative effects from grain inflation. Roughly a fifth of overall revenue was levied in grain and wine. This was consumed, stored and the eventual surplus sold on the market.

When considering Bern in the context of the surplus state model presented in the introduction, all elements can now be underlined with empirical evidence: budget surpluses, low level of defence expenditure, the absence of a national debt, investments and low taxation levels. First, the Bernese state consistently ran budget surpluses throughout the century. As far as reliable aggregated data is available, this was the case in 78 out of 96 years, with most deficits occurring in the 1790s. On average, the budget surplus was 11.8% of revenue although with high yearly fluctuations. Current revenue regularly exceeded current expenditure, resulting in a profit that was then invested. Profit rates averaged 12.6% over the century and were even more volatile than budget surplus rates. If the state was able to increase its overall assets over time this was largely the result of accumulated profits (see Section III-4).

Second, as both the long-run and the structural analysis illustrated, the canton was blessed with low levels of defence expenditure. In the two sample years, military spending was an estimated 4.4% (1732) and 10.7% (1782). The latter figure includes the cost of a small expedition to Geneva; if this is excluded, defence expenditure falls to around 6%. This is remarkably low in comparison with other European states, both in absolute and in relative terms (see Section IV-3 and IV-4). However, the cost of Bernese military measured through recorded expenditure alone can paint too rosy a picture. The main defence burden was shouldered by militia soldiers who were trained regularly and provided their own equipment without compensation. If

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801 For details about the elements of the surplus state model, I refer to Section I-3.
extracted labour through the militia system is factored in as an opportunity cost, both
defence expenditure and the fiscal burden on the Bernese population rises
considerably (see Section IV-5).

Third, Bernese state finance was characterised by the absence of a national
debt. In contrast to its European neighbours who invented sophisticated techniques of
funding their budget deficits by floating loans on the newly established capital
markets, the canton had no need to borrow money. This manifested itself in the
complete absence of any records of public debt or debt service in the empirical
evidence. Instead of amassing debt, the canton accumulated assets.

Fourth, the Bernese government was in a position to invest its surpluses with
the aim of generating future returns. The main types of investments have been
discussed in Chapter III; the data show that foreign capital investments were
quantitatively the most important by far (see also Chapter V). Purchases of territories
and judicial rights by the Bernese government, for which there is only limited
financial information, were relatively few in number as such objects rarely appeared
on the market. The state also had relatively moderate sums invested in grain, wine
and salt inventories. The cash reserve is a special issue, as it did not generate a direct
financial return. Since the treasure was originally intended as a war chest, its ‘return’
was arguably the peace dividend that ensued for as long as the bullion fulfilled its
function of deterrence. The Bernese government had a long history of lending money
on the domestic mortgage market, which had fuelled its territorial expansion and
reinforced clientelistic relationships. In spite of that precedence, the scale and nature
of Bernese overseas lending in the eighteenth century was unmatched by earlier
activities. The first massive loans to Britain and Holland in 1710 were partly
politically motivated, but their conversion into purely financial investments on the
London capital market less than a decade later was not (see discussion below). Bern
maintained a loan portfolio that served as an income generator as well as a
contingency buffer till the end of the century.

Fifth, to the extent that comparable data is available, the level of taxation in
Bern was the lowest of any European state. Only the other Swiss subjects benefited
from similarly light fiscal burdens. For the sample years 1732 and 1782, the canton
levied an estimated 16-23g of fine silver per capita. This is roughly equivalent to four
days’ wages for a construction worker or some 2% of economic output (GDP). By
comparison, in France tax revenue per capita was roughly three times higher; in the
states of the Holy Roman Empire subjects also paid between two and four times as much (see Section IV-5). Direct taxation on property was virtually unheard of in the Bernese republic. Most of the tax income accrued from indirect taxes on salt – disguised as a monopoly profit – and tithes on agricultural returns. Since the latter were levied in kind, they were also immune to any detrimental effects of grain price inflation. Tithe revenue allowed the Bernese state to enlarge the content of its granaries, which in turn was used to stabilise grain prices as a tool of economic policy.

How dependent the positive equilibrium situation was on the absence of warfare became clear when the geopolitical constellation changed in the 1790s. With an invasion from Revolutionary France as an imminent threat to independence, Bern had to liquidate part of its overseas assets and current expenditure soared. Budget surpluses and high investments became hallmarks of the past. Ironically, the prospect of looting the legendary treasure of the canton was one of the main attractions which enticed the Napoleonic troops. At the downfall of the Bernese republic in 1798, the militia’s military strength was dismal. Ultimately, the ‘war chest’ deterrence strategy had failed.

As outlined in the thesis introduction, the model of Bern as a surplus state functioned as a positive equilibrium structure, in which all elements are interdependent and mutually reinforcing. Some of the more obvious connections have been pointed out as *Militia-, Representation- and Investor Cycles* in Section I-3. The militia system secured national defence at a relatively low cost to the state, in spite of the cost to individuals serving in the army. Spending over a month in unpaid training every year meant an important deduction from potential earnings, although it kept the pecuniary tax burden low. Issues of domestic security in Bern were minimal; tax riots in particular were not common. The main forms of political protest were aimed at opening up participation in the republic within its existing form. This also ties in with the representation cycle. Since the Bernese state did not have to rely on direct taxation, there was no need to accommodate demands of taxpayers-cum-subjects. Embryonic attempts to integrate ruling elites from the territory into the government towards the end of the century were mainly intended to stabilise Bernese rule. Returns from the government’s overseas portfolio investments helped to keep the fiscal burden at a low level and curtail attempts to reform the state fundamentally.
Bernese financial support to the Dutch and British in 1710 was on an entirely different scale from what had been lent in earlier centuries. Compared to the Bernese budget, the sums invested were huge: the 1710 investments were roughly 1.5 times the sum of overall government revenue for 1732. The loan to the British crown alone (£150,000) was more than 50% larger than the cost of the second war of Villmergen. Interest payments contributed roughly a fifth to current revenue (see Section IV-3 and V-2). The loans only covered a fraction of the borrowers' expenditure of the War of the Spanish Succession, however. The financial – as opposed to political – dimension of Bernese loans became apparent when they were converted into portfolio investments upon redemption. In the 'teething age' of capital markets, the canton made an enormous profit during the South Sea Bubble of 1720. A combination of ignorance and slow communication resulted in the sale of government assets at the right time. Although a portion of the windfall was lost through the opportunistic behaviour of their London agent, Bern still made a substantial profit and emerged as one of the largest individual investors on the London market.

The lesson that the Bernese government gleaned from the events of 1720 was to carry out its own portfolio administration rather than leaving it to financial intermediaries who were difficult to monitor. The Great Council was willing to pay a high risk premium for this solution, which was in place for four decades. Otherwise the government changed little in its investment strategy; it was only in 1732 that the loan portfolio was diversified by investing on the continent. Throughout the second half of the century, Bern regularly lent money to foreign rulers, which in turn made the republic dependent on the goodwill of these borrowers. In particular, the fear of Britain reneging on her national debt undermined the perceived security of Bernese portfolio investments and was ultimately in conflict with their purpose of enhancing government independence.

In terms of fiscal redistribution, the results from the data are what would be expected for an early modern state. The government taxed the least mobile resources, mainly agricultural returns and salt, while spending its budget on salaries and consumption. Hence the primary sector bore the largest part of the fiscal burden, and administration was the main beneficiary of state expenditure. The small size of the contribution made by proto-industry towards state finance is remarkable; it was almost entirely free of tax. The relatively small share of the Bernese budget compared
to the size of its economy meant that the scope for fiscal redistributed was small, thus limiting its economic effects.

VI-2 The Tithes that Bound

The Bernese government relied heavily on physiocratic and patrimonial ideals; both were epitomised by the tithe as a cornerstone of the canton’s finances. Tithes allowed for an accumulation of granaries which were primarily a safeguard against harvest failures. In addition, granaries were also intended to stabilise prices while guaranteeing a lucrative profit if the government sold grain when prices were high and stored it when they were low. The empirical evidence suggests that this was the case for most years (see Section III-6). During severe harvest failures however, the government used large sums from the cash reserve to cover shortfalls in food supply. In the most dramatic agricultural crisis of the century in 1770, the Grain Chamber bought over 5,000 tonnes of grain from Sicily and Africa for 7.7m Bz. By selling it at a loss of 30% in spite of its high price, the government was willing to sustain heavy financial losses to prevent starvation and social unrest (see Section III-5). The idea of saving for the unexpected followed from a patrimonial attitude towards state finance. The state’s budget was regarded akin to that of a household, in which good housekeeping should prevail. Spending more than could be afforded was frowned on and debts were considered living off future generations of citizens. The tight budgetary framework of the Bernese government was partly a result of this ideology by which expenses were curbed to stay in line with the limited resources.

Overall, the provision of public goods by the state was favourable. Bernese rule was relatively mild and benevolent; the state administration was effective and inexpensive. Courts were non-discriminatory by early modern standards, and the interference of the ruling elite to secure its economic privileges was comparatively small. Nevertheless, the judicial system remained fragmented and was an impediment to ‘Smithian’ growth through market expansion. The government was mainly concerned with agricultural issues, not least because Bernese patricians were landholding gentry and tithe revenues were crucial to state revenue. Patricians were also among the most important private recipients of tithes and land rents, which is why property rights for mortgages were better developed and protected than mercantile law.
The government controlled the administration of the canton very tightly. The main positions were staffed by patricians, who were elected as bailiffs to govern over counties in the subject territories for a limited period. These positions were not sinecures; a bailiff was expected to reside in loco and carry out administrative tasks himself. With its extensive territory, the canton provided a sizeable number of relatively well-paid administrative offices, which were recruited exclusively from the Great Council. The Bernese parliament had evolved into a body of full-time politicians-cum-administrators whose main ambition was to serve in one of these positions. Bernese patricians retained traits of Weberian honoratores, although the ideal of serving the Res Publica for the sake of civic duty had been replaced by a generous remuneration for government offices. Access to government became increasingly limited by the high opportunity cost of waiting until accession to a lucrative position. Patricians were usually well educated and prepared for their duties, having been groomed with the prospect of becoming bailiffs at some point in their lives. In this sense, the Bernese administration bore some traits of a professional bureaucracy without fulfilling its main criteria of recruitment by qualification. Without a proper separation between private and public fortune, patrimonial traits persisted.

An incumbent bailiff was in charge of the public inventory, for which he was held accountable by the government. He collected revenue on its behalf and was allowed to deduct expenditure within strict guidelines set by the Vennerkammer as a supervisory board. The Venners also scrutinised the yearly accounts submitted by each bailiff on the financial aspects of his administration. Overall, the government followed a frugal – or parsimonious – approach to state finance. Lavish expense on representation was curtailed to make the state appear useful and sensible in its budget management. These were the virtues of a patriciate that considered itself the caretaker of the republic on behalf of future generations – more precisely, future generations of patricians. Towards its subjects, the government adopted a more paternalistic attitude, with the intention to provide a minimum of state activity at moderate cost, sans taxation and representation. In their daily administration, bailiffs were assisted by local support staff. These were often recruited from subaltern nobility who had secured exclusive access to their positions akin to the preferential entry that the patricians had into the government of the republic. These minor officials exercised considerable influence at the local level, mainly through an information advantages
they had over other subjects on one hand and over bailiffs who only served for a limited tenure on the other.

Since the bailiffs as those who were ultimately in charge of administration were also part of the government, this ensured that incentives of the two bodies were aligned. Principal-agent problems were therefore limited in their impact on the Bernese state. The remuneration of bailiffs illustrates this point well. They received a fixed salary complemented by variable payments for specific tasks and a share in the proceeds from grain sales. The latter gave them an incentive to sell grain at the best possible price. Based on the empirical evidence from the grain market in Nidau county this seems to have worked well: grain was usually sold when prices were high, to the benefit of both state and bailiff (see Section III-6).

As far as contemporary sources are available, the Bernese bailiffs appear to have achieved a reputation of being incorrupt and just. Although there may have been a bias in the tradition, the outlook of patricians and constitutional arrangements are viable explanations for this phenomenon. The constitutional arrangements in particular ensured that bailiffs were properly scrutinised and that any abuse of office was punished. A ban from future elections into government positions was a threatening prospect for any officeholder, since it could apply to his entire family. This created a system of peer pressure, which was further fuelled by the rivalry between families. The reliance of Bernese patricians on income from landholding limited economic conflicts of interest considerably. Because they were not involved in commercial or industrial activities, government factions had few vested interests to defend. On the other hand, from the perspective of farmers whose land was subject to tithes, the degree of government control was significant because in addition to the tax on agricultural revenue, cultivation was dependent on the landlord's consent. The choice of crops was determined by fiscal needs rather than by nutritional benefits. In addition, there was the risk of bailiffs abusing their information advantage to strengthen their own position in the mortgage market. The government's involvement in agriculture was not entirely negative, since patricians were among the main promoters of agricultural reform within the existing feudal order. The programme of the Economic Patriots, who were prominently represented in the Bernese government, was targeted at increasing domestic food production with the aim of maintaining the canton's economic independence and securing government revenue through high tithe receipts.
For (proto-)industry and commerce, the lack of involvement of Bernese patricians in economic affairs had a two-fold impact. First, regulation was moderate and can be characterised as benign ignorance. Economic privileges existed locally, but overall subjects were free to engage in economic activity. The systematic preference of the capital towards its territory, which occurred in other city republics, was absent in Bern. This negligence proved less benign for export-oriented industries. Bernese textile producers could not rely on their government to protect access to markets for imports and exports in the way privileged merchant-producers of St Gallen or Zurich could. While these cantons boosted cotton manufacturing, Bern was stuck with low-quality and low-margin linen production. It appears that in a world of mercantilism, the absence of protection outweighed the benefits of free enterprise. However, the fact that the canton missed out on industrialisation in the early nineteenth century only seems like a failure in retrospect. From a contemporary perspective, specialising in agriculture as the most profitable activity of its time made sense. On this note, the Bernese economy was arguably a victim of its own success based on the territory’s rich soils and mild climate. The opportunity costs of changing to export-oriented proto-industry were too high. In terms of state-building, on the other hand, the strong reliance on the primary sector with its large yearly fluctuations limited the ability to plan ahead.

With its reliance on revenue extraction via tithes and forced labour through the militia the Bernese state was characterised by Béla Kapossy as an agricultural military republic.

This description is accurate as long as the absence of a standing army is acknowledged as a significant difference to other military states. It is also important to stress that commercial republics, such as Venice or the Dutch Republic, were largely funded through taxation on commerce and property, as well as by issuing public debt on the capital market. In the logic of the Bernese surplus state, relying on income and indirect taxation was inopportune because potential taxpayers would have to serve in the militia army in times of geopolitical crises when revenue was most urgently needed. This offered an additional reason for the state to accumulate surpluses as a contingency measure.

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802 Kapossy (2002)
803 The most obvious example is Britain, which has been labelled a fiscal military state: Brewer (1989); O’Brien (1988); O’Brien (2001).
Among the negative aspects of state-building in eighteenth-century Bern was that political representation and participation in top-level administration was limited to less than 1% of the population. Even among the citizenry, the concentration of office holding within an increasingly small patrician oligarchy deprived many talented Bernese subjects of playing an active part in the governance of their republic. This led to a status inconsistency, which was felt acutely by the economically successful who were unable to transfer their wealth into political power or rents. Furthermore, Bernese markets were only partially integrated domestically, much less with the remainder of the Swiss Confederation. The lack of a stronger push for economic unification was an impediment to ‘Smithian’ growth based on market expansion and regional specialisation. While this applies to Bern as a state, the potential benefits from judicial, institutional and market integration would have been even larger on the scale of the Swiss Confederation, which remained fragmented until the advent of the federal state in 1848. Even within Ancien Régime Bern, numerous path dependent inconsistencies prevailed, such as different measurements, customs, and inequalities. Property rights were relatively secure, but the legal system was ill-prepared for commercial activities.

The reliance on tithes for state funding was an important barrier to more radical agricultural reforms. The government and its patrician members as individual landholders had a vested interest in maintaining an existing ‘feudal’ mode of production which maximised the production of cash crops (wheat) for fiscal revenue rather than the most productive mode of agriculture, such as potatoes or dairy farming. A breakthrough in agricultural productivity increase was only reached after 1798, in spite of some precursors during the Ancien Régime. In the Oberland, where feudal structures were historically weaker, the economy shifted to a market-oriented mode of production much earlier than in the grain- (and tithe-) producing parts of the canton. The fact that production was free was arguably more important than the level of taxation. As a comparison with the textile industry suggests, exemption in itself was no guarantee of innovation. The Bernese textile sector may have been virtually free of tax, but it ultimately failed to succeed because it had neither the dynamism nor ability to adopt new commercial strategies.
VI-3 An Alternative Way of State-building: Fossil or Free-Rider?

The concept of a militia state and the idea that the state should rely on its own resources stemmed from traditional European ideals for state finance. They were amongst the constituent elements of the medieval *domain state* described by Joseph Schumpeter.805 If Bern was able to follow its virtues for so long, this was mainly due to its isolation from geopolitical pressure. Although the transition from domain state to tax state was not as well choreographed as it first seemed in Schumpeter's model, by the eighteenth century, domain states had become rare in Europe. From this perspective, Bern and the other Swiss states seem like fossils of a bygone era.

What changed was the nature of the domain. It was not limited to lands any more, but followed the Cameralist doctrine and expanded its activities to entrepreneurial activities such as salt trade and money lending. To use a term by Richard Bonney, Bern had become an *entrepreneurial domain state*.806 Interestingly, mercenary services as one of the pioneering activities from which states had made economic profits had been buried to oblivion, at least from the perspective of state finance. In earlier centuries, the Swiss republics received important pensions from foreign states against the right to recruit troops. This was not the case in eighteenth-century Bern any more; its mercenary troops had evolved into the private business of patrician families. They kept a geopolitical importance and remained under tight political control through defensive treaties. In financial terms however, the Bernese state did not benefit financially from the export of mercenary services. In this sense, it differed significantly from another eighteenth-century surplus state, Hesse-Cassel, which invested the payments for mercenary troops on the London capital market in a similar fashion.807

The canton profited in other ways from the externalities of European warfare. On one hand, the contracts for mercenary regiments ensured that the troops could be used at home in case of war, which helped to secure national defence by deterring potential invaders. Returning mercenaries also boosted the capacity of the Bernese militia, ensuring that at least some of the troops and officers had fighting experience. Put differently, Swiss soldiers killed on the battlefields of Europe were part of the

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805 Schumpeter (1954).
price to pay for military independence and 'neutrality'. The other significant way in which Bern benefited from geopolitical rivalry between other European states was through funding part of their national debt. Without the pressure of ever-increasing military costs, the establishment of capital markets in which impersonal and highly liquid bonds could be purchased was unlikely to have happened on such a large scale. Insignificant as Bern's participation may have been to the recipients of its loans, the loans themselves represented one of the main contributors to the canton's finances. Bern, in other words, was a free rider on the pan-European spiral of ever-increasing warfare expenditure and public debt. Additionally, there is a political twist to this free rider approach: by investing in Britain, the patrimonial and paternalistic Bernese government benefited from a national debt that was based on parliamentary consent, the very thing it hoped to avoid at home. One reason for the low fiscal burden was that across the channel, a 'body of chauvinistic taxpayers' (O'Brien) was willing to fund the geo-political aspirations of its government. It is truly ironic that the Bernese government, which invested abroad to avoid taxing its own population, benefited from the financial revolution in Britain in Holland, both of which relied on increasing the coercive capacities of their states to secure tax income.

