The Systemic Effects of Labour Rights Promotion:

A Spatial Interdependence Analysis of its Impact on Working Conditions and International Trade

Department of International Relations
London School of Economics and Political Science

Alessandro Guasti

A thesis submitted to the Department of International Relations of the London School of Economics for the degree of Doctor of Philosophy

September 14, 2020

Declaration

I certify that the thesis I have presented for examination for the PhD degree of the London School of Economics and Political Science is solely my own work other than where I have clearly indicated that it is the work of others (in which case the extent of any work carried out jointly by me and any other person is clearly identified in it).
The copyright of this thesis rests with the author. Quotation from it is permitted, provided that full acknowledgment is made. This thesis may not be reproduced without the prior written consent of the author. I warrant that this authorization does not, to the best of my belief, infringe the rights of any third party. I declare that my thesis consists of approximately 62128 words.

Statement of Conjoint Work

I confirm that Chapter 4 was jointly co-authored with Patrick Wagner (World Trade Institute), and I contributed to 50% of this work.

Statement of Use of Third Party for Editorial Help

I confirm that Chapter 1, 2, 3 and 5 were proof-read for spelling and grammar by Linda Rawlinson.

Acknowledgements

Writing a PhD thesis is both a personal and academic journey. I am profoundly indebted to many colleagues and friends who supported me the last four years.

I cannot express enough appreciation for Dr Mathias Koenig-Archibugi. Mathias has been an extraordinary supervisor. His counsel, analytical acumen, and support have been the guiding light of this research. Mathias encouraged me to pursue a PhD after I finished my master's degree, and he challenged and encouraged me to go the extra mile while completing it. He encouraged me to not lose sight of the big picture and to connect my work to interesting and meaningful questions. Most importantly, Mathias has been patient, supportive and always available to help me on difficult days. My thesis, in its current form, would not exist without Mathias' support.

I wish to express my gratitude to Professor Marcelo Olarreaga for being an incredible host during my visit to the Université de Genève. Marcelo was most generous with his time, advice and he provided more feedback, encouragement, and mentoring than I can thank him for. My gravity models are thanks to our conversations. I would also like to sincerely thank Professors Robert Franzese and Tim McDaniel. I started my PhD as a recent law graduate with a passion for politics, and four years later I submitted a PhD on international political economy with three quantitative papers thanks to their enthusiasm and passion for teaching methods. I am extremely indebted to my academic advisor Professor Robert Falkner, for his valuable feedback on my work and his help managing complicated decisions about my future. Thanks to Professor Ulrich Sedelmeier for giving me the opportunity to teach his engaging and stimulating course on International Organization and to Professor Karen Smith for being a wonderful research cluster convenor. I would also like to thank Dr Ranjit Lall and Professor Jouni Kuha for their helpful comments and methodological suggestions.

I would also like to recognize my colleagues for their academic and personal support. To Eleonore Heimsoeth and Nicola Degli Esposti, thank you for being amazing companions on this journey, for sharing the difficulties and the uncertainties of this process, and for always making me feel I was not alone. I loved every walk in the park and every discussion we had. Thanks to Giovanni Angioni, Armando Marozzi, and Lorenzo Sileci for always being available to help and to share a laugh. Without your comments and methodological guidance, it would have taken me much longer to complete this PhD. To my co-author, Patrick Wagner, thanks for being a great scholar, for agreeing to work with me that afternoon in Bern, and for being extremely patient in managing my ideas the last few months. To Dr Elisa Volpi, thank you for some of the most insightful comments I received on my papers, for your clarity of thought, and for being the best friend I could have hoped for in Geneva. To Dr Giorgio Malet, thanks for being my help of last resort, and for introducing me to the academic way of life with your calm and passionate attitude.

In London, I benefitted from the assistance of numerous friends. Thanks to my flatmate Amedeo Cappuccio, a man of great style, an excellent cook, an incredible dancer, and most importantly a wise person to talk to. My sincere gratitude goes to my cousin Francesca Foglia. Over six years ago, Francesca introduced me to London and the School of Economics, and she became an important point of reference in my UK life. I am thankful for Luca Brunello, Nicolo Caucci, Francesco Caputi, and Enrico Lixia. Every bear, chat o match of tennis we had was a breath of fresh air. I also want to thank my lifelong friends in Milan: Alberto Solaro, Francesco Morerio, Marco Arena, and Nelson Francesca. While they were not directly involved in my PhD life, they

have been continuing sources of strength and confidence throughout this process.

My deepest gratitude goes to my parents, Maria Bergamasco and Francesco Guasti, for their enduring love, and for giving me a life full of opportunities. There is no greater gift I could have hoped for. I also want to thank my sisters Vanessa, Federica and Beatrice. Their unique personalities and their affection for me continue to be great sources of inspiration.

Above all, I am most grateful to my love, Sofia. Every day her generous, gentle, and intelligent personality teaches me more than I could learn from multiple PhDs. Sofia has been an endless source strength, courage and stability. She is simply the best companion I could hope to have at my side.

Abstract

This thesis explores the complex system of relationships that links global labour governance, exports and work standards. Motivated by theories in the spatial interaction literature, it argues that the existing scholarship has largely overlooked the effects that a shock in one country, or firm, can have on competitors. The main argument of this work is that researchers should take a systemic approach to explore how competitive dynamics interact with trade, labour governance, and working conditions, and agree on shaping the outcome for the target country or firm and its competitors. The body of this thesis consists of three empirical papers that discuss these systemic effects. The first paper explores whether labour provisions in trade agreements (LABPTAs) with the United States (US) and the European Union (EU) affect working standards of the signatory countries and their competitors. Using a generalised method of moments approach, the paper finds that LABPTAs with the US can trigger a displacement effect whereby promoting decent working conditions in the signatory country results in increased labour abuses by competitors. The second paper examines how LABPTAs with the US and the EU affect the trade flow between signatory countries and their competitors. Using a structural gravity methodology, the paper finds that the more a country has competitors engaging in LABPTAs with the EU, the more its international export volumes will increase relative to domestic trade. This paper also finds that LABPTAs with the US negatively affect the trade of signatory countries. The third paper analyses the effect of the Chinese shock on child labour by examining its impact on Brazilian states and their competitors. The paper finds that Chinese trade penetration can increase the number of children working in the target states, but that competitors will engage in patterns of strategic diversification, reducing the overall number of children working.

Contents

List of Tables

List of Figures

Chapter 1

Introduction

1.1 Introduction

Over the past 50 years, globalisation has transformed the world economy. Now more than ever, firms, workers and consumers around the world are linked through global production patterns that cut across national borders. Before reaching the consumption stage, goods are manufactured and processed in multiple countries through a functional division of labour that is coordinated and controlled by multinational corporations (Bartley et al. 2015; Ponte et al. 2019; Gereffi 2018; Ponte, Gereffi, and Raj-Reichert 2019). Over the decades, this internationalisation of production has expanded to an ever-greater number of countries, goods and services, making the ability to trade an increasingly important feature for countries worldwide (Mayer, Phillips, and Posthuma 2017).[1]

For many workers and firms, especially in developing countries, participating in trade and global value chains (GVCs) provides opportunities for economic growth and development that can incentivise the promotion of decent labour standards (Ponte, Gereffi, and Raj-Reichert 2019; Fors 2012a). However, as many developing countries have engaged in export-oriented development strategies, it has become clear that participation in GVCs does not necessarily lead to inclusive development and social upgrading (Ponte, Gereffi, and Raj-Reichert 2019; Staritz, Gereffi, and Cattaneo 2011). Journalists and human rights and anti-sweatshop activists have repeatedly

[1] According to the World Bank estimates, in 2019 world trade accounted for over 60% of the global GDP (World Bank 2020).

revealed that (in some instances) suppliers of large multinational corporations adopt inhumane production practices likened to sweatshops (Spar and Burns 2000; Distelhorst, Hainmueller, and Locke 2017). Moreover, some scholars argue that participation in the global economy can have adverse effects on workers' rights (Mosley and Uno 2007). Suppliers in developing countries aiming to win subcontracts for labour-intensive activities may try to minimise costs by violating fundamental labour rights (Mosley 2017b).

The internalisation of production also creates new challenges for the governance of labour rights. The geographical dispersion of productive activities places firms beyond the reach of the national institutions of developed countries, and developing countries often lack the infrastructure, bureaucracy and ability, if not the willingness, to efficiently regulate production processes (F. Mayer and Gereffi 2010). The absence of effective multilateral governance aggravates these shortcomings. Institutions such as the International Labour Organization (ILO) and the World Trade Organization (WTO) face considerable challenges in addressing the social externalities of globalisation. . Distributional problems among member states prevent the reaching of ambitious agreements (such as in the case of the 'social clause' in the context of the WTO), while the agreements that are reached suffer from problems related to the monitoring of labour standards and from the lack of meaningful enforcement powers (Hale, Held, and Young 2013; VanGrasstek 2013; F. Mayer and Gereffi 2010). Governments, policy-makers and firms have tried to address these challenges by designing bilateral or transnational initiatives - such as private regulations, multi-stakeholder initiatives or trade agreements with labour clauses (LABPTAs) - aimed at ensuring acceptable labour conditions across GVCs. While these global labour governance (GLG) tools make an important attempt to govern globalisation externalities in a changing international system, their effectiveness is questioned (Ahlquist and Mosley 2020; Hafner-Burton, Mosley, and Galantucci 2019; Meardi and Marginson 2014).

In this dissertation, I aim to contribute to the literature examining the complex system of relationships that links global labour governance, trade and working conditions. Focusing on LABPTAs and the case of child labour in Brazil, this collection of essays contributes to addressing three overarching research questions:

1) *What is the impact of trade on labour standards?*
2) *What is the impact of global labour governance on working conditions?*

3) *What is the impact of global labour governance on export flows?*

This collection of essays contributes both to the issue-specific literature and to the general debate over the connection between GLG, trade and labour standards. By and large, political economists exploring these questions have focused on the direct effects involved in the relationships. For example, they have studied whether increasing trade flows in a given country can bring about local improvements in labour standards; they have examined whether GLG tools are effective in improving working conditions in firms and countries participating in these initiatives. This research argues that to address the overarching questions, it is necessary to take a *systemic approach* that considers both the direct and the indirect effects of these relationships. Political economists have long noted that trade competition can engender 'races to the top' or 'races to the bottom' in labour standards, where countries (and firms) strategically determine the optimal level of labour conditions by taking into account the approach of their competitors. This implies that labour conditions are interdependent across different states (Wang 2018 at p. 656). Moreover, consistent with a general equilibrium approach, trade scholars have demonstrated that a country's exports impact those of its competitors (Anderson and Van Wincoop 2003). Building on these insights, this thesis provides an original attempt to evaluate how these competitive dynamics interact with trade, labour and governance shocks and come together to shape outcomes, not only in the target country (or firm), but also in its competitors.

This thesis speaks to two main strands of the political economy literature: the research that examines the link between globalisation and labour standards, and the work that studies the effects of GLG on working conditions and trade flows. The next section provides an account (by no mean exhaustive) of these research lines. In particular, I engage with the empirical papers that are linked to the essays of this dissertation in terms of issues covered and methodology. The aim is to illustrate how existing approaches may have overlooked potentially significant systemic effects that link GLG, trade and labour standards. The last section illustrates how the papers in this dissertation contribute to addressing this gap in the literature.

1.2 Positioning the Research Within the Existing Literature

There is burgeoning scholarship examining the relationship between globalisation, trade and working conditions. The first generation of scholars approach the issue by looking at *monadic*

economic indicators. These studies examine whether trade openness, foreign direct investment and high export volumes increase or reduce labour abuses in developing countries, mostly with inconclusive results. The pessimistic view argues that trade openness induces firms and governments seeking to retain and attract export opportunities to 'weaken their labour standards in an effort to reduce their production costs', leading to a *race to the bottom* in working conditions (Gamso 2017 at p. 4). Empirically, Mosley and Uno (2007) and Mosley (2011) found trade openness was negatively correlated with freedom of association and collective bargaining (FACB) rights. Similarly, Blanton and Peksen (2017) found that trade openness significantly increased the number of industrial accidents in developing countries. There is also firm-level evidence suggesting that global buyers reward factories whose standards worsen (Anner 2020; Amengual, Distelhorst, and Tobin 2020). Conversely, more optimistic studies argue that globalisation creates opportunities for developing countries to socially upgrade. According to the *race to the top* literature, trade openness can be an essential channel through which to promote respect for core labour standards. Increasing exports are associated with economic growth and development, which can lead to political and social upgrading. Several studies have found that trade can reduce child labour, improve respect for FACB rights and promote human rights in general (Neumayer and De Soysa 2005, 2006; Edmonds 2010; De Soysa and Vadlamannati 2011; Ab-Rahim and Tariq 2016).

The second generation of scholars analyse the impact of trade on labour conditions, looking at *dyadic* economic indicators. They argue that what triggers improvements in labour standards is not trade per se, but bilateral exports with countries with high labour conditions. They move from merely looking at *how much* a country trades to examining *with whom* a country trades (Greenhill, Mosley, and Prakash 2009; Gamso 2017; Mosley 2017a). Looking at data from over 90 developing countries, Greenhill, Mosley, and Prakash (2009) found that producer countries improved their protection of collective labour rights when the export destination countries had stringent labour laws. They adopted the term 'California effect' to describe how states with strong labour laws facilitated the diffusion of acceptable working standards in other jurisdictions.[2] Bilateral trade flows with developed countries can contribute to improving labour conditions in numerous ways. For instance, the United States (US) and the European Union (EU) promote improvements in labour conditions through political pressure, granting market access and development aid on the

[2]This insight is drawn from the environmental literature. Vogel shows that trade relations with highly regulated markets (such as California) facilitated the diffusion of environmental standards to other countries (Vogel 1995; Greenhill, Mosley, and Prakash 2009).

condition of labour reforms (Hafner-Burton, Mosley, and Galantucci 2019; Gamso 2017; Hafner-Burton 2005; Postnikov and Bastiaens 2014). Moreover, multinational corporations from advanced economies – facing pressures from trade unions, NGOs and human rights groups – often adopt private regulations to ensure that their suppliers respect fundamental human and labour rights (Adolph, Quince, and Prakash 2017; Mosley 2017a). Looking at firm-level data, a series of recent studies have found that retailers in developed countries rewarded suppliers with higher working standards with increasing purchases (Distelhorst and Locke 2018; Amengual and Distelhorst 2019). Recently, scholars have argued that as emerging economies rise as major export destinations at the expense of developed countries, increasing trade could start to trigger a 'Shanghai effect'. In this vein, Adolph, Quince, and Prakash (2017) find that in African countries, FACB rights decline as China becomes the major trading partner. This Shanghai effect occurs as a result of the different characteristics of South–South trade. In contrast to traditional trading partners, China tends to highly value the principle of non-interference in the domestic affairs of other countries. Moreover, unlike firms in developed countries, multinational 'firms in developing countries perceive relatively little pressure from the public with regards to corporate social responsibility disclosure' (Ali, Frynas, and Mahmood 2017 at p. 273). The argument of the Shanghai effect is that Chinese multinationals may not value to the same extent as developed countries' multinationals the process standards of their suppliers, and that this may create downward pressure on labour conditions. It must be remarked that the second generation of studies is closely linked to the discussion over the effectiveness of GLG. Indeed, a critical factor that differentiates trade with the developed world from other trade is that governments and firms from developed countries are more likely to engage in policy initiatives aiming to ensure that fundamental labour rights are protected.

A third group of scholars takes a different approach, examining the trade–labour standards link through the lenses of spatial interdependence (Robert J. Franzese and Hays 2008). Building on the insights of the *race to the bottom*, these scholars notice that the 'causal mechanism through which globalisation (negatively) affects labour rights' runs through economic competition (Wang 2018 at p. 659). In the context of a highly competitive international trade environment, countries and companies are incentivised to competitively undercut labour standards to reduce production costs, attract investments and remain competitive in global exports. From this perspective, considering the effects of trade flows on working conditions in isolation mis-specifies the causal mechanism that links trade to labour conditions. Labour standards are interdependent among economic

competitors. Taking a more *systemic* approach, these scholars examine whether labour standards in one country are affected by the working conditions of that country's competitors. Empirically, they rely on country-level cross-sectional data, finding evidence consistent with the *race to the bottom* hypothesis (Davies and Vadlamannati 2013; Olney 2013; Wang 2018).[3]

In recent years, numerous studies have started to investigate whether policy initiatives aimed at improving labour standards across global supply chains are effective. Scholars have mostly focused on the issue of compliance, asking whether firms and countries engaging in GLG tools abide by the commitments they make and improve labour conditions. Examining the case of LABPTAs, some scholars have found that trade agreements with sanctions and coercive mechanisms, which tie the material benefits of market integration to compliance with fundamental human rights and labour standards, can improve labour conditions in signatory countries (Hafner-Burton 2005, 2009; Kim 2012; Kamata 2018; Francois, Lechner, and Manchin 2019). Other scholars have focused on trade agreements with alternative approaches to compliance, such as capacity building, dialogue and consultation with civil society actors, finding that these systems are equally effective in diminishing labour abuses (Postnikov and Bastiaens 2014; Sari, Raess, and Kucera 2016). However, these findings have been contested. Giumelli and Roozendaal (2017) argue that LABPTAs with the US do not improve freedom of association and bargaining rights in signatory states. If anything, trade agreements with weaker labour clauses are more likely to ensure improvements. Moreover, scholars have challenged the Hafner-Burton study on methodological grounds, arguing that improvement of labour conditions is the consequence of self-selection into treatment rather than de facto improvement (2005; Spilker and Böhmelt 2012; Spilker, Bernauer, and Umaña 2016). A similar debate is ongoing within the scholarship of private regulations. Recent papers focusing on specific supply chains have found encouraging results, showing that, under certain conditions, value chains can provide incentives to improve labour conditions (Amengual, Distelhorst, and Tobin 2020; Distelhorst and Locke 2018; Amengual and Distelhorst 2019; Chakrabarty and Grote 2009; Amengual 2010). However, numerous studies have found that these schemes do not improve workers' welfare (Locke 2013; Lund-Thomsen and Lindgreen 2014; Lund-Thomsen, Jamali, and Vives 2014). Even worse, private regulation can fall victim to opportunistic behaviours. Businesses engage in voluntary schemes as a way of 'fairwashing', providing misleading communications about their

[3]This suggests that countries strategically downgrade their labour conditions in an attempt to minimise labour costs, attracting business and investments.

sustainability performance (Lyon and Montgomery 2015; Jamali, Lund-Thomsen, and Khara 2017).

Another question that scholars ask is how GLG affects trade flows. This issue is important not only for its economic impact, but also because trade can have significant consequences on labour outcomes. The literature proposes three hypotheses. Neoclassical economists argue that labour governance can exclude developing countries from legitimate competition in an area – cheap labour – where they have the greatest *comparative advantage*, distorting markets and leading to reductions in trade, employment and overall welfare (Van Daele 2004; Bhagwati 2001, 1995; Panagariya 2006). Focusing on Indonesian suppliers, Bartley and Egels-Zandén (2016) present numerous examples of factories that, thanks to the engagement in private regulations, established trade unions but later closed down because they were unable to retain access to foreign markets (Amengual, Distelhorst, and Tobin 2020). Second, scholars argue that GLG can have a positive impact on exports. Improved working standards are likely to increase workers' welfare and *productivity*, boosting economic efficiency and output and leading to more not less trade (International Labour Organization 2016; Freeman 2010; Maskus 1997; Brown 2000; Palley 2004). Along these lines, Brown et al. (2015) found that firms in the Vietnamese apparel industry were more profitable when managers adopted more humane practices and avoided exploitative behaviours. To note that both the *comparative advantage* and the *productivity* arguments posit that there is a two-way relationship between trade and labour standards, whereby working conditions affect the competitiveness of a country (or firm) in international exports (Siroën 2017). Finally, GLG can generate a demand effect, attracting purchasing from more socially concerned buyers. If firms and consumers in developed countries prefer goods produced with good labour standards, taking part in GLG initiatives can have significant reputational effects. These initiatives signal a commitment to adequate labour conditions, potentially attracting the demand of socially concerned consumers and promoting international exports (International Labour Organization 2016 at p. 85; Brown, Dehejia, and Robertson 2013). Malesky and Mosley (2018) and Distelhorst and Locke (2018) have found evidence that suppliers that improve labour standards may be rewarded with increasing purchases (or price mark-ups) from socially concerned buyers. Moreover, Amengual and Distelhorst (2019) show that, in some instances, private regulations align sourcing practices with supplier compliance with social standards, terminating business relationships with non-compliant factories. On the other hand, if these initiatives are effective in improving labour standards, they may increase costs, potentially alienating price-sensitive and socially indifferent

buyers. To sum up, it can be argued that the literature examining trade effects of GLG has taken both monadic and dyadic approaches, examining whether GLG initiatives have affected trade volumes in general, or whether they have had an impact on exports towards particular destinations.