There was an intrinsic conflict between the entrepreneurial element of Bernese state finance and its character as a self-reliant domain state. By investing abroad, the canton was purportedly dependent on other states, which ran against the ideals of Economic Patriotism. A public debate ensued about the sustainability of overseas investment as contemporary observers struggled to come to terms with the contradictions between autarchy and profits maximisation. In spite of mild criticisms of overseas investment, attempts to curtail dependence on lenders were ultimately unsuccessful. The government never seriously considered the liquidation of its assets except for funding military needs. The fruit of secure returns from abroad were too sweet for any radical alteration of the financial strategy.

The situation of the state hoarding and investing resources rather than spending it on welfare or to support industry has been diagnosed by Richard Feller as 'an anaemia of commerce and trade, and a hypertrophy of the treasury.' This is a teleologic and anachronistic view, since the expectation of Bern's engagement in modern-day welfare activities is clearly an illusion. The low levels of domestic investment were caused by the absence of sufficiently attractive opportunities within

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809 Feller (1912): 45.
Bernese territory. As evidence from the domestic capital market illustrates, being a surplus state was not entirely beneficial to the economy but could create an *embarrassment of riches*. Attempts by the government to invest on the local mortgage market led to a 'reverse crowding out’ in which the state competed with private actors for the best investment opportunities. The results of this were low returns, credit rationing and capital export. Even if the oversupply of capital limited the adverse effect of credit rationing for the overall economy in Bern, wealthy individuals found it difficult to secure productive investments (Section V-2). The question remains why the abundance of capital did not lead to more productive investment. This might be yet another puzzle for historians to ponder.

Another open question is if the canton could have been as a state supporting industry and trade (a ‘Gerschenkronian’ state). It certainly had the financial means to do so, but the government decided not to follow this avenue after some unsuccessful attempts in the late seventeenth century, when a Commercial Council had been established. With their lack of commercial background, it is not clear how successful Bernese magistrates would have been in sponsoring (proto-)industry and protecting export markets. An engagement in the sector that most patricians were familiar with, namely agriculture, would have been more realistic. To be commercially successful in this area implied moving away from grain cultivation to dairy and cattle farming in many parts of the country – which is what happened in the early nineteenth century. The consequence would have been to change the feudal order and undermine the state's tithe base. It could probably have been possible for the state to introduce some form of tithe-like income tax on agricultural returns to replace tithes. The opportunity cost of switching to a more commercially oriented agriculture must have been too high for the decision makers in Bernese government to ever consider such a change seriously, however. Instead, they preferred the status quo which benefited their interest as a social group most.

An overall assessment of Bernese state-building must stress its differences to the European paradigm. While it is commonly argued that state-building was a function of rising demands for funding geo-political rivalry, the cantons of the Swiss Confederation were curiously isolated from these developments. Yet, as I have argued in my thesis, the process of state-building clearly took place, albeit on a moderate level. The government attempted to unify its territory slowly while assuming new powers in the field of jurisdiction and economic policy. Furthermore,
the burgeoning number of decrees had a deep impact on the daily lives of its subjects. All this occurred within the boundaries set by limited resources, as the government only controlled a small part of the country's economic output. While the size of its budget increased in absolute terms, it hardly outpaced the rate of population growth.

Relying on traditional sources of revenue extraction as well as entrepreneurial returns, the Bernese government was dependent on co-operation from its subjects rather than top-down coercion. It stressed the legitimacy of its financial claims and largely restrained from introducing new fiscal duties. This *legitimacy approach* to state-building is an interesting niche strategy. It was a cost-effective alternative to the avenues taken by more coercive regimes. The Bernese state had neither the force nor the willingness to introduce a tax state, which would undoubtedly have faced fierce opposition by armed subjects on whom the government relied for defence. In this sense, the canton was trapped in its surplus state equilibrium. It could even be argued that the government failed to tax its population to the degree it could have. On the other hand, rather than being caught in a spend-and-tax spiral like most other European regimes of the time, Bern kept its budget in balance and on a moderate level.

Bern is therefore in strong contrast with all explanations of state-building that focus on geopolitical pressure as the main force in shaping polities. For example with respect to Charles Tilly's explanation, the canton followed neither a warfare and tax intensive way of state-building, nor could it rely on economic development to provide a substitute in the form of an increasing tax base. Its commercial base was small and lightly taxed. State-building in Bern was not coercion intensive, capital intensive, and also did not follow Tilly's third possibility of 'capitalised coercion', but an alternative route that was non-coercive and capital extensive. Although political representation was limited, the state-building process was consent based. The consent was not explicit and formal, but implicit: Bernese subjects were armed and posed a constant revolutionary threat. Furthermore, many decisions were delegated to the local level. This brings the canton closer to explanations by a state-building from below approach in the spirit of Peter Blickle and others. A better expression would probably be state-building with implicit consent, as the initiative was top-down and not bottom-up. With its respect for old traditions, at least in their formal way, Bern showed elements of an 'Old European' state in Gerhard's sense. Underneath the medieval structures,
the nature of the republic had fundamentally changed by the eighteenth-century, however.

Considering Bern from a perspective of New Institutional Economic History, the overall assessment seems favourable. Property rights were guaranteed and most political institutions were efficient in reducing externalities. The result of this in economic growth was not outstanding, however. This might be related to the fact that commercial property rights did not benefit from additional protection. Additionally, for most of the agricultural production the traditional feudal institutions that were in place in Bern – the crop rotation system and tithes – had significant externalities that made the return to the cultivator different from the overall agricultural return. The incentive to be more productive was small. The situation was different for enclosed lands, in which increased returns went directly to cultivators.

Finally, it is also difficult to reconcile the developments in Bern with Thomas Ertman’s model of state-building that was outlined in the introduction (see Section I-2). While its infrastructure was clearly patrimonial in character, it is not clear where the canton’s political regime stands on the scale between constitutional and absolutist. The government was not built on any formal consent from its subjects; they were not directly represented in the political sphere for the most part. However, this ‘absolutist’ rule was curtailed by the need to rely on cooperation from the ruled. Paradoxically, the very role of parliamentary assemblies in Bern was not to increase representation, but to limit it to an increasingly select group of oligarchic patrician families who extended their rule over the territory. The fact that Bernese financial history cannot easily fit into Ertman’s model does not invalidate his explanations entirely. Rather, the contradictory outcome offers the possibility of exploring boundaries of his explanation and to challenge certain assumptions. Most significantly, it illustrates just how unique the Bernese state-building process is in a European context.

As a closing comment, while my thesis has described Bern as an extraordinary example of a state that runs against the paradigm of early modern state-building, this might in part be partly the result of a general neglect by the scholarly community when it comes to including peripheral countries into high-level explanations of state-building. After all Bern, along with the rest of the Swiss Confederation, might be representative of another Europe that has been overlooked all too often in
comparative studies focusing on the large, warring states which have survived into the modern age.
VII Appendix

VII-1 Abbreviations

£   Pound Sterling [Currency]
ACV  Archives Cantonales Vaudoises
Ag   Silver
AG   Aargau
Au   Gold
BBB  Burgerbibliothek Bern
BE   Bern
BE-Lb.  Pound; Bernese Pound [Currency]
BERO  Bank of England Record Office
BL   British Library
BoE  Bank of England
Bz   Batzen; Berner Batzen [Currency]
CAPM  Capital Asset Pricing Model
CC   200 (= Great Council)
EIC  East India Company
ESFDB  European State Finance Database
fl.  Gulden [Currency]
GDP  Gross Domestic Product
GE   Geneva
Hfl.  Dutch Guilder [Currency]
HPR  Holding-Period Return
Kr.  Krone, Crown [Currency]
L.   Livre Suisse; (Alter) Franken [Currency]
LU   Lucerne
NIE  New Institutional Economics
PRO  Public Record Office
R.  Reichsthaler [Currency]
RQBE  Rechtsquellen des Kantons Bern [see References]
SD   Standard Deviation
SH   Schaffhausen
SSC  South Sea Company
StABE  Staatsarchiv des Kantons Bern
StAAG  Staatsarchiv des Kantons Aargau
StUB  Stadt- und Universitätsbibliothek Bern
Thl.  Thaler [Currency]
VCB  Vienna City Bank
VD   Vaud
Xr   Kreuzer; Berner Kreuzer [Currency]
ZH   Zurich

Please note that abbreviations for accounts are shown separately on page 324.
## VII-2 Glossary (Translations of German Words)

<table>
<thead>
<tr>
<th><strong>English translation</strong></th>
<th><strong>German original (primary sources and literature)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrear(s)</td>
<td>Restanz</td>
</tr>
<tr>
<td>Arsenal-Senator</td>
<td>Zeugherr</td>
</tr>
<tr>
<td>Bailiff</td>
<td>Landvogt, Amtmann</td>
</tr>
<tr>
<td>Canton</td>
<td>Kanton, Stand, Staat, Ort</td>
</tr>
<tr>
<td>Central Account</td>
<td>Standesrechnung</td>
</tr>
<tr>
<td>Commissioner</td>
<td>Kommissar, Kommissarius</td>
</tr>
<tr>
<td>Commons</td>
<td>Allmend</td>
</tr>
<tr>
<td>Commune</td>
<td>Gemeinde</td>
</tr>
<tr>
<td>Condominium</td>
<td>Gemeine Herrschaft, Mediatamt</td>
</tr>
<tr>
<td>County</td>
<td>Amt</td>
</tr>
<tr>
<td>County Enquiries</td>
<td>Ämterbefragungen</td>
</tr>
<tr>
<td>Court Clerk</td>
<td>Gerichtsschreiber</td>
</tr>
<tr>
<td>Crop Rotation System</td>
<td>Dreizelgenwirtschaft</td>
</tr>
<tr>
<td>Demesne: see Domain</td>
<td></td>
</tr>
<tr>
<td>Diet: see Federal Diet</td>
<td></td>
</tr>
<tr>
<td>Domain, sometimes: Demesne</td>
<td>Domäne</td>
</tr>
<tr>
<td>Federal Diet</td>
<td>Tagsatzung</td>
</tr>
<tr>
<td>Financial Commission</td>
<td>Geheimer Rat und Beigeordnete</td>
</tr>
<tr>
<td>Government</td>
<td>„Schultheiss, Rät und Burger“; Regiment</td>
</tr>
<tr>
<td>Grand Officer</td>
<td>Grossweibel</td>
</tr>
<tr>
<td>Great Council (CC)</td>
<td>Grosser Rat, Burger, Rat der 200, CC (Latin for 200)</td>
</tr>
<tr>
<td>Mayor</td>
<td>Schultheiss</td>
</tr>
<tr>
<td>Peasant’s Revolt</td>
<td>Bauernkrieg</td>
</tr>
<tr>
<td>Public Morals (Policing of)</td>
<td>Sittenzucht</td>
</tr>
<tr>
<td>Salt-Senator</td>
<td>Salzherr (vom Rat)</td>
</tr>
<tr>
<td>Secret Council</td>
<td>Geheimer Rat, Geheimrat</td>
</tr>
<tr>
<td>Secretrees</td>
<td>Heimlicher (H. von Burgern)</td>
</tr>
<tr>
<td>Senate</td>
<td>Kleiner Rat, Kleinrat, Rat</td>
</tr>
<tr>
<td>Small Council, see: Senate</td>
<td></td>
</tr>
<tr>
<td>State Clerk</td>
<td>Staatsschreiber</td>
</tr>
<tr>
<td>Swiss Confederation</td>
<td>Eidgenossenschaft, alte Eidgenossenschaft,</td>
</tr>
<tr>
<td></td>
<td><em>Corpus Helveticum</em></td>
</tr>
<tr>
<td>Townhall-Mayor</td>
<td>Ratshausammann</td>
</tr>
<tr>
<td>Treasurer</td>
<td>Säckelmeister, Quästor/Quaestor</td>
</tr>
<tr>
<td>Vice-Mayor</td>
<td>Stillstehender Schultheiss</td>
</tr>
<tr>
<td><strong>Venner, Vennerkammer</strong></td>
<td>[not translated; the original meanings of banner bearer and chamber of banner bearers cannot capture their functions, which included financial auditing]</td>
</tr>
</tbody>
</table>

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810 For the meaning of the terms in the primary sources, see Schweizerisches Idiotikon (1881-present); HLS (2002) and HBLS (1921-1934).
811 There were two Standesrechnungen, one for the German speaking territory (*Deutsch Standesrechnung*) and one for the Vaud, or French speaking territory (*Welsch Standesrechnung*).
812 In the sense of: district (not: office).
VII-3 Original Texts Quoted in Chapter II

StABE B VII 862 (Jahrrechnung Aarberg):

Mein[e,] Johann Rudolff Wagner[s,] Vogts der Grafschaft Aarberg[,] zweyte
Rechnung und Bescheid Alles meines Einnemmens und Außgebens solchen Amts
wegen[,] vom Neuw Jahres Tag 1782 bis Gleiche Zeith 1783.

[...]

Montags den 10tn February 1783 ward vor MnHgH. Teutsch Sekelmeister und
Venneren, gegenwärtige Herren Johann Rudolff Wagner[s,] Landvogts zu Aarberg[,] 2te Amts Rechnung abgehört, und under dem gewohnten Vorbehalt der
Mißrechnung, pahsiert, und gutgeheißen, durch welche dann, nachdeme bevorderst
[es folgen Rechnungskorrekturen, sowie] der Herr Amtsmann auch mit etwas an
Getreyd gratifiziert[,] folgends Einnemmen und Ausgeben gegen einander gehalten,
und abgerechnet worden, derselbe, mit Begriff seiner ferndirgen Getreyd Restanz,
MmGhHrn ausher schuldig verblieben An Kronen 669, An Kemen 20 Mt, An
Mühlekorn 20 Mt, An Roggen 75 Mt, An Dinkel 1769 Mt, An Haber 540 Mt.

*Actum ut Supra.*
### VII-4 Categories of the *Deutsch-Standesrechnung* 1732

<table>
<thead>
<tr>
<th>German (original)</th>
<th>English Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EINNAHMEN</strong></td>
<td><strong>REVENUE</strong></td>
</tr>
<tr>
<td>An alten Restanzen</td>
<td>debts (arrears) of former officials</td>
</tr>
<tr>
<td>Von Ohm Geld</td>
<td>wine tax</td>
</tr>
<tr>
<td>Von Zöllen und Gleith wegen</td>
<td>customs duties</td>
</tr>
<tr>
<td>Von Vögten, Ambt Leuthen und Schaffneren</td>
<td>balance from officials' accounts</td>
</tr>
<tr>
<td>Von der Statt Wein-Schenk und Kornmeister</td>
<td>balance from the wine and corn accounts</td>
</tr>
<tr>
<td>An Zinsen</td>
<td>interest payments</td>
</tr>
<tr>
<td>An AbLoosungen</td>
<td>repaid loans</td>
</tr>
<tr>
<td>An Steüren und Tribut</td>
<td>special taxes and tribute</td>
</tr>
<tr>
<td>An Verhör- Einzug- und Legitimations-Gelt</td>
<td>judicial and criminal duties, confiscations, fines</td>
</tr>
<tr>
<td>An Bußen, Confiscationen und Lehen</td>
<td>donations and pensions</td>
</tr>
<tr>
<td>Von Vergabungen und Erkaufften Pfründten; Von Verkaufen Haüserein, Erdrich, Wein und dergleichen</td>
<td>sold goods (houses, land, wine, etc)</td>
</tr>
<tr>
<td>An Habitanten- und Hinderäß-Gelt</td>
<td>immigration and naturalisation taxes</td>
</tr>
<tr>
<td>Das Allgemeine Einnemen</td>
<td>general revenue</td>
</tr>
<tr>
<td>Vermöge Restanz</td>
<td>balance (arrears) of previous year</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>AUSGABEN</strong></th>
<th><strong>EXPENDITURE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordinaria</td>
<td>ordinary salaries</td>
</tr>
<tr>
<td>An Rahts Besoldimgen</td>
<td>remuneration for government members</td>
</tr>
<tr>
<td>Das Allgemeine Außgeben</td>
<td>general expenditure</td>
</tr>
<tr>
<td>An Leib-Gedingen, Baden Curen, Steüren, Allmoosen, Passaden, ProSemel und Dergleichen</td>
<td>annuities, pensions, alms, cures, etc; payments</td>
</tr>
<tr>
<td>An Brand und Anderen Steüren</td>
<td>for fire damage (“fire tax”)</td>
</tr>
<tr>
<td>Der FreyWeiblen Verdienst</td>
<td>salaries of “particular persons” (state employees)</td>
</tr>
<tr>
<td>Verdienst sonderbarer Personen</td>
<td>redeemed debts from former officials</td>
</tr>
<tr>
<td>Bezahnte Restanzen</td>
<td>purchases</td>
</tr>
<tr>
<td>Von Erkaufem</td>
<td>loans</td>
</tr>
<tr>
<td>An Gültbriefen</td>
<td>stipends for religious education</td>
</tr>
<tr>
<td>Von Stifften, Parfern und Studenten wegen</td>
<td>meals</td>
</tr>
<tr>
<td>An Zehrungen</td>
<td>for buildings (maintenance and construction)</td>
</tr>
<tr>
<td>Von Gebauwen wegen</td>
<td>cloth for uniforms</td>
</tr>
<tr>
<td>Umb Lundsche tücher Schürletz, Wiffling und Leynentuch</td>
<td>riding expenses (i.e. travelling expenses) for Senators, Great Councillors and Servants</td>
</tr>
<tr>
<td>Reith Lohn Mrghh. der Rähten / der Burger / der Knechte</td>
<td>nursing and indentures (orphans)</td>
</tr>
<tr>
<td>Amm Lohn und Verding zu Handwerken</td>
<td>medical expenses</td>
</tr>
<tr>
<td>Artzet Lohn</td>
<td>services by craftsmen</td>
</tr>
<tr>
<td>HandWerks Leüth</td>
<td>expenses for official's horses</td>
</tr>
<tr>
<td>Der Ambt und Dinest Leüthen Fronfastliche Bestallungen</td>
<td>arrears (i.e. balance)</td>
</tr>
<tr>
<td>Restanz</td>
<td></td>
</tr>
</tbody>
</table>

**Table VII-1: Categories of the *Deutsch-Standesrechnung* 1732**

Source: StABE B VII 613 (Deutsche Standesrechnung; 26 December 1731 to 26 December 1732)
Appendix

vii-5 The Restanzen System

The Bernese state used a complicated system to transfer funds from its administrative units or institutions to the government. It relied on claims from the government on its officeholders, who were liable for all transactions that they carried out on behalf of the state with their private fortune. This system was particularly important for bailiff accounts (Type D accounts). For these, the balance at the end of the financial year was determined as an arrear (Restanz), which could then be transferred to central government. In reality, the technique was both complex and sophisticated. It had been invented to cope with the fact that many transactions in the counties were not paid in cash but in kind, mainly in grain and wine. To minimise the transportation of grain for account settlement at the end of each financial year, as well as to avoid the negative effects of high price inflation and volatility for foodstuffs, Bern used an accounting system that combined monetary with non-monetary units. Every incumbent had to take over the public inventory as his debt to the state while in office. All his transactions on behalf of the state were then added or subtracted from this debt. Temporary balances at the end of each financial year determined the amount of an officeholder's debt, which was called Restanz. While monetary balances were immediately transferred to the state at the end of each accounting year, an eventual inventory arrear was carried over to the next account for the time of an officeholder's tenure as Restanz.\(^8\) Inventory arrears of the previous year (Vorjahresrestanz) constituted the opening balance of every ledger. This way, subsequent accounts included earlier debts of an officeholder towards the state. The final balance at the end of tenure was equivalent to the bailiff's total debt towards the state and hence also called Restanz. Using the word Restanz - as well as its English translation as arrear or leftover - is problematic in the sense that it has not been consistently used by contemporaries or historians. On one hand, the Restanz consisted of what was left over when expenditure was subtracted from revenue. In other words, it described the account balance (saldo) at the end of an accounting period.

The working of the Restanzen system is illustrated schematically in Figure VII-1. Please note that time runs from top to bottom and from right to left, to minimise arrows running across the graph.

\(^8\) StABE B V 1470, 136-143.
Each new officeholder had to buy the content of the inventory – consisting mainly of the public granary – from his predecessor in the so-called Amtskauf (purchase of office). The sums necessary to take over the inventory of a large county could be considerable and it would take a bailiff the full five years in office to accumulate enough funds for amortising this debt. In accounting terms, the purchased public granary was booked as an inventory, or opening balance, in the bailiff’s first account. Added to this was the current revenue for the first accounting year. Once current expenditure was subtracted from total revenue, the difference was the first-year

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814 The handover of the office was called a bailiff’s Aufzug (start) and Abgang (end). See also: Leuenberger-Binggeli (1999): 161.
Restanz a bailiff owned to the state. The monetary Restanz was due immediately, while an eventual grain restanz was carried over to the next account, where it was entered as an opening balance. Again, the bailiff added his current revenue, subtracted current expenditure and determined the new Restanz. This process was repeated for his period in office. In the closing account, the grain inventory was sold to the successor and the remaining debt in grain converted into a monetary debt. It was then added to the monetary balance of his closing account to determine the bailiff's final Restanz. After leaving office, bailiffs had 27 months to settle their final debt to the state.

In terms of institutional design, the main problem of a Restanzen system is that the state accumulated relatively large claims on its office holders during their tenure. Restanzen are in fact nothing but involuntary loans from the government to its officials. When it came to repayment, bailiffs often took their time, thus benefiting from an interest-free loan. In 1695, the Great Council confirmed the generous policy towards officeholders in terms of Restanzen repayment. To overcome the issue of moral hazard – office holders not repaying their arrears – the punishment for belated payment included limitations on the eligibility for government positions. However, the fact that Bern did not introduce a penalty fee on late payment, or an interest payment on outstanding arrears, shows that the patrician families were probably not as diligent as they could have been in policing abuse of their peers.

Another way of looking at Restanzen is to understand them as an indicator for the profitability of an office and, if all offices are added up, of the overall state administration. The annual change in Restanzen shows the surplus (loss) between revenue and expenditure in any given accounting period. Therefore, the difference between revenue and expenditure should equal the difference between the current Restanz and that of the previous year. I have calculated this for the county of Aarberg from 1700 to 1796. If grain prices are kept stable to eliminate the effect of price fluctuation, the two series are virtually identical. The correlation coefficient of 0.967 is significant at the 1% level.

The difference between the inventory a bailiff sold to his successor and the amount of grain received from his predecessor when starting the position was the bailiff's profit in grain. Added to this were eventual cash profits, if monetary expenditure and arrears were smaller than revenue. All these profits came in addition to his regular salary and ad hoc payments for administrative activities. Of course a bailiff could also make a loss during his term in office, notably when climatic distress lowered agricultural proceeds.

The Restanzen System in Practice: Johann Ott in Aarberg, 1731-1738

A concrete example from the county of Aarberg can illustrate how the Restanzen system worked in practice. Johann Ott (occasionally spelled Otth) was Landvogt of

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815 StABE B V 1470, 136-143.
816 StABE B V 1470, 136-143.
817 This is valid for transactions in kind; the monetary balance was transferred to the Treasury at the close of each accounting period.
818 Data for Aarberg accounts, 1700-1796 (missing: 1729); StABE B VII 851-872; N = 115; I have used Pearson's Correlation (significance two-tailed). N is greater than 100 because of the numerous handovers, i.e. there are more accounts than years. Grain prices have been fixed at the mean over the whole time period for each type of grain.
Aarberg from 1731 to 1738. He took over the office on Gallus day (16 October) 1731, which was the traditional handover date for most counties. Interestingly, while the handover day remained unchanged throughout the century, the accounting year varied with each new bailiff. It could be, say from 13 January to 13 January. For Johann Ott, the accounting year coincided with the calendar year. Therefore, his opening account covered the period from 16 October 1731 to 31 December 1731. For the following years of his tenure, ledgers covered the calendar years from 1732 until 1737. Ott’s closing account was for the period from 1 January until 15 October 1738, when his successor took over the post.

In Figure VII-2, all grain transactions have been converted into Berner Batzen, using prices from the bailiff’s accounts. It follows the schematic outline of Figure VII-1, with revenue on the left-hand side of the T-account, expenditure on the right. Please note that as above, the timeline runs from right to left (see also Table VII-3 at the end of this section for details).

Figure VII-2: The Restanzen System, Aarberg 1732-1738

See also Table VII-3 in the appendix. Source: Aarberg accounts (StABE B VII 853-854). Please note that the time scale is from right to left. Revenue is shown in the right column for each account, expenditure on the left. Abbreviations: Rev = revenue, Exp = expenditure, (m) = money; (g) = grain; Open(g) = opening balance (in grain); Rest = Restanz (i.e. Arrear). For details about conversion into Batzen, see Section VII-13. The differences between revenue and expenditure within each year are caused annual price movement for grain. For filenames, see Section VII-9.

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819 He followed his brother Jacob Friedrich Ott, who had died in office. While it was not unusual for a relative to inherit an office, the heir usually only served for the remainder of the original term. Johann served a full term of six years, however.

820 Other days were Michael’s Day (29 September) or Simon and Judae (28 October). See Leuenberger-Binggeli (1999): 161.

821 In practice, Ott also included transactions that had occurred before his start, which had been transferred to him by his predecessor.
When starting his new job, Johann Ott bought the public granary from his predecessor. This was accounted for as an opening balance (Einmessung) in his first ledger. His first account also included the tithe revenue of the 1732 harvest. Although the harvest had taken place in July, tithes were due in autumn and thus recorded by the incumbent. In addition to tithes, Ott received current proceeds in cash on behalf of the government. From all this revenue, his expenditure in money and grain was deducted to establish the first Restanz. Minor grain arrears were converted into monetary units and added to the cash Restanz, which was due for immediate payment to the Treasurer. Meanwhile, the grain Restanz (or, grain inventory) was transferred to Ott’s next account, where it was booked in as an opening balance. The process was then repeated until his last year in Aarberg in 1738. In his closing account, Ott recorded no revenue in grain, as the tithes for 1738 were collected by his successor. Ott’s final arrear was calculated by deducting expenditure from revenue (plus the opening balance). The part of the grain Restanz that formed the public granary was sold to his successor, the remaining grain converted to monetary units and added to the monetary Restanz.

What Figure VII-2 illustrates is that simply looking at the total sum of revenue or expenditure for Aarberg would render spurious results compared to the net current transactions. The amount of Restanzen transferred from year to year was considerably larger than net revenue; in this example between 2.5 and 3 times. This makes establishing total revenue and expenditure of the Bernese state a more complex than simply collecting the sums for each single account.

The Financial Year

The accounting period for Bernese officials was usually twelve months. Two matters complicate the issue, however. First, the financial year did not necessarily coincide with the calendar year, nor did all ledgers start at the same date. Apart from the respect for old local traditions, this helped to avoid a bottleneck in auditing through the Venner chamber (see Section II-7). Second, office handovers occurred during the financial year, not at the end. Therefore, the twelve months of a handover year were divided between two accounts, written by different officeholders. Table VII-2 shows the start of the financial year for all known accounts in the years 1732 and 1782. They are separated by month and category of account. For the latter, I distinguish between Regular accounts, Opening accounts of newly elected officials and accounts which contained no transactions in grain. This is important because for grain revenue, the timing of the harvest was crucial. As a rule of thumb, those accounts with grain components were bailiff accounts. For ledgers that did not involve agricultural produce the timing of the financial year mattered little and could therefore easily coincide with the calendar year.
Table VII-2: Start of the Financial Year by Month, 1732 and 1782

<table>
<thead>
<tr>
<th></th>
<th>1732 Regular</th>
<th>1732 Opening</th>
<th>1732 No Grain</th>
<th>1782 Regular</th>
<th>1782 Opening</th>
<th>1782 No Grain</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st of Jan</td>
<td>3</td>
<td>6</td>
<td></td>
<td>25</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>January</td>
<td>13</td>
<td></td>
<td></td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>February</td>
<td>18</td>
<td>2</td>
<td></td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>March</td>
<td>14</td>
<td>4</td>
<td></td>
<td>9</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>April</td>
<td>4</td>
<td>2</td>
<td></td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>May</td>
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<td>1</td>
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<td>July</td>
<td>1</td>
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<td>1</td>
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<td>August</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
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<tr>
<td>September</td>
<td>1</td>
<td>3</td>
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<td>7</td>
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<td>October</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>November</td>
<td>1</td>
<td>2</td>
<td></td>
<td>5</td>
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<tr>
<td>December</td>
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<td></td>
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<tr>
<td>unclear</td>
<td>2</td>
<td></td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

Starting dates for the regular bailiff accounts were concentrated in the first three months of the year, while the opening ledgers of incumbent bailiffs started after the grain harvest in July. This enabled the outgoing bailiff to sell his surplus grain in the months before the harvest. Since tithes were due some months after the harvest in autumn, they would then be included in the opening account of the incumbent bailiff (see previous section). This technique limited the content of the public granary that a new bailiff had to buy from his predecessor during a handover and would give him some grain revenue of his own within a short time in office. The increasing number of regular accounts starting at the beginning of the calendar year in 1782 is an indicator for the standardisation that took place in the second half of the century. It also illustrates that the standardisation was far from complete.
## Accounts of Johannes Ott, Aarberg 1732-1738

<table>
<thead>
<tr>
<th></th>
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</tr>
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<td>Opening</td>
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<td></td>
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<tr>
<td>(Bz)</td>
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<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Wheat</td>
<td>288</td>
<td>1,296</td>
<td>1,344</td>
<td>144</td>
<td>1,056</td>
<td>1,152</td>
<td>1,392</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Mischel</td>
<td>0</td>
<td>240</td>
<td>240</td>
<td>384</td>
<td>384</td>
<td>0</td>
<td>144</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mill</td>
<td>192</td>
<td>1,056</td>
<td>960</td>
<td>720</td>
<td>960</td>
<td>1,056</td>
<td>480</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rye</td>
<td>4,320</td>
<td>3,312</td>
<td>3,600</td>
<td>4,080</td>
<td>3,984</td>
<td>3,840</td>
<td>4,320</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spelt</td>
<td>67,584</td>
<td>83,952</td>
<td>85,920</td>
<td>82,560</td>
<td>84,960</td>
<td>85,200</td>
<td>85,440</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oats</td>
<td>12,240</td>
<td>25,152</td>
<td>25,200</td>
<td>27,360</td>
<td>28,560</td>
<td>24,000</td>
<td>28,800</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Current    |     |     |     |     |     |     |     |     |     |     |     |     |
| Money      |     |     |     |     |     |     |     |     |     |     |     |     |
| (Bz)       |     |     |     |     |     |     |     |     |     |     |     |     |
| Wheat      | 24,053 | 23,349 | 17,986 | 40,726 | 37,467 | 44,874 | 22,549 | 33,453 | 19,439 | 37,410 | 22,538 | 34,603 | 10,441 | 33,997 |     |
| Mischel    | 100 | 1,504 | 1,153 | 1,216 | 1,993 | 1,216 | 257 | 1,216 | 1,077 | 1,216 | 877 | 1,216 | 1,168 | 0 |     |
| Mill       | 16 | 288 | 198 | 288 | 130 | 288 | 176 | 288 | 886 | 288 | 14 | 288 | 0 | 4 |     |
| Rye        | 116 | 1,252 | 1,032 | 1,060 | 1,161 | 1,060 | 560 | 1,060 | 937 | 1,060 | 1,073 | 1,060 | 388 | 0 |     |
| Spelt      | 2,132 | 5,518 | 812 | 1,198 | 356 | 1,198 | 1,180 | 1,196 | 1,036 | 1,196 | 620 | 1,196 | 4,028 | 0 |     |
| Oats       | 3,620 | 88,316 | 18,888 | 22,536 | 23,547 | 20,548 | 17,488 | 21,096 | 22,327 | 22,696 | 21,287 | 21,652 | 84,620 | 0 |     |

| Restanz   |     |     |     |     |     |     |     |     |     |     |     |     |
| Money      |     |     |     |     |     |     |     |     |     |     |     |     |
| (Bz)       |     |     |     |     |     |     |     |     |     |     |     |     |
| Wheat      | -691 | 22,740 | 22,740 | 7,407 | 10,905 | 17,971 | 12,065 |     |     |     |     | 35,250 |
| Mischel    | 1,296 | 1,344 | 1,344 | 144 | 1,056 | 1,152 | 1,392 |     |     |     |     | 0 |
| Mill       | 1,056 | 960 | 960 | 720 | 960 | 1,056 | 480 |     |     |     |     | 0 |
| Rye        | 3,312 | 3,600 | 3,600 | 4,080 | 3,984 | 3,840 | 4,320 |     |     |     |     | 2,640 |
| Spelt      | 83,952 | 85,920 | 85,920 | 82,560 | 84,960 | 85,200 | 85,440 |     |     |     |     | 64,800 |
| Oats       | 25,152 | 25,200 | 27,360 | 28,560 | 24,000 | 28,800 | 12,000 |     |     |     |     | 0 |

### Table VII-3: Accounts of Johann Ott, Aarberg 1732-1738

Source: StABE B VII 853. Abbreviations: Bz = Berner Batzen; ms = Bern-mäss (14.1 ltr). Abbreviations: Rev for revenue, Exp for Expenditure. For an explanation of the Filename, see Section VII-9.
Appendix

VII-6 The Long-Run Database

Data (Sources)

All data for the years **1764-1794** is from the *General Bilanzen* (StABE B VII 2179). For the remainder, I have used the following documents:

<table>
<thead>
<tr>
<th>Account</th>
<th>Archive Shelf Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deutsch-Standesrechnung, DSR (1700-1796)</td>
<td>StABE B VII 581-679</td>
</tr>
<tr>
<td>Welsch-Standesrechnung, WSR (1700-77; 1778-97)</td>
<td>StABE B VII 762-837; ACV Bp 4</td>
</tr>
<tr>
<td>Auslandische Gelder/Fonds, AUS (1710-1796)</td>
<td>StABE B VII 2396-2473 and 2389</td>
</tr>
<tr>
<td>Salzdirektion, SDI (1700-1797)</td>
<td>StABE B V 481-578</td>
</tr>
<tr>
<td>Schatzgewölbe [Cash Reserve] (1750-1790)</td>
<td>StABE B VII 2520a</td>
</tr>
<tr>
<td>Kornherr, KOR (1760-1796)</td>
<td>StABE B VI 261-285</td>
</tr>
</tbody>
</table>

Table VII-4: Accounts included in Long-Run Database

Factual Categorisation of Long-run Data

The re-classification of categories from the *General-Bilanzen* followed the list below. I have used a modernised German spelling for the original categories.

**Revenue:**

**Taxation:** Umgeld; Zölle und Geleit; Abgaben im Kaufhaus; Abzug im Ausland angelegte Fonds; Steuern und Tribut; Audiens-, Naturalisations- und Legitimationsgeld; Abgabe auf fremden Wein; Bussen; Lepesempfangsgeld; Habitantengeld; Konfiskationen; Badisches Jahrgeld; Fiskal- und verschiedene Einnahmen;

**Entrepreneurial Returns:** Post-Regal; Pfrund-Tax Geld; Marechaussee-Anlagen; Buchdruckerei-Zins; Städt. Weinschenk; Gewinn der Pulver-Handlung; Realer Profit Salzdirektion (auf Handlungs-Kapital); Fabrikation (abzüglich Pensionen und Gratifikationen); Profit; Zinsen auf Kapital; Ertrag auswärtiger Geldanlage; Current Revenue from Salt Trade Account (see Section VII-16).

**Arrears from Bailiffs:** Amtsrestanzen; Restanzen.

**Other Current Revenue:** Recognitionen; vermischte Einnahmen; Verschiedenes.

**Loans:** Ablösungen; An Alten Restanzen; Einnahmen aus Malacridanischen Effecten.

**Divestments:** Verkauftes; verkaufte Häuser; Weinverkauf; Getreideverkauf; Gebäudeverkauf.

**Salt Inventory Reduction:** = Reduction in Salt Inventory (see Section VII-16).

**Cash Reserve Withdrawals:** Aus dem Schatzgewölbe.

For **Salt Transactions (Current, Profit, Inventory)**, see Section VII-16.

[see expenditure overleaf]
Expenditure:

**Personnel Cost:** Odrinari Pensionen; Pensionen für Zoll-Commissen; Verdienste; Bezahlte Wein-Pensionen; Zehrungen; Tücher Ehrfarb; Ammen-Lohn, Arzt-Lohn; Handwerk; Scharfrichter; Extra-Pensionen.

**Military Expenditure:** Land-Major und militärische Unkosten; Beiträge an Garnison Aarburg, Stadtwacht und Zeughaus; Ausgaben für Luzernische und Neuenburger Unruhen; geliefertes Pulver (an Zeughaus); Musterungen; Militärische Unkosten.

**Other Public Consumption:** Strassen-Arbeit (Stadt und Region); Kriminalkosten; Neue Gebäude und Gebäudereparationen; Bibliothek; Ausbesserung der Staats-Schaubühne (Stadttheater); Wein: lesen und keltern; Reben Herstellung; Beiträge an Strassen-Cassa, Bau-Amt, Strassen-Reparation / Zoll-Kassa, an Obrigkeitl. Holz-Entreprise, an Pferdezucht-Kommission; Indemisisationen; Unterhalt Salzwerke, Pensionen; Gebäudereparation und Entlöhnung Salpeterleute; Gesandtschaften; Reitlöhne; Gemeine Ausgaben (Zehrungen, Tücher, Gemäldebeschädigung etc.); Vermischte Ausgaben; Current expenditure from Salt Trade Account (see Section VII-16).

**Passive Arrears to Bailiffs:** bezahlte Restanzen (Passivrestanzen).

**Transfers:** Brandsteuem und andere Steuern; Badenkuren; Prosemel; Almosen; Stiftungen, Pfarrern, Studenten; Pfund-Verbesserungen; zurückgegebene Löber; Beitrag an Amt Oron, an Welsche Predicaturen, an Gross-Almosen-Direktion, an Exulantenkammer.

**Loans:** Angewandte Kapitalien; Gütlenbriefe.

**Investments:** Erkauft und Angewendet; Erkaufte Gebäude; zugekaufte Wohnungen; Verlust an verkauften Häusern; Gelieferte Gelder für die Ankauf Fremder Frucht; Getreide-Ankauf; Lehenskauf; Erkauftes.