1.3 Main Contributions and Thesis Outline

Table 1.1 summarises the literature review discussed above and helps to illustrate the main contribution of this thesis. Existing studies on the impact of GLG initiatives have exclusively examined the direct effects of these policies on target countries (or firms). While this is arguably an important contribution, these studies fail to consider the indirect effects that such initiatives can have on competitors. As the spatial interaction literature observes, countries and firms strategically determine the optimal level of labour conditions in response to market incentives by taking into account what their competitors are doing. Moreover, consistent with a general equilibrium framework, trade scholars have demonstrated that bilateral trade flows depend on the costs of trading with other economies. In other words, a country's export profile affects its competitors' trade flows (Anderson and Van Wincoop 2003; Krugman 1995). Hence, if GLG has any impact on the working conditions or trade flows of target countries, it can also have an impact on those countries' competitors. Aiming to address this gap in the literature, the present collection of essays takes a systemic approach in order to analyse the GLG–trade–labour standard link, examining both the effects on the target country and on its competitors.

The first paper in this dissertation, *The Systemic Effects of Trade Agreements with Labour Clauses: Diffusion or Displacement?*, examines the effects of LABPTAs on the working conditions of signatory countries and their competitors. The paper argues that countries (and firms) can engage in *convergent* and *divergent* patterns of strategic competition (Robert Jr. Franzese and Hays 2008). *Convergent* competition means that competitors will try to match the change in labour standards that the LABPTAs trigger in signatory countries. In other words, if LABPTAs improve labour conditions in signatory states, they may generate positive spill-overs among the countries' competitors, whereas if they lead to a worsening of working conditions, they may negatively affect competitor.[4] Alternatively, countries and firms can engage in *divergent* patters

[4]Note that the *race to the bottom* literature predicts patterns of convergent competition, whereby states and firms decide to downgrade in parallel with their peers.

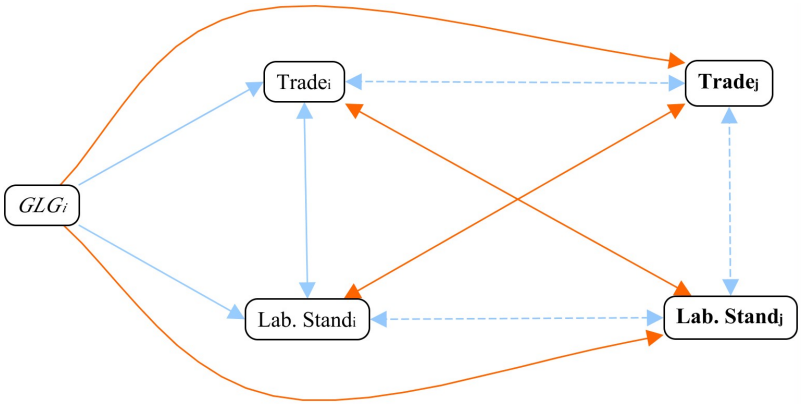
Table 1.1: Empirical literature examining the relationship between GLG, trade and labour standards

	Monadic	Dyadic	Systemic
Trade → Lab. Stand.	Neumayer and De Soysa 2005, 2006; Mosley and Uno 2007; Edmonds 2010; Mosley 2011; De Soysa and Vadlamannati 2011; Ab-Rahim and Tariq 2016; Blanton and Peksen 2017; Anner 2020; Amengual, Distelhorst, and Tobin 2020	Greenhill, Mosley, and Prakash 2009; Lim and Prakash 2017; Gamso 2017; Adolph, Quince, and Prakash 2017	Davies and Vadlamannati 2013; Olney 2013; Wang 2018; Chapter 4 of this thesis
GLG → Trade	Brown et al. 2015; International Labour Organization 2016; Bartley and Egels-Zandén 2016; Siroën 2017; Carrère, Olarreaga, and Raess 2017; Amengual and Distelhorst 2019; Amengual, Distelhorst, and Tobin 2020	Brown, Dehejia, and Robertson 2013; Distelhorst and Locke 2018; Malesky and Mosley 2018	Chapter 3 of this thesis
GLG → Lab. Stand.	Hafner-Burton 2005, 2009; Chakrabarty and Grote 2009; Amengual 2010; Kim 2012; Spilker and Böhmelt 2012; Locke 2013; Postnikov and Bastiaens 2014; Lund-Thomsen and Lindgreen 2014; Lund-Thomsen, Jamali, and Vives 2014; Lyon and Montgomery 2015; Spilker, Bernauer, and Umaña 2016; Sari, Raess, and Kucera 2016; Giumelli and Roozendaal 2017; Kamata 2018		Chapter 2 of this thesis

of strategic competition. From this perspective, LABPTAs may trigger a displacement effect, whereby the promotion of good working conditions in a given supply chain or jurisdiction results in increased labour abuses elsewhere (Koenig-Archibugi 2017; Duprez 2012; Baland and Duprez 2009). The idea is that instead of competing for the same end market, firms in competing countries can decide to specialise in the production of goods for low-end markets where they are more likely to enjoy comparative advantages, putting working conditions under pressure. Focusing on LABPTAs with the EU and the US, I use a spatial estimation strategy on unbalanced panel data for 108 developing countries over 28 years (1985-2012). To address endogeneity concerns, I employ a variety of estimation techniques including static and dynamic models as well as the two-step difference generalised method of moments (GMM) estimator with doubly corrected robust variance standard errors (Arellano and Bond 1991; Hwang, Kang, and Lee 2019). I find no evidence that LABPTAs are able to improve labour conditions in signatory countries. Nevertheless, I find a significant and negative spatial lag that is consistent with the displacement hypothesis. In particular, the result shows that labour practices of exporters are negatively associated with their competitors' ratification of LABPTAs with the US.

The second paper, entitled *The Effects of Trade Agreements with Labour Clauses on Trade Flows*, makes two relevant contributions to the literature. On the one hand, it is the first paper that examines the effects of LABPTAs on export destinations, investigating whether committing to decent labour standards favours exports towards more socially concerned markets, or whether it reduces the export towards price-sensitive markets (dyadic approach). In investigating this, I adopt an innovative identification strategy that allows estimation of the impact of country-level variables in a structural gravity-consistent framework. On the other hand, the paper analyses the systemic effects of LABPTAs on trade flows, exploring the effects of LABPTAs on the export volumes and destinations of signatory countries and their competitors. Empirically, the work employs structural gravity equation estimation methodology. The findings of this research are that LABPTAs with the US harm export volumes of signatory countries, and that in low-income countries, LABPTAs reduce demand from more price-sensitive markets. In particular, I find that low-income economies with LABPTAs with the US trade significantly more with developed countries than with emerging markets. The paper also discovers relevant systemic effects. In particular, it shows that the more a country has competitors engaging in LABPTAs with the EU, the more its international export volumes will increase relative to domestic trade. This finding suggests that countries can benefit

from competitors' engagement in LABPTAs, possibly because they are able to exploit new market niches for price-sensitive goods. However, the paper does not find consistent evidence to support the idea that LABPTAs with the US have an impact on competitors' trade flows.



Solid arrows indicate relationships directly examined in this thesis. Dashed lines indicate relationships not directly examined in this research, but analysed in previous studies. The orange arrows are the new relationship explored by this PhD. Blu arrows indicate relationships also explored by previous research. i = target country (or firm) of the shock. j = competitor(s) of the target country (or firm).

Figure 1.1: The relationship between global labour governance, trade and labour standards

In *The Impact of the China Shock on Brazil's Efforts to Combat Child Labour*, I focus on the relationship between trade and labour outcomes. The paper examines whether the rise of China as the largest destination for Brazilian exports has affected child labour incidence in the country. This work contributes both to the child labour literature and to the general debate over trade and labour standards. With regard to the former, this is the first paper to analyse whether export destinations affect child labour incidence (using a dyadic approach); it is also the first paper to examine whether child labour affects export destinations, promoting trade with China. With regard to the latter, the paper introduces a *systemic* perspective evaluating whether trading more with China affects child labour in competitor states and whether an increasing incidence of child labour in competitor states affects exports to China. It is important to note that this goes beyond the existing research on spatial interactions. Earlier studies only analyse how changes in labour outcomes in one country affect the working conditions of economic competitors (Davies and Vadlamannati 2013; Olney 2013; Wang 2018). However, as shown in Figure 1.1, there are multiple patterns through which a country's trade flows can have an impact on its competitors' labour standards. For example, if a state is able to increase its comparative advantage thanks to technological, organisational or other productivity gains, its

competitors may attempt to compensate by reducing labour costs, requiring labour to work overtime with minimal compensation[5] One state increasing its comparative advantage may affect its competitors' labour conditions even without any observable change in competitors' exports. Switching suppliers is a costly activity for international buyers. Before altering the structure of their GVCs and moving to more convenient producers, global buyers are likely to attempt to renegotiate purchasing agreements with current suppliers, perhaps creating upward/downward pressure on their labour conditions.[6] Finally, countries and firms can decide to strategically adapt their labour standards in anticipation of trade or labour outcome shocks in their competitors. For example, it is possible that as a country engages in LABPTAs, its competitors will decide to strategically upgrade/downgrade labour standards, anticipating a potential loss. In sum, there are multiple causal mechanisms through which competition may shape competitors' labour outcomes, and the existing 'systemic' scholarship focuses only on the interdependence between working standards. By looking directly at the effects of trade shocks in competitor states, this paper is able to account for alternative patterns of strategic interaction. To deal with the endogeneity concerns, this work employs a spatially lagged autoregressive model with a shift-share instrumental variable estimator and structural gravity model. The results, which are based on household survey data on child labour and federative state-level data on exports, confirm that both exports to China and competitors' exports to China have significant effects on a state's child labour incidence. We also find that child labour incidence promotes export to China. However, we do not find any evidence that a country's export profile is affected by the child labour incidence of competitors.

In sum, this thesis makes an original attempt to explore the systemic relationships between GLG, trade and working standards. It examines how competitive dynamics interact with trade, working conditions and governance shocks, affecting the outcomes in the target country and in its competitors. The thesis comprises five chapters. Chapters 2, 3 and 4 consist of the three papers introduced above, and the final chapter critically discusses the findings of those studies and draws the relevant conclusions.

[5]Note that an effect on exports can also be triggered by a *commitment* to improving labour standards. For example, if firms engage in private regulations, they may be able to fairwash their business, attracting more socially concerned buyers, even if the regulations are ultimately not effective.

[6]Indeed, they either can ask to reduce costs or to upgrade in order to meet the labour standard of the competitor.

Chapter 2

The Systemic Effects of Trade Agreements with Labour Clauses: Diffusion or Displacement?

2.1 Introduction

In November 2018, President Donald Trump, the Mexican President Enrique Nieto and the Canadian Prime Minister Justin Trudeau signed the new trade *Agreement between the United States of America, the United Mexican States, and Canada* (USMCA). In a press conference, President Trump defined the deal as the "largest, most significant, modern and balanced trade agreement ever signed" as it contained "the most ambitious environmental and labour protections ever placed into a major trade agreement [...] that first and foremost benefits working people, something of great importance to all three of us".[1] The deal contained a whole chapter (Chapter 23) dedicated to the protection of labour standards, which prescribes a series of rights that have to be ensured (art 23.3), it posits a series of measures that promote compliance (art 23.5) and establishes a *Labor Council* to monitor compliance (art. 23.14).[2] It also has an Annex specifically dedicated to improving collective bargaining rights in Mexico.

[1] From the formal press conference released the 30 of November 2018 https://www.youtube.com/watch?v=hQrJ5RWSjMg

[2] Chapter 23, available at https://ustr.gov/sites/default/files/files/agreements/FTA/USMCA/Text/23-Labor.pdf

While the USMCA is extremely advanced when it comes to labour protection, its approach is not new. Its predecessor, the North American Free Trade Agreement (NAFTA), signed in 1992, already contained an Accompanying Labor Side Agreement that required parties to enforce labour laws and created a complaint mechanism for third parties (Muniz 1995). Similarly, the European Union (EU) systematically signs trade agreements with extensive provisions on labour standards. Indeed, most of the preferential trade agreements that have been signed since the early 1990s include clauses regarding labour protection, and as Figure 2.1 shows, in the last decade, trade agreements have become more and more stringent.[3]

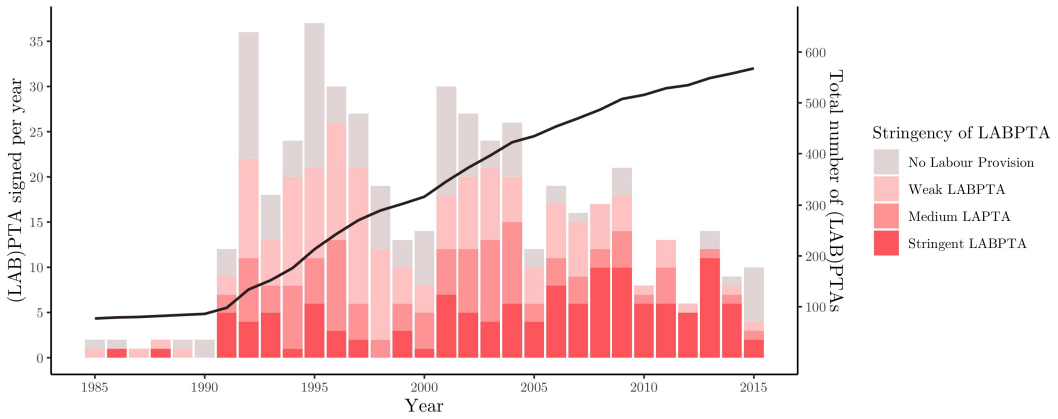


Figure 2.1: Number of (LAB)PTAs signed by inclusion of labour provisions

Arguably, the proliferation of preferential trade agreements with labour clauses (LABPTAs) signals that governments and policymakers are convinced that there is a relationship between trade and labour standards and that LABPTAs can be an effective tool in promoting decent labour conditions. Yet, the nature of these relationships is highly contested in academic debates. A major critique of economic globalisation is that it can engender *races to the bottom* in social standards (Olney 2013, at p.191). In this view, countries and companies are incentivised to *competitively* undercut labour standards in order to diminish production costs and remain competitive in global exports (Mosley 2017a; Davies and Vadlamannati 2013). More optimistic studies, however, have argued that trade and globalisation can engender *races to the top*, providing opportunities for

[3]The data is drawn from a combination of three datasets from the DESTA project: (1) The list of treaties; (2) the market access; and (3) the non-trade issues databases (Dür, Baccini, and Elsig 2014; Lechner 2016). The figure only includes free trade agreements, monetary unions and customs unions, while partial scope agreements and unilateral trade concessions are not included as defined by the market access database (Dür, Baccini, and Elsig 2014). The level of stringency is drawn from the economic and social right indicator from the Lechner database, as discussed later in this paper (Lechner 2016).

developing countries and firms to socially upgrade. The idea is that the increasing demand for goods produced with decent labour conditions in wealthier economies – promoted through LABPTAs or private regulation – is an upgrading opportunity for workers in supplier countries abroad (Amengual and Distelhorst 2019; Barrientos et al. 2016; Greenhill, Mosley, and Prakash 2009). There is also a growing amount of empirical literature focusing on the *effectiveness* of LABPTAs. These studies examine whether LABPTAs improve labour standards, or at least they prevent their deterioration, in the countries that are signatories to such agreements.[4] While a growing amount of the empirical literature finds that LABPTAs can reduce labour abuses, the issue is still contested (Cf. Kamata 2018; Häberli, Jansen, and Monteiro 2012).

The aim of this study is to provide a fresh outlook into the effectiveness of the LABPTAs of the United States (US) and the European Union (EU). The paper argues that both proponents and critics of LABPTAs have overlooked the systemic effects of these initiatives. Bridging the gap between the "races" and "effectiveness" literature, the paper argues that to truly assess whether and to what extent LABPTAs affect labour conditions abroad, research should also take into account the spatial dynamics that LABPTAs may generate in a context of international exports competition. The paper examines whether LABPTAs can shape labour conditions, not only in the signatory countries but also in their competitors.[5] The core assumption is drawn from the *races* debate. In this sense, countries and firms strategically determine the optimal level of labour conditions in response to market incentives, taking into account what their competitors are doing. Two alternative patterns of strategic interaction are hypothesised. A country may engage in competitive behaviours that mimic the change in labour standards in the LABPTA country (*diffusion*). In this view, if LABPTAs improve labour conditions in the signatory country, its competitor could decide to upgrade its working conditions in order to remain able to target the demand for goods produced with the decent labour standards in the EU and US. Alternatively, a country could engage in diverging competitive behaviour. As its competitors gain privileged access to high-end markets that are concerned with labour conditions, its opportunity cost to reduce labour standards to target low-end markets increases. Firms in competing countries may decide (or be forced) to increasingly squeeze the labour force to be able to target markets abroad that are overwhelmingly motivated by price rather than labour conditions abroad in their purchasing

[4] Countries that are members of the trade agreement and are not the US or the EU, are hereinafter called *partner countries*.

[5] To exemplify, the paper asks at what happened to Mexico's competitors when the country signed NAFTA.

choices (*displacement*) (Cf. Koenig-Archibugi 2017; Duprez 2012).

This paper tests the systemic effects of LABPTAs with the EU and the US on an unbalanced panel dataset of 108 developing countries over 28 years (1985–2012). I examine the effect of LABPTAs on the competitors' labour conditions separately for trade agreements signed and LABPTAs that have entered into force. A variety of estimation techniques are used: static and dynamic fixed-effects models as well as the two-step difference generalised method of moments (GMM) instrumental variable estimator to address endogeneity concerns (Arellano and Bond 1991; Hwang, Kang, and Lee 2019). The results suggest that LABPTAs can trigger a displacement effect, creating downward pressure on the working conditions of competitor countries. At the same time, they are unable to improve labour standards in the signatory country. More specifically, the labour practices of suppliers appear to be negatively and significantly associated with their competitors' *signing* of LABPTAs with the US. The more a country's competitors have trade agreements with the United States, the more its labour conditions on the ground will be put under pressure. On the other hand, LABPTAs with the EU appear to be inconsequential when it comes to labour standards since they are not associated with significant changes in labour conditions both in the signatory country or its competitors. The results are consistent with a series of robustness checks.

Three insights can be drawn from these results. First, the scholarship focusing on the effectiveness of LABPTAs may have overestimated their potential to improve working conditions abroad. Even if one concedes that LABPTAs can improve labour standards in signatory countries, patterns of strategic interactions seem to favour, in the case of the US, displacement of poor labour conditions to competitors. This is a concern threatening the potential for these bilateral mechanisms to improve the overall welfare of workers abroad. Similar competitive mechanisms could also undermine other governance tools such as private regulations. Second, displacement appears to be associated with competitor's *signing* of LABPTAs, but less consistently with the *entry into force* of these agreements. This suggests that signalling plays an important role in triggering the competitors' strategic behaviours. This has two possible explanations. On the one hand, LABPTAs are a credible commitment to improving labour standards that could have reputational effects. Signalling decent labour standards may be enough to attract more socially concerned buyers, forcing competitors to target the lower segment of the market. On the other, signing LABTPAs signals to firms in competitor states that the signatory country will soon gain

privileged market access to the US. To remain competitive, these firms may start to cut corners in order to reduce costs.[6] Third, trade agreements with the United States have a different effect from trade agreements with the EU. Most likely, this is related to the fact that while coercive enforcement mechanisms generally characterise US LABPTAs, while EU LABPTAs "lack sanctions and rely on dialogue with trading partners as a means of enforcing and implementing labour provisions" (Postnikov and Bastiaens 2014, at p.924; Leeg 2018).

The remainder of the paper is structured as follows. Section 2 provides a brief overview of the literature, discusses the key theoretical insights and introduces the main hypotheses. Section 3 presents the main empirical strategy. Section 4 presents the data used. Section 5 illustrates the preliminary empirical results, and Section 6 concludes the paper.

2.2 Literature Review

Do preferential trade agreements (PTAs) – and in particular trade agreements with labour clauses – improve or worsen labour standards? This issue has been highly debated in the scholarly literature. Following the leading example of Hafner-Burton (2005), advocates of LABTAs have found that trade agreements with sanctions and coercive mechanisms, which tie the material benefits of market integration to the compliance with basic human and labour rights standards, can improve labour conditions abroad (Hafner-Burton 2009; Francois, Lechner, and Manchin 2019; Kim 2012; Pevehouse 2002). These findings are supported by a recent quantitative study (Kamata 2018). More recently, the literature has examined LABTAs by focusing on alternative approaches to compliance such as capacity building, dialogue and consultation with civil society actors – rather than sanctions and coercion – finding that such systems are equally effective in diminishing labour abuses (Postnikov and Bastiaens 2014; Sari, Raess, and Kucera 2016).[7] However, these findings have been contested. Giumelli and Roozendaal (2017) argue that LABPTAs with the US do not improve freedom of association and bargaining rights in signatory states. If anything, trade agreements with weaker labour clauses are more likely to ensure improvements. Moreover, scholars have challenged the Hafner-Burton study on methodological grounds, arguing that improvement of labour conditions is the consequence of self-selection into treatment, rather than de facto

[6] As it will be discussed in the theoretical section; the first mechanism relies on the assumption of differentiated buyers preferences when it comes to labour standards, while the second is a consequence of trade liberalisation.