**Salt Inventory Increase:** = Difference in Salt Inventory (see Section VII-16).

**Cash Reserve Deposits:** Lieferung ins Schatzgewölbe.

For **Salt Transactions (Current, Inventory),** see Section VII-16.
Figure VII-3: Revenue by Account, 1700-1796 (Yearly)

Sources: Long-run Database (see Section VII-6 for details). This figure is the equivalent of Figure III-9.
Figure VII-4: Expenditure by Account, 1700-1796 (Yearly)

Sources: Long-run Database (see Section VII-6 for details). This figure is the equivalent of Figure III-10.
Figure VII-5: Revenue by Category, 1700-1796 (Yearly)

Sources: Long-run Database (see Section VII-6 for details). This figure is the equivalent of Figure III-12.
Figure VII-6: Expenditure by Category, 1700-1796 (Yearly)

Sources: Long-run Database (see Section VII-6 for details). This figure is the equivalent of Figure III-13.
Figure VII-7: Net Contributions by Category, 1700-1796 (Yearly)

Sources: Long-run Database (see Section VII-6 for details). Please note that the graph uses two different scales. The composition of the data changed in 1764 and 1794, hence the vertical lines.
VII-8  Categorisation of the General-Tabllen and Special-Tabllen

The categories of General-Tabllen (StABE B VII 2520) were based on the more detailed Special-Tabllen (StABE B VII 2521), which are listed below.

Einnahm-Tabelle an Pfennigen
1. Unablosige Lehensgerechtigkeiten,
2. Zehnden, Domainen, Pachtzinsen;
   dahin gehören: Abtrag von Sommerungen, Waldungen, Fischetzen und Zintragender Gebäude
3. Zinsen von ablössigen Capitalien
   (nach einer Druchschnitt-Rechnung des verschiedenen Zunfuss von den im letzten Jahr des Decenniums sich vorfindenden Capitalien)
4. Lands-Abgaben und Telle
   4.1 Marechaussee
   4.2 Tavernengeld
   4.3 Bottengeld
   4.4 Ohmgeld
   4.5 Abzug
   4.6 Feuerstattgeld
   4.7 Brüg sommer, Zoll, Geleit
   4.8 Trattengeld
5. Judicatur-Gelder
   5.1 Bussen, Gefangenschaft
   5.2 Betreibungs-Botten
   5.3 Konfiskationen
6. Dem Fisco zufallende Obrigkeitliche Gefälle

An Naturalien [Durchschnitt von 10 Jahren]
An Getreid
1. Lehensgerechtigkeiten
2. Zehnden, Domainen und Pachtzine
3. Landsabgaben und Telle

An Wein
1. Lehensgerechtigkeiten
2. Zehnden, Domainen und Pachtzine
3. Landsabgaben und Telle

I have classified the categories as follows: 1 = Rents; 2 = Tithes; 3 = Interests; 4, 5 and 6 = Duties and Taxes - Transactions in grain and wine: 1 = Rents; 2 = Tithes; 3 = Duties and Taxes

In addition to these categories, the General-Tabllen also included Strassengelder u. Zölle (which I classified as Duties and Taxes), Bergwerk u. Münzstät (=Entrepreneurial Returns), Grosse Salzhandlung (= Entrepreneurial), Pulver und Salpeterhandlung (= Entrepreneurial), Holz, Torf und Manufaktur-Verkauf (= Entrepreneurial), Von Gemein Eydgenössischen Amtern (=Rents).

[Expenditure discussed overleaf]
The headings for Expenditure in the General-Tabellen were:

Ausgaben-Tabelle an Pfenningen

1. Besoldungen, Amts-Beneficium und Pensionen
2. Gratifikationen
   2.1 Ordinaria
   2.2 Extraordinaria

3. Militair-Anstalten
   3.1 Schiess- und Zihlgelder
   3.2 Musterungsplätze, Tambour-Majoren, Einquartierungen

4. Armen-Anstalten
   4.1 Almosen, Steuern, Prosemel, Mütschen, Abendbrot
   4.2 Verpflegung von Pfründern, Säuglingen oder Ammenkindern, Aerzet-Lohn, Badenfahrten, Tischgelder,
       Begräbniskosten
   4.3 Brand- und Hochgewitter-Steuern

5. Gebäude und Bausachen
   5.1 Neue Gebäude
   5.21 Reparationen: Schlösser und Dependenzen, ist alle ihre Rural- und Oekonomie-Gebäude
   5.22 Reparationen: Öffentliche Gebäude, als: Kornhäuser, Zeughäuser, Gefangenschaften, Officials-
       Wohnungen, Wachtläuser
   5.23 Reparationen: Landesgeschäfte und Dependenzen
   5.24 Reparationen: Pfarrhäuser und Dependenzen
   5.25 Reparationen: Chor und Türme der Kirchen
   5.3 Baumaterialien in Vorrat

6. Öffentliche Polizey- und Administrations-Anstalten
   6.1 Marechaussee und Patrouillen, Betteljagden
   6.2 Sanitäts-Anstalten
   6.3 Strassen und Brücken
   6.4 Schwelhauunterhaltung, Räumung der Wuhren, Rüschen und Flüsse
   6.5 Brandanstalten
   6.6 Geheime Ratsausgaben
   6.7 Speer- und Extra-Polizeianstalten
   6.8 Schiess- und Weidgelder zu Ausrottung schädlicher Tiere

7. Gefangenschaft- und Criminal-Unkosten

8. Unterricht und Religions-Anstalten
   8.1 Nachtmahlwein, Schulpfennige und Bücher

9. Cameral-Ausgaben
   9.1 Getreid- und Weinbesorgung
   9.2 Zehnd-Schätzung- und Verleihungskosten, Bodeninhaber-Löhne
   9.3 Steuern an Führungen
   9.4 Forstwesen
   9.5 Dominal-Unkosten, als: Einfristung, Brunnen- und Wasserleitungen, Holzaufmacherei-Löhne, Erntet- und
       Herbstskosten, Obrigkeitliches Werkzeug, Schiff und Gschirr

10. Ankauf neuer Domainen, Lehensrechtmäßigkeiten und Liegenschaften
11. Zehrgelder, Mahlzeiten, Gesandtschaften
12. Amtshuldigungen, Installationen, Ritt- und Bottenlöhne, Prozesskosten, Planimetrationen, Marchungen,
    Publikationen, Schreibmaterialien und kleine Ausgaben

[continued overleaf]
Appendix 318

[Categories of expenditure in the General-Tabellen, continued]

An Naturalien [Durchschnitt von 10 Jahren]
An Getreid
1. Besoldungen und Pensionen
2. Gratifikationen
3. Militair-Anstalten. Als Mustungs-Haber und Fourrage
4. Brandsteuren und Almosen
5. Getreidebesorungs-Kosten, als Abgang, Kastenschweinung, Amts-Beneficum in Natura

An Wein
1. Besoldungen und Pensionen
2. Gratifikationen
   2.1 Ordinaria
   2.2 Extraordinaria
3. Weinbesorgungs-Kosten, als Abgang und Amts-Beneficum in Natura

I have classified these categories as follows:

Monetary transactions: 1 and 2 = Personnel Cost; 3 = Military; 4 = Transfers; 5-12 = Consumption

Grain transactions: 1 and 2 = Personnel Cost; 3 = Military; 4 = Transfers; 5 = Consumption
Wine transactions: 1 and 2 = Personnel Cost; 3 = Consumption.

The General-Tabellen included the additional categories Bergwerk zu Kättigen u. Mühletal (classified as Consumption), Geheime Raths Ausgaben (= Consumption) and Gemein Eydgenössische Ämter Ausgaben (= Consumption).
Appendix 319

VII-9 Data Selection

Sampling

I have collected information on all accounts of the Bernese state for which the financial year ended between 1 January and 31 December 1732 or 1782. If the period was split between two ledgers – which was the case during an office handover – then both accounts were selected. If the records of an account finishing in 1732 were missing or incomplete, those of the following or previous year were selected, depending on availability.

Section VII-9 contains a detailed list of accounts that were included in the database. Selection criteria included a regional balance, for which the canton was divided into its five main geographical regions: Argovia, Vaud, Oberland, Oberaargau/Emmental and Seeland. In addition, accounts from institutions of the city and surrounding areas constitute the category Bern (or, Institutions). For each region, I have randomly selected five accounts, of which at least one was former monastic institution, which had a distinctly different financial structure. Table VII-5 shows what proportion of net transactions the database covers for each region as a percentage of total revenue.

<table>
<thead>
<tr>
<th>Region</th>
<th>Selection</th>
<th>1732 Revenue</th>
<th>1732 Expenditure</th>
<th>1782 Revenue</th>
<th>1782 Expenditure</th>
<th>Weighting Factor 1732</th>
<th>Weighting Factor 1782</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argovia</td>
<td>5/7</td>
<td>73.68%</td>
<td>75.32%</td>
<td>87.33%</td>
<td>82.92%</td>
<td>1.3410</td>
<td>1.1693</td>
</tr>
<tr>
<td>OberAG</td>
<td>5/11</td>
<td>39.81%</td>
<td>44.65%</td>
<td>40.72%</td>
<td>47.33%</td>
<td>2.3710</td>
<td>2.2798</td>
</tr>
<tr>
<td>Oberland</td>
<td>5/10</td>
<td>68.75%</td>
<td>68.43%</td>
<td>84.51%</td>
<td>81.49%</td>
<td>1.4583</td>
<td>1.2083</td>
</tr>
<tr>
<td>Seeland</td>
<td>5/9</td>
<td>57.38%</td>
<td>51.67%</td>
<td>54.08%</td>
<td>53.42%</td>
<td>1.8400</td>
<td>1.8599</td>
</tr>
<tr>
<td>Vaud</td>
<td>5/14</td>
<td>70.00%</td>
<td>67.71%</td>
<td>67.88%</td>
<td>71.65%</td>
<td>1.4514</td>
<td>1.4325</td>
</tr>
<tr>
<td>Institutions</td>
<td>15/34*</td>
<td>84.23%</td>
<td>86.84%</td>
<td>63.50%</td>
<td>62.52%</td>
<td>1.1686</td>
<td>1.5862</td>
</tr>
<tr>
<td>Total (D)</td>
<td>40/83</td>
<td>70.86%</td>
<td>71.86%</td>
<td>65.70%</td>
<td>65.94%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*) some only existed in either year: 13/19 (1732), 15/28 (1782)

Table VII-5: Amount of Transactions Covered by Database and Weighting Factors (D-Type Accounts Only)

Source: Extended Database, net transactions including grain sales

Regional differences in the coverage are considerable. For the Oberaargau and Emmental regions, the database covers less than half, for Seeland slightly more than half of the government’s transactions; Oberland and Argovia are well included, as are Institutions within the city. Their coverage is smaller in 1782 because of an increase in absolute number. In order to compare the figures of the D-Type accounts sample with A- and B-Types, I have weighted all D-Type transactions by the factor shown in

822 See Section VII-5 for details.
823 Former monasteries were used as asylums or hospitals and fulfilled social duties (mainly poverty relief).
824 I could not exclude grain sales because their amount is unknown for summary accounts.
Appendix

Table VII-5 (column Weighting Factor). This factor was calculated for each region as the inverse relationship of transactions in the database to total transactions.\footnote{Revenue and expenditure were added for this purpose.}

Net Transactions

All transactions that were only made for accounting purposes inflate revenue and expenditure unnecessarily for an analysis of fiscal redistribution. Although such transactions can contain information that is relevant in other contexts, they have to be excluded from my database.\footnote{The opposite situation is true for transactions for the militia army, which we know occurred but were not recorded in the accounts (see Section IV-5).} The most important exclusions are arrears, transfers (both between and within accounts) and grain sales.

The reasons for excluding arrears from net transactions follow from their characteristic as an officeholder’s debt to the state, which did not increase government revenue (see Section VII-5). The amount of arrears was recorded both in the Standesrechnungen (as revenue) and in the bailiff accounts (as expenditure), and therefore cancelled each other out. An inclusion in my analysis would therefore only inflate figures for revenue and expenditure. As explained in Section III-1, the overall difference between revenue and expenditure (budget surplus) should equal the change in the government’s claims towards officeholders, which have the function of retained earnings. The exclusion of inventory and closing balances for accounts using double-entry bookkeeping follows the same logic.

Similar arguments apply to transfer payments between accounts. These range from assignations to the Standesrechnungen worth several hundred thousand crowns to puny contributions for poverty relief that were transferred to bailiff accounts by government chambers. These figures could safely be excluded from an analysis of net transactions since they were recorded in both the sender and recipient account and did not contribute to the net financial position of the state.\footnote{Transfer payments to and from C-Type accounts (which were not included in the database) were classified as revenue and expenditure. Otherwise all transactions recorded in these accounts would have been excluded from the analysis.}

In addition to payments from one account to another, I also had to exclude transactions within the same account, which were mostly related to the handling of the office inventory. This refers to the issues discussed in the Restanzen system (Section VII-5). The inventory arrears which every officeholder included in his ledger did not constitute net revenue for the state, and therefore had to be deducted from total revenue. I have also excluded inventory transactions in kind for those entrepreneurial accounts that used double-entry bookkeeping. On the other hand, information from arrears was used to calculate overall error quotas for the database, which are remarkably low (see Section VII-11). Arrears could also be used to determine changes in the public inventory over the sample year. If the opening balances are compared to the closing balances and arrears, the difference shows by how much the public inventory has increased or decreased.

Grain sales by the government are a special type of transfer within the same account. The bailiffs recorded how much grain they sold: the proceeds counted as revenue in cash, while the grain sold was listed as expenditure in kind. These transactions contain important information about which currencies were used in Bernese accounts,
and about how monetised state finance was. However, if all transactions are converted into monetary units, grain sales only represent a transfer from one currency (grain) to another (money); overall state revenue did not increase by selling grain. They were therefore excluded from the database. Revenue and expenditure from grain sales – which per definition should be equal in monetary values – accounted for 5.32% of total revenue in 1732 and 7.60% in 1782.828 When compared to the net grain income in litres, 29.3% of grain was sold in 1732 and 24% in 1782.829 Table VII-19 shows the amount of grain sold in litres for each type of grain separately.

The same applies to wine sales, which were also recorded twice, as monetary revenue and expenditure in kind. However, it seems that the recording of wine sales was less accurate: the overall sum of sales recorded as inventory reduction does not match the monetary income. On several occasions officials sold wine without registering the transaction in kind. This is because in some counties, the wine inventory was kept separately and was not included in the bailiff’s regular accounts. The overall differences are relatively small, however. Overall, wine sales accounted for 1.03% of net revenue in 1732 and for 0.86% in 1782. When measured in litres, the Bernese state sold 40% of its net revenue in wine in 1732 and 29% in 1782 (see Table VII-14 for a regional breakdown).

The situation for salt sales is different, since salt was not used as a currency of account the way grain and wine were. This is because the government did not have any direct revenue that accrued in salt, except for the relatively small domestic salt production. The state therefore had to buy salt in monetary units. Other than grain sales, salt sales were not counter-booked by inventory adjustments in kind.830 In other words, salt trade was a commercial activity by the state, while grain sales were only an accounting adjustment that generated no net income. Accordingly, all proceeds from salt sales had to be included in an analysis of net transactions by the state. I have divided the government’s proceeds from salt sales into the three components current trade, inventory change and monopoly profit, which is discussed in detail in section VII-16.

To obtain the net revenue of summary accounts, arrears of the current and previous year were subtracted from total revenue. What remained unspecified, compared to the net transactions of the database, are transfer payments to other accounts. From the database it seems that these were not very important: net transfers between accounts only represented 1.61% of total net transactions.831

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828 Source: Database. Total revenue excludes transfer payments. I had to include grain sales for the weighting factor of accounts because the amount of grain sales in summary accounts is unknown.
829 These figures should only be considered rough estimates, however, since grain litres were simply added across all types of grain.
830 In reality, the salt accounts included inventory lists in salt and money, but only the latter were used for accounting purposes.
831 Net transfers are defined as transfers between accounts, excluding transfers within the same account, such as previous arrears (which make up the largest part of transfers in the database). The exact figures (for D-Type accounts only) are 1.06% (1732) and 2.39% (1782) for revenue and 2.38% (1732) and 0.08% (1782) for total expenditure.
Filenames

The filenames for accounts included in the database consist of several attributes.

a) Three letters describing the account/office (see next list of abbreviations overleaf); capital letters were used for accounts included in the database, small letters for those from the extended database.

b) 3 digits to identify the year (leaving the first 1 out, i.e. 732 for 1782)

c) if necessary one additional digit to signify if there were more than one account in the same year.

As an example, the filename AAR7322 stands for the second account for the county of Aarberg in 1732.

Types of Bernese Accounts

For the distinction in A-B-C and D-TYPES see Section III-3.

A-TYPES: Deutsch-Standesrechnung (DSR), Welsch-Standesrechnung (WSR).

B-TYPES: Ausländische Kapitalien (AUS), Salzproduktion La Roche (ROC), Salzdirektion (SDI), Pluverrechnung (PUL).

C-TYPES: Integrated in DSR: Abzugrechnung, Burgerkammer, Chorschreiber, Chorweibel, Collegio Insulanio, Freiweibel, Grossweibel, Kaufhaus (later in General Customs account), Staatsschreiber, Stadt-Physicus, Werkmeister.

D-TYPES: District / Bailiff Accounts

Argovia: Aarburg (ABU), Biberstein (BIB), Kastelen (kas), Koenigsfelden (KOE), Lenzburg (LEN), Schenkenberg (sbg), Zofingen (ZOF).

Oberaargau / Emmental: Aarwangen (ARW), Bipp ( bip), Brandis (BRA), Burgdorf (bur), Fraubrunnen (fra), Hettiswyl (het), Landshut (lan), Signau (SIG), Sumiswald (sum), Torberg (TOR), Wangen (WAN).

Oberland: Frutigen (FRU), Hasli (has), Interlaken (INT), Interlaknerhaus Thun (ITH), Niedersimmental (nsi), Oberhofen (obe), Obersimmental (osi), Saanen (saa), Thun (THU), Unterseen (UNT).

Seeland: Aarberg (AAR), Buchsee (buc), Buuren (bue), Erlach (ERL), Frienisberg (FRE), Gottstatt (got), St. Johannsen (joh), Laupen (LAU), Nidau (NID).

Vaud: Aigle (aig), Aubonne (aub), Avenches (ave), Bonmont (bon), Lausanne (LSN), Morges (mor), Moudon (MOU), Nyon (NYO), Oron (oro), Payerne (pay), Romainmôtier (ROM), Vevey (vev), Villeneuve (vil), Yverdon (YVE).

D-TYPES: Public Institutions

In Bern (excluding Landgerichte): Büchschen-Almosen (alb), Stadt-Almosen (als), Bauherr von Burgern (BHB), Böspfennig (BPF), Frienisberghaus Bern (frb), Grosses Spital (GSP), Grossweibel (gwr), Interlaknerhaus Bern (INB), St. Johannserhaus Bern (JOB), Königz (koe), Mushafen (MUS), Schallen- und Arbeitshaus (sah), Schenkenberg (sbg), Schulsäckel (SLS), Stift (STI), Stadtwacht (stw), Umgeld (UMG).

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832 Aigle (AIG) was accountable to the Deutsch-Standesrechnung (DSR), although it was French-speaking.
Other public institutions: Armengut Pays de Gex (apg), Eisenbergwerk Küttlingen (eis), Exulantenkammer (exk), Garnison Aarburg (gar), Kornherr (KOR), Landes-Oekonomiekommission (lak), Oberländische Holz-Entreprise (ophe), Silber (sil), Strassen (str), Deutsch-Weinschenk (WED), Welsch-Weinschenk (WEW), Zeughaus (ZEU), Ziegelproduktion (zie), Deutsche Zolldirektion (ZOD), Welsche Zolldirektion (ZOW).

Excluded:

Condominins with other Swiss states: Murten, Grandson/Echallens, Baden, Frauenfeld, Thurgau, Rheintal, Mendrisio.

Landgerichte: Konolfingen (kon), Seftigen (sef), Sternerberg (ste), Zollikofen (zol).

Unknown accounts or lack of records: The following accounts were mentioned in eighteenth-century lists but records are not available. Some of them may not have existed for 1732 or 1782, or were integrated into other accounts: Commissariats-Rechnung, Gross-Almosen, Holz und Torf, Illuminatsrechnung, Kanzlei, Kirchmeyer, Kommerzienrat, Lizenz-Gelder, Landsassen und Fündel, Münzwardein, Münz-Fabrikation, Oberhofen Stiftsamman, Pferdezuchtkommission, Sanitätsrechnung, Stadtbach, Toleranz-Gelder, Torfrechnung, Waisenhaus.
# Account Abbreviations

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* See also list of accounts on the previous page.
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Table VII-6: Accounts included in Database: Details [continued on next page]

See comments on page 326.
### Table VII-6: Accounts included in Database: Details

See comments on page 326.
### Table VII-6: Accounts included in Database: Details for Summary Accounts

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Source: Database and Extended Database. Weight is the weighting factor in the database (see Section IV-2), ltr wine is the volume content of the major wine unit, ltr grain the equivalent for grain (see Section VII-13 for details). For account abbreviations, see page 324.
Comparing Data for 1732 and 1782 with the Long-run Database

Comparing the results for the two sample years 1732 and 1782 is difficult for several reasons. First, the sample size is not identical. The accounts for the General Bilanzen only include all D-Type accounts through their arrears only, but not with all revenue and expenditure. Second, the timing of the sample might not be consistent. For the database, I have defined the accounting years to cover all accounts that finished within the calendar year; this was not always the same for the accounts in the General Bilanzen. For example, on 20 December 1782 the sum of 100,000 crowns (2.5m Bz) was taken from the cash reserve to be invested in Denmark. This transaction was recorded in the account for foreign funds (AUS) for 1782/83, which ran from 1 March 1782 to 1 March 1783. It was therefore not included in the sample. Third, some transactions change in nature when the sample size is not identical. Notably payments between accounts (assignations) change their character with the sample size: If the corresponding account is also part of the sample, then the transfer has to be excluded to avoid double counting; if the corresponding account is not part of the sample, then the payment counts as revenue (or expenditure). And finally, the summary categories of the General Bilanzen can mask transactions that were only made for accounting purposes, such as transfers or opening balances.

If in spite of these differences an absolute budget surplus is calculated for 1732 and 1782, the figures from the General Bilanzen are higher than from the database. For 1732, the budget surplus from the General Bilanzen was 3.34m Bz, compared to 2.04m when calculated from the database sample. The corresponding figures for 1782 are 3.10m Bz (Bilanzen) and 1.98m Bz (database).
Some of the records in the database can be used for control purposes, such as page sums, overall account sums or arrears. Page and account totals (*summarum* and *summa summarum*) have been used to assure that all records from a page, and all pages of an account, were included. Arrears could be used to check the overall accuracy of the data with the simple formula \( \text{Revenue} = \text{Expenditure} + \text{Arrears} \). If the difference (\( R - E + A \)) is expressed as a share of revenue, this is a rough indicator of the error quota in the database. Table VII-7 shows the error quotas of accounts in the database and for summary accounts.

### Table VII-7: Error Quotas of Database

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<tr>
<td>Number of Accounts</td>
<td>49</td>
<td>36</td>
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<tr>
<td>Total Revenue in Bz</td>
<td>49,141,705</td>
<td>6,505,128</td>
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<td>Total Expenditure in Bz</td>
<td>33,428,988</td>
<td>2,985,649</td>
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<td>Arrears (Positive) in Bz</td>
<td>16,097,008</td>
<td>3,495,529</td>
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<tr>
<td>Passive Arrears (Negative) in Bz</td>
<td>370,655</td>
<td>4,614,296</td>
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<tr>
<td>Difference in Bz</td>
<td>-13,636</td>
<td>23,950</td>
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<tr>
<td>Difference in % of Revenue</td>
<td>-0.03%</td>
<td>0.37%</td>
</tr>
<tr>
<td>Absolute Difference in Bz</td>
<td>253,690</td>
<td>29,267</td>
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<tr>
<td>Absolute Difference in % of Revenue</td>
<td>0.52%</td>
<td>0.45%</td>
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</table>

Source: Database (all transactions). Bz = Bernese Batzen. The *Difference* is calculated as \((\text{Revenue} + \text{Passive Arrears}) - (\text{Expenditure} + \text{Arrears})\); *Absolute Difference* ignores the sign of the value for *Difference*. It is shown as the sum of all differences for each single account. For summary accounts, *Arrears* and *Passive Arrears* have been added (the value can be negative).

The overall error quotas of -0.03% (1732) and 0.08% (1782) in the database are very low; they are slightly higher for summary accounts. Even if the absolute value of errors for each single account is considered – which means that negative errors in one account do not cover positive errors in others – the quotas remain low, around 0.5%. These figures include conversion and rounding errors as well as the contemporary inaccuracies in determining outstanding arrears.
VII-12 Data Categorisation

To categorise data from primary sources, I have used the custom-made software *Schnupper-Logic*, programmed as macros to Microsoft Word by Stephan Hagnauer. Documents were first transcribed entirely in the archives as word files, then categorised on the computer. The underlying classification scheme ('accounting scheme') is specified in Table VII-8 in German. The categories are in line with the analytical framework explained in Section III-2 and Section IV-1. They follow methods pioneered by Martin Körner. My accounting scheme in Table VII-8 differs from Hagnauer’s original marginally. In particular, I have added an asterisk for net transactions.

The software assigns an ‘account’ (row *Konto*) for each category. These accounts were also used to define categories in my database, which were then related to the analytical framework. The accounts are named after their position in the hierarchy of categories. For certain transactions, the programme suggests a default value for the state function (row *Fkt*) and sector (row *Skt*). Transactions with the value *div* in Table VII-8 were assigned manually.

All transcript files can be found on the website [http://www.befin.hist.unibe.ch](http://www.befin.hist.unibe.ch)

[see pages overleaf]

Table VII-8: Accounting Scheme for Categorisation (in German)

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833 For details, see Hagnauer (1995). See also Hagnauer (1994); Hagnauer/Bartlome (1998); Bartlome/Hagnauer (2006).
EV VERBRAUCHS-EINNAHMEN (LAUFEND)

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<td>G) Geschosse, Legen</td>
<td>EV RGG</td>
<td>F</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>H) Holzhand, Holzgeld</td>
<td>EV RHH</td>
<td>F</td>
<td>4</td>
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<tr>
<td>L) Lehenämter (Einsch. v. Zehnten)</td>
<td>EV REL</td>
<td>F</td>
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<td>M) Marschallamt</td>
<td>EV REM</td>
<td>F</td>
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<td>S) 0r Sommer</td>
<td>EV RIS</td>
<td>F</td>
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<td>V) Vogteiaum (Landesteuer, Wachtgeld)</td>
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<td>F</td>
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<td>W) Wymarns</td>
<td>EV RWI</td>
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<td>EV RSP</td>
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EV INVESTIONS-EINNAHMEN (LAUFEND)

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<td>D) DARLEHNS- UND BETEILIGUNGS-RÜCKFLOßE</td>
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<td>E) INVESTIONS-VERÄUSSERUNG</td>
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<td>F) SALZ-LAGERAUSSLÖSUNG (in Geld)</td>
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<td>F</td>
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<tr>
<td>U) ÜBERTRAGUNGEN (ohne Erträge)</td>
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EINNAHMEN nach staats-FUNKTION

|---------|-------|----|-------|------|

SUMMEN UND RESTANZEN

|---------|-------|----|-------|------|

RESTANZ

|---------|-------|----|-------|------|

VORJAHRES-RESTANZ

|---------|-------|----|-------|------|

SUMMEN UND RESTANZEN
## Appendix

### AV VERBRAUCHS-AUSGABEN (LAUFEND)

**P PERSONAL-AUFWAND**
- **B EIZOLDUNGEN des Etat-Personals**
  - Grundbezüge: AV FBG dv 3°
  - Vergünstigungen: AV FBV dv 3°
- **G GRATIFIKATIONEN für das Etat-Personal**
  - G Junk-Gelder: AV PG dv 3°
  - Maltzweilen und Umkrante: AV PGM dv 3°
  - T Trinkgelder - getraute (Ergänzung): AV PGT dv 3°
- **H HONORARE -ad hoc für Etat-Personal**
  - AV FH dv 3°
- **S SOZIALELSUNG für das Etat-Personal**
  - A Alters-Versorgung: AV PSA dv 3°
  - H Hirtenleberversorgung: AV PSH dv 3°
- **T TRUPPEN-SOLD**
  - AV PT l 3°
- **V VERGÜTUNGEN für Gemeinwerken**
  - F Fuhrdienste: AV PVT dv 3°
  - R Röntdienste: AV PVR dv 3°
  - X unspezifiz. AV PVX dv 3°

**S SACH-AUFWAND**
- **L LEISTUNGEN DRITTER für**
  - H HANDEL: AV SLH dv 3°
  - N NACHRICHTEN-ÜBERMITTLUNG: AV SLN dv 3°
- **P PRODUKTION**
  - L Löhne: AV SLPL dv 3°
  - V Verpflegung: AV SLPS dv 3°
- **S STRAFVOLLZUG**
  - AV SSL J 3°
- **T TRANSPORTE**
  - AV SLT dv 3°
- **U UNTERHALT der**
  - **I IMMOBILIEN**
    - G Grundstücks-Unterhalt: AV SL GEMG F dv
    - H Hochbau-Unterhalt: AV SL HEMV F dv
    - T Tiefbau-Unterhalt inkl. Brücken: AV SL ETV U dv
    - W Wasserbau-Unterhalt: AV SL WTV U dv
  - **M MOBILIEN**
    - G Getreide-Unterhalt: AV SL EIMG F dv
    - M Mobiliar-Unterhalt: AV SL EIMM dv 2°
    - R Rüstungsgüter-Unterhalt: AV SL EIRM L dv
  - S Salz-Unterhalt: AV SL EIMS dv 2°
  - W Weihn-Unterhalt (ohne Herbst): AV SL EWV V dv
- **W WEITERE DIENSTLEISTUNGEN**
  - AV SLW dv 3°
- **M MOBILIEN (laufend)**
  - B Bau-Material (laufend): AV SNMB dv 3°
  - D Dienstkleidung: AV SNMD dv 2°
  - F Futter, Saat, u. Dünger-Material: AV SMF dv 1°
  - G Geräte u. Fahrzeug-Anschaffung: AV SMG dv 2°
  - K Kanzlei-Material: AV SSMK V dv 2°
  - M Mobiliar (laufend): AV SSMN dv 2°
  - N Nahrungs-Material (oh. Lohn von Gattin): AV SMN dv
  - R Rüstungs-Material (laufend): AV SMRR L 2°
  - S Salt (laufend): AV SMS F dv
- **P PACT- UND METZTME**
  - I Immobilien-Miete: AV SPI dv 3°
  - M Mobiliar-Miete: AV SMF dv 3°
- **S SPEISEN-ENTSCHEIDIGUNGEN**
  - R Reise-Speisen: AV SS R dv 3°
  - X unspezifiz. Speisen: AV SXX dv 3°

### T TRANSFERAUSGABEN
- **B BEITRAGE**
  - AV TB dv 3°
- **F FREMDANTEILE AN EINNAHMEN**
  - AV SF dv 3°
- **N NACHKLASSE**
  - I Recognition-Nachlass: AV TNR dv 3°
  - S Steuer-Nachlass (Zehnten): AV TNS F 1°
  - Z Zinsen- und Schulden-Nachlass: AV TNZ dv 4°
- **S SUBVENTIONEN**
  - B Brandgeschädigte: AV TSB S 4°
  - C Finnland: AV TSS S 4°
  - K Kranken, Invaliden u. Alte: AV TSK dv 4°
  - S Studenten (bzw.) und Lehrkinder: AV TSS B 4°
  - W Witwen u. Waisen (ohne Elter-Angeh.) AV TSWS S 4°
- **W WÜRTBERICHIGUNGEN**
  - I Einnahmen (Sonst): AV TWI dv 3°
  - G Getreide-Abgabe (Kasasachserstellung): AV TWP dv 3°
  - R Rechnungsfehler z. 1. Orden: AV TWR dv 3°
  - W Wechsel-Verluste: AV TWW dv 3°
  - Z Zinsendienst: AV TZ F 4°

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**D DARLEHEN UND Beteiligungen**
- B Beteiligungen: AV DB F dv
  - D Darlehensansprüche: AV DD F dv

### I INVESTITIONS-GÜTER-BESCHAFUNG
- **B BAUÖRVABAHN (ohne Käufe)**
  - H Hochbau-Vorhaben (ohne Unterhalt): AV BBI dv 3°
  - T Tiefbau-Vorhaben (ohne Unterhalt): AV BBT U dv
  - W Wasserbau-Vorhaben (ohne Unterhalt): AV BBN U dv
- **I IMMOBILIEN-KÄUFE**
  - G Grundstücks-Käufe: AV BHI dv 3°
  - H Hochbaust- Käufe (ohne Bauvorhaben): AV BHK dv
  - K Körperschafts-Käufe: AV BHK F dv
- **M MOBILIEN-KÄUFE (im Vorrat)**
  - B Bau-Material: AV BMM F dv
  - G Geräte und Früchte: AV BMF dv 3°
  - K Kanzleilmaterial: AV BMK K dv
  - R Rüstungsgüter: AV BMR L dv
  - T Textilien: AV BMF dv
  - V Vehi: AV BMV dv
  - W Wein: AV BMW F dv
- **R RECHTS-KÄUFE (ohne)***
  - AV BIR dv
- **S LAGER-ÜBERWEISUNG**
  - AV BISL dv

### L LAGER-AUSGANG**
- **G Getreideverkäufe (in Getreidewahrung): AV LG dv 3°
- T Tuch-Verkäufe (vom Lager): AV LTD dv 4°**
  - W Wein-Verkäufe (in Weinwahrung): AV LW F dv

### S SCHULDEN-TILGUNG**
- R Restanzen-L. Obliegenr. überg. AV RSR F dv
  - übrige Schulden überg. AV RR dv

### U ÜBERTRAGUNGEN (der Investitionsrechnung)
- E Engemessene zur nächsten Rechnung: AV EUP F 3°
  - Z zur NEBEN-Ebene: AV EU N F 3°
  - U zur OBER-Ebene: AV EU O F 3°**
  - Z zur unter-Ebene: AV EU U F 3°**

### EINNAHMEN NACH STAATS-FUNKTION
- E EINNAHMEN für
  - E Auswärtige Beziehungen: AV EA
  - Bildung: AV EB
  - Domänn und Produktion: AV ED
  - Finanzen und Steuern: AV EF
  - Gesundheit: AV EG
  - Justiz und Polizei: AV EJ
  - Kultur: AV EK
  - Religion: AV ER
  - Wirtschafts-Politik und Versorgung: AV EW

### SUMMEN UND RESTANZEN

### S SUMMA der
- E EINNAHMEN pro
  - S S S Pro AV S4 F 3°
  - R Rechnung: AV S4R F 3°

### A AUSGABEN pro
- S S S Pro AV S4S F 3°
  - R Rechnung: AV S4R F 3°

### R RESTANZ
- **G ZU GUNSTEN der Obliegenr.**
  - E Exklusive Obliegenr: AV ROE R dv
  - Inklusive Obliegenr: AV RIR R dv
  - U ZU UNGUNSTEN der Obliegenr.**
  - E Exklusive Obliegenr: AV ROE R dv
  - Inklusive Obliegenr: AV RIR R dv
VII-13 Measurements and Conversions

This section will discuss the prices used to convert all transactions into a single accounting currency, the Bernese Batzen. I will start with monetary units and subsequently present measurements for basic foodstuffs as well as conversion prices used to transfer values into Batzen.

Monetary Units

The Batzen was an ideal accounting currency with a stable value. It was not minted and the value of a Batzen changed relative to circulating coins used for daily transactions.835 The Bernese government used three different accounting currencies with fixed proportions between them (see Figure VII-8). In addition to the Crown-Batzen-Kreuzer system, the Pound-based LSD system836 dating back to Charlemagne was still in frequent use. In Vaud, the currency was based on the Savoy model using the Light Guilder (florin petit poids).837 In Argovia, forins were used in combination with Bernese currencies.838

![Currency Conversion Table]

Figure VII-8: The Bernese Currency System: Origins and Equivalents

Based on Furrer (1992); Furrer (1995); Körner/Furrer/Bartlome (2001).

**Abbreviations:** Thl = Taler; Kr = Krone (Bernese Crown); fl = Gulden or Berner Gulden (Bernese Guilder); fl (AG) = Argovia gulden; L = Livre Suisse or Schweizer Pfund; Lb [also: BE-Lb] = Pfund or Bern-Pfund

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835 For the different monetary systems, see Furrer (1995).
836 LSD standing for Librum (Pound), Solidus (Shilling) and Denarius (Penny).
837 The proportions between the Vaudois system and the Bernese had been fixed in 1590: Furrer (1992): 109-110.
838 One Argovia florin (which was different from the florin petit poids) held either 40 Bernese Shillings (of 12 d each) or 15 Bernese Batzen (of 4 Kreuzer each).
Although state accounting saw a gradual shift to the Crown system in the eighteenth century, this transition was not comprehensive. In 1773, three years after the first *Deutsch-Standesrechnung* was issued in Crowns, the Great Council discussed about switching back to the Pound. As a result of such discussions, it was finally decided to make the Crown the standard currency for all bailiff accounts which had a connection to the *Deutsch-Standesrechnung*. But even after 1773, some bailiffs kept recording parts of their ledgers in Pounds and only converted the overall sum into Crowns. Others apparently did not adopt the new currency at all.

The value of these ideal units of account can be determined in two ways: relative to the purchasing power in terms of goods or respective to other currencies. For the latter, we can analyse the value of ‘heavy’ foreign coins like the *Reichstaler* or the *Ecu Blanc*, whose bullion content was fixed and stable. Based on their exchange rates in Bern, the ideal bullion content of Bernese Batzen was calculated for Figure VII-9.

![Diagram](image)

**Figure VII-9: Ideal Bullion Content of the Bernese Batzen, Based on Exchange Rate of Silver and Gold Coins**

Sources: Exchange rates from Körner/Furrer/Bartlome (2001); bullion content of coins from Schröetter (1930). Abbreviations: *Au* = gold and *Ag* = silver.

While the results for gold coins are consistent, using the *Reichstaler* gives a considerably higher silver content for the Bernese Batzen than the French coins. This is probably because the *Speciestaler* on which Bernese exchange rates are based were minted coins whose silver content was not identical with that of the original

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840 In practice, most international transactions were not made in cash, but via bill of exchange; see Section V-1.
Using the French *Louis Blanc* and the *Ecu Neuf* as a currency of reference is more reliable. Overall, the Bernese currencies of account were relatively stable throughout the eighteenth century, with some depreciation in the earlier part of the period. This stands in marked contrast to previous centuries, where currency devaluations were frequent. As a proxy, the silver content of 1 *Batzen* was 0.7 g of fine silver or 0.05 g of fine gold.

The conversion of foreign currencies for overseas investments was based on parity rates, as discussed in Section V-1.