[7] This, up until 2012, was the approach of the EU.

improvement (2005; Spilker and Böhmelt 2012; Spilker, Bernauer, and Umaña 2016). Going further, Häberli and Jansen find that PTAs and market liberalisation harm countries' employment protection laws and unemployment benefits (2012).

This debate on the effectiveness of LABPTAs is embedded in the broader discussion relating to the relationship between economic globalisation, trade and labour rights. This strand of the literature has examined how exposure to international trade and foreign direct investments, can trigger competitive dynamics and create patterns of diffusion affecting workers' welfare (Sari, Raess, and Kucera 2016; Mosley 2017a; Vadlamannati 2015). Critics have argued that international trade could engender *races to the bottom* in social standards (Olney 2013 at p. 191; see also Davies and Vadlamannati 2013; Barrientos et al. 2016; Wang 2018; Menashe 2020). The core idea here is that in order to maintain a comparative advantage as suppliers of cheap labour, countries and companies are incentivised to competitively undercut process standards at the expense of workers' welfare (Mosley and Uno 2007; Lim, Mosley, and Prakash 2015; Blanton and Peksen 2017). Conversely, more positive accounts have argued that trade provides opportunities for social upgrading. Many mechanisms can play a key role in triggering social upgrading. Some scholars focus on the proliferation of LABPTAs that can have a positive impact on labour conditions abroad (Hafner-Burton, Mosley, and Galantucci 2019; Sari, Raess, and Kucera 2016; Postnikov and Bastiaens 2014; Kim 2012), while others point to the exponential diffusion of private regulations, which, as recent scholarship has proven, under certain conditions, can promote decent labour conditions (Amengual and Distelhorst 2019; Barrientos et al. 2016; Gruère 2013). Others further suggest that trade and the engagement in global value chains may trigger a "diffusion of best practices and democratic norms" (Payton and Woo 2014, at p.462; see also Barrientos et al. 2016; Perkins and Neumayer 2007; Greenhill, Mosley, and Prakash 2009; Neumayer and De Soysa 2005). In sum, the *race to the top* mechanisms rely on some form of spillover of better labour conditions from more socially concerned importers to the developing partner countries.

These two strands of the literature, while touching on overlapping issues, have taken very different approaches. Focusing on the issue of "compliance", scholars examining the effectiveness of LABPTAs narrowly focus on whether member countries abide with the labour provisions in trade agreements (Von Stein 2015; Simmons 2010; Postnikov and Bastiaens 2014; Sari, Raess, and Kucera 2016). Conversely, the *races* debate examines the relationship between exporters,

importers and competitors, analysing how they interact in shaping a country's labour standards, while overlooking the effects of global labour governance initiatives such as LABPTAs (Olney 2013; Davies and Vadlamannati 2013). While the former approach thoroughly analyses how LABPTAs can affect the signatory countries' working conditions, the latter sheds light on the systemic interplay between states by examining how competitive dynamics contribute to shaping labour standards. This paper argues that in order to truly assess the potential of LABPTAs to tackle globalisation externalities – i.e. whether they can improve the *overall* condition of workers – one should also consider how they affect competitors' behaviours (Koenig-Archibugi 2017). Aiming to bridge the gap between these two streams of the literature, the present study provides the first attempt to evaluate the spatial consequences of LABPTAs on labour outcomes.

2.3 Theoretical Framework & Hypotheses

Firms and states can engage in *convergent* and *divergent* patterns of strategic competition (Robert Jr. Franzese and Hays 2008). *Convergent* competition predicts that competitors will try to match the change in labour standards that the LABPTAs trigger in the signatory country. Some evidence suggests that engaging in global supply chains can generate cost and time pressures, triggering violations of workers' rights and that global buyers reward factories whose standards worsen (Mosley 2017a at p. 8; Anner 2020; Amengual, Distelhorst, and Tobin 2020). Such a process could trigger a *race to the bottom* in labour standards among competitors. In the context of trade agreements, the effect on competitors is likely to be particularly significant. Facing restricted access to large markets, firms in competing states may be forced to further cut labour costs, squeezing the workforce for their export to remain viable.[8] However, it is also possible that LABPTAs improve the labour conditions of signatory countries and generate positive spillovers in competitors. To remain able to target destination markets with significant demand for goods produced with decent labour standards, competing firms may attempt to mimic these labour improvements generating a "race to the top" in working conditions. It is important to note that while the two sides of the "race" literature debate over the direction of the initial effect (LAB)PTAs have on working conditions, they both argue that this will similarly diffuse to competitors as illustrated in Figure 2.2.

[8] From this perspective labour clauses in trade agreements are simply unable to counter the negative effect of trade liberalisation.

Recent scholarship has hypothesised an alternative pattern of strategic interaction (Koenig-Archibugi 2017; Duprez 2012; Baland and Duprez 2009). Examining the case of private regulations, such studies posit that improving labour conditions could also lead to *divergent* patters of strategic competition. Even if the demand for socially concerned goods provides opportunities for the signatory suppliers to upgrade, it creates incentives not to improve or even to deteriorate labour standards among their competitors. They argue that private regulations can generate a *displacement* of labour abuses – i.e. a total or partial transfer of social externalities from one supplier to its competitors (Duprez 2012 at p. 1129). Rather than upgrading in parallel with their competitors, firms in competing countries can decide to specialise in the production of goods for low–end markets, where they are more likely to enjoy a comparative advantage, thus putting workers' conditions under pressure.[9]

Arguably, this could also occur in the case of LABPTAs. The logic is simple provided that importers have differentiated preferences when it comes to labour standards and that improving labour conditions is a costly endeavour (Koenig-Archibugi 2017).[10] Trade agreements offer upgrading opportunities for signatory countries that can address the demand for higher process and product standards of the EU and the US, thanks to the reduced tariffs.[11] However, this privileged access to high-end markets decreases the competitors' incentives to ameliorate labour conditions. All else being equal, improving their labour standards will be less likely to attract the demand of concerned markets due to the lack of the trade agreement. At the same time, the competitors' opportunity cost for diminishing labour standards increases. Companies in countries outside of these agreements will increasingly have to rely on price to remain competitive and to

[9] From this perspective, the displacement hypothesis is akin to the Pollution Haven Hypothesis that scholars have investigated with regard to climate change (Cf. Millimet, Daniel L., Roy 2016; Baghdadi, Martinez-Zarzoso, and Zitouna 2013).

[10] Much of the scholarship examining the relationship between trade and labour conditions tends to recognise that some "northern" markets are more socially concerned than others (Greenhill, Mosley, and Prakash 2009; Gamso 2017; Adolph, Quince, and Prakash 2017). Along these lines, recent experimental data from the US shows that using fair labour standards labels has "a substantial positive effect on sales" also in low-end outlets "where customers are predominantly concerned with prices" (Hainmueller and Hiscox 2015 at p. 1). Throughout this paper, I will refer to *socially concerned importers* as those that are willing to pay a price premium for goods produced by suppliers with decent labour conditions. Operationally, the US and the EU are deemed to be more socially concerned than other markets, while *socially unconcerned importers* are those importers that are overwhelmingly motivated by price in their purchasing choices and are not willing to pay any price premium to ensure higher labour standards. In addition, the idea that, *ceteris paribus*, observing higher labour standards leads to increased costs is intuitive. Paying employees decent salaries, investing in safe infrastructures and paying for aid facilities are widely regarded as costly activities in the literature (Distelhorst et al. 2015; Lund-Thomsen and Lindgreen 2014; Zhu, Cordeiro, and Sarkis 2012; Vogel 2005).

[11] Whether this privileged access to high-end markets leads to improvements in labour conditions remains an open question, as discussed previously.

target socially unconcerned markets. This could encourage a cost-cutting culture were managers ask workers to work overtime, perhaps with insufficient compensation, thus increasingly exploiting the labour force (Mosley 2017a).

Analytically, it is possible to identify four causal mechanisms generating displacement, the first two of which are triggered by the costs of improving labour conditions and by differentiated social concerns of international buyers.[12] The while the other two are a consequence of trade liberalisation.[13]

First, displacement may be triggered by the improvement of labour conditions on the ground. If improving working conditions leads to rising labour costs, signatory countries will lose competitiveness in targeting (more) price-sensitive markets when compared to their competitors. Competing firms will have the opportunity to exploit their new comparative advantage in targeting low-end markets, thus triggering displacement.

Second, displacement can also be triggered by the reputational effects of LABPTAs, even if there is not a *de facto* improvement in labour conditions in the signatory country. Indeed, LABPTAs provide a positive signal to importing companies from socially concerned markets. These buyers will be able to show to their stakeholders that they are importing from countries that have agreed on a certain level of labour standards, regardless of whether they can truly ensure decent labour conditions (Bigler and Raess 2019, at p.14).[14] The existence of *fairwashing* behaviours in Western firms is a well-documented phenomenon in the scholarship, and importing from LABPTA countries can facilitate such conducts (Bartley et al. 2015; Jamali, Lund-Thomsen, and Jeppesen 2017; Bowen 2014; Marquis, Toffel, and Zhou 2016; Delmas and Burbano 2011; Blackman 2012; Amengual and Distelhorst 2019).[15] Signalling decent labour standards could be sufficient to attract the demand of "concerned" firms, regardless of whether they have any real effect in the country. This, in turn, makes competitors increasingly reliant on price-sensitive unconcerned buyers triggering the downgrading mechanism.

Third, it is possible that competitors downgrading is the unavoidable result of bilateral trade liberalisation. Trade agreements provide privileged markets access, reducing tariffs and trade costs,

[12] Hence, they are also relevant to private regulations.
[13] Hence they are solely relevant to LABTAs.
[14] Of course this mechanism may also occur if labour conditions do improve.
[15] This scholarship argues that companies attempt to provide "communications that mislead people into forming overly positive beliefs about an organisation's' environmental (and social) practices or products" (Lyon and Montgomery 2015 at p. 223).

thus favouring exports among members. However, trade scholars have shown that trade between member countries grows at the expenses of trade with non-members (Anderson and Van Wincoop 2003).[16] This phenomenon is called the "trade diversion" effect of PTAs, which has strong theoretical foundations and large empirical support (Mattoo, Mulabdic, and Ruta 2019; Dai, Yotov, and Zylkin 2014; Viner 1950). For instance, Doan and Xing (2018) found that Vietnamese exports were negatively affected by the creation of NAFTA.[17] Regardless of whether they include labour clauses, trade agreements with high-end markets increase pressure on competitors to address socially unconcerned markets, potentially triggering the downgrading process. This is especially true today given that large emerging markets, with lower concern for labour standards, become major export destinations (Lim and Prakash 2017).

Fourth, competitors downgrading does not necessarily require the existence of socially concerned and unconcerned importers. As LABPTAs cut tariffs, they provide a decisive price advantage to signatory countries relative to their competitors. Countries that are outside of the agreement will necessarily have to find other ways to reduce costs – for instance, reducing labour and environmental standards – if they want to keep the same share of the US and EU markets.

It is important to remark that anecdotal evidence from the private regulation literature suggests that codes of conduct can generate displacement. As a result of certain companies engaging in private regulations to target the high-end market, their competitors are forced to downgrade. For example, in Uganda, horticulture smallholders lacking the technical and financial capacity to meet the standards of the GlobalGAP, increasingly reverted to price-sensitive regional GVCs – in particular towards South African supermarkets – requiring less stringent standards (Staritz, Gereffi, and Cattaneo 2011). As a result, 'smallholders reported that farm work has become more arduous and labour intensive' (Barrientos et al. 2016 at p. 1277). Focusing on environmental outcomes, Kaplinsky, Terheggen, and Tijaja (2011) research on the timber industry in Gabon shows results in line with displacement. They argue that the local industry faced severe difficulties in obtaining certifications such as the Origine et Légalité des Bois from the Forest Stewardship Council, that European buyers required. This, together with the rise of China as an end market,

[16] While having a positive net effect on trade

[17] Theoretically, the idea is that trade between the two countries depends on the "remoteness" – or the resistances – that these countries have with the rest of the world (Yotov et al. 2016). Krugman (1995) provided an intuitive explanation of this phenomenon by comparing the hypothetical levels of trade between two identical states once they are on Mars and once they are in Europe (Yotov et al. 2016). Obviously, trade between these two economies will be more on Mars. Hence, remoteness from the rest of the world affects trade between two countries, and trade agreements are a tool to reduce trade frictions ("remoteness") between two countries.

led Gabon industry to significantly decrease its exports towards Europe, making China – a market virtually free of all standards – the first export destination for timber products (Kaplinsky, Terheggen, and Tijaja 2011; Kaplinsky and Farooki 2011). This shift also led to downgrading. Indeed, as export to China increased, so did illegal logging and degrading environmental practices (Kaplinsky, Terheggen, and Tijaja 2011). Cross-national studies confirm the idea that targeting more price-sensitive markets can have adverse effects on working conditions (Lim and Prakash 2017). For instance, Adolph, Quince, and Prakash (2017) show that in African countries, when the exports to China increase significantly at the expense of Northern destinations, labour rights deteriorate.

Race to the top	**Race to the bottom**	**Displacement**
$\Uparrow Lc_i \longrightarrow \Uparrow Lc_j$	$\Downarrow Lc_i \longrightarrow \Downarrow Lc_j$	$\Uparrow Lc_i \longrightarrow \Downarrow Lc_j$
Diffusion: convergent patterns of strategic competition		*Divergent patterns of strategic competition*

Figure 2.2: 'Races' vs 'Dispalcement': Alternative Strategic Patterns.

To summarise, Figure 2.2 illustrates the different underlying logic of the "races" debate and displacement. The "races" debate postulates patterns of convergent strategic behaviours, whereby an increase (or decrease) in the labour conditions of the signatory country i ($\Uparrow$ / $\Downarrow$ Lc_i) is matched by its competitor j ($\Uparrow$ / $\Downarrow$ Lc_j). Conversely, in the case of displacement, competitors may engage in acts of strategic diversification, whereby producers decide to specialise in the activities for which they have a strategic advantage.[18] Hence, as a country improves its labour conditions ($\Uparrow Lc_i$) its competitors may experience a drop in working standards. To be sure, it is not argued that *convergent* and *divergent* competitive behaviours are mutually exclusive. On the contrary, there can be multiple and heterogeneous competitive patterns in international markets. Some competitors may react to improvements by upgrading workers conditions, while others may reduce labour standards. This paper takes a country-level cross-sectional approach that (only) reveals

[18] Many scholars have focused on strategic diversification as a means to exploit the opportunity arising from the growth of emerging markets (Cf. Barrientos et al. 2016; Horner 2014; Gibbon and Ponte 2005).

whether one of these effects is significantly dominant.[19] Further research should investigate what determines different competitive patterns.

From these theoretical insights, I draw the two main hypotheses for testing in the empirical part of the paper. The *races* literature maintains that the effect of LABPTA on the signatory country and its competitors will have the same sign. If a country improves (deteriorates) its labour conditions as a consequence of the engagement in LABPTA, so will its competitor.

> ***Hypothesis 1***: The effects of LABPTAs on the labour conditions of the signatory country and the impact on the labour conditions in its competitor are of the same sign.

Displacement theorises that while the coefficient of LABPTAs on the partner country labour conditions may be positive, its competitors may have incentives to downgrade their working standards. In this regard, as a country improves labour standards, its competitors may reduce theirs.

> ***Hypothesis 2***: The effects of LABPTAs on the labour conditions of the signatory country and the impact on the labour conditions in its competitor have a different sign.

2.4 Empirical Approach

This section discusses a series of static and dynamic models that are employed to test the diffusion and displacement hypotheses. The models presented will be employed in the next section using both an operationalisation considering only LABPTAs with the US and then another considering trade agreements with the EU. The baseline OLS specification is the following:

$$Lc_{i,t} = \psi LABPTA_{i,t-1} + \beta \sum_{j \neq i} WLABPTA_{i,t-1} + \eta X_{i,t-1} + \mu_i + \tau_t + \varepsilon_{i,t} \tag{2.1}$$

$Lc_{i,t}$ is the main dependent variable of interest; it is a measure of the labour conditions of country i at time t. $LABPTA_{i,t-1}$ is a variable measuring if country i has a LABPTA. $LABPTA_{i,t-1}$ is weighted to account for the different stringency of the labour provision in trade agreements.[20] ψ captures the effect of having a LABPTA on the signatory country. The main independent variable of interest is $\sum_{j \neq i} WLABPTA_{i,t}$, which aims to capture the competitors' engagement in

[19] It is important to note that this approach is likely to underestimate the impact of LABPTAs on competitors given that coexisting convergent and divergent competitive behaviours may attenuate the size of the dominant effect.

[20] The next section describe the stringency measure in more detail.

LABPTAs. It is the sum of all LABPTAs with the EU or the US signed by the competitors j of the country i, weighted by the level of competition between the two countries i and j at time t ($\sum_{j \neq i} WLABPTA_{i,t}$).[21] The idea is that the more a country will have close competitors signing stringent LABPTAs, the more it will have incentives to strategically change its labour standards.[22] Competition (W) is measured in terms of similarity in export portfolios. This measure captures similitude in countries' sectoral-level export profiles – i.e. looking at product similarities in exports portfolios with no discrimination on export destinations (Chatagnier and Kavaklı 2017; Wang 2017; Baccini and Koenig-Archibugi 2014; Cao 2010; Simmons and Elkins 2004; Elkins, Guzman, and Simmons 2006; Polillo and Guillén 2005; Guler et al. 2002).[23] The intuition is that the more two countries export the same kind of products, the more they are close competitors. The competition weight is thus calculated: $W = log(ts_{j,i,t-1} \times \frac{1}{k_{i,j,t}} \sum_{k \in (1,\ldots,N)/(i,j)} \frac{Export_{j,k,t}}{\sum_{j \neq i} Export_{k,t}})$. Following Guler et al. (2002), I calculate trade similarity ($ts_{j,i,t-1}$) by computing the Pearson's r correlation between the product vectors of every pair of states. This measure is further refined to account for the trade volumes of the competitors. The idea is that competition does not depend exclusively on similarity but also on volume. If two competitors have identical export portfolios, the bigger exporter will be a more relevant competitor.[24] $\frac{1}{k_{i,j,t}} \sum_{k \in (1,\ldots,N)/(i,j)} \frac{Export_{j,k,t}}{\sum_{j \neq i} Export_{k,t}}$ is j's average share of exports of products k over the global export volume of product k in year t.[25]

[21] In the model two versions of the variable are used separately: one that captures competitor engagement with LABPTA with the US and one for the EU.

[22] For illustrative purposes consider the following example: if Switzerland signs a trade agreement with the US with strong labour clauses, this is unlikely to affect the labour conditions in Sri Lanka because Switzerland and Sri Lanka are not close competitors. On the other hand, if Vietnam – which has a similar export profile to Sri Lanka – signs a trade agreement with the US this might affect labour conditions in Sri Lanka.

[23] Data at the product level is drawn from the United Nations' (UN) Standard International Trade Classification (SITC). Product level specification is intentionally kept at the three-digit level rather than using more refined measures (4-5 digits). For developing countries, very refined granular data for exported products, suffer from severe problems of missing observations. Hence, it would create a systematic bias for those countries that export more towards more developed countries and that regularly keep track of export products at a very refined level. Those suppliers that export more towards developing countries would have a systematically less precise measure of competition. Given the theoretical importance of exports' destinations in shaping a country's labour practice, this would severely risk to biasing the results. Using an accurate, yet, less detailed measure of product specification, is a compromise between the precision of the measure and the risk of bias.

[24] The standard approach of evaluating similarity in export profiles and not accounting for volume has important problems in that it creates a false competitive symmetry among countries with dissimilar trade volumes. Take the case of three countries A, B and C, wherein A and B have identical export portfolios with a 0.9 similarity score with country C. However, while country A is one of the biggest exporters in the market, B is a small state, and its exports amount to 1/100 of the total of A. It is here argued that country C will not be equally sensitive to competition with country A and B and that it will be more responsive to the changes in the larger competitor. In other words, it is argued that the size of the exporter matters in evaluating the competition. Moreover, trade volumes matter regardless of export composition. For instance, a large country may be exporting large absolute volumes of a product k, while this remains a small share of its overall exports. For a small country, heavily relying on the export of k, this large state might be an important competitor, even if their export share do not overlap.

[25] $k_{i,j,t}$ is the number of products exported by both i and j. $Export_{j,k,t}$ refers to the total exports of j of product k and $\sum_{j \neq i} Export_{k,t}$ is the total volume of exports of product k. All of these vectors have a time dimension t.

Hence, the more a competitor has a larger share of exports of the exports of a particular good, the more it will be an important competitor.