### Measurements for Grain and Other Basic Foodstuffs

The measurements for basic foodstuffs in Bern were only partly unified. Numerous local units coexisted. Therefore, the administration had to consider a plethora of different weights, volumes and capacity measures. This was further complicated by the fact that those systems were all non-decimal, which made adding and comparing sums difficult. Also, the same unit by name did not necessarily contain an equal amount wherever it was used. For example, the Bernese grain *Mäss* contained 14 litres. It was used within most of the German-speaking parts of the canton, except for the county of Bipp, where grain was measured in *Solothurn Mäss* containing 13.2 litres. In Vaud, almost every county had its grain measure, which in spite of their similar names differed significantly. Argovia, too, had measurements of its own. This is an indication for how fragmented the Bernese economy remained in the eighteenth century, even when it came to the most important staple of the time.

One *Mütt* (*mt*) consisted of 12 *Mäss* (*ms*), each measuring 4 *Imi* (*im*). In daily life the *Mäss* was the most important measure and prices were expressed in *Batzen per Mäss* (Bz/ms). In Argoiva, one *Malter* (*mlt*) contained four (Argovia-)*Mütt* (*mt*) of four Quarters (*Fiertel*) or 16 *Vierling*. In Vaud, the mayor measure was the *Muid*, a French version of the German word *Mütt*. For sub-divisions of the *Muid*, counties would use either twelve *coupes* of four quarterons each; or a system with twelve *coupes* of two *bichets* each. Sometimes the *sac* was used, of which 3 made one *Muid* (see Figure VII-10).

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841 Other explanations are devaluations of the *Reichstaler*, or a risk premium that was applied for these coins in Bern.  
842 I thank Norbert Furrer for advice in how to calculate these values.  
843 The same can be observed for Lucerne: See Körner (1981).  
844 Early modern grain was measured by volume, not weight.  
846 For details on the Vaud systems: Monbaron (1992). See Table VII-9 for which system the counties used.
Mütt or Muid did not always contain the same volume. Only for the core Bernese territory did the Mütt contain the same amount (168.1 ltr). In Argovia and Vaud, the content of each unit varied from county to county. Table VII-9 gives a list of grain content per Mütt in litres, based on data from Christian Pfister and Patrick Monbaron.

The most commonly used types of grain were spelt, wheat and oats. While spelt (Dinkel) was the basic breadstuff for the German-speaking parts of the canton, wheat was more common in Vaud. Dehusked spelt was called Kernen, a term occasionally used to describe wheat as well. Kernen was more valuable because of its higher density (weight per volume) than spelt. It was also more nutritious. Oat was cultivated mainly for animal consumption. In addition to these main types of grain, there were various mixed grains, such as Mischelkorn, which consisted of two thirds of rye and a third of wheat, or Paschi/Baschi (barley, peas and oats). Mühlekorn – literally translated as mill corn to describe whatever was left over at the mill –

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847 For a conversion of different grain types into nutritional values, see Flückiger Strebel (2002): Table 45.
described a varying mix of wheat, spelt, rye and barley.\footnote{Flückiger Strebel (2002): 321.} We can convert all these grain types into weight equivalents by using data on their relative weight.\footnote{Christian Pfister and other authors converted all grain into hundredweights (\textit{Doppelzentner}), each equivalent to 100kg of wheat: Pfister, C. (1975): table 24.} From there, nutritional values could be established based on relative caloric content.\footnote{See Pfister, C. (1975): table 24; Küng (1993): 453 and Flückiger Strebel (2002): table 45.}

In the eighteenth century, potatoes had been slowly adapted to complement the Bernese diet, especially of the poor. The nutrition value per acre of potatoes was roughly four times that of grain. In addition, the climatic prerequisites were slightly different, which made it suitable for crop diversification.\footnote{Pfister, C. (1978): 232-235.} Since potato harvests were not liable to tithes, potatoes are conspicuously absent from Bernese accounts. On the other hand, the lack of potato tax records also means that exact figures about cultivation are unknown. Christian Pfister estimates that a fifth of all calories consumed in the canton came from potatoes.\footnote{Pfister, C. (1995): 204. This is significantly less than previous authors had estimated.} Grain was easier to store, transport and sell.

\textbf{Wine} was measured and consumed in Bernese \textit{Mass} of 1.67 litres. To trade and calculate larger amounts, barrels (\textit{Fass}) of 600 Mass (=1,002 litres) were used.\footnote{Such barrels were mainly used for transport; storage barrels were larger: Tuor (1977): 80.} In between, the \textit{Saum} contained 100 Mass. In Vaud, the basic unit was the \textit{pot}, of which 30 constituted a \textit{sétier}, and 480 a \textit{char} (16 \textit{sétiers} to one \textit{char}).\footnote{See also Dubler (1975): 42-46.} As with cereals, the content of a \textit{Mass} varied according to location (see Table VII-10). Other liquids, particularly oil, were measured in the same units, but their weight could differ from the local wine measure.

<table>
<thead>
<tr>
<th>Bern</th>
<th>\textit{Mass} in litres</th>
<th>Argovia</th>
<th>\textit{Mass} in litres</th>
<th>Vaud</th>
<th>\textit{Pot} in litres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bernmass</td>
<td>1.67</td>
<td>Aarau</td>
<td>1.44</td>
<td>Aigle</td>
<td>1.43</td>
</tr>
<tr>
<td>Biel</td>
<td>1.61</td>
<td>Brugg</td>
<td>1.54</td>
<td>Aubonne</td>
<td>1.49</td>
</tr>
<tr>
<td>Büren</td>
<td>1.55-1.57</td>
<td>Lenzburg</td>
<td>1.57</td>
<td>Avenches</td>
<td>1.56</td>
</tr>
<tr>
<td>Burgdorf</td>
<td>1.59</td>
<td>Zofingen</td>
<td>1.54</td>
<td>Lausanne</td>
<td>1.17</td>
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<td>Erlach</td>
<td>1.90</td>
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<td></td>
<td>Morges</td>
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<td>Frutigen, Nieder-simmental</td>
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<td></td>
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<td>Obersimmental</td>
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<td>Nyon</td>
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<td>2.76-2.79</td>
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<td></td>
<td>Orbe</td>
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<tr>
<td>Thun</td>
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<td>Payerne</td>
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<td>Romainmôtier</td>
<td>2.17</td>
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<td></td>
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<td></td>
<td></td>
<td>Vevey</td>
<td>1.54</td>
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<td></td>
<td></td>
<td></td>
<td>Villeneuve</td>
<td>1.71</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Yverdon</td>
<td>1.58</td>
</tr>
</tbody>
</table>

\textbf{Table VII-10: Mass/Pot in Litres by County (Wine only)}


The main problem with wine transactions is that the quality of the product was usually not recorded but could vary considerably. Often the records did not even state...
if white or red wine was transacted, although bailiffs were inhibited by oath to mix red with white wine.\textsuperscript{855}

**Salt** was a basic foodstuff, a crucial ingredient for dairy and cattle farming, as well as an important source of revenue for the state. Bern had little domestic salt production and depended to a large extent on imports from France and Austria (see Section III-5). Salt was traded by weight for which numerous different local units coexisted. They matter little for this study, because the Bernese salt accounts contained transactions in a variety of foreign weights and measures, which were all converted into Bernese *Centner* (hundredweights) of 100 pounds.\textsuperscript{856} Since 1711, the weight of the pound was pegged to the Parisian market weight of 489.51 g.\textsuperscript{857}

Most other foodstuffs were also measured by weight. The Bernese pound used for these differed slightly from that for salt; it measured 520 grams. Sub-units of the pound were *Lot* (32 per pound), ounces (16 per pound) and *Quentchen* (128 per pound).\textsuperscript{858} Wood and hay were measured in *Klafter* of six cubic *Schuh* that measured 5.4 m\(^3\). One *Schuh* contained 10 *Zoli*.\textsuperscript{859}

### Price Conversions

For monetary units, the conversion is straightforward. Table VII-11 shows the Batzen value of all units based on the equivalents discussed above. I have also included proxy values for fine silver and gold.

<table>
<thead>
<tr>
<th>Currency Conversion (in Bz)</th>
<th>Proxy Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>in Bz</td>
<td>Lb</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>0.133</td>
<td>0.375</td>
</tr>
</tbody>
</table>

Table VII-11: Currency Conversion to Bernese Batzen

Based on Table VII-11 and Figure VII-9.

For transactions in kind, I have used a weighted annual price for each good, calculated from transactions in the same ledger whenever they were available. Prices that referred to inferior quality goods were excluded, as were prices that were obvious outliers.

The Bernese state did not collect cereal prices systematically. Most price data is from grain sales by bailiffs, for which I have used averages weighted by the amount of grain sold. This data takes account of regional price differences, as well as local

\[855\text{ StABE B VII 25: §20. Exceptions are ROM and NYO, where white and red wine were accounted for separately.}\]

\[856\text{ For example, foreign weights used were Austrian *Fass* of 16 ounces each or French *Minots*. For an overview: Guggisberg (1933): 67-71.}\]

\[857\text{ Quoted in Tuor (1977): 86. See also Guggisberg (1933): 70-71.}\]

\[858\text{ Tuor (1977): 84 and Dubler (1975): 51. Some counties used a different weight for the pound (e.g. 496 g in Burgdorff). But because there were hardly any transactions measured by weight, I assume that the Bernese pound of 520g was used throughout the canton. The Vaud *Livre* weighted between 503g (Yverdon) and 572 (Vevey): Dubler (1975): 51-53.}\]

\[859\text{ Tuor (1977): 37, 51-61 (listing local deviations from the Bernese measure).}\]
measurements. If an office did not sell any grain of a specific kind, and hence did not record a price, I have used a regional average, calculated in Batzen per litre. For regions with fewer than two price observations, I have used a weighted price for the whole canton instead. All conversions used are shown in Table VII-12 and Table VII-13 as weighted averages in Batzen per litre. The results are consistent with the findings of Hans-Anton Ebener and Erika Flückiger Strebel, who based their research to a large extent on similar sources, covering few years in the 1730s and 1780s.\textsuperscript{860} We can also compare price data for 1732 and 1782 with other price series.

Christian Pfister has collected monthly prices for wheat in the city of Bern between 1755 and 1798, based on the official bulletin \textit{Avis-Blättlein} and the journal of the Economic Society of Bern, the \textit{Abhandlungen und Beobachtungen}.\textsuperscript{861} A contemporary document providing monthly prices for the town of Nidau from 1739 to 1785 has been edited by Erika Flückiger Strebel.\textsuperscript{862} For Lausanne, Patrick Monbaron has collected yearly price data for the whole Bernese period (1536-1798), with monthly figures available for 1735-1739, 1743-1747 and 1780-1782.\textsuperscript{863} Unfortunately, grain prices for Argovia are only available on a yearly basis from 1565 to 1770. They have been collected as five-year moving averages by Willy Pfister, based on government accounts.\textsuperscript{864} I have further added a series of grain prices from bailiff accounts in Aarberg and Nidau counties.

For all these series, I have calculated the ratio of prices in the database to several moving averages in Figure VII-11. Data for 1732 is scarcer than for 1782.

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<th>Wheat Lausanne</th>
<th>Wheat Bern</th>
<th>Wheat Nidau(m)</th>
<th>Wheat Nidau(b)</th>
<th>Wheat Aarberg</th>
<th>Spelt Aarberg</th>
<th>Oats Aarberg</th>
<th>Mill Aarberg</th>
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<th>Wheat Bern</th>
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<th>Wheat Aarberg</th>
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\textit{Figure VII-11: Grain Prices of 1732 and 1782 compared to Moving Average}


\textsuperscript{861} Pfister, C. (1975): Table 28.1.

\textsuperscript{862} The document is entitled \textit{Früchten-Register des Kornmarkts zu Nidau: Auffuhr und Preise} (StABE B VI 219). See Flückiger Strebel (2002): Table 48.

\textsuperscript{863} Patrick R. Monbaron (Lausanne), unpublished data. I thank Mr Monbaron for providing me with this material.

Sources: Pfister, W. (1940): 237-264 [Argovia]; unpublished transcripts by Patrick Monbaron [Lausanne]; Pfister, C. (1975): Table 28.1 [Bern]; Flückiger Strebel (2002): Table 48 [Nidau (m)]; StABE B VII 1633-1640 [Nidau (b)], StABE B VII 851-872 [Aarberg series]. Abbreviations: $Bz = \text{Batzen}$; $mt = \text{Mütt}$; $fl = \text{Florin (petit poids)}$; $ms = \text{Mass}$; $Nidau(m)$ is the market price, $Nidau(b)$ the bailiff’s price (see Section III-6). The Aarberg figures are from bailiff accounts. I have replaced missing values for Aarberg in 1732 with three-year moving averages for wheat, mill and rye (shown in italics); $3yMA(1732)$ stands for the ratio of the price of 1732 to the three-year moving average for 1732; $nearMA$ is for the ratio of the 1732 price to an average price over the nearest nine-year period where no values are missing; $\text{Geomean}$ is for the ratio of the 1732 to the mean for the whole series; $N$ for the number of years used for calculating the mean.

The overall impression is that while there were local differences and yearly fluctuations, both 1732 and 1782 were average price years. Given the high price volatility for grain in general, they are as representative as sample years can get for the eighteenth century.

Wine prices were more difficult to establish. On one hand the quality of the product is quite likely to differ significantly between different places, but quality measures were usually not recorded. In addition, prices are scarcer and less reliable. I have therefore converted all wine sold into litres and calculated a price in $Bz$ per litre. As can be seen from Table VII-14, the price differences are considerable. To control for outliers while still respecting local price differences, I have used the following conversion method. For accounts with a wine price, I have calculated the average of the price $OZf$ recorded in the account and the overall weighted average price. All other wine transactions were converted using the overall weighted average for the whole canton.866

Numerous other conversions for transactions in kind were made based on prices given in the accounts. In some cases, these transactions were puny and only covered the odd tin of oil that a bailiff got as a tithe. There was also significant trading in salt recorded in specialised accounts, which was quantitatively important. The salt ledgers included reliable figures on prices used by the government that the government itself used for converting all transactions into Bernese currency (see Section VII-16).

Detailed Assumptions for Price Conversion

I Grain Types

The following grain types have been added, based on the combined used in contemporary accounts:

- **Orgeon** = Barley (ERL782)
- **Kernen** = Wheat (numerous, e.g. FRE782)
- **Corn** = Spelt (ABU732)
- **Fassmuss**, **Stucke** = Kernel; **Com** = Spelt (KOE732 and KOE782)
- **Kernel** = Wheat (AAR7322)
- **Haber und Mischelkorn** = Mischel (INT732 and INT782)
- **Linsen** = Erbsen = Peas (assumption)
- **Reiterkorn** = (Oats + Spelt)/2 (various)867

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865 This is show in row **conv.** in Table VII-14.
866 Table VII-20 shows how much wine sold in each account (in litres).
867 For ROM, oats only.
The conversions of different types of grain into standard weight (g, kg, tonnes) and calories (kcal) follow the data from Flückiger Strebel (2002) [based on Pfister, C. (1975): Table 24 and Küng (1993): 453].

II Other Goods

For the following goods, the medium weighted price of all accounts where a price was recorded has been calculated and used for conversion.

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<td>Ziger</td>
<td>1732:</td>
<td>1 Bz/lb</td>
<td>FRE732, TRA732</td>
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<tr>
<td></td>
<td>1782:</td>
<td>1 Bz/lb</td>
<td>FRE782, INT782</td>
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<td>1732</td>
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For the conversions of summary accounts – for which grain sales were not recorded separately – I have used prices for the same region from the database. If the database contained no price information, I have used weighted averages for the whole canton instead.
Prices for Conversions of Grain to Bz

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Table VII-12: Grain Conversion for 1732 in Bz/ltr

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|       | all   | 0.438 | 0.376 | 1.200 | 0.715 | 0.396 | 0.822 | 0.606 | 0.955 | 0.636 | 0.557 | 0.395 | 1.143 | 0.803 | 1.143 |

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<th>0.780</th>
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<th>0.627</th>
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<td>1977</td>
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<td>2010</td>
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|       | stable  | 0.359 | 0.308 | 0.965 | 0.575 | 0.342 | 0.705 | 0.512 | 0.724 | 0.567 | 0.554 | 0.328 | 0.813 | 0.687 | 0.813 |

### Source and Notes

- **Source**: Database. For account abbreviations, see page 324. For grain, where the English title is not self-explanatory: *Wheat* stands for *Weizen* and *Kern*; *Mischel* for *Mischelkorn*, *Mill* for *Mühlekom*, *Reiter* for *Reiterkorn*, *Corn* for *Korn*. Bold numbers are prices from the same account, italics are regional weighted averages, normal numbers are cantonal weighted averages. Underlined prices are based on the assumptions discussed on page 340. The table only shows conversions that were actually used in the database.

- **Data on weight (kg/litr) and nutritional value (kcal/litr)** is from Flückiger Strebel (2002): table 45, which is based on Pfister, C. (1975): table 24 and Küng (1993): 453. I have calculated the nutritional value for spelt indirectly, via the value for wheat, after correcting for weight loss when de-husking. For the conversion of grain without explicit reference, I have used the values for *Mill* (for *Corn* and *Reiter*), *Paschi* (for *Wiki*), and *Peas* (for *Lentils*) respectively.
Conversions of Wine into Bz

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<th>Wine Prices (2)</th>
<th>1782</th>
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Table VII-14: Wine Prices, 1732 and 1782

Source: database, local measures as in Table VII-10. For account abbreviations, see page 324.
Abbreviations: ltr = litre, ms = Mass, sold (ltr) = Amount of wine sold at a known price, in litres.
conv. = conversion price used. This was calculated as the mean of the recorded price in an account and the overall weighted price. Please note that some of the wine prices – particularly those in DSR and WSR – are only recorded price conversions, not wine sales.
Conversion Prices for Summary Accounts (in Bz/ltr)

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<td>0.940</td>
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<td>0.254</td>
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<td>0.543</td>
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<td>0.494</td>
<td>0.498</td>
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<td></td>
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<td></td>
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<tr>
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<td>0.343</td>
<td>0.982</td>
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<td>0.636</td>
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<td>0.803</td>
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<td>0.619</td>
<td>0.955</td>
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<td>0.955</td>
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<td>0.395</td>
<td>0.501</td>
<td>0.803</td>
<td>1.143</td>
</tr>
</tbody>
</table>

Table VII-15: Conversion Prices for Summary Accounts (in Bz/ltr)

All prices are in Bz/ltr. Source: Database (see Table VII-12 and Table VII-13 for details). Italics are regional weighted averages; normal numbers are cantonal weighted averages. Underlined prices are based on assumptions (see page 340 for details).

Abbreviations:
AG    Argovia
BE    Bern
OAE   Oberaargau/Emmental
OBE   Oberland
SEE   Seeland
VD    Vaud
Appendix

VII-14 Different Ways of Measuring Inflation

This section presents details on how I calculated the different inflation rates in Table IV-3. I will first discuss monetary inflation, then wage data and price information for tiles. The difference in price between 1732 and 1782 is the overall inflation rate for this period. Annual inflation rates are calculated with the formula

\[ i = \left( \frac{V_{1782}}{V_{1732}} \right)^{1/n} - 1 \]

where \( i \) is the inflation rate, \( V_{1782} \) is the value of a good in 1782, \( V_{1732} \) its value in 1732 and \( n \) the number of years (50). As discussed in Section VII-13, the Bernese currency was very stable in its theoretical bullion content (i.e. its exchange rate to bullion). Table VII-16 shows the ideal bullion content of the Batzen for the value nearest to 1732 or 1782 respectively. There was no monetary inflation in terms of fine silver or gold; the Batzen even appreciated slightly in value between the two sample years.

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<tr>
<th>Year</th>
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<th>Gold</th>
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<tr>
<td></td>
<td>R'Taler</td>
<td>L. Blanc</td>
</tr>
<tr>
<td>1732 (nearest)</td>
<td>0.812</td>
<td>0.719</td>
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<tr>
<td>1782 (nearest)</td>
<td>0.787</td>
<td>0.719</td>
</tr>
<tr>
<td>change</td>
<td>-3.03%</td>
<td>0.00%</td>
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</table>

Table VII-16: Ideal Bullion Content of the Bernese Batzen based on Exchange Rates, 1732 and 1782

See Figure VII-9 for explanation. I have used the value for the year nearest to 1732. R'Taler stands for Reichstaler, Basket stands for the mean of all three values.

Another way of considering how much government revenue increased over time is to consider inflation in terms of real wages or purchasing power. The problem here is that reliable data on Bernese wages is rare. Hans-Anton Ebener has collected daily wages for construction workers from accounts of numerous counties. Based on his figures, I have calculated average daily wages for skilled and unskilled construction workers in the 1730s and 1780s (see Table VII-17). As a caveat, the basis for this calculation is narrow and Ebener did not use weighted averages for his figures. An additional problem is that construction workers’ salaries might not be representative for an early modern economy, where most of the workforce was active in the primary sector. Given the lack of wage data for agriculture, the construction worker series is best – and only – alternative.

---

868 His county sample is similar to mine.
Table VII-17: Daily Wages of Construction Workers in Bz, from Bernese Accounts, 1730s and 1780s

Based on Ebener (1999): Tables 5.2 and 5.3. His figures are not weighted by the number of days employed. N stands for the number of observations in Ebener’s sample; mean is the arithmetic mean between the skilled and unskilled wage (using total numbers would give a spurious result, because the share of unskilled workers is smaller in the 1782 sample).

Table VII-17 shows the prevalence of wage inflation, although it was lower than the increase in grain prices. On an annual basis, wages increased by 0.41% over the period. We can use this wage data to correct for changes in purchasing power by using the arithmetic mean of all wage increases from Ebener’s sample.

Finally, inflation can be measured in terms of a specific non-agricultural good that is unlikely to change over time. Norbert Furrer has used tiles for this purpose when analysing monetary inflation for Fribourg. From Ebener’s figures on expenditure for construction materials, I have collected price information for tiles. Within this sample, the state bought 1,000 tiles in the 1730s at a weighted average price of 0.1305 per tile. With an average price of 0.1518 for 1,100 tiles purchased in the 1780s, inflation was 16.30% over fifty years. This is equal to a yearly inflation rate of 0.30%.

---

## VII-15 Database Queries

### Revenue, Expenditure and Profit Rate by Account

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<tr>
<th>Account</th>
<th>Revenue</th>
<th>Expenditure</th>
<th>Arrears</th>
<th>Profit-rate</th>
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Table VII-18: Revenue, Expenditure and Profit Rate by Account (Database) [1/3]

See comment on page 350
### Appendix 349

#### Table VII-18: Revenue, Expenditure and Profit Rate by Account (Database) [2/3]

See comment on page 350.

<table>
<thead>
<tr>
<th>Account</th>
<th>Revenue gross</th>
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<th>Expenditure gross</th>
<th>Expenditure net</th>
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<td>414,763</td>
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<th>Account</th>
<th>Revenue gross</th>
<th>Revenue net</th>
<th>Expenditure gross</th>
<th>Expenditure net</th>
<th>Arrears to state</th>
<th>Arrears from s.</th>
<th>Profit-rate</th>
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<td>363,998</td>
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</tr>
<tr>
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<td>5,140,813</td>
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<td>2,367,639</td>
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</tr>
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<td>BDR782</td>
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Votes卡拉威
### Table VII-18: Revenue, Expenditure and Profit Rate by Account (Database)

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The Profit Rate was calculated as net revenue minus net expenditure, expressed as a share of net revenue. For accounts with a handover during the sample year, the profit was calculated over both ledgers. Please note that the overall profitability shown here is not weighted, nor does it include Summary Accounts. It is therefore different from the figures used in the text, which are more accurate.
Grain Revenue in Litres, 1732 and 1782

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Table VII-19: Grain Revenue in Litres, 1732 and 1782 [1/4, continued overleaf]

See comment on page 354.
### Appendix

#### Table VII-19: Grain Revenue in Litres, 1732 and 1782 [2/4, continued overleaf]

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|                  | 7'116'785| 3'970'362| 202'6111| 372'843| 293'506| 13'3137| 174'578| 69'705| 9205| 30'154| 64'741 | 8902 | 74058 | W     |
|                  | 2'096'863| 583'625| 97'9401| 137'530| 123'530| 32'248| 131'672| 60'688| 39'555| 19'957| 55'328 | 0     | 59'395 | W     |
| sold as % of net| 29.3%     | 14.7% | 48.1% | 36.9% | 42.1% | 2.4% | 75.4% | 87.1% | 43.0% | 66.2% | 85.5% | 0%    | n.a.  |      |      |

See comment on page 354.
### Appendix

Table VII-19: Grain Revenue in Litres, 1732 and 1782 [3/4, continued overleaf]

See comment on page 354.
Table VII-19: Grain Revenue in Litres, 1732 and 1782

Source: Database: gross stands for gross revenue (i.e. revenue including inventory arrears), net for net revenue, sold for the amount of grain sold (which was recorded as an expenditure in grain); the letter after the column others describes which grain types the column refers to, with P for Paschi, W for Wiki, and L for Lentils; for account abbreviations, see p. 324; for assumptions on price conversion see Section VII-13.
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<td>gross 34'69</td>
<td>sold as % of net 29.0%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>net 36'131</td>
<td></td>
<td>net 34'69</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>sold 5'994</td>
<td></td>
<td>sold</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MOU732</td>
<td>gross 3'062</td>
<td>NYO782</td>
<td>gross 23'408</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>net 3'062</td>
<td></td>
<td>net 23'408</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>sold 3'062</td>
<td></td>
<td>sold</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STI732</td>
<td>gross 14'898</td>
<td>ROM782</td>
<td>gross 64'502</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>net 14'898</td>
<td></td>
<td>net 64'502</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>sold</td>
<td></td>
<td>sold 41'968</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOR732</td>
<td>gross 12'586</td>
<td>STI782</td>
<td>gross 36'227</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>net 7'158</td>
<td></td>
<td>net 36'227</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>sold 7'158</td>
<td></td>
<td>sold</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WED732</td>
<td>gross 163'870</td>
<td>WED782</td>
<td>gross 9'551</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>net 43'237</td>
<td></td>
<td>net 9'551</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>sold 38'278</td>
<td></td>
<td>sold 5'376</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WEW732</td>
<td>gross 332'163</td>
<td>WEW782</td>
<td>gross</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>net 81'538</td>
<td></td>
<td>net</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>sold 34'996</td>
<td></td>
<td>sold</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table VII-20: Wine Revenue in Litres, 1732 and 1782

Source: Database: *gross* stands for gross revenue, *net* for net revenue, *sold* for the amount of grain sold (which was recorded as an expenditure in wine, see also Table VII-14); for account abbreviations, see p. 324. Please note that the amount of wine sold is not necessarily identical with the amount for which prices were registered (shown in Table VII-14).
Appendix 356

Relative Changes in Grain Revenue, 1732-1782 (kg, meal, Bz and ltr)

<table>
<thead>
<tr>
<th></th>
<th>1732</th>
<th>1782</th>
<th></th>
<th>1732</th>
<th>1782</th>
<th>change</th>
<th>change</th>
<th>change</th>
</tr>
</thead>
<tbody>
<tr>
<td>kg</td>
<td>kg</td>
<td>kg</td>
<td>kg</td>
<td>Bz</td>
<td>Bz</td>
<td>kg, kcal</td>
<td>kcal</td>
<td>Bz</td>
</tr>
<tr>
<td>Spelt</td>
<td>2,225,716</td>
<td>2,393,869</td>
<td>4,833,718</td>
<td>5,198,904</td>
<td>1,949,533</td>
<td>2,812,122</td>
<td>7.6%</td>
<td>44.2%</td>
</tr>
<tr>
<td>Wheat</td>
<td>449,941</td>
<td>825,655</td>
<td>1,471,539</td>
<td>2,700,316</td>
<td>738,403</td>
<td>1,408,806</td>
<td>83.5%</td>
<td>90.8%</td>
</tr>
<tr>
<td>Oats</td>
<td>1,610,418</td>
<td>1,582,085</td>
<td>5,782,838</td>
<td>5,681,098</td>
<td>777,949</td>
<td>1,302,957</td>
<td>-1.8%</td>
<td>67.5%</td>
</tr>
<tr>
<td>Rye</td>
<td>296,162</td>
<td>357,575</td>
<td>796,616</td>
<td>961,805</td>
<td>235,014</td>
<td>417,330</td>
<td>20.7%</td>
<td>77.6%</td>
</tr>
<tr>
<td>Mischel</td>
<td>255,226</td>
<td>220,760</td>
<td>720,698</td>
<td>623,375</td>
<td>276,199</td>
<td>486,552</td>
<td>-13.5%</td>
<td>76.2%</td>
</tr>
<tr>
<td>Corn</td>
<td>121,337</td>
<td>84,503</td>
<td>364,369</td>
<td>253,759</td>
<td>52,994</td>
<td>47,048</td>
<td>-30.4%</td>
<td>-11.2%</td>
</tr>
<tr>
<td>Barley</td>
<td>51,540</td>
<td>52,349</td>
<td>150,497</td>
<td>152,858</td>
<td>65,199</td>
<td>160,723</td>
<td>1.6%</td>
<td>146.5%</td>
</tr>
<tr>
<td>Wiki</td>
<td>6,215</td>
<td>5,253</td>
<td>19,924</td>
<td>16,840</td>
<td>6,233</td>
<td>8,026</td>
<td>-15.5%</td>
<td>28.8%</td>
</tr>
<tr>
<td>Paschi</td>
<td>43,543</td>
<td>7,443</td>
<td>139,588</td>
<td>23,859</td>
<td>38,632</td>
<td>6,661</td>
<td>-82.9%</td>
<td>-82.8%</td>
</tr>
<tr>
<td>Mill</td>
<td>71,102</td>
<td>36,588</td>
<td>213,515</td>
<td>109,871</td>
<td>54,410</td>
<td>32,498</td>
<td>-48.5%</td>
<td>-40.3%</td>
</tr>
<tr>
<td>Peas</td>
<td>10,013</td>
<td>8,154</td>
<td>31,440</td>
<td>25,603</td>
<td>6,962</td>
<td>10,833</td>
<td>-18.6%</td>
<td>55.6%</td>
</tr>
<tr>
<td>Reiter</td>
<td>11,201</td>
<td>6,677</td>
<td>33,637</td>
<td>20,051</td>
<td>5,602</td>
<td>3,704</td>
<td>-40.4%</td>
<td>-33.9%</td>
</tr>
<tr>
<td>Millet</td>
<td>1,729</td>
<td>909</td>
<td>6,119</td>
<td>3,218</td>
<td>1,285</td>
<td>917</td>
<td>-47.4%</td>
<td>-28.6%</td>
</tr>
<tr>
<td>Lentils</td>
<td>87</td>
<td>87</td>
<td>274</td>
<td>274</td>
<td>54</td>
<td>128</td>
<td>0.0%</td>
<td>137.0%</td>
</tr>
<tr>
<td>all grain</td>
<td>5,154,231</td>
<td>5,581,908</td>
<td>14,564,770</td>
<td>15,771,831</td>
<td>4,208,470</td>
<td>6,698,304</td>
<td>8.3%</td>
<td>59.2%</td>
</tr>
</tbody>
</table>

Table VII-21: Relative Changes in Grain Revenue, 1732-1782 (kg, meal, Bz and ltr)

Source: Database and extended database (values including grain sales). meal stands for 1,000 calories (kcal). Nutritional values and weights are calculated with figures from Table VII-12 and Table VII-13, based on Flückiger Strebel (2002): table 45. The column change price shows the change in the weighted price for each grain for the canton as a whole (see Table VII-13). The change in kg and meal is identical, since they are both based on the same series (grain revenue in litre). stable p shows the value in litre converted by the stable price for each grain type (see Table VII-13). The change in price for all grain is expressed as the arithmetic mean of all grain prices.
VII-16 The Categorisation of Salt Transactions

Monopoly Profit, Current and Inventory Transactions

Salt trade was a government monopoly. Although officially it was not taxed, the state made a profit by selling salt more expensively than it was able to purchase it abroad or produce it at home. The salt accounts did calculate the profit on salt trade, but this was only for informative purposes and was not accounted for separately. The government accounts also recorded proceeds from selling salt, alongside expenses for purchasing salt, which included transport and handling cost, as well as maintenance. If salt sales were to be simply classified as inventory transactions, this would be inaccurate. In that case, the purchasing price of salt would be significantly smaller than the price it was sold for, which also had to cover all other expenses. The result would be a distortion towards inventory revenue. I have therefore divided the revenue from salt sales and the expenditure for purchases into three components: monopoly profit, current and inventory transactions. In practice, this meant a deduction for monopoly and inventory change from salt transactions; the remainder was classified as current salt revenue and expenditure.

The profit that the Bernese government stated in its salt accounts was calculated as the difference between all revenue and expenditure for each type of salt. This figure included changes in the salt inventory. For 1732, the profit rate was 19.2%, for 1782 it was 20%. These figures are roughly in line with the overall profit rate for the whole century, which was 21.12%.\(^{871}\) I deducted salt profit from total revenue for salt sales. Changes in the stock of salt can be calculated from the government salt inventory. They were classified as inventory transactions (as revenue if the inventory was reduced, as expenditure if the stock increased).

Salt Prices

The government converted all salt transactions into Bernese Crowns, but did not use the same price for all conversions. While prices for inventory valuation changed little, there was a major difference between the price that the government paid for salt and what it obtained on the domestic market. The price difference contributed towards the state's monopoly profit from salt trade.

\(^{871}\) StABE B V 481 – B V 578. The profit was calculated in the accounts as the difference between revenue from grain sales and expenditure (grain purchase, transport and maintenance) for the same year. This excluded changes in inventory, which should be considered to calculate the true profit rate. However, since these changes cancelled each other out over a long time period, this matters little for a long-term analysis. In both 1732 and 1782, inventory changes were not important. I have calculated the profit rate as profits divided by revenue. The figure of 21.12% is the profit rate of all accumulated profits and salt sales. Based on yearly profit rates, the mean profit rate was 21.34%, with a standard deviation of 6.09 (%) and a variability of 28.53%.
Table VII-22: Prices for Different Types of Salt Recorded in Salt Trade Accounts (SDI) 1732 and 1782

Sources: St ABE B V 513 (SDI 732) and St ABE B V 563a (SDI 782). Prices for Burgundy, Bavaria and Tyrolia in 1732 are per barrel (Fass), all others in Bz per Centner. Purchase (all) is for the total cost of purchase (including transportation and handling), Purchase (Salt only) is the price paid for salt alone.

The profitability of the salt trade as a commercial activity (see Figure III-30) should not be confused with the ‘profitability’ of the salt trade account for the state, which depended to a large extent on changes in the salt inventory. In years when the inventory increased, the state spent more on its salt account. Figure VII-12 shows the distinction between total revenue of the salt account, expenditure, with one series including, the other excluding assignations. For revenue, only in 1750 and 1753 did the Salzdirektion receive any assignations.

Figure VII-12: Total Revenue and Expenditure (including/excluding Assignations), Salt Trade, 1700-1797

See figure Figure III-27 for details.
VII-17 The Structure of a Bailiff’s Account (Aarberg 1782)

Revenue and expenditure of a Bernese account using grain and monetary transactions followed the scheme of Figure VII-13, where the size of each field is purely abstract.

![Figure VII-13: Revenue and Expenditure of a Bernese Account (Scheme)](image)

Revenue consisted of inventory arrears in grain (the opening balance), net revenue in both grain and money, assignations (transfers payments from other accounts) and the proceeds from grain sales. Expenditure included grain sales in kind (inventory adjustment), net expenditure in grain and money, as well as arrears in grain and money. The difference between the inventory arrears at the beginning of the period and the final arrears in grain constituted the inventory change. Together with the arrears in money they made up the profit of an office. This figure was identical to the difference between net revenue and net expenditure. For the concrete example of Aarberg bailiff accounts in 1782, the situation is shown in Figure VII-14.

![Figure VII-14: Gross and Net Revenue and Expenditure, Aarberg 1782](image)

Source: StABE B VII 862 (database). Rev is for revenue, Exp for expenditure; (m) for transactions recorded in monetary values, (g) for transactions recorded in kind as grain. Only striped areas are net transactions.

Only 26.0% of the recorded revenue consisted of net transactions, along with 19.6% of expenditure. Grain sales accounted for 11.1% of transactions, both for revenue and expenditure. The profit rate – net revenue minus net expenditure as a share of net revenue – was a staggering 25.3%. Roughly 30% of this profit had the form of an increase in public granaries; the rest went to the Deutsch Standesrechnung as the bailiff’s monetary arrears for this year.

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872 The number of transactions in the database is 237. Of these, 56 are sums, which were only used to check the accuracy of the data. The 181 remaining transactions, recorded net revenue (31), net expenditure (140), grain sales (6), assignations (3) and arrears (1).
### VII-18 Functional Breakdown of Revenue and Expenditure

<table>
<thead>
<tr>
<th></th>
<th>All Transactions</th>
<th>Current Transactions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1732 Rev Exp</td>
<td>1782 Rev Exp</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1732 Rev Exp</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1782 Rev Exp</td>
</tr>
<tr>
<td>Defence</td>
<td>612,894 1,009,816</td>
<td>724,683 3,247,327</td>
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<tr>
<td>Foreign Affairs</td>
<td>13,193 110,988</td>
<td>3,767 575,002</td>
</tr>
<tr>
<td>Judiciary and Police</td>
<td>82,218 102,164</td>
<td>82,055 616,618</td>
</tr>
<tr>
<td>Finance and Taxation</td>
<td>19,477,122 10,083,294</td>
<td>25,049,375 11,815,412</td>
</tr>
<tr>
<td>General Administration</td>
<td>10,497 2,811,797</td>
<td>40,817 3,396,472</td>
</tr>
<tr>
<td>Economy</td>
<td>0 3,173,750</td>
<td>4,242,768 2,853,028</td>
</tr>
<tr>
<td>Domain and Production</td>
<td>1,277,713 1,493,339</td>
<td>2,022,990 1,533,829</td>
</tr>
<tr>
<td>Education</td>
<td>0 578,562</td>
<td>0 844,715</td>
</tr>
<tr>
<td>Public Health</td>
<td>0 170,458</td>
<td>0 170,458</td>
</tr>
<tr>
<td>Welfare</td>
<td>11,680 1,044,201</td>
<td>50,133 1,779,769</td>
</tr>
<tr>
<td>Environment and Traffic</td>
<td>0 395,707</td>
<td>0 350,255</td>
</tr>
<tr>
<td>Culture</td>
<td>0 1,823</td>
<td>0 1,823</td>
</tr>
<tr>
<td>Religion</td>
<td>0 1,761,165</td>
<td>0 2,647,663</td>
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<td></td>
<td></td>
<td>1732 Rev Exp</td>
</tr>
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<td></td>
<td></td>
<td>1782 Rev Exp</td>
</tr>
<tr>
<td></td>
<td>0 556,872</td>
<td>0 2,860,871</td>
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<tr>
<td></td>
<td>13,193 110,988</td>
<td>3,767 575,002</td>
</tr>
<tr>
<td></td>
<td>82,218 102,164</td>
<td>82,055 616,618</td>
</tr>
<tr>
<td></td>
<td>12,368,790 2,148,317</td>
<td>19,414,097 3,981,604</td>
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<tr>
<td></td>
<td>10,497 2,811,797</td>
<td>40,817 3,396,472</td>
</tr>
<tr>
<td></td>
<td>3,878,538 3,173,750</td>
<td>3,878,538 2,853,028</td>
</tr>
<tr>
<td></td>
<td>0 578,562</td>
<td>0 844,715</td>
</tr>
<tr>
<td></td>
<td>0 170,458</td>
<td>0 488,802</td>
</tr>
<tr>
<td></td>
<td>11,680 1,044,201</td>
<td>50,133 1,779,769</td>
</tr>
<tr>
<td></td>
<td>0 388,630</td>
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<td></td>
<td>0 1,823</td>
<td>0 100</td>
</tr>
<tr>
<td></td>
<td>0 1,721,240</td>
<td>0 2,647,663</td>
</tr>
</tbody>
</table>

Table VII-23: Functional Breakdown of Revenue and Expenditure (Database)

Source: Database. All values are in Batzen (Bz).
VII-19 Comparative Figures on Expenditure

The following figures are from the European State Finance Database and Körner (1995a): 401. Population estimates are from various sources indicated in Table VII-24. Please note that most of the data has high margins of error, which makes these figures rough estimates at best. For the city republics, reliable population estimates were not available.