$X_{i,t-1}$ is a vector of the usual control variables of the country i that are known to influence labour conditions. Drawing from the literature, this vector includes: (1) GDP growth; (2) the level of economic development (GDP per capita); the (3) level of democracy and (4) the amount of FDI stocks that are thought to be positively associated to labour standards (Lim, Mosley, and Prakash 2015; Adolph, Quince, and Prakash 2017; Davies and Vadlamannati 2013; Olney 2013; Mosley and Uno 2007; Mosley 2010; Neumayer and De Soysa 2005).[26] Also, the (5) strength of civil society – measured considering the number of international labour NGOs in every state – and (6) left-leaning governing party ideology are thought to be positively associated with better labour conditions and are therefore included in the model (Peksen and Blanton 2017; Greenhill, Mosley, and Prakash 2009; Beck et al. 2001).[27] The controls also comprehend the (7) population size that scholars have found being negatively associated with the respect of human rights (Greenhill, Mosley, and Prakash 2009; Gamso 2017; Cao and Prakash 2011).[28]

The model also includes a series of country (μ_i) and time (τ_i) fixed effects. The literature has made a strong case for using country fixed effects to account for unobserved time-invariant economic, political, or cultural determinants of labour standards (Potoski and Prakash 2009; Baier and Bergstrand 2007; Cao and Prakash 2011). Indeed, there may be unobserved endogenous country-specific factors – such as the domestic industrial structure, unmeasured cultural and political affinity or rivalry – that may influence the variation in the dependent variable. Likewise, year fixed effects are used to control for unexamined global shocks, such as sudden changes in commodity prices, that may reshape national attitudes towards labour practices, and they can account for time trends in the panel data (Potoski and Prakash 2009; Fredriksson and Millimet 2002).

It is important to note that to deal with some endogeneity issues and to avoid simultaneity

Note that the average value is exclusively calculated for products k that are exported by both countries i and j ($\sum_{k\in(1,\dots,N)/(i,j)}$).

[26] Data on economic growth and GDP per capita are drawn from World Bank indicators (https://data.worldbank.org/indicator). Data on bilateral FDI is drawn from the OECD databases (http://www.oecd.org/corporate/mne/statistics). Data on democracy is taken from the Freedom House's civil and political liberties database (https://freedomhouse.org/content/freedom-world-data-and-resources)

[27] Data on democracy is from the Polity4 project (Marshall, Gurr, and Jaggers 2017). Data on the number of Labour INGO is drawn from the Yearbook of International Organizations (https://uia.org/yearbook).

[28] Data on population is from the World Bank indicators.

bias in the estimation of the model, all of the regressors have been temporarily lagged by one year (Millimet, Daniel L., Roy 2016; Cao and Prakash 2011). Lagging variables assumes that whatever happens in a country closely competing with *i*, it will take one year to influence the *i*. Scholars have warned about the risks of lagging as the neglect of the contemporaneous effect can lead to distorted standard errors (Franzese, Hays, and Cook 2016). However, scholars have also noticed that policy changes in labour conditions are unlikely to be instantaneous and that trade patterns are relatively sticky, hence the contemporaneous effect bias should be less of a concern in our case (Wang 2017 at p. 560; see also Cao and Prakash 2011, at p.124).

The analysis of two coefficients β and ψ will be key in testing the hypotheses. If they have the same sign, then the *races* convergent competitive behaviour is dominant, while if β and ψ have opposite signs, or if β is negative and ψ is not significant, then the divergent competitive behaviour predicted by displacement is dominant.

The hypotheses are also tested using a dynamic lagged dependent variable model (LDV). Equation 2 includes the autoregressive term $Lc_{i,t-1}$ that captures the level of labour conditions in the previous period. This approach is often used in the literature because it can control for the particular factors, including exogenous shocks, that have persistent effects over country labour standards (Davies and Vadlamannati 2013; Wooldridge 2002). Moreover, it also accounts for partial adjustment of labour conditions over time, and it can eliminate serial correlation in the error term.

$$Lc_{i,t} = \gamma Lc_{i,t-1} + \psi LABPTA_{i,t-1} + \beta \sum_{j \neq i} WLABPTA_{i,t-1} + \eta X_{i,t-1} + \mu_i + \tau_t + \varepsilon_{i,t} \qquad (2.2)$$

A well-known issue with dynamic fixed-effects models is that the lagged dependent variable is correlated with the error term. This generates a bias in the estimate of the coefficient of the lagged dependent variable that is particularly severe in small T and large N contexts. Indeed, Nickell demonstrated that the bias is of order $1/T$ (1981). Given that the data covers 27 years, this bias should be moderated in our specific case.[29]

Despite the use of lags, of a wide variety of controls and fixed effects, there might be lingering endogeneity concerns. The competitors' engagement with trade agreements may be endogenous

[29] About 3.7%.

to the level of labour conditions in a country. Countries with very high labour conditions may self-select into trade agreements, creating incentives for their competitor to not engage in LABPTAs.[30] Moreover, the other variables in the model, including, for instance, democracy, GDP per capita, and number of labour NGOs in the country, are also unlikely to be strictly exogenous to labour standards. To deal with these concerns, this paper will estimate the model via the dynamic Arellano Bond GMM two-step difference estimator (1991). This approach has been largely used in the literature for its ability to produce consistent estimates in cases with arbitrarily distributed fixed effects, heteroscedastic errors and independent variables that are not strictly exogenous (Cf. Lim and Prakash 2017; Millimet, Daniel L., Roy 2016; Vadlamannati 2015; Olney 2013; Roodman 2009a). To account for fixed effects, the Arellano Bond estimator applies a first difference transformation to all the variables in the model. Including time fixed effects (θ_t) the estimated model is therefore:

$$\Delta Lc_{i,t} = \Delta\gamma Lc_{i,t-1} + \Delta\psi PTA_{i,t-1} + \Delta\beta \sum_{j \neq i} WLABPTA_{i,t-1} + \Delta X_{i,t-1}\eta + \Delta\tau_t + \Delta\varepsilon_{i,t} \quad (2.3)$$

The model deals with endogeneity using an instrumental variable approach. Drawing on the insights of Anderson and Hsiao (1982), it uses the lagged level of the endogenous explanatory variables as an instrument for the differenced endogenous variables, thus creating consistent estimates in the presence of endogeneity. For instance, endogenous variable $\Delta\gamma Lc_{i,t-1}$ is instrumented using $Lc_{i,t-2}, Lc_{i,t-3}, \ldots, Lc_{i,t-n}$ in a GMM heteroskedasticity consistent framework.[31] GMM approaches, however, do not come without concerns. There is a well-known issue of lag sensitivity of the estimates (Hwang and Valdés 2020). To address this issue, the model is estimated using a wide variety of alternative GMM lag specifications (Olney 2013). Moreover, researchers have found that even if the estimates are consistent, the standard errors of the two-step efficient GMM are often severely downward biased when used with small samples (Hwang, Kang, and Lee 2019; Roodman 2009b; Arellano and Bond 1991). To address this concern, scholars have routinely used Windmeijer (2005) finite sample correction for the two-step standard errors. His formula corrects for the bias arising from using the efficient weight matrix being evaluated at an estimate, rather than at the true value. However, as the most recent research shows: "Windmeijer correction does not take into

[30] For instance, competitor countries with an export profile increasingly reliant on cheap labour may resist the inclusion of stringent labour clauses that may harm their comparative advantage when negotiating a LABPTAs.

[31] Clearly $\Delta Lc_{i,t-1}$ and $Lc_{i,t-2}$ are correlated, but, the key insight of the model is that $y_{i,t-2}$ is not correlated with $\Delta\Delta\varepsilon_{i,t} = \Delta\varepsilon_{i,t} - \Delta\varepsilon_{i,t-1}$ if errors are not serially correlated.

Table 2.1: Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Year	3024			1985	2012
Labour Practices Score	2274	21.89	4.62	0	27.5
Comp.'s signing of LABPTA with the US	3024	1.52	1.92	0	10
Comp.'s signing of LABPTA with the EU	3024	.79	1.4	0	10
US LABPTA	3024	.76	3.23	0	18
EU LABPTA	3024	1.33	6.18	0	61
Export % of GDP	3018	.24	.24	0	4.11
FDI stock % GDP	2757	28.22	82.82	.01	1798.27
Polulation (log)	3020	15.46	2.1	10.62	21.02
GDP per capita (log)	3015	7.4	1.38	4.55	11.39
GDP growth	2982	3.92	4.92	-50.25	35.22
N. of labour INGOs	2511	15.98	7.86	0	36
Government ideology	2860	.28	.45	0	1
Democracy	2601	1.13	6.69	-10	10

Statistics are for the 108 countries included in Table 2.6. The maximum value for EU LABPTA is the value for EU member states (additive sum of stringency of all EU agreements). As figure 2.4 shows, the maximum value for any single EU LABPTA is 17. This is the Colombia-Peru-EC trade agreement (2012).

account for the over-identification" (Hwang, Kang, and Lee 2019 at p. 1; Hansen 2019). In other words, Windmeijer correction does not provide consistent variance estimates when the moment condition of the model are mis-specified (e.g. invalid instruments, too many lags or heterogeneous effects). As a robustness check, this paper applies the new doubly corrected robust variance estimator for linear GMM that corrects for this bias, providing consistent variance estimates when the moment conditions of the model are inaccurately specified (Hwang, Kang, and Lee 2019 at p. 1; see also Hansen 2019).[32]

2.5 Operationalizing key variables

This section provides a short overview of how the main variables are operationalized. Table 2.1 reports summary statistics for all of them.

Labour conditions. Measuring *de facto* labour conditions in a cross-national setting is an extremely arduous task. In most developing countries, 'reliable data on employment practices and working conditions over time have been almost impossible to obtain' (Berliner et al. 2015 at

[32]The estimates are calculated via a pilot STATA command that is under development by Hwang, Kang, and Lee (2019). While estimates and standard errors are reported in Table 2.7, I do not use these as the main estimation strategy because it is not possible to compute Hansens'j statistic with the pilot command.

p. 198). These countries often suffer from poor infrastructure and bureaucracies and are unable, if not unwilling, to collect such information (Greenhill, Mosley, and Prakash 2009; Flanagan 2006). To measure the dependent variable, this study employs the comprehensive labour standard index developed by Mosley and Uno (2007) as integrated by Marx et al. (2015).[33] The original dataset covers 135 countries from 1985 to 2002 and consists of 'an annual measure of labour rights violations' calculated by looking at 37 types of violations relating to the freedom of association and the right to bargain collectively (FACB) (Mosley and Uno 2007 at p. 924). These violations are weighted to account for their gravity. The data is further refined to distinguishing violations in law and practice (Greenhill, Mosley, and Prakash 2009). The final labour practice index, which is the key dependent variable of this study, ranges from 0 to 27.5, where higher values represent better labour practices. Marx et al. (2015) have updated this dataset for 73 countries from 2003 to 2012. Following the recent scholarship, I integrate these two databases and run the analysis on an unbalanced panel dataset with 108 developing countries over a period of 28 years (Ye 2019; Pond 2018).[34] Admittedly, this data has some limitations. Most notably, the data measures FACB rights, which is only a second-order measure of *de facto* labour conditions. To use this data I have to rely on the assumption that, in countries where fundamental working rights are increasingly violated, firms and government will also restrict and violate FACB rights to "reduce demands for wages and nonwage benefits" (Mosley and Uno 2007 at p. 927). To my knowledge, however, this is the best data available as it provides a rigorous, consistent and cross-national measure of labour practices, and it has been used in numerous recent studies (Adolph, Quince, and Prakash 2017; Gamso 2017; Ye 2019; Pond 2018). It is also important to note that the paper also takes a country-level approach because, to my knowledge, reliable cross-national data on factories working conditions is not available. In particular, while there is data on firms participating in private regulations, it is much harder to have information about labour standards of competing firms, not participating in these initiatives. A preliminary examination of the data suggests that, if anything, increasing trade openness has led to a drop in labour standards.[35] Figure 2.3, shows that labour practices have declined, on average, both in OECD and non-OECD countries. This decline, however, has been swifter for developing countries rather than for OECD ones.[36]

[33] Content analysis is based on reports from US State Department, the ILO's Committee of Experts on the Applications of Conventions and Recommendations, the Committee on Freedom of Association and the International Confederation of Free Trade Unions (Mosley and Uno 2007).

[34] The list of countries is reported in Table 2.6 of the Annexes.

[35] Indeed, trade volumes have constantly increased in the sample period

[36] Note that after 2002, the sample size changes. This is why the overall means for OECD countries are overrepresented when compared to the period 1985–2002.

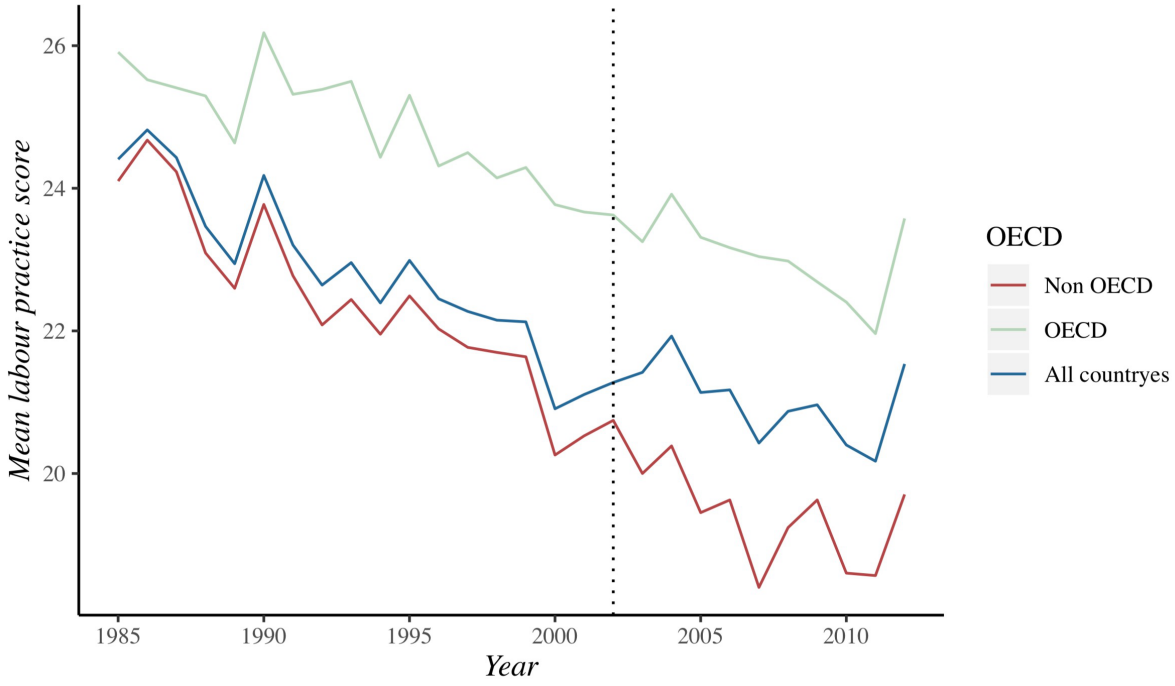


Figure 2.3: Labour practices trends

Stringency of the labour clauses in trade agreements. A total of 77 free trade agreements with the US and the EU are considered in this study.[37] Here, I rely on the work of Lisa Lechner to evaluate the stringency of their labour provisions (2016). As part of the Design of Trade Agreement Project (Dür, Baccini, and Elsig 2014), Lechner has created a comprehensive dataset covering over 663 trade agreements signed from 1948 to 2016 and classified them according to their level of legalisation of non-trade issues (NTI) (2016; W. Abbott and Snidal 2000). Every non-trade issue clause is weighted by the level of precision, obligation, and delegation that it entails, and these scores are summed to assess the overall level of legalisation of NTI. Lechner produces a measure focusing specifically on economic and social rights directly targeting labour rights clauses. I use this measure to account for the stringency of labour clauses in LABPTAs.[38] This measure goes from a minimum score of 0, taken by the trade agreement between the European Community and Iceland (1972), to a maximum of 18, taken by the US-Bahrain Trade agreement (2006). Figure 2.4

[37] Table 2.5 reports the list of treaties. The list also includes trade agreements signed before 1985.

[38] Note that the economic and social rights measure includes all of the following: "the right to work, rights at work (right to collective bargaining, the elimination of all forms of forced and compulsory labour, the effective abolition of child labour, the elimination of discrimination in respect of employment and occupation, minimum wage, and the right for leisure), right to education, the right to development, and the right to health" (Lechner 2018, at p.1). I use the variable in its aggregated from `esr_all_sum`.

shows that while the EU has signed more trade agreements with labour conditions, the US tends to sign agreements that are more legalised.[39] This does not come as a surprise as it is well known in the scholarship that while LABPTAs with the US tend to include enforcement mechanisms and sanctions, LABPTAs with the EU rely on dialogue and best practices as a means to implement labour provisions (Raess and Sari 2018; Leeg 2018; Postnikov and Bastiaens 2014; Kim 2012).

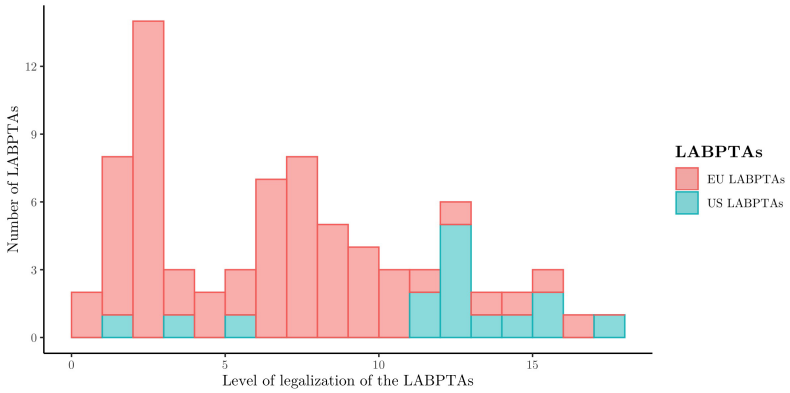


Figure 2.4: LABPTAs of the US and the EU by level of legalisation

Competitors engagement in LABPTA. The main explanatory variables of this study are the competitors' engagement in LABPTAs with the EU and the US ($\sum_{j \neq i} WLABPTA_{i,t-1}$). They aim to capture the incentives a country has to change its labour practices as a consequence of its competitors' participation in LABPTAs. As discussed in the previous section, these variables are a weighted sum that accounts for differences in the level of competition and differences in the stringency of the LABPTAs. These sums are later rescaled from 0 to 10 to facilitate interpretation. Figure 2.5 illustrates the mean values of these measures for every year in the sample. As expected, these measures show a positive trend and major increases are connected to a set of new trade agreements being signed.[40]

In creating the competitor engagement measure, I used the following rules. First, if the competitor signs a new trade agreement replacing the previous one, the LABPTAs stringency score is replaced. For instance, this is the case for the Canada–US trade agreement signed in 1988 that was later replaced by NAFTA. After 1992, only the stringency of NAFTA matters is shaping competitor

[39] With a higher legalisation score in the x-axis.

[40] Unit root tests for these variable can be found in Table 2.8 in the Annexes. Do note that while unit root tests of the competitor engagement with the US,do not show evidence of a UR, the Augmented Dickey-Fuller test suggests that there is a unit root for competitors engagement with the EU. Hence inference on the EU series should be treated with caution.

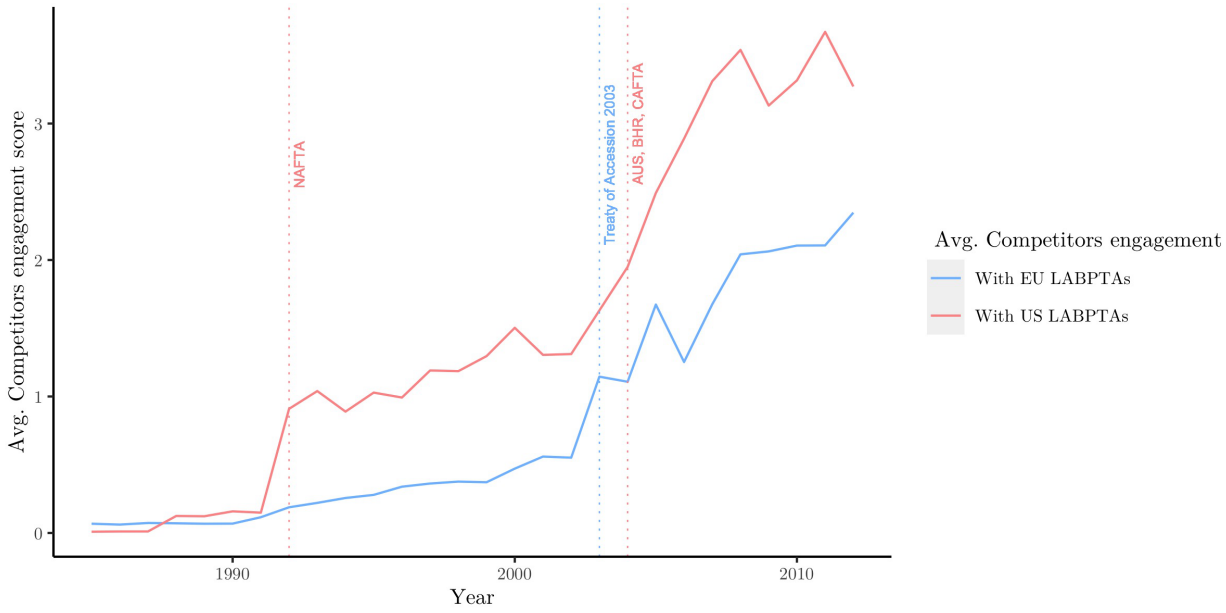


Figure 2.5: Mean competitor engagement with LABPTAs of the US and the EU

behaviour.

Second, if the competitor signed an additional protocol with labour clauses, only the treaty with the highest legalisation score is considered. This assumes that while signing an additional protocol with more stringent labour clauses can affect competitors behaviours if the additional protocol has lower labour provisions, this will not undermine the effects of the base agreement.

Third, I excluded the US and the EU from the weighted sum of competitor engagement. Based on qualitative evidence, it is argued that LABPTAs are tools developed countries use to avoid social dumping and ensure that basic labour conditions are protected abroad. They are not a progressive instrument used to advance domestic labour conditions by developing states (VanGrasstek 2013; Sutherland 1998).[41] This means that when the US and Peru sign an LABPTA, only the latter is signalling a commitment to improving labour standards, while labour standards and competitors' views on the commitments towards the respect of labour standards in the US are unchanged.

Fourth, creating the measure of competitors' engagement with EU LABPTAs required additional choices. The main issue is that in the timeframe considered, the EU has more than doubled its membership. Countries such as Bulgaria and Romania went from having no formal trade agreement with the EU to being full members of the European Union. This increasing membership poses questions of which country to exclude from the measure of the weighted sum

[41] For instance, there has been an intense debate over the inclusion of the social clause in WTO negotiations that saw the developed and developing countries taking opposing sides (Cf. VanGrasstek 2013; Sutherland 1998).

of competitor engagement in LABPTAs. I opted for excluding only countries that are also part of the OECD because they belong to a group with already established high labour standards.[42] Conversely, former eastern European countries are part of the competitor sample precisely because it is assumed that they were incentivised by the EU-15 group to improve their labour conditions also through increasingly stringent LABPTAs (and later EU membership). Indeed, both the "races" and displacement perspectives predict that as these countries increasingly engaged with the EU, competing firms in states not in the process of joining the European Union would strategically adapt labour conditions to remain competitive. In other words, excluding the effects of Eastern European countries is likely to downward bias the systemic effects of EU LABPTAs.

Finally, an additional challenge was to assign a stringency score to European Treaties. The measure of legalisation developed by Lechner is poorly equipped to grasp the full potential of EU Treaties (2016). Indeed, her metric looks at the legalisation of the EU Treaties without taking into account the potential for direct EU regulation or the progressive jurisprudence that are directly affecting labour rights in EU members. To account for the particular stringency of EU membership, the legalisation scores of EU Treaties have been additively summed rather than substituted. This avoids the paradoxical situation that emerges in the data showing that the Korea–EC trade agreement is more stringent than the membership in the Lisbon Treaty.[43] This approach should be better able to reflect the higher level of commitment of EU membership relative to all other trade agreements. Admittedly, this makes the measure of competitor engagement with EU LABPTAs less precise and more subjective than its US counterpart. Alternative approaches could be taken: a multiplicative relation between EU treaties or the complete elimination from the sample of countries that become members of the EU. These strategies, however, appear to be flawed. The former risks making the competitor engagement with EU LABPTAs overly dependent on the competition with those countries that joined the Union. In this perspective, competitors of Bulgaria and Romania will have exponential incentives to strategically change their labour practices relative to anyone else. On the other hand, excluding incoming members risks severely underestimating the effect of EU LABPTAs. For these reasons, it is argued that the cumulative sum is a more sensible approach to build the variable of interest.

[42] Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and the United Kingdom

[43] The score for the Korea-EC LABPTA is 16, while the Treaty of Lisbon is 10.

2.6 Results and discussion

Table 2.2 reports the results of estimating the fixed effects, the LDV and the two-step GMM models on an unbalanced panel consisting of 108 countries over 28 years (1985–2012). Columns 1 to 3 estimate the effect of competitors engagement with trade agreements with the EU, while Columns 4 to 6 look at LABPTAs with the US. Models 1, 2, 4 and 5 show mostly consistent results. In line with previous research, these models find that FDI, democracy and left-leaning governments are positively and significantly associated with better labour practices (cfr Adolph, Quince, and Prakash 2017; Lim and Prakash 2017). Moreover, these models suggest that LABPTAs with the US (US LABPTA) have a positive and significant effect on labour practices of the signatory country.[44] In contrast, LABPTAs with the EU are not statistically significant at the 95% level (EU LABPTA). However, once the potential endogeneity of our variable of interest is taken into account – Column 3 and 6 – LABPTAs with the US are no longer significant, suggesting that LABPTAs are unable to improve working conditions in the signatory country.[45] The main variables of interest, competitors engagement with LABPTAs of the EU and the US, show consistent patterns across all models. There is no evidence to support the idea that a country's labour practices are affected by its competitor, signing a trade agreement with the EU. Indeed, Models from 1 to 3 have a negative but insignificant coefficient for this variable. Conversely, Models from 4 to 6 suggest that there is a negative and highly significant relationship between competitors' engagement with LABPTAs with the US a country labour practice.[46] Model 4 predicts that a 1% increase in competitors engagement in LABPTAs is associated with a 0.05% decline in labour practices. In practical terms, this means that the effect of competitors engagement in LABPTAs will be particularly visible when new trade agreements are signed. For instance, in 2004, Vietnam experienced a roughly a 57.7% increase in competitor engagement in LABPTAs as the US signed trade agreements with Morocco, Australia, Bahrain and some Central American States. Controlling for the other variables, the model predicts that this increase is associated with a 2.9% decline in labour conditions in Vietnam in 2005. The coefficient on competitor engagement is even larger once we control for the potential endogeneity of other regressors (Model 6). Taking the case of Vietnam discussed above, the GMM

[44] These results are consistent with the previous scholarship (Hafner-Burton 2005; Kim 2012).

[45] Note that GMM models are estimated with collapsed instruments and a maximum lag length of 5. These restraints are made to avoid issues coming from instrument proliferation, but results are consistent with alternative lag length specification (Roodman 2009b). Including an extra lag does not change the results. Also, note that the Arellano-Bond test for autocorrelation (AR2) shows the lack of second-order autocorrelation, and the Hansens Test suggests that the instruments, considered jointly, do not correlate with the error term hence boosting our confidence in the results.

[46] Note that the estimates are similar for all the control variables and coherent with the Models 1 and 2

Table 2.2: The estimated effect of competitors' engagement in LABPTAs on labour practices

	(1) Fixed Effects	(2) LDV	(3) GMM	(4) Fixed Effects	(5) LDV	(6) GMM
Comp.'s engagement in LABPTAs with the EU	-0.033	-0.023	-0.167			
	(0.030)	(0.020)	(0.160)			
Comp.'s engagement in LABPTAs with the US				-0.050***	-0.038***	-0.102**
				(0.015)	(0.011)	(0.050)
US LABPTA	0.004**	0.003**	-0.012	0.004**	0.004***	-0.016
	(0.002)	(0.001)	(0.023)	(0.002)	(0.001)	(0.015)
EU LABPTA	0.000	0.000	0.034*	0.000	0.001	0.030
	(0.001)	(0.001)	(0.019)	(0.001)	(0.001)	(0.027)
lagged DV (log)		0.294***	0.262***		0.292***	0.265***
		(0.057)	(0.045)		(0.057)	(0.053)
Export % of GDP	-0.036	-0.026	0.015	-0.018	-0.012	0.031
	(0.073)	(0.067)	(0.268)	(0.069)	(0.063)	(0.256)
FDI stock % GDP	0.000**	0.000	-0.000	0.000**	0.000	-0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
Polulation (log)	-0.098	-0.082	0.495	-0.079	-0.069	0.208
	(0.083)	(0.065)	(0.822)	(0.072)	(0.057)	(0.728)
GDP per capita (log)	0.046**	0.025	0.077	0.052**	0.029*	0.032
	(0.021)	(0.017)	(0.192)	(0.020)	(0.017)	(0.179)
GDP growth	0.001	0.000	0.001	0.001	0.000	0.001
	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)
N. of labour INGOs	-0.001	-0.001	-0.001	-0.002	-0.001	0.003
	(0.002)	(0.001)	(0.018)	(0.002)	(0.001)	(0.014)
Government ideology	0.026**	0.018*	0.006	0.028**	0.019*	0.034
	(0.011)	(0.010)	(0.039)	(0.012)	(0.010)	(0.036)
Democracy	0.005***	0.003***	-0.002	0.005***	0.003**	-0.000
	(0.002)	(0.001)	(0.005)	(0.002)	(0.001)	(0.005)
N	1723	1723	1627	1723	1723	1627
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Instruments			74			74
Hansens Test			0.490			0.478
AR2			0.364			0.416

The fixed effects model and the LDV model report standard errors from nonparametric robust covariance matrix estimators a la Driscoll and Kraay. In two-step GMM, the Windmeijer bias-corrected robust standard errors are used * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. All regressors are instrumented using dynamic GMM instruments. GMM models are estimated with collapsed instruments and lag length constraint to 5. All regressors are lagged by one year and continuous variables are logged

model predicts a 5.9% decline in labour practice scores in 2005.[47] These results are consistent with alternative specifications of the competition measure as reported in Table 2.3. In these models, I employ the mainstream measure of competition that only looks at the similarity in export portfolios, without the adjustment for the volume of the export (Baccini and Koenig-Archibugi 2014; Guler et al. 2002).[48]

Tables 2.2 and 2.3 suggest that the while EU trade agreements are completely inconsequential when it comes to labour standards, trade agreements with the US can generate a displacement effect, whereby countries that are not part of the agreement can suffer a drop in working conditions as a result of their competitors taking part to LABPTAs.

Table 2.3: The estimated effect of competitors' engagement in LABPTAs on labour practices (competition = trade similarity)

	(1) Fixed Effects	(2) LDV	(3) GMM	(4) Fixed Effects	(5) LDV	(6) GMM
TS Comp.'s engag. in LABPTAs with the EU	-0.013	-0.004	-0.293			
	(0.034)	(0.025)	(0.212)			
TS Comp.'s engag. in LABPTAs with the US				-0.099***	-0.079***	-0.127**
				(0.028)	(0.020)	(0.051)
US LABPTA	0.004**	0.003**	-0.017	0.004**	0.003***	-0.013
	(0.002)	(0.001)	(0.026)	(0.002)	(0.001)	(0.016)
EU LABPTA	0.000	0.000	0.029*	0.001	0.001	0.032
	(0.001)	(0.001)	(0.017)	(0.001)	(0.001)	(0.025)
lagged DV (log)		0.295***	0.268***		0.291***	0.260***
N	1723	1723	1627	1723	1723	1627
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Instruments			74			74
Hansens Test			0.597			0.376
AR2			0.386			0.405

The Windmeijer correction is applied to GMM estimates. All regressors are instrumented using dynamic GMM instruments.
GMM models are estimated with collapsed instruments and lag length constraint to 5. All regressors are lagged by one year.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
The fixed effects and LDV models report Driscoll and Kraay standard errors.

Why is there a difference in the competitor engagement of LABPTAs with the EU and the US? A possible explanation is that only the trade agreements with the US are effective in improving labour standards in the partner country and hence to trigger the displacement mechanism.[49] From this perspective, only countries with LABPTAs with the US will specialise in targeting high-end markets improving labour standards hence creating the opportunity for their competitors to

[47] Table 2.7 shows that the results are also robust using doubly corrected standard errors (Hansen 2019). These are not reported in the main analysis because they have been estimated using a pilot version of the command that is unable to estimate the Hansen test and the Arellano Bond test for autocorrelation.
[48] Controls are included but not reported.
[49] As confirmed by Models 1,2,4 and 5 of Table 2.2.

exploit the market niche of low-end goods. Less stringent LABPTAs with the EU instead, will not have any effect on altering strategic incentives. However, there is mixed evidence in support of this hypothesis, given that the effectiveness of LABPTAs with the US appears to be sensitive to the estimation technique employed. Another potential explanation could relate to the different design of these LABPTAs agreements. While sanctions and hard enforcement mechanisms often support the trade agreements with the US, the European LABPTAs rely more on cooperative incentives (Raess, Dür, and Sari 2018). This qualitative difference in the type of enforcement mechanism is only partially accounted for by the continuous measure of LABPTA legalisation employed in the model (Lechner 2016). It is possible that only trade agreements with the sanctioning mechanisms – such as those with the US – have strong reputational effects promoting exports to concerned importers around the world. Firms aiming to promote their "fair" sourcing policies, may prefer to import from countries that have trade agreements with the US rather than the EU, as they will take the type of commitment more seriously. This, in turn, will make the competitors of these suppliers more reliant on low-end markets, hence activating displacement. Section 2 discussed how it is the *signalling*, rather than the reality, of greater effects of US LABPTAs that matters. Finally, it is possible that the EU estimates are influenced by the specific decisions taken to build this measure. Section 3 discussed how the dynamic nature of EU membership makes it more elusive and difficult to precisely define the concept of competitor engagement in LABPTAs in the context of the EU and that alternative choices could be made in building this series.

To gain more insight into the precise mechanisms that trigger displacement, the models are estimated with different specification of the LABPTAs variable. The regressions in Tables 2.2 and 2.3 considered the LABPTAs from the moment of signature between the parties. However, these treaties often take several years before they enter into force. For instance, while NAFTA was signed in 1992, it only entered into force in 1994. It would be reasonable to argue that the effects that these agreements can trigger both on the signatory country and on its competitors' labour standards are amplified, if not activated, when these agreements enter into force. Columns 1 and 2 of Table 2.4, report the estimated effect of LABPTAs with the US as they enter into force.[50] These models do not find any evidence that as LABPTA enter into force, they affect the labour practices of developing countries.[51] This suggests that rather than their actual implementation

[50] In this measure the LABPTA measure and the competitor engagement in LABPTA measure keep the value of 0 until the agreement enters into force.

[51] The same insignificant results hold for LABPTAs entered into force with the EU, though these are not reported

in terms of tariff cuts or labour provisions, trade agreements activate strategic displacement behaviours because they signal a commitment to improving labour standards and that the ratifier will enjoy privileged market access. Firms will anticipate the effects of these agreements by starting to adapt their labour conditions to meet the demand of more socially unconcerned markets.

An additional concern is that the measure used to evaluate the stringency of LABPTAs is biasing our results. Indeed, there might be multiple rationales to evaluate the stringency of labour clauses in PTAs, and alternative measures may bias our results. To deal with this issue Columns 3 and 4 in Table 2.4 test whether the mere existence of a trade agreement with the US, with little attention to the legalisation of the labour clauses included, can trigger displacement. For both signatory and competitor countries, here the LABPTA variable is a simple dummy, taking the value of 1 if it has been signed and 0 otherwise. The idea is that, at the sub-national level, firms and companies will look at the existence of a trade agreement with labour clauses, regardless of how stringent they are, as a sufficient reason to adapt their labour standards. The estimated models offer results that are largely consistent with the equivalent models considering the stringency of labour conditions.[52] It is essential to remark that while this approach is critical to evaluate if the specific measure of legalisation employed biases the baseline results, it cannot fully reveal the underlying mechanism driving displacement. The results of the dummy approach suggest that the existence of a LABPTA, regardless of its stringency or enforceability, can trigger displacement. However, as Figure 2.4 shows, the overwhelming majority of trade agreements involving the US are extremely legalised. Hence, it is not possible to fully disentangle the effect of these trade agreements from their more stringent design.

All in all, Tables 2.2, 2.3 and 2.4 provide evidence supporting the displacement hypothesis. Though it is beyond doubt that further research is necessary, these models suggest that countries are incentivised to take the low road to international competitiveness, and hence to downgrade, when their competitors engage with trade agreements with the US. At the same time, LABPTAs with the EU do not appear to have any effect. Another important finding is that this strategic

due to space constraints.

[52]The estimated coefficient for competitor engagement in LABPTAs, not accounting for labour stringency computed in Model 3 of Table 2.4 (-0.32), is almost identical to the coefficient computed taking into account the level of legalisation of LABPTAs in Model 5 of Table 2 (-0.38); what changes are the standard errors that make us more confident of the results presented in Table 2.2. Again when estimated for the EU, none of the estimates of interest are significant.

Table 2.4: Alternative LABPTAs secifications

	(1) LDV	(2) GMM	(3) LDV	(4) GMM
Comp.'s engagement in e.i.f LABPTAs with the US	-0.017	-0.087		
	(0.014)	(0.054)		
Comp.'s engagement in LABPTAs with the US (Dummy)			-0.032*	-0.112**
			(0.015)	(0.044)
US LABPTA enterend into force	0.002	0.014		
	(0.001)	(0.020)		
EU LABPTA enterend into force	0.003*	0.008		
	(0.001)	(0.027)		
US LABPTA (Dummy)			0.044**	-0.094
			(0.019)	(0.237)
EU LABPTA (Dummy)			-0.042*	0.145
			(0.023)	(0.237)
lagged DV (log)	0.293***	0.276***	0.292***	0.295***
	(0.057)	(0.039)	(0.057)	(0.040)
N	1723	1627	1723	1627
Controls	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
Instruments		74		74
Hansens Test		0.316		0.501
AR2		0.477		0.515

The Windmeijer correction is applied to GMM estimates. All regressors are instrumented using dynamic GMM instruments. GMM models are estimated with collapsed instruments and lag length constraint to 5. All regressors are lagged by one year. The LDV model reports Driscoll and Kraay standard errors.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

behaviour appears to begin with signing the agreement rather than its entry into force. This, together with the fact that the results are consistent using a dummy approach, suggests that a significant role in triggering the displacement is played by the signalling effect of signing a trade agreement. As a country engages in LABPTAs, it sends a credible signal that it is willing to improve labour standards and that it will increase trade with the US, and its competitors react to this signal.[53]

2.7 Conclusion

This paper makes the first attempt to evaluate the *systemic* consequences of LABPTAs with the US and EU on the labour standards of developing countries. It contends that to assess if LABPTAs are effective in improving the aggregate welfare of workers, it is not sufficient only to examine whether they impact labour conditions in signatory countries; but it is also essential to consider their effects on competitor countries. Theoretically, LABPTAs could trigger patterns of both diffusion and displacement. Empirically, we do not find (consistent) evidence that LABPTAs

[53]Note that this finding is in line with most studies examining the effects of trade agreements on trade. These study found that increasing trade begins when the trade agreement is signed rather than at the moment where it enters into force (Baier, Yotov, and Zylkin 2019; Baier and Bergstrand 2002, 2007).

can improve labour conditions in a signatory country. On the other hand, we find that LABPTAs with the US can generate downward pressure on the labour conditions of competitors states; these results are consistent when using multiple estimation techniques and alternative specifications of the key variables of interest. Hence, displacement does not appear to be triggered by *de facto* improvements in labour conditions. Theoretically, it has been discussed how this effect could also depend on the reputational impact that these LABPTAs have on firms in signatory countries or alternatively on the trade liberalization effects of these agreements. Given that LABPTAs with the EU, that significantly cut tariffs but have a very different design when it comes to labour clauses, have no effects on working conditions, it is reasonable to assume that reputation is an important causal mechanism. To be sure, this paper does not claim to have found a definitive answer to the issues it raises. Cross-sectional studies with a high level of aggregation in their data have their limitations in terms of inference and are unable to precisely reveal the causal patterns triggering this effect. Rather, the paper aims at encouraging dialogue about the issue of displacement, which has been widely under-investigated by existing empirical studies and which may affect the potential of bilateral approaches to labour governance – such as LABPTAs and private regulations – to improve labour standard globally.