<table>
<thead>
<tr>
<th>Rev</th>
<th>Year</th>
<th>Population</th>
<th>Year</th>
<th>Rev/Cap</th>
<th>Source (population)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BERN</td>
<td>17</td>
<td>1732</td>
<td>317,000</td>
<td>1732</td>
<td>53.63</td>
</tr>
<tr>
<td>BERN</td>
<td>22</td>
<td>1782</td>
<td>388,000</td>
<td>1782</td>
<td>56.70</td>
</tr>
<tr>
<td>Milan</td>
<td>7</td>
<td>1700*</td>
<td>125,000</td>
<td>1700</td>
<td>56.00 Bairoch/Batou/Chèvre (1988): 45</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>1800*</td>
<td>135,000</td>
<td>1800</td>
<td>29.63 Bairoch/Batou/Chèvre (1988): 45</td>
</tr>
<tr>
<td>Sicily</td>
<td>27</td>
<td></td>
<td>1,450,000</td>
<td></td>
<td>18.62 calculated from: 1,240,000 c. 1721 Beloch (1937-1961): Vol. 3, 365</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1,660,000 c. 1790 Beloch (1937-1961): Vol. 3, 365</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Genoa</td>
<td>27</td>
<td></td>
<td>611,500</td>
<td></td>
<td>44.15 calculated from: 620,000 c. 1721 Beloch (1937-1961): Vol. 3, 365</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>603,000 c. 1790 Beloch (1937-1961): Vol. 3, 365</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Piedmont</td>
<td>45</td>
<td></td>
<td>1,723,500</td>
<td></td>
<td>26.11 calculated from: 1,100,000 c. 1700 Beloch (1937-1961): Vol. 3, 353</td>
</tr>
<tr>
<td>Bavaria</td>
<td>41</td>
<td>1700*</td>
<td>1,450,000</td>
<td>1771</td>
<td>28.28 Lee (1975): 316</td>
</tr>
<tr>
<td></td>
<td>73</td>
<td>1800*</td>
<td>1,252,000</td>
<td>1794</td>
<td>58.31 Lee (1975): 316</td>
</tr>
<tr>
<td>Lombardy</td>
<td>49</td>
<td>1700*</td>
<td>1,180,000</td>
<td></td>
<td>41.53 Beloch (1937-1961): Vol. 3, 365</td>
</tr>
<tr>
<td></td>
<td>66</td>
<td>1800*</td>
<td>1,180,000</td>
<td></td>
<td>55.93 Beloch (1937-1961): Vol. 3, 365</td>
</tr>
<tr>
<td>Denmark</td>
<td>86</td>
<td>1700*</td>
<td>777,000</td>
<td>1735</td>
<td>110.68 Helleiner (1967): 46</td>
</tr>
<tr>
<td></td>
<td>360</td>
<td>1800*</td>
<td>926,000</td>
<td>1800</td>
<td>388.77 Helleiner (1967): 46</td>
</tr>
<tr>
<td>Prussia</td>
<td>112</td>
<td>1700*</td>
<td>1,340,500</td>
<td></td>
<td>83.55 calculated from: 1,067,000 1688 Behre (1905): 197-198</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,614,000 1713 Behre (1905): 197-198</td>
<td></td>
</tr>
<tr>
<td></td>
<td>485</td>
<td>1800*</td>
<td>6,221,000</td>
<td>1800</td>
<td>77.96 Behre (1905): 462 (appendix 5)</td>
</tr>
<tr>
<td>Utd Provinces</td>
<td>439</td>
<td>1795</td>
<td>2,047,000</td>
<td>1816</td>
<td>214.46 Mitchell (2003): 6</td>
</tr>
<tr>
<td>France</td>
<td>3000</td>
<td>1790s</td>
<td>26,000,000</td>
<td>1789</td>
<td>115.38 Helleiner (1967): 67</td>
</tr>
<tr>
<td>Britain</td>
<td>8500</td>
<td>1790s</td>
<td>10,500,000</td>
<td>1801</td>
<td>809.52 Mitchell (2003): 8</td>
</tr>
</tbody>
</table>

*) = Assumption

Table VII-24: Expenditure, Population and Expenditure per Capita for European States

Sources: State Finance Database and Körner (1995a): 401. Rev is for Revenue in tonnes of fine silver. The value for Milan is for the city only; Lombardy is for the territory of the Duchy of Milan under Austrian rule. If no year is indicated for revenue, the assumption is that Körner’s figure is for the whole century. If two figures were stated, I assumed the first for the early century (c. 1700) the latter for the late century (c. 1800). Population figures for more than one year were calculated as means.
Appendix

Structure of Expenditure

Figure VII-15: Bernese Expenditure Compared to Other European State (Full List) [cont'd overleaf]
Figure VII-15: Bernese Expenditure Compared to Other European State (Full List)

Sources: ESFDB and Köner (1995a) and Database (for Bern figures). This figure contains the complete list of data selected for Figure IV-15. See comments there.
VII-20 Communal Finance

Data on communal finances has not been recorded systematically and has been largely ignored by historiography. Table VII-25 collects some figures available from secondary literature. The sample is not representative.

<table>
<thead>
<tr>
<th>Commune</th>
<th>Tax (Bz/cap)</th>
<th>Year(s)</th>
<th>Population</th>
<th>Type</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aarberg</td>
<td>5.00</td>
<td>1772</td>
<td>Small City</td>
<td>1 daily wage of unskilled labourer</td>
<td></td>
</tr>
<tr>
<td>Worb (Viertelgemeinde)</td>
<td>6.02</td>
<td>1745-1760</td>
<td>768 Village</td>
<td>Net revenue only (11 accounts)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7.78</td>
<td>1761-1773</td>
<td>772 Village</td>
<td>Net revenue only (12 accounts)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6.26</td>
<td>1776-1794</td>
<td>1,221 Village</td>
<td>Net revenue only (16 accounts)</td>
<td></td>
</tr>
<tr>
<td>Langnau</td>
<td>6.21</td>
<td>1763</td>
<td>2,894 Village</td>
<td>Poverty relief revenue only</td>
<td></td>
</tr>
<tr>
<td>Menziken</td>
<td>6.40</td>
<td>1773/74</td>
<td>1,098 Village</td>
<td>Without poverty relief (?)</td>
<td></td>
</tr>
</tbody>
</table>

Table VII-25: Communal Tax Burden in Bz per Capita (Yearly Figures)

See Table IV-10 in the main text.

Most population estimates are from the Bernhist database (http://www.bernhist.ch); see Pfister, C. (1995) for details.

For Aarberg, see Bartlome (1999). It was a small city and residence to the bailiff with privileges vis à vis of its hinterland. By closing the right to citizenship, it managed to avoid paying poverty relief for many of its inhabitants: only 4 out of 440 citizens qualified as poor in 1764. The city also had its own funds, which covered some 40% of communal revenue in 1772; only 2.5% of revenue came from direct taxes. The average yearly tax burden was equivalent to one day’s wage of an unskilled labourer.\(^{873}\)

For Worb: Holenstein (2005) plus transcripts of his primary sources.\(^{874}\) Worb was a Twingherrschaft owned by the von Graffenried family. For the communal district of Worb [Viertelsgemeinde], only the net revenue was considered (i.e. revenue from interests on funds was excluded). The tax rate for each Los (voting shares in the communal assembly, based on property), was fixed periodically; all non-owners of Loses had to pay taxes on their immobile property, residents an additional flat fee. Population estimates are from Bernhist (parish of Worb, of which according to H.R. Schmidt half lived in the communal district). If interest payments are included, the respective figures are 6.92 Bz (1745-60); 8.49 Bz (1761-73) and 6.73 Bz (1776-94). For Langnau: Bietenhard (1988). Langnau was a village with market right. The data is only on revenue for poverty relief, which was arguably the most important part of communal revenue in this case. Data on population is from Berhnist. For landowners, property was taxed at a rate of 0.05% (per Lb 1,000), mobile property at 0.08%; citizens without landed property paid a rate of 0.22% to cover for the fact that they did not provide any poverty relief in kind. Residents (i.e. non-citizens) paid a rate of 0.24% and an additional flat fee of 75 Bz/year. From the 530 households in Langnau,

\(^{873}\) According to Ebener (1999): 178, the daily wage of an unskilled labourer was 5 Bz in the 1780s (5-6 Bz in the 1730s).

\(^{874}\) Historisches Archiv Worb, F, 33,2 (Säckelmeisterrechnungen 1770-1791) and HEV Worb B 12-6 und B 12-7 (Säckelmeisterrechnungen 1745-1772 und 1791-1794). Thanks to André Holenstein for letting me use this data.
only 315 paid taxes (340 if we include Bietenhard's error margin). For those households that paid taxes, the yearly average was 38.825 Bz, with averages ranging in the different districts from 33.375 to 47.8 Bz. If non-taxpayers are included, the average household paid 23.075 Bz, with a range per district from 19.475 Bz to 27.65 Bz.

For Menziken: Steiner (1956): 171. Menziken was a village in the county of Lenzburg (Argovia). Data on communal revenue for 1773/74 contain less than 3% of total expenditure for poverty relief. It is therefore likely that poverty relief was recorded in a separate account. Another possibility is that Menziken had little poverty. As a population estimate, I used the average of the figures for 1764 and 1798, assuming a constant distribution between the two districts Menziken Dorf and Menziken Burg.

VII-21 Appendix to Chapter V

Results of the Holding Period Return (HPR) Regression Analysis

X-Variable: HPR English funds of Bern, 1723-1798  
Y-Variable: HPR Virtual Consol (3%-annuities), 1723-1798

<table>
<thead>
<tr>
<th></th>
<th>Coefficients</th>
<th>Std Error</th>
<th>t Stat</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.0059764</td>
<td>0.0050807</td>
<td>1.1762956</td>
<td>0.2432985</td>
</tr>
<tr>
<td>X Variable</td>
<td>0.9701984</td>
<td>0.0587158</td>
<td>16.523621</td>
<td>2.251E-26</td>
</tr>
</tbody>
</table>

SUMMARY OUTPUT

Regression Statistics

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple R</td>
<td>0.8882768</td>
</tr>
<tr>
<td>R Square</td>
<td>0.7890357</td>
</tr>
<tr>
<td>Adjusted R Square</td>
<td>0.7861457</td>
</tr>
<tr>
<td>Standard Error</td>
<td>0.0423481</td>
</tr>
<tr>
<td>Observations</td>
<td>75</td>
</tr>
</tbody>
</table>

Table VII-26: Results of HPR Regression, Bernese Funds in England and Virtual Consols

Consols were perpetual and redeemable (consolidated) annuities. For the time before prices for 3%-Consols are available (1753), I have used a Virtual Consol in analogy to Neal, who extrapolated back until 1726 with 3%-Bank annuities, and until 1723 with South Sea annuities: Neal (1990): 127 (note 16); Neal does not use the term Virtual Consol.
VII-22 References

A1) Edited Documents

Anonymous [Abraham Stanyan], *An Account of Switzerland. Written in the year 1714*, Edinburgh, 1756.


RQBE, *Die Rechtsquellen des Kantons Bern* (part of the series *Sammlung schweizerischer Rechtsquellen*), edited by Hermann Rennefahrt and Anne-Marie Dubler, Aarau, 1937-present.


A2) Historical Databases

Bernhist: [http://www.bernhist.ch](http://www.bernhist.ch)

European State Finance Database, ESFDB: [http://www.le.ac.uk/hi/bon/ESFDB/](http://www.le.ac.uk/hi/bon/ESFDB/)

Interuniversity Consortium for Political and Social Research (ICPSR), Study 1008: [http://webapp.icpsr.umich.edu/cocoon/ICPSR-PRA/01008.xml](http://webapp.icpsr.umich.edu/cocoon/ICPSR-PRA/01008.xml)

B) Archival Documents

For a detailed list of government accounts included in my database, see Section VII-9 above

**ACV: Archives Cantonales Vaudoises, Lausanne**

B m 41 Strassenbau-Generalbilanz

Ba 33 Décrets Romands (DR)

Bp 25-42 Ämterrechnungen (see section VII-9 above for details)

Bp 143 Getreide-Etat über die Welschen Kornkeller, 1771-1796

Bp 146 Etat des Welschen Weins, 1780-1797


AC27 417-432 Bank Stock Ledgers A-Z (1694-1725)

**BL: British Library, London**

The Burney Collection Collection of Newspapers

**BBB: Burgerbibliotheck Bern**

Appendix

Mhh. XXII.59 Hausbuch Friedrich Karl Ludwig Manuel, 1764-1792
VA BSB 3.3 RG 1 18 (1732) and 68 (1782): Rechnungen Grosses Spital
ZA Metzgern Zunftarchiv Metzgern
(unclassified) Nachlass Wagner/von Ernst (formerly records of Armand von Ernst & Cie, Bern)

PRO: Public Record Office, Kew (U.K.)
SP 96 Secretaries of State, State Papers Foreign, Switzerland
PRO C 11 Court of Chancery, Six Clerks Office, Pleadings 1714 to 1758

StAAG: Staatsarchiv des Kantons Aargau, Aarau
Bd 31-1687 Ämterrechnungen (see Section VII-9 above for details)

StABE: Staatsarchiv des Kantons Bern
A I 462-465 Polizeibücher (PolB)
A I 589-494 Instruktionenbücher
A II 586-950 Ratsmanuale (RM), Vol. 1-364 (1701-1798)
A III 87-116 Deutsche Missivenbücher
A IV 215 Instruktionenbücher
A V 1468 Allgemeine Bedenken (AB)
A V 1470-1490 Responsa Prudentum (RP)
B I 2 Manual des Geheimen Rates, Vol. 1
B I 23 Missivenbuch des Geheimen Rates, Vol. 1
B I 107 Livre contenant les négociations faites de la part de L.L. E.E. sur le sujet des argents et des anabaptistes, 1708-1714
B V 2-4 Instruktionenbuch des Kommerzienrates
B V 21-22 Manual des Kommerzienrates
B V 481-578 Rechnungen der Salzdirektion
B VI 228 Auszüge der Amts-Rechnungen Welschen Landts Getreyd Preise, 1772-1792
B VI 261-285 Kornherr Rechnungen
B VII 6 Venner-Reglement
B VII 25 Instruktionen und Eid der Amtleute
B VII 26 Welsch Amtleuten Eid und Instruktionen
B VII 27 Abusen-Buch
B VII 28 Kommissionen-Rödel
B VII 367-393 Protokolle der Seckelschreiberei
B VII 581-679 Deutsche Standesrechnungen (1700-1796)
B VII 762-858 Welsche Standesrechnungen (1700-1796)
B VII 851-2130 Ämterrechnungen (see Section VII-9 above for details)
B VII 2179 General-Bilanzen
B VII 2332 Stadtzinsrodel, 1713-1744
B VII 2340 Hauptbuch der Stands-Schulden, 1737-98
B VII 2359 Zinsrodel über die Wertschriften von Ämtern der Stadt und Landschaft
B VII 2384 Inventarium der Gewölbe-Registratur
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B VII 2388a, b, c  Schatzbücher
B VII 2389  Historie der ausländischen Stands Capitalien, 1776
B VII 2396-2473  Rechnungen über die Ausländischen Fonds
B VII 2403  Samuel Zeerleder, Eine Abhandlung über das Wechselhaus Malacrida, mit den Annalen des Law'schen Finanzsystems, Bern 1837 [unpublished manuscript]
B VII 2450  Etat der ausländischen Kapitalien
B VII 2465  Akten der Ausseren Gelder-Verwaltung
B VII 2520  General-Tabellen
B VII 2520a  Bilanz 1750-1770
B VII 2521  Special-Tabellen
B VIII 168-231  Deutsch- und Welsch-Zollrechnungen

StUB: Stadt- und Universitätsbibliothek Bern
H XXII 117  Dokumente zur Malacrida-Krise

C) Publications


Anonymous [Abraham Stanyan], An Account of Switzerland. Written in the year 1714, Edinburgh 1756.

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Beck, Max G., *Das Bernische Zollwesen im XVIII. Jahrhundert*, Bern 1923.


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Feller, Richard, Die Schweiz und das Ausland im spanischen Erbfolgekrieg, Bern 1912.


Fetscherin, Werner, Beitrag zur Geschichte der Baumwollindustrie im Alten Bern, Weinfelden 1924.


Fischer, Emanuel Friedrich von, Rückblicke eines alten Berners, Bern 1868.

Fischer, Hans Rudolf von, Die Politik des Schultheissen Johann Friedrich Willading (1641-1718), Bern 1927.


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Gaillard, Charles, La Conquête du Pays de Vaud Bernois, Lausanne 1935.


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Geiser, Karl, Rückblick auf die Entwicklung der wirtschaftlichen Verhältnisse im Kanton Bern, Thun 1899.


Gmüir, Rudolf, Der Zehnt im Alten Bern, Bern 1954.

Graf-Fuchs, Margret, Das Gewerbe und sein Recht in der Landschaft Bern bis 1798, Bern 1940.


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Norrmann, Gerhard Philipp Heinrich, Geographisch-statistische Darstellung des Schweizerlandes mit beständiger Rücksicht auf physikalische Beschaffenheit, Produkte, Industrie, Handlung und Staatswirtschaft, 4 Vols, Hamburg 1795.


Olivier, Juste, Le Canton de Vaud, sa vie et son histoire, 2 Vols, Lausanne 1837.


Ortuba, Gustav, Die Wirtschaftspolitik Maria Theresias, Wien 1963.


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Radeff, Anne, Du café dans le chaudron. Économie globale d'ancien régime. Suisse occidentale, Franche-Comté et Savoie, Lausanne 1996.


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Steiner, Peter, *Das Gericht Reinach zur Zeit der Berner Herrschaft*, Menziken 1956.


Appendix


Appendix