2.8 Annexes

Table 2.5: List of treaties by year in which they were signed

Name	Year	Name	Year
Israel US	1985	EC Maastricht	1992
Canada US	1988	European Economic Area (EEA)	1992
North American Free Trade Agreement (NAFTA)	1992	Bulgaria EC	1993
Jordan US	2000	EC Estonia	1993
Chile US	2003	EC Romania	1993
Singapore US	2003	EC Slovakia	1993
Central American Free Trade Agreement (CAFTA) Dominican Republic	2004	EC Latvia	1994
Morocco US	2004	EC Lithuania	1994
Australia US	2004	EC Estonia Europe Agreement	1995
Bahrain US	2004	EC Israel Euro-Med Association Agreement	1995
Colombia US	2006	EC Latvia Europe Agreement	1995
Oman US	2006	EC Lithuania Europe Agreement	1995
Peru US	2006	EC Tunisia Euro-Med Association Agreement	1995
Korea US	2007	EC Turkey	1995
Panama US	2007	EC Faroe Islands	1996
EC	1957	EC Morocco Euro-Med Association Agreement	1996
EC Greece Association Agreement	1961	EC Slovenia Europe Agreement	1996
EC Malta	1970	EC Amsterdam	1997
EC Turkey Additional Protocol	1970	EC Jordan Euro-Med Association Agreement	1997
Cyprus EC	1972	EC South Africa	1999
EC Finland	1972	EC Switzerland Bilaterals I	1999
EC Iceland	1972	EC Mexico	2000
EC Portugal	1972	EC Egypt Euro-Med Association Agreement	2001
EC Sweden	1972	EC Macedonia SAA	2001
EC Switzerland Liechtenstein	1972	EC Nice	2001
Austria EC	1972	Algeria EC Euro-Med Association Agreement	2002
EC Norway	1973	Chile EC	2002
EC Turkey Supplementary Protocol	1973	EC Lebanon Euro-Med Association Agreement	2002
EC Greece Additional Protocol	1975	Albania EC SAA	2006
EC Israel	1975	EC Lisbon	2007
EC Portugal Additional Protocol	1976	EC Montenegro SAA	2007
EC Yugoslavia	1980	Bosnia and Herzegovina EC SAA	2008
EC Single European Act	1986	CARIFORUM EC EPA	2008
Andorra EC	1989	Cote d'Ivoire EC EPA	2008
Czech Republic EC	1991	EC Serbia SAA	2008
EC Faroe Islands	1991	EC Korea	2010
EC Hungary	1991	Central America EC	2012
EC Poland	1991	Colombia Peru EC	2012
EC San Marino	1991		

Do note the list also includes trade agreements signed before the estimation period (1985-2012)

Table 2.6: List of countries

iso3c Code	Country	iso3c Code	Country	iso3c Code	Country
AGO	Angola	AGO	Angola	NGA	Nigeria
ALB	Albania	ALB	Albania	NIC	Nicaragua
ARE	United Arab Emirates	ARE	United Arab Emirates	NPL	Nepal
ARG	Argentina	ARG	Argentina	OMN	Oman
ATG	Antigua and Barbuda	ATG	Antigua and Barbuda	PAK	Pakistan
BDI	Burundi	BDI	Burundi	PAN	Panama
BEN	Benin	BEN	Benin	PER	Peru
BFA	Burkina Faso	BFA	Burkina Faso	PHL	Philippines
BGD	Bangladesh	BGD	Bangladesh	PNG	Papua New Guinea
BGR	Bulgaria	BGR	Bulgaria	PRY	Paraguay
BHR	Bahrain	BHR	Bahrain	QAT	Qatar
BHS	Bahamas	BHS	Bahamas	RWA	Rwanda
BLZ	Belize	BLZ	Belize	SAU	Saudi Arabia
BOL	Bolivia	BOL	Bolivia	SDN	Sudan
BRA	Brazil	BRA	Brazil	SEN	Senegal
BRB	Barbados	BRB	Barbados	SGP	Singapore
BRN	Brunei	BRN	Brunei	SLB	Solomon Islands
BTN	Bhutan	BTN	Bhutan	SLE	Sierra Leone
CAF	Central African Republic	CAF	Central African Republic	SLV	El Salvador
CHL	Chile	CHL	Chile	SUR	Suriname
CHN	China	CHN	China	SYC	Seychelles
CIV	Cote d'Ivoire	CIV	Cote d'Ivoire	SYR	Syria
CMR	Cameroon	CMR	Cameroon	TCD	Chad
COD	Congo, Democratic Republic of	COD	Congo, Democratic Republic of	TGO	Togo
COG	Congo, Republic of	COG	Congo, Republic of	THA	Thailand
COL	Colombia	COL	Colombia	TTO	Trinidad and Tobago
COM	Comoros	COM	Comoros	TUN	Tunisia
CPV	Cabo Verde	CPV	Cabo Verde	UGA	Uganda
CRI	Costa Rica	CRI	Costa Rica	URY	Uruguay
CUB	Cuba	CUB	Cuba	VCT	Saint Vincent and the Grenadines
CYP	Cyprus	CYP	Cyprus	VEN	Venezuela
DMA	Dominica	DMA	Dominica	VNM	Vietnam
DOM	Dominican Republic	DOM	Dominican Republic	VUT	Vanuatu
DZA	Algeria	DZA	Algeria	WSM	Samoa
ECU	Ecuador	ECU	Ecuador	ZMB	Zambia
EGY	Egypt	EGY	Egypt	ZWE	Zimbabwe
AGO	Angola	ETH	Ethiopia	NGA	Nigeria
ALB	Albania	FJI	Fiji	NIC	Nicaragua
ARE	United Arab Emirates	GAB	Gabon	NPL	Nepal
ARG	Argentina	GHA	Ghana	OMN	Oman
ATG	Antigua and Barbuda	GMB	Gambia	PAK	Pakistan
BDI	Burundi	GNB	Guinea-Bissau	PAN	Panama
BEN	Benin	GRD	Grenada	PER	Peru
BFA	Burkina Faso	GTM	Guatemala	PHL	Philippines
BGD	Bangladesh	GUY	Guyana	PNG	Papua New Guinea
BGR	Bulgaria	HND	Honduras	PRY	Paraguay
BHR	Bahrain	HTI	Haiti	QAT	Qatar
BHS	Bahamas	IDN	Indonesia	RWA	Rwanda
BLZ	Belize	IND	India	SAU	Saudi Arabia
BOL	Bolivia	ISR	Israel	SDN	Sudan
BRA	Brazil	JAM	Jamaica	SEN	Senegal
BRB	Barbados	JOR	Jordan	SGP	Singapore
BRN	Brunei	KEN	Kenya	SLB	Solomon Islands
BTN	Bhutan	KNA	Saint Kitts and Nevis	SLE	Sierra Leone
CAF	Central African Republic	KOR	Korea, Republic of	SLV	El Salvador
CHL	Chile	KWT	Kuwait	SUR	Suriname
CHN	China	LAO	Laos	SYC	Seychelles
CIV	Cote d'Ivoire	LCA	Saint Lucia	SYR	Syria
CMR	Cameroon	LKA	Sri Lanka	TCD	Chad
COD	Congo, Democratic Republic of	MAR	Morocco	TGO	Togo
COG	Congo, Republic of	MDG	Madagascar	THA	Thailand
COL	Colombia	MDV	Maldives	TTO	Trinidad and Tobago
COM	Comoros	MEX	Mexico	TUN	Tunisia
CPV	Cabo Verde	MLI	Mali	UGA	Uganda
CRI	Costa Rica	MLT	Malta	URY	Uruguay
CUB	Cuba	MNG	Mongolia	VCT	Saint Vincent and the Grenadines
CYP	Cyprus	MOZ	Mozambique	VEN	Venezuela
DMA	Dominica	MRT	Mauritania	VNM	Vietnam
DOM	Dominican Republic	MUS	Mauritius	VUT	Vanuatu
DZA	Algeria	MWI	Malawi	WSM	Samoa
ECU	Ecuador	MYS	Malaysia	ZMB	Zambia
EGY	Egypt	NER	Niger	ZWE	Zimbabwe

Table 2.7: Two-step GMMs with doubly corrected standard errors

	(1) GMM-DC SEs	(2) GMM-DC SEs
Comp.'s engagement in LABPTAs with the US (log)	-0.101*	
	(0.060)	
Comp.'s engagement in LABPTAs with the US (Dummy)		-0.112**
		(0.046)
US LABPTA	-0.016	
	(0.020)	
EU LABPTA	0.031	
	(0.031)	
US LABPTA (Dummy)		-0.103
		(0.267)
EU LABPTA (Dummy)		0.126
		(0.304)
lagged DV (log)	0.266***	0.296***
	(0.051)	(0.037)
Export % of GDP	0.044	-0.073
	(0.354)	(0.244)
FDI stock % GDP	-0.001	0.001
	(0.001)	(0.001)
Polulation (log)	0.247	0.386
	(0.913)	(1.158)
GDP per capita (log)	0.036	-0.077
	(0.206)	(0.178)
GDP growth	0.001	0.001
	(0.002)	(0.002)
N. of labour INGOs	0.003	-0.010
	(0.018)	(0.026)
Government ideology	0.033	0.044
	(0.037)	(0.050)
Democracy	-0.000	-0.004
	(0.005)	(0.004)
N	1627	1627
Country fixed effects	Yes	Yes
Year fixed effect	Yes	Yes
Instruments	74	74
Hansens Test	NA	NA
AR2	NA	NA

Doubly corrected standard errors in parentheses *Hansen*2019.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.8: Unit Root Tests

Unit Root Tests:	**Phillips-Perron Test**	**Augmented Dickey-Fuller Test**
Comp.'s engagement in LABPTAs with the US (log)	0.0000	0.0059
Comp.'s engagement in LABPTAs with the US (Dummy)	0.0000	0.0350
Comp.'s engagement in LABPTAs with the EU (log)	0.0000	0.1879
Comp.'s engagement in LABPTAs with the EU (Dummy)	0.0000	0.0209

Chapter 3

The Effects of Trade Agreements with Labour Clauses on Trade Flows

3.1 Introduction

Today, the vast majority of all trade agreements signed include some form of commitment relating to labour standards.[1] While there is great variation concerning the scope, stringency and bindingness of these provisions, they all create links between trade liberalisation and respect for core labour standards (Raess and Sari 2018).[2] Governments and policy-makers designing these agreements argue that including labour conditions can promote good working standards, fostering sustainable development. As President Clinton said in the ratification speech of the North American Free Trade Agreement (NAFTA): 'the environmental and labour side agreements negotiated by our administration will make this agreement a force for social progress as well as economic growth' (Clinton 1993).

The academic debate over the consequences of trade agreements with labour clauses (LABPTAs) on working standards is far from settled. Scholars argue that these agreements can have an impact on labour conditions in two ways: by encouraging compliance with their labour clauses and by promoting international trade. Focusing on compliance, optimists contend that LABPTAs can

[1] According to some estimates, in 1995, only 34% of all the agreements signed included labour conditions, but in 2014, this share had increased to 84% (Carrère, Olarreaga, and Raess 2017).

[2] Often these agreements refer to the labour rights recognised by the most highly ratified International Labour Organisation (ILO) Conventions (International Labor Organization and Walk Free Foundation 2017; Brown, Dehejia, and Robertson 2013).

trigger social upgrading because they impose rules, often paired with some form of monitoring, capacity building and (sometimes) enforcement mechanism, which incentivises firms in developing countries to improve working conditions. Recent empirical studies have found that LABPTAs have a positive effect on statutory minimum wages, employment protection laws and compliance with FACB rights in signatory countries (Kamata 2018; Sari and Kucera 2016; Postnikov and Bastiaens 2014; Kim 2012). However, their effectiveness is contested by multiple studies finding that these clauses are unable to improve labour standards of partner countries (Giumelli and Roozendaal 2017; Spilker, Bernauer, and Umaña 2016; Spilker and Böhmelt 2012). Focusing on the effects of trade flows on working conditions, scholars argue that LABPTAs can improve labour standards by increasing trade volumes and facilitating bilateral trade with developed countries. According to the race to the top literature, trade openness can be an important channel to promote respect for core labour rights in developing countries (Fors 2012a). Trade liberalisation is associated with economic growth and development, which can lead to political and social upgrading (Adolph, Quince, and Prakash 2017; Neumayer and De Soysa 2005; Edmonds 2016; Ab-Rahim and Tariq 2016). Moreover, good working conditions may spread, following a California effect from importers with better labour standards to suppliers abroad (Vogel 1995). Some cross-national research has found evidence that suppliers targeting countries with more stringent labour regulations improved their protection of collective labour rights (Greenhill, Mosley, and Prakash 2009; Lim and Prakash 2017; Adolph, Quince, and Prakash 2017). There are also more pessimistic views. Some research finds that trade openness leads to a race to the bottom, rather than social upgrading. In the highly competitive context of international trade, countries and companies are incentivised to competitively under-cut process standards at the expense of worker welfare, to reduce production costs and remain competitive in global exports (Mosley and Uno 2007; Davies and Vadlamannati 2013; Weil 2014; Blanton and Peksen 2017; Olney 2013; Payton and Woo 2014; Wang 2018).

Most of the literature to date has examined whether LABPTAs are effective in improving working conditions in signatory countries. In contrast, little attention has been given to their effects on trade flows (Cf. Hafner-Burton 2005; Kim 2012; Pevehouse 2002; Giumelli2017; Postnikov and Bastiaens 2014; Spilker, Bernauer, and Umaña 2016; Sari, Raess, and Kucera 2016; Kamata 2018). However, the two views (race to the top and race to the bottom) share the assumption that trade openness and export destinations affect the labour conditions of developing countries, even if they disagree on the direction of this effect. If this is true, it is not possible to fully compre-

hend the effects of LABPTAs on working conditions without considering their impact on trade flows.

Focusing on LABPTAs with the EU and the US, this paper aims to contribute to the literature on how these agreements affect export volumes and destinations of signatory countries and their competitors. Scholars have hypothesised that linking the benefits of market access to respect for labour standards can affect trade flows in three ways. The *comparative advantage* argument contends that labour conditions are a disguised form of protectionism that harm the legitimate comparative advantage that developing countries have in cheap labour, leading to a decline in exports (Bhagwati 2001, 1995; Panagariya 2006; International Labour Organization 2016). Conversely, the *productivity argument* argument contends that soaring labour standards may improve workers' productivity, boosting economic efficiency and leading to increasing trade volumes (International Labour Organization 2016; Freeman 2010; Maskus 1997). Finally, the *demand-side* argument predicts that labour provisions can affect export destination (International Labour Organization 2016 at p. 85; Brown, Dehejia, and Robertson 2013). Signalling decent working standards may attract firms and consumers that prefer goods produced under such conditions, favouring trade with more socially concerned markets. At the same time, if LABPTAs increase labour costs, they may alienate more price-sensitive markets.

Empirically, only two studies have addressed the issue of the trade effects of LABPTAs (Carrère, Olarreaga, and Raess 2017; International Labour Organization 2016). Their focus is on understanding whether linking trade liberalisation to labour conditions harms trade volumes between the signatory countries; they find no evidence to support this claim (International Labour Organization 2016 at p. 85; Carrère, Olarreaga, and Raess 2017). Building on these works, this paper makes several contributions to the literature. First, it explores the effects of LABPTAs on exports towards *all* trade partners. It is argued that if LABPTAs have a *comparative advantage* or a *productivity* effect, they will not only impact trade between signatory countries, but will affect trade towards other countries. Second, it studies the effects of LABPTAs in shaping a country's export destinations. In particular, it evaluates whether LABPTAs favour trade with high-income economies relative to low- and middle-income countries (LMICs).[3] This analysis may have important implications for labour conditions. Indeed, while the California-effect literature

[3]In this paper, I use a wide range of terms interchangeably to indicate high-income countries (e.g., 'developed countries' and 'high-end markets') and LMICs (e.g., 'low-end markets' and 'emerging economies').

argues that trading more with developed countries can lead to improved working conditions, one recent paper argues that trading more with countries with low labour standards may trigger a Shanghai effect, leading to a deterioration of workers' welfare (Adolph, Quince, and Prakash 2017; Isaksson and Kotsadam 2018). Third, this research examines the unintended consequences LABPTAs, studying whether they have an impact on the export volumes and destinations of competitors of signatory countries. The idea is that one country's gains (or losses) in comparative advantage/productivity are its competitors' corresponding losses (or gains). From this perspective, I hypothesise that competitors' engagement in LABPTAs (CELABPTAs) will have specular effects to the ones that LABPTAs have on the signatory countries.

To estimate the impact of LABPTAs on international trade flows, I use a panel of 127 developing countries with international and intra-national trade flows in manufacturing goods, covering over 20 years (1985–2006). The paper employs a state-of-the-art gravity estimation methodology that allows estimation of the causal impact that (CE)LABPTAs have on international export volumes and destinations. To produce estimates, I employ a series of econometric strategies, including exporter-year and importer-year fixed effects, which account for the multilateral resistance terms implied by theory (Anderson and Van Wincoop 2003; Feenstra 2004); dyad fixed effects (to address the endogeneity of trade policy variables) (Baier and Bergstrand 2007); a pseudo-Poisson maximum likelihood (PPML) estimator (to address issues related to heteroscedasticity and zero trade flows) (Santos Silva and Tenreyro 2006, 2011); and multi-way clustering of the standard errors (Egger and Tarlea 2015; Larch et al. 2019). I build on recent developments in the identification literature and exploit the presence of intra-national trade flows in the panel to identify the effects of country-specific variables (such as LABPTA and CELABPTA) in the presence of exporter-year and importer-year fixed effects (Heid, Larch, and Yotov 2020; Beverelli et al. 2018). I use a similar but innovative approach to estimate the effects of (CE)LABPTAs on export destinations in a structural gravity-consistent framework. Finally, I run a battery of robustness checks to determine the sensitivity of the results. These include: changing the operationalisation of the key independent and dependent variables of interest; controlling for phase-in effects of the agreements; reverse causality (Baier and Bergstrand 2007); time-varying heterogeneity (Bergstrand, Larch, and Yotov 2015; Larch et al. 2019); and the newly developed analytical bias corrections for the estimates and the standard errors in PPML estimation (Weidner and Zylkin 2020).

The key findings of this paper are as follows. First, consistent with the *comparative advantage* argument, I find that, controlling for the trade-enhancing effects of bilateral liberalisation with the US, LABPTAs with the US harm international exports relative to domestic trade. Second, on average, LABPTAs with the US do not generate a *demand-side* effect and do not promote trade with high-income economies relative to LMICs. However, there is interesting heterogeneity among countries with different levels of income. Indeed, I find that low-income economies with LABPTAs with the US export significantly less to LMICs than to high-income countries. Third, the results suggest that a country entering into a LABPTA with the US does not affect competitors' trade volumes or trade patterns.[4] Fourth, LABPTAs with the EU do not appear to affect the trade volumes or export destinations of signatory countries. Fifth, the models find that competitors' engagement in LABPTAs with the EU has a positive impact on the international export volumes of developing countries. This finding suggests that the more a country has competitors engaging in LABPTAs with the EU, the more it gains a comparative advantage in exporting cheap goods, increasing its overall level of exports.

In sum, the empirical analysis suggests that LABPTAs can have significant effects on trade flows. However, these effects appear to be heterogeneous for LABPTAs with the US and those with the EU. Further research should investigate in more detail what explains this heterogeneity. The paper is organised as follows. Section (2) reviews the relevant literature and presents the central hypotheses. Section (3) discusses the empirical methodology, introducing the structural equation model and explaining the identification strategy. Section (5) presents the data used for the estimation. Section (6) discusses the results. The final section concludes.

3.2 Literature Review and Theoretical Framework

Since the 1990s, governments and scholars alike have debated the opportunities for linking trade liberalisation to good labour standards in light of the effects that this could have on trade flows.[5] During the first WTO Ministerial Conference, held in Singapore in 1996, the inclusion of a social clause (proposing the incorporation of core labour rights in the context of the GATT and WTO agreements) was 'the most controversial issue' (VanGrasstek 2013 at p. 380;

[4] The findings in this area appear to be model-dependent.

[5] Of course, the debate also has normative concerns; however, for the purposes of this paper, I focus on the economic side of the arguments (Cf. Collier and Bamu 2012).

Sutherland 1998).[6] The Social Clause allowed states to withhold trade privileges in response to the most extreme forms of labour exploitation (International Labor Organization and Walk Free Foundation 2017). The proponents were developed countries such as the US, France, Belgium, the Netherlands, Scandinavian countries and the European Parliament. The opponents were the group of 77 states led by Indonesia, Malaysia, Brazil, Egypt, India and Pakistan (Sutherland 1998 at p. 100). The debate carried on into subsequent WTO conferences. The issue was so divisive that, according to the Indian diplomat Amit Dasgupta, the disagreement over the Social Clause was 'the proverbial last straw that broke the camel's back and precipitated the collapse of the Seattle Ministerial Conference' (2000 at p. 113). Trade negotiations were able to advance only as developed countries relinquished the idea of creating this trade–labour linkage, moving forward a parallel agenda (Dasgupta 2000; Hughes and Haworth 2011).[7] Developing countries saw the attempts by developed countries to 'impose "standards" for social or environmental protection as disguised forms of protectionism' that would lead to increased labour costs, harming exports and foreign direct investment (Cheow tong 1994 at p. 4; Carrère, Olarreaga, and Raess 2017).[8] Conversely, developed countries argued that a trading partner not complying with fundamental labour rights had an unfair advantage over countries that respected good working conditions. The inclusion of labour standards in the context of the WTO was a way to prevent unfair competition, social dumping and ultimately a race to the bottom (Collier and Bamu 2012).

Scholars examining the issue have put forward three separate claims that I call the *comparative advantage*, the *productivity* and the *demand-side* arguments; these are summarised in Table 3.1. Neoclassical economists, focusing on the issue of increasing labour costs, argue that linking trade liberalisation to labour clauses prevents developing countries from legitimate competition in an area in which they have the greatest *comparative advantage* (i.e. cheap labour), distorting markets and leading to reductions in trade, employment and overall welfare (Bhagwati 2001, 1995; Panagariya 2006; Van Daele 2004).[9] Conversely, other scholars argue that improved working

[6] Core labour standards are identified by the 1998 ILO Declaration on Fundamental Principles and Rights at Work as: freedom of association and the effective recognition of the right to collective bargaining, the elimination of all forms of forced or compulsory labour, the effective abolition of child labour and the elimination of discrimination in respect of employment and occupation (Giumelli and Roozendaal 2017).

[7] Indeed, even after the Doha Development Round, the discussion about the Social Clause remained marginalised (Hughes and Haworth 2011 at p. 66).

[8] Firms that need to comply with labour clauses may face additional costs and, as a result of the higher prices for goods produced domestically, exports may decline (International Labour Organization 2016, at p.85).

[9] Focusing on Indonesian suppliers, Bartley and Egels-Zandén (2016) present numerous examples of factories that (thanks to engagement in private regulations) were permitted the establishment of trade unions but later had to close

standards are likely to increase workers' welfare and *productivity*, boosting economic efficiency and output, leading to more trade, not less (International Labour Organization 2016; Maskus 1997; Brown 2000; Palley 2004). Along these lines, Brown et al. (2015) found that firms in the Vietnamese apparel industry were more profitable when managers adopted more humane practices and avoided exploitative behaviours. Labour provisions can also affect *demand*. If consumers in high-income economies prefer goods produced with good labour standards, signing a LABPTA can have reputational effects that facilitate the participation of a country in global value chains. LABPTAs signal a commitment to adequate labour conditions, potentially attracting the demand of socially concerned consumers and firms, thus promoting international exports (International Labour Organization 2016 at p. 85; Brown, Dehejia, and Robertson 2013). Indeed, evidence from experimental data shows that, in the developed world, some consumers are willing to pay a price premium for products made under fair conditions (Hainmueller and Hiscox 2015).[10] It is important to note that the simple commitment to improving labour standards can trigger a demand effect, even while working conditions on the ground remain unchanged. Importing firms interested in 'fairwashing' – i.e., aiming to display a socially responsible image to the public, rather than seeking fundamental improvements of labour standards – may base their purchasing choices on their suppliers' credible commitment to good labour standards more than on their de facto progress (Bartley et al. 2015). On the other hand, if LABPTAs improve labour conditions, increasing labour costs, the demand effect can become a double-edged sword. Firms facing mounting costs may struggle to target markets that are overwhelmingly motivated by price rather than process standards in their purchasing choices. Rather than attracting the demand of high-income countries, LABPTAs could end up reducing purchases from more price-sensitive economies, negatively affecting export volumes. In sum, there are good theoretical reasons to expect that a country signing a LABPTA will trade significantly more with socially concerned markets than with more price-sensitive ones; either because LABPTAs attract the demand of socially concerned firms, or because LABPTAs alienate price-sensitive markets.

Despite this heated debate on the consequences of linking trade liberalisation to labour clauses, to my knowledge, only two papers have examined the effects of LABPTAs on trade flows

down because they were unable to retain access to foreign markets.

[10] Of course, there is also considerable variation at the sub-national level. For example, Tully and Winer (2014) finds that around 40%of consumers are unwilling to pay more for socially responsible goods, even in countries where consumers are expected to be more socially conscious.

Table 3.1: The hypothesised effects of LABPTAs on trade flows

	Signatory Country	**Competitors**
Comparative advantage	⇓ Trade	⇑ Trade
Productivity	⇑ Trade	⇓ Trade
Demand-side	⇑ Trade with HI countries	⇓ Trade with HI countries

The Table summarizes the hypothesis investigated in this paper. ⇑ indicates an increase, while ⇓ indicates a decline. "HI" indicates high-income countries.

(Carrère, Olarreaga, and Raess 2017; International Labour Organization 2016).[11] Both of these aim to evaluate whether labour clauses suppress the trade-enhancing effect of trade liberalisation provisions. They find no evidence that the inclusion of labour clauses reduces bilateral trade. However, Carrère, Olarreaga, and Raess (2017) find interesting heterogeneity. Consistent with the demand-side hypothesis, they find that when a LABPTA is between an LMIC and a high-income country, labour conditions have a positive effect on trade.

Although these studies make meaningful contributions, this paper aims to advance the existing research in multiple ways. First, existing research has examined whether labour clauses have reduced or increased trade between the signatory countries, whereas this paper examines how LABPTAs affect exports towards *all* destinations. Arguably, if LABPTAs affect the *comparative advantage* or the *productivity* of a developing country, not only they will impact exports towards the LABPTA partner(s), they will also promote/harm bilateral trade towards all other destinations. The next section will illustrate how it is possible to identify the effect of a country-level variable such as having a LABPTA in the context of a structural gravity equation with exporter-year fixed effects, drawing from recent advancements in gravity identification strategies (Heid, Larch, and Yotov 2020; Beverelli et al. 2018).

Second, previous studies only examine the effects of LABPTAs on trade volumes, paying no attention to the effects on export destinations (Carrère, Olarreaga, and Raess 2017; International Labour Organization 2016).[12] Conversely, this paper researches how LABPTAs affect export patterns. Arguably, the *demand-side* argument suggests LABPTAs shape a country's export profile by facilitating trade with specific destinations. Signatory countries can attract the demand

[11] See also Siroën (2017) and Hasnat (2002), which examine the impact of core labour standards (not LABPTAs) on export.

[12] To be sure, Carrère, Olarreaga, and Raess (2017) research whether LABPTAs between countries with different incomes have different effects, but they do not examine whether and how signing a LABPTA shapes a country's export pattern.

of more socially concerned importers, while potentially losing competitiveness (if labour costs increase) in more price-sensitive markets. In this regard, it must be noted that scholars have recognised that there is variability in consumer preferences when it comes to labour conditions in other countries. Scholars argue that demand from LMICs – where the income per capita is lower – is characterised by an overwhelming consideration of price over quality and variety, while the demand of high-income economies expects higher levels of quality and process standards (Kaplinsky and Farooki 2011 at p. 14; Fold and Larsen 2011; Ponte et al. 2019; Gereffi 2014; Horner 2016; Gamso 2017). For these reasons, this paper will empirically investigate whether LABPTAs have a differential impact on exports towards high-income countries relative to exports towards LMICs. I expect that a country with a LABPTA will trade significantly less with LMICs than with high-income markets.

Third, the paper examines whether LABPTAs affect international trade flows and export destinations of countries competing with the signatories of LABPTAs. Economists agree that trade agreements have an impact on trade flows that goes beyond the effects on the parties involved (Krugman 1995; Yotov et al. 2016). The idea is formalised by the structural gravity equation of Anderson and Van Wincoop (2003), which illustrates how bilateral exports (also) depend on multilateral resistance terms – which are the average trade barrier that every country faces. Trade agreements reduce bilateral trade barriers among signatory countries, affecting the multilateral resistance terms of excluded ones.[13] It is, therefore, essential to evaluate the effects of LABPTAs on competitors to have a comprehensive understanding of their trade effects.[14] Table 3.1 summarises the three hypothesised effects that LABPTAs can have on competitor states. If LABPTAs generate a *productivity effect* or a *demand effect* that increases the exports of the signatory countries, competitors' exports may decline. Indeed, a productivity gain for a LABPTA country is a loss in comparative advantage for its competitors, which may erode their ability to export, especially to high-income countries. On the other hand, competitor export volumes may soar if LABPTAs lead to growing labour costs and a loss in *comparative advantage* for a signatory country. Competing firms able to take advantage of their (relatively) lower labour costs could increase trade, in particular with price-sensitive markets. In other words, even if the signatory country gains privileged market access to the US or the EU, soaring labour costs will increase

[13] See Yotov et al. (2016) for an in-depth explanation.
[14] And ultimately on their effects on labour standards.

the comparative advantage of its competitors to export cheap goods, creating the opportunity to profit from new market niches. Finally, having competitors engaging in LABPTAs may favour exports towards price-sensitive economies relative to exports towards high-income economies. As previously discussed, LABPTAs signal good labour conditions and potentially increase labour costs. If a LABPTA increases labour costs, countries outside the LABPTA will experience a rise in exports towards price-sensitive markets. On the other hand, if high-income importers prefer goods produced with (signalled) high labour standards, they will shift their demand from excluded countries to LABPTA members. In both cases, this leads to an increase in exports towards emerging markets relative to high-income economies for non-signatory countries. All in all, there are good theoretical reasons to believe that LABPTAs affect the export volumes and export patterns of states competing with signatory countries; this paper attempts to examine these *systemic* effects.

This research is also noticeably different from previous work in its focus. In assessing the effects of LABPTAs, existing studies look at *all* the trade agreements that have labour clauses, whereas this research analyses exclusively the effects of LABPTAs with the EU and the US (Carrère, Olarreaga, and Raess 2017; International Labour Organization 2016). Moreover, this paper analyses the effects of the LABPTA as a single policy instrument, not separating the impact of labour clauses from the liberalisation effects of the agreement. The estimated coefficients will capture both the effects of labour clauses and the impact of having bilateral liberalisation with the EU/US, which (according to the logic of the California effect) could trigger improvements in working conditions even of suppliers without labour clauses (Greenhill, Mosley, and Prakash 2009).[15] The reason for this approach is simple: since the 1990s, all trade agreements signed by the US have labour clauses, and the same holds for the vast majority of trade agreements signed by the EU. Hence, there is no real 'control' for the effects of a trade agreement of the US or the EU without labour conditions.[16] To identify the effects of labour conditions separately from those of liberalisation, existing research pools data on trade agreements and LABPTAs across *all* countries. It is argued, however, that this approach is likely to suffer from the 'lack of common support' problem. Causal inference scholars have noted that it is only possible to recover the average treatment effect if there is a substantial overlap between the covariates of treatment and the control

[15] The latter element would occur even without the inclusion of labour provisions. As discussed, the estimates in the model examine how LABPTAs affect exports towards all possible destinations. The next section will show how this research controls for the *bilateral* trade-enhancing effect of these agreements.

[16] As noted, increasing demand from the EU and the US is characterised by higher levels of social concern than from most countries around the world, triggering improvements in labour standards.

group ('common support') (Hill and Su 2013; Lechner and Strittmatter 2017; Grady 2020). If this is not the case, estimates depend on extrapolation and modelling assumptions about the structure of the data, potentially leading to biased results. For LABPTAs, lack of common support appears to be a severe problem as countries that sign trade agreements without labour clauses (control) are very different from states that sign LABPTAs (treatment). According to Raess and Sari (2018), over 75% of trade agreements between high-income economies have labour clauses, while this percentage shrinks to 15% for trade agreements between developing countries.[17] Moreover, comparing trade agreements between developed and developing countries to those ratified by the EU and the US does not appear to be the most conservative choice in terms of inference. Even if trade agreements with the EU and the US were without labour conditions, they would likely have a different impact than the trade agreements of other developed countries. Smaller high-income markets may have limited assimilation capacity, providing insufficient incentives for (a significant amount of) foreign suppliers to give up the production of goods with exploitative working conditions (following the California effect logic). At the same time, the EU and the US are the two largest markets in the world, and are therefore more likely to provide sufficient economic incentives to upgrade labour standards.

In sum, it is argued that separating the impact of labour clauses from the liberalisation effects of these agreements risks the lack of common support problem, potentially leading to false inferences. Nevertheless, examining the effects of the LABPTA as a single policy instrument is still claimed to be extremely relevant for scholars and policy-makers alike. To the extent that trade volumes and export patters have consequences in terms of working conditions, economic development, democratisation and geopolitical influence, it will be essential to assess the impact of LABPTAs on international exports towards third countries, even if it is not possible to distinguish the effect of a trade agreement itself from the effects of its labour clauses.

3.3 Empirical Approach

Over the past 50 years, gravity models have become the workhorse for cross-country empirical analyses of international trade flows (Cf. Kepaptsoglou, Karlaftis, and Tsamboulas 2010). The gravity model of trade implies that, just as two particles are attracted to one another with a

[17] Note that countries that sign one LABPTA are more likely to sign others. Hence, there is also the risk of self-selection bias.

force that is proportional to their masses and inversely proportional to their proximity, the flow of commodities between two economies is proportional to the size of those economies and inversely proportional to their distance from each other (Cf. Yotov et al. 2016; Ghosh and Yamarik 2004; Deme and Ndrianasy 2017). Empirically, they gravity models have been so successful that scholars argue that gravity in international trade is akin to the laws in natural sciences.[18] Today, gravity-like equations have strong theoretical foundations, and economists have shown that these models are consistent with alternative microeconomic assumptions (Anderson and Van Wincoop 2003; Arkolakis, Costinot, and Rodríguez-Clare 2012; Bergstrand 1985; Eaton and Kortum 2002; Chaney 2008; Melitz and Ottaviano 2008; Helpman, Melitz, and Rubinstein 2008; Anderson and Yotov 2016).[19]

3.3.1 Gravity model estimation

There are numerous modelling and econometric challenges to overcome in order to estimate the effects of LABPTAs on export volumes and destinations. I start by discussing a rigorous approach to estimating a standard gravity model, to later illustrate the identification strategy for LABPTAs' effects.

To gauge the impact of trade agreements on bilateral trade flows, scholars routinely rely on the PPML estimator with three-way fixed effects (e.g. Correia, Guimarães, and Zylkin 2020; Egger and Staub 2016; Bergstrand, Larch, and Yotov 2015; Anderson 2011; Olivero and Yotov 2012). The PPML equation has the following form:

$$T_{ij,t} = exp[\alpha_{i,t} + \alpha_{j,t} + \alpha_{ij} + \beta_1 PTA_{ij,t}] + \varepsilon_{ij,t} \tag{3.1}$$

where $T_{ij,t}$ are bilateral export flows in nominal terms and $\alpha_{i,t}$ and $\alpha_{j,t}$ are exporter-year and importer-year fixed effects that account for all the time-varying country-level characteristics that affect trade flows. These include, for example, GDP, non-discriminatory trade policies, exchange rates and institutional quality. Moreover, it is demonstrated that in panel settings, time-varying importer and exporter fixed effects consistently account for the multilateral resistance terms

[18] Carrère et al. claim that gravity in is both a *theory* and a *fact*similar to the theory of evolution for biology. Krugman has gone even further, claiming that it is an instance of 'social physics' for its law-like predictive power (1997; Head and Mayer 2014).

[19] The basic gravity formulation is $T_{ij} = \lambda \frac{y_i y_j}{Dij}$, where T_{ij} are bilateral trade flows, y_i and y_j represent the size of the economies (often measured in terms of GDP) and Dij indicates the distance between two regions and λ is a constant of proportionality.

implied by theory (Anderson and Van Wincoop 2003; Feenstra 2004; Olivero and Yotov 2012).[20] α_{ji} are the dyadic fixed effects that address concerns about the endogeneity of policy variables. As Baier and Bergstrand (2007) note, trade agreements are not an exogenous random variable. Indeed, 'countries are likely select endogenously into [free trade agreements], perhaps for reasons unobservable to the econometrician and possibly correlated with the level of trade' (Baier and Bergstrand 2007 at p. 73). To address this bias, they argue that trade scholars can exploit the panel structure of the data and include bilateral-pair (ij) fixed effects in the model. These account for all the observed and unobserved time-invariant heterogeneity that simultaneously affects selection into a preferential trade agreement (PTA) and trade volumes hence controlling for the potential endogeneity of PTAs (Baier and Bergstrand 2007, at p.89). Note that, $PTA_{ij,t}$ is a dummy, taking the value of one if the two countries i and j have a trade agreement, and zero otherwise.

I follow Santos Silva and Tenreyro (2006) and Santos Silva and Tenreyro (2011) and use the PPML estimator because it provides unbiased estimates in the presence of heteroskedasticity and (numerous) zeros in the data. Both of these issues are of well-known concern in trade data.[21] Scholars have shown that alternative estimators such as linear-in-logs ordinary least squares, the log of one plus exports and the Tobit model can be severely biased and inconsistent in such cases (Head and Mayer 2014). The PPML estimator outperforms alternatives and, for this reason, is the most common approach in the recent literature (e.g. Correia, Guimarães, and Zylkin 2020; Egger and Staub 2016; Bergstrand, Larch, and Yotov 2015; Anderson 2011; Olivero and Yotov 2012; Baier, Bergstrand, and Clance 2018; Mattoo, Mulabdic, and Ruta 2019; Agnosteva, Anderson, and Yotov 2019; De Soyres, Maire, and Sublet 2020).

Recent innovations in the discipline suggest using multi-way clustering of the standard errors for robust inference. Egger and Tarlea (2015) and Larch et al. (2019) have criticised the standard approach in gravity estimation, i.e. to cluster errors at the country-pair level. They note that, in panel settings, errors are likely to be auto-correlated across time within countries. Bilateral trade is likely to respond with inertia to short-run-to-long-run changes in

[20] The structural gravity equation formalises the idea that bilateral trade flows depend on the bilateral trade barriers between two economies *relative* to the barriers they face with the rest of the world. The literature shows that although these factors remain unobserved, it is possible to consistently account for them by including exporter-year and importer-year fixed effects.

[21] According to Carrère, Olarreaga, and Raess (2017), there is an average of 43% of zero trade flows in trade samples.

local price. The above researchers show that not accounting for this form of autocorrelation in the errors can lead to a false inference. Building on Cameron, Gelbach, and Miller (2011), Larch et al. (2019) have developed an algorithm that allows clustering simultaneously across all the dimensions of the panel (exporter, importer and time); I will employ this algorithm for inferences.[22]

Finally, this paper also uses data over non-consecutive years to help mitigate concerns about the autocorrelation of the error term across time. Arguably, estimation pooled over consecutive years is likely to show more autocorrelation than estimation over non-consecutive years (Yotov et al. 2016). Additionally, intervals in the data allow better estimation of the effects of trade policies (Yotov et al. 2016). As Cheng and Wall have argued, using the fixed effect over consecutive years is problematic because the dependent variable cannot fully adjust in a single year (2005 at p. 8). Today, it is common to estimate gravity equations over non-consecutive years, and Olivero and Yotov (2012) have shown that estimation results are not sensitive to the use of different time intervals (Cf. Trefler 2004; Baier and Bergstrand 2007; Baier2015; Yotov et al. 2016; Baier, Yotov, and Zylkin 2019). In sum, estimating the PPML model in Equation (3.1), over non-consecutive years, using three-way fixed and multi-way clustering for robust inference, allows the estimation of the average treatment effect of trade agreements ($PTA_{ij,t}$) on bilateral trade. The next section builds on this model to identify the effects of (CE)LABPTAs.

3.3.2 Identification strategy

The advantage of including three-way fixed effects is that it allows the estimation of a theoretically consistent structural gravity model that controls for any observable and unobservable heterogeneity across countries. For instance, differences in institutions and in political systems that could affect trade flows are captured and are not subject to data availability (Bigler and Raess 2019). The drawback is clear, *exporter-time* and *importer-time* fixed effects absorb all the coefficients of observable country-specific characteristics such as GDP, national policies and exchange rates, which cannot be estimated. For our purposes, this means that is not possible to include a simple dummy indicating whether the country has a LABPTA with the US or the EU ($LABPTA_{US,i,t}$ or $LABPTA_{EU,i,t}$) and examine the coefficient to evaluate its effects on trade

[22]They develop the `ppml_panel_sg` Stata® command that implements multi-way clustering, although the estimates reported in this study are calculated using the `ppmlhdfe` command of Correia, Guimarães, and Zylkin (2020) which allows the same type of clustering.

flows.[23] $LABPTA_{i,t}$ would be perfectly collinear with the exporter-time fixed effects $\alpha_{i,t}$; hence it would be unidentified in the context of this structural gravity framework. However, Heid, Larch, and Yotov (2020) recently demonstrated that scholars can exploit the presence of data on intra-national trade flows in gravity equations to 'identify the country-specific variables even in the presence of exporter and importer fixed effects' (at p. 3). Provided that T_{ij} also include intra-national trade flows, it is possible to interact $LABPTA_{i,t}$ with an indicator variable $INTL_{ij}$ that is equal to one for international trade and set to zero for intra-national trade.[24] Including this interaction $LABPTA\_INTL_{ij,t}$ allows us to identify the impact of LABPTAs on international exports relative to domestic trade. A positive coefficient on this variable would support the *productivity* argument, indicating that, on average, countries with LABPTAs have more international exports than domestic trade. In contrast, a negative coefficient would support the comparative advantage argument, indicating that countries with LABPTAs become increasingly unable to target foreign markets and have to rely on domestic commerce.[25]

A similar strategy allows estimation of the effects of LABPTAs on exports towards high-income economies relative to other (emerging) economies. I interact $LABPTA_{i,t}$ with a dummy variable $LMIC_j$ identifying whether the importer is a lower- or a medium-income country, defined according to the World Bank classification.[26] The expectation is that $LABPTA\_LMIC_{ij,t} = LABPTA_{i,t} \times LMIC_j$ will be negative, indicating that, on average, countries that have a LABPTA trade less with LMICs than with high-income countries. Note that this identification strategy is only able to examine whether LABPTAs have a differential impact on exports towards high-income countries relative to LMICs; it is not able to reveal whether this differential impact is caused by an increase in exports towards higher-income economies or by a decline in exports towards LMICs. Either of these causal mechanisms could explain a negative coefficient of $LABPTA\_LMIC_{ij,t}$. To adjudicate between these arguments, one can interpret this

[23] Indeed, if LABPTAs have the cost, productivity or demand effect implied by the theory, the LABPTA can be considered as a country-level variable affecting exports towards all destinations.

[24] Note that the trade literature is becoming increasingly aware of the importance of including intra-national trade in structural gravity estimation (Yotov et al. 2016; Heid, Larch, and Yotov 2020; Baier, Yotov, and Zylkin 2019; Bergstrand, Larch, and Yotov 2015; Dai, Yotov, and Zylkin 2014). Scholars argue that examining only international trade flows may bias PTA estimates downwards (Yotov et al. 2016).

[25] Cf. Heid, Larch, and Yotov (2020) and Beverelli et al. (2018) for proof of the fact that this variable is identified. Note that this coefficient refers to the effect of LABPTAs on international trade relative to domestic trade as shown by Beverelli et al. (2018).

[26] In the baseline model, I use the World Bank classification of 1995, which is the median year of the sample. I would like to thank Prof. Marcelo Olarreaga for suggesting this identification strategy in one of the numerous conversations we had.

coefficient simultaneously with $LABPTA\_INTL_{ij,t}$. Indeed, if a LABPTA has a positive effect on international exports, it is likely that it is attracting demand from high-income economies. In contrast, if a LABPTA harms international exports, it is likely that it is hurting exports to LMICs.[27]

The paper also aims to examine whether LABPTAs promote international trade and affect export destinations of countries competing with signatory countries. With this aim, I create a new variable that measures competitors' engagement in LABPTAs (CELABPTAs), defined thus:

$$CELABPTA_{i,t} = \sum_{z \neq i} W_{iz,t} \times LABPTA_{z,t} \tag{3.2}$$

$CELABPTA_{i,t}$ is the sum of all LABPTAs signed by the competitors z of the country i, weighted by the level of competition $W_{iz,t}$ between the two countries at time t.[28] The basic idea is that the more two countries are close competitors, the more they will affect each other's exports. If two countries have very similar export profiles, changing the productivity/comparative advantage of one of them will probably affect the exports of the other. At the same time, if they trade completely different goods, this effect will be smaller or non-existent. To build the competition weight, I follow Guler et al. (2002) and much of the subsequent literature and measure competition by looking at countries' sectoral-level export profiles (i.e. by looking at product similarities in their export portfolios), with no discrimination on export destination (Chatagnier and Kavaklı 2017; Wang 2017; Baccini and Koenig-Archibugi 2014; Cao 2010; Simmons and Elkins 2004; Elkins, Guzman, and Simmons 2006; Polillo and Guillén 2005; Guler et al. 2002).[29] The weighted sum of competitors' engagement varies at the country-year level i, t and, hence, like $LABPTAs_{i,t}$, its effects on export volumes and destinations can be identified interacting with an indicator variable individuating international trade ($INTL_j$) and with an indicator variable individuating LMICs ($LMIC_j$). Note that the inclusion of the variable $CELABPTA$ allows estimation of the general

[27] Note that this identification approach is, to my knowledge, the only one that can be estimated in a structural gravity-consistent framework. To evaluate the effects of policy variables on export destination, scholars often simply split the sample and look at the effects of LABPTAs on exports towards high-income countries and low-income countries separately (Carrère, Olarreaga, and Raess 2017). However, this approach does not overcome the issue that $LABPTA_{i,t}$ is a country-level variable and hence not identified in the presence of exporter-year fixed effects.

[28] Note that in creating this weighted sum, I exclude all the US and all the EU countries from the sample of competitors. In other words, when the competitor z is the EU or the US, $W_{iz,t}$ is equal to zero.

[29] Product-level data is drawn from the United Nations (UN) Standard International Trade Classification (SITC). The similarity in export profiles is measured at the three-digit level because most granular data for exported products suffer from severe problems of missing observations for developing countries. I use different specifications of competition as robustness checks. Note that, for endogeneity reasons, it is not possible to measure competition by looking at the similarities in export destinations.

equilibrium effects of LABPTAs in the context of a partial equilibrium model.

The baseline econometric specification we use to test the hypothesis of this paper is:

$$\begin{aligned} T_{ij,t} = exp\Big[&\alpha_{i,t} + \alpha_{j,t} + \alpha_{ij} + \kappa PTA_{ij,t} + \\ &\beta_1 LABPTA\_INTL_{ij,t} + \beta_2 LABPTA\_LMIC_{ij,t} + \\ &\beta_3 CELABPTA\_INTL_{ij,t} + \beta_4 CELABPTA\_LMIC_{ij,t}\Big] + \varepsilon_{ij,t} \end{aligned} \tag{3.3}$$

where $T_{ij,t}$ are nominal trade flows, which include international and intra-national trade at non-consecutive year t (Yotov et al. 2016); $\alpha_{i,t}$, $\alpha_{j,t}$ and α_{ij} are the three-way fixed effects discussed above; and $PTA_{ij,t}$ is a dummy variable that controls for the existence of a trade agreement. It is important to note that this measure includes all bilateral trade agreements, taking the value of one for LABPTAs with the EU and the US. Hence, $PTA_{ij,t}$ controls for the increase in bilateral exports with the US and the EU that these agreements generate.[30] $LABPTA\_INTL_{ij,t}$ and $LABPTA\_LMIC_{ij,t}$ capture the effects of LABPTAs on the international exports and destinations of the signatory countries. $CELABPTA\_INTL_{ij,t}$ and $CELABPTA\_LMIC_{ij,t}$ capture the effects of competitors' engagement with LABPTAs. The *comparative advantage* argument predicts that β_1 will be negative because LABPTAs lead to increased labour costs, whereas β_3 will be positive because these rising costs promote competitors' exports. Conversely, the *productivity argument* predicts that β_1 will be positive because LABPTAs will lead to increased productivity, while β_3 will be negative because competitors will suffer from a loss in their comparative advantage. Finally, the *demand-side argument* predicts that β_2 will be negative because LABPTAs attract the demand from high-income economies while reducing demand from lower-income ones, whereas, for specular reasons, β_4 should be positive. Competitors with lower labour costs, unable to meet the social standards required by the demand of high-income economies, will export more to emerging markets. In sum, using an innovative identification strategy, Equation (4.5) allows the unbiased estimation of the effects of LABPTAs and CELABPTAs on export flows and destinations in the context of a structural gravity framework.[31]

[30] Hence, the coefficients on LABPTA variables will not be inflated by the bilateral trade-enhancing effects of these agreements between signatory countries.

[31] The Annex discusses the issue of endogeneity in further detail.

3.4 Data and Sources

I use the CEPII Trade, Production and Bilateral Protection Database (TradeProd) as the principal trade data source (Sousa, Mayer, and Zignago 2012). }). It covers trade in manufacturing goods across 26 industrial sectors (which I aggregate at the country-year level) during the period 1980–2006. Table 4.17 in the Annex lists and describes each sector. The data focus on manufacturing because this is the only sector for which it is possible to measure intra-national trade flows consistently. These are theoretically defined as apparent consumption: the difference between the total *gross* production and total exports (Yotov et al. 2016). Although including trade flows in non-manufacturing goods would be desirable, comparable domestic sales and expenditure data is available only for manufacturing, and TradeProd is the most comprehensive and precise database accounting for intra-national trade. Indeed, despite the limited time coverage, it is routinely used in the gravity literature (Cf. Dai, Yotov, and Zylkin 2014; Bergstrand, Larch, and Yotov 2015; Anderson and Yotov 2016; Beverelli et al. 2018; Baier, Yotov, and Zylkin 2019).[32] Moreover, a focus on the manufacturing sector is appropriate to address the questions regarding LABPTAs. Arguably, low-paid jobs and labour abuses often occur in manufacturing (e.g. Anner 2019, 2020). In TradeProd, information on gross domestic production is drawn from the UN Industrial Development Organization (UNIDO) data, and missing values are integrated with the OECD STAN Industry Database.[33] Raw data on international trade is drawn from the UN's COMTRADE, which is improved by applying the BACII methodology to deal with the well-known inconsistencies of trade (Gaulier and Zignago 2010; Sousa, Mayer, and Zignago 2012). In particular, TradeProd reconciles the cost, insurance and freight (CIF) values reported by the importing countries with the free on board (FOB) values reported by the exporters (Anderson and Yotov 2016).

For data on trade agreements I rely on the Design of Trade Agreements (DESTA) database, which is the most systematic comprehensive source of information on trade agreements, covering over 1,179 PTAs signed between 1948 and 2018 (Dür, Baccini, and Elsig 2014).[34] Following much

[32] An alternative approach would be to use GDP data to measure total production (Mattoo, Mulabdic, and Ruta 2019). However, this approach is problematic since trade flows are a gross value, whereas GDP is calculated by looking at the value added (Beverelli et al. 2018).

[33] Cf. Nicita and Olarreaga (2007) and especially Mayer, Paillacar, and Zignago (2010) for an accurate description of the data.

[34] This number also includes accession and withdrawal agreements. The data is updated to May 2019 (Dür, Baccini, and Elsig 2014).

of literature, I exclude from the sample partial scope, framework and services agreements, as they could cause an attenuation bias on the PTA coefficients, given that these treaties have limited scope or do not involve trade in manufacturing goods.[35] Table 3.7 in the Annex provides the complete list of the 201 agreements included in the sample. They are the PTAs signed by the 127 exporters in the model between 1985 and 2006.

I rely on the work of Lechner (2016) for information about labour provisions in trade agreements. She has built a comprehensive dataset that covers over 663 trade agreements signed from 1948 to 2016, providing a precise measure of the level of 'legalisation' of non-trade issues (Cf. With W. Abbott and Snidal 2000). This indexes are built weighting every non-trade issue provision by the level of precision, obligation, and delegation in order to give more importance to more stringent clauses. One of these measures, which focuses specifically on economic and social rights clauses in trade agreements, directly measures labour rights clauses.[36] Focusing on trade agreements with the EU and the US, I create a dummy *LABPTA*, taking the value of one if the trade agreement includes some form of labour provision, and zero otherwise. The final sample includes a total of 25 LABPTAs, 14 with the EU and 11 with the US. It is important to note that while the US has signed LABPTAs with countries with all levels of income, the EU has only signed LABPTAs with medium- and high-income countries. The Lome and Cotonou agreements are partial scope agreements, where tariff reduction covers only certain products; these agreements are therefore excluded from the sample (Dür, Baccini, and Elsig 2014).[37] The list of LABPTAs is included in Table 3.7 in the Annex. CELABPTA is built as described in the previous section starting from the LABPTA variable.

The final data consists of an unbalanced panel of around 100,000 observations. The sample covers

[35]The DESTA market access database provides classification. Accession agreements have been recorded to reflect the depth of the base treaty (Dür, Baccini, and Elsig 2014).

[36]Specifically, 'economic and social rights cover the right to work, rights at work, the right to education, the right to development, and the right to health' (Lechner 2016, at p.866). The stringency of labour clauses in LABPTAs varies varies from 0, when the non-trade issue is not legalized, to 18 (the Bahrain-US Agreement) when it is very stringent. Note that I use the economic and social rights variable (`esr_all_sum`) as the indicator.

[37]In the full sample there are four low-income countries (Viet Nam, Lao, Honduras and Nicaragua), six lower-middle-income countries (Jordan, Costa Rica, Guatemala, Morocco, El Salvador and the Dominican Republic), three upper-middle-income countries (Mexico, Chile and Bahrain) and two high-income countries (Israel and Singapore) that have signed trade agreements with the US. There are also twelve lower-middle-income countries (Romania, Algeria, Egypt, Jordan, Morocco, Poland, Tunisia, Bulgaria, Lebanon, Syria, Jordan and Morocco), five upper-middle-income countries (Hungary, Malta, Chile, Mexico and Chile) and two high-income countries (Israel and Cyprus) that have signed trade agreements with the EU.

the period 1985–2006 and uses four-year intervals (1986, 1990, 1994, 1998, 2002 and 2006) to allow for the phasing-in effects of trade policies (Trefler 2004; Baier and Bergstrand 2007; Baier2015; Yotov et al. 2016; Baier, Yotov, and Zylkin 2019). The data includes manufacturing exports from 127 different exporters (the vast majority of which are developing countries) towards 227 importers, for a total of 27,990 unidirectional dyads.[38] Tables 3.4 and 3.5 in the Annex provide the full list of the countries considered.[39]

3.5 Results and Discussion

All of the estimates in Table 3.2 were obtained using a three-way fixed effects PPML estimator. Column (1) is the standard structural gravity presented in Equation (3.1). It estimates the effect of PTAs on trade flows of manufactured commodities. The model shows a very good fit with the data with a pseudo R^2 of 0.996, in line with the typical results of three-way fixed-effects gravity models. All else being equal, trade agreements increase exports between signatory countries by about $[exp(0.347) - 1] \times 100 = 41.5\%$. The size of this effect is close to other estimates in the trade literature (Baier and Bergstrand 2007; Dai, Yotov, and Zylkin 2014).[40] However, allowing for multi-way clustering of the errors, the effect is only significant at the 10% level ($p - value = 0.072$).[41] In line with Larch et al. (2019), this confirms that using multi-way clustering of the errors leads to more conservative and robust inferences (Egger and Tarlea 2015).

Column (2) estimates Equation (4.5) on LABPTAs with the US. The first finding that stands out is that, controlling for LABPTA and CELABPTA, the magnitude of the PTA effect shrinks and is no longer significant. Perhaps this can be explained by the sample of developing countries under consideration. Scholars have long argued that a lack of infrastructure, weak institutions and an inefficient financial sector can harm the effectiveness of PTAs in lower-income economies,

[38] Note that 22 exporter countries in the analysis have no internal trade data due to a lack of information about domestic production. These are included in the analysis because they allow the identification of the effects towards northern countries. Nevertheless, the results are consistent with their exclusion from the sample. The ISO codes of these countries are AGO, ATG, BRN, COD, COM, DJI, DMA, GIN, GNB, GRD, GUY, KNA, MDV, MLI, MRT, PRK, SLB, STP, TCD, VCT, VUT and WSM.

[39] Some adjustments were made to the TradeProd data to make it compatible with other sources. BLX is recoded as BEL and ET1 is recoded as ETH. To avoid duplicated entries, observations involving SRB and MNE before 2005 have been dropped as they were all zeros, while positive trade flows with SCG were reported. Data is hence consistent with YUG (1985–1992), followed by SCG (1992–2004) and SRB and MNE (2005–2006). Also, observations with CSH and BA1 as importers have been dropped.

[40] Studies that include intra-national trade tend to find higher effects of trade agreements.

[41] In Table 3.2, I also present error clustered at the dyadic level because this is the standard approach in the literature.

in particular when agreements are between less developed countries (Venables 2003; Deme and Ndrianasy 2017). In other words, controlling for LABPTAs with the US, the average effect of trade agreements between developing countries is limited (Larch et al. 2019; Beverelli et al. 2018). With regard to the main variables of interests, three findings from Column (2) stand out. First, I find no evidence that LABPTAs with the US generate a *comparative advantage* or a *productivity* effect on signatory countries. Indeed, while $LABPTA_{US}\_INTL_{ij,t}$ is negative it is not significant. Second, consistent with the *demand-side* hypothesis, the model suggests that countries with LABPTAs with the US will trade significantly more with high-income economies than with LMICs. $LABPTA_{US}\_LMIC_{ij,t}$ suggests that a country with a LABPTA with the US will, on average, trade 36.1% less with LMICs than with high-income countries.[42] In line with the theoretical expectations, this finding suggests that having a LABPTA with the US discourages buyers from lower-income countries or attracts global buyers from high-income countries.[43] Hence, while $LABTAs$ with the US do not appear to affect international exports in general, Column (2) suggests that they have an impact on the export partners of developing countries. Third, the model also finds that competitors' engagement in LABPTAs ($CELABPTA_{US}\_INTL_{ij,t}$) has a strong and positive effect on international exports. This effect is large and statistically significant. It predicts that a 1% increase in CELABPTA is associated with a 0.9% rise in international exports relative to intra-national trade.[44] An intuitive explanation is that CELABPTA can increase the *comparative advantage* in excluded countries to export towards lower-end markets. This idea, however, is only partially confirmed by $CELABPTA_{US}\_LMIC_{ij,t}$. The coefficient is positive, suggesting that a surge in competitors' engagement with LABPTAs is associated with increasing trade towards LMICs compared to high-income economies.[45] However, this coefficient is not significant, suggesting that competitors' engagement in LABPTAs is associated with rising exports towards both higher- and lower-income economies. A possible explanation is that even in higher-income economies there are lower-end markets that are overwhelmingly concerned by price, and as LABPTAs (are expected to) increase labour costs, competitors can gain comparative advantages in accessing these markets (Tully and Winer 2014).

[42] To calculate the average treatment effect of LAPBTAs: $[exp(0.308) - 1] \times 100 = 36.1\%$. By definition, the coefficient on high-income countries is the opposite of the coefficient on $LABPTA_{US}\_LMIC_{ij,t}$ given that the dummy LMIC is $LMIC = 1 - high\ income$.

[43] It is possible that we do not find a significant effect on $LABPTA_{US}\_INTL_{ij,t}$ because a decline in exports towards LMICs balances the increase in exports towards high-income countries.

[44] To estimate the model I use the log of one plus $CELABPTA = \sum_{z \neq i} WLABPTA_{i,t}$ to allow interpretation of the coefficient as trade elasticities.

[45] In particular a 1% growth in competitors' engagement with LABPTAs leads to a 0.25% increase in exports towards LMICs relative to exports towards high-income economies.

Column (3) estimates Equation (4.5) on LABPTAs with the EU and shows results broadly in line with those of Column (2). In particular, the model does not find that LABPTAs with the EU create a *comparative advantage* or a *productivity* effect on exports of the signatory countries. However, in line with the *demand-side* argument, it finds that having a LABPTA with the EU leads to an increase in trade with rich countries relative to LMICs, of $[exp(0.408) - 1] \times 100 = 50.4\%$. The model also confirms that competitors' engagement in LABPTAs with the EU leads to a substantial increase in international trade flows. This finding is in line with the idea that firms in competing states will be able to exploit the increment in their comparative advantage from the (expected) improvements in labour conditions of their competitors.

Column (4) estimates the effects of (CE)LABPTAs with both the EU and the US. Arguably, this is the more robust and comprehensive specification that accounts for the possibility of an omitted variable bias from not including both LABPTAs in the model; it is therefore used for further comparisons. The results here are mostly consistent with those in columns (2) and (3). First, confirming the *demand-side* argument, the models suggest that LABPTAs, regardless of whether they are with the EU or the US, are associated with a significant increase in exports towards high-income countries relative to LMICs. The impact of LABPTAs with the US is about 35%, while the impact of LABPTA with the EU is about 44.5%.[46] In other words, LABPTAs appear to attract socially concerned buyers while alienating lower and medium-income ones.[47] The model also confirms that competitors' engagement with LABPTAs – i.e. $CELABPTA_{US}\_INTL_{ij,t}$ and $CELABPTA_{EU}\_INTL_{ij,t}$ – has a large and significant impact on international trade flows. This finding suggests that CELABPTA affects a country's *comparative advantage*, opening up new international market niches that competing countries can exploit. More precisely, the model predicts that a 1% increase in competitors' engagement in LABPTAs with the EU will lead to an increase in international trade of 1.2% relative to domestic markets, while for the US, this growth effect will be of about 0.9%. In the case of the EU, this increase in exports appears to be driven by growing imports from LMICs. $CELABPTA_{EU}\_LMIC_{ij,t}$ suggests that a 1% increase in CELABPTAs with the EU causes exports to LMICs to grow by 0.2% more than exports towards

[46] For $LABPTA_{US}\_LMIC_{ij,t}$ the effect is $[exp(0.301) - 1] \times 100 = 35\%$, for $LABPTA_{EU}\_LMIC_{ij,t}$ it is $[exp(0.368) - 1] \times 100 = 44.5\%$

[47] Note, however, that the coefficient of $LABPTA_{US}\_LMIC_{ij,t}$ is robust using different assumptions on the clustering of the errors, while $LABPTA_{EU}\_LMIC_{ij,t}$ is only significant at the 10% allowing for multi-way clustering.

Table 3.2: The Systemic effects of LABPTAs

Dependent variable: bilateral exports				
	(1)	(2)	(3)	(4)
PTA	0.347	0.0286	0.00724	-0.0263
	(0.088)***	(0.073)	(0.072)	(0.070)
	[0.193]*	[0.143]	[0.112]	[0.126]
$\boldsymbol{(CE)LABPTA_{US,i,t}}$				
$LABPTA_{US}\_INTL_{ij,t}$		-0.110		-0.688
		(0.164)		(0.135)***
		[0.229]		[0.174]***
$LABPTA_{US}\_LMIC_{ij,t}$		-0.308		-0.301
		(0.108)***		(0.111)***
		[0.119]***		[0.107]***
$CELABPTA_{US}\_INTL_{ij,t}$		0.917		0.337
		(0.051)***		(0.057)***
		[0.193]***		[0.123]***
$CELABPTA_{US}\_LMIC_{ij,t}$		0.250		-0.0651
		(0.088)***		(0.082)
		[0.164]		[0.150]
$\boldsymbol{(CE)LABPTA_{EU,i,t}}$				
$LABPTA_{EU}\_INTL_{ij,t}$			0.272	0.519
			(0.142)*	(0.128)***
			[0.169]	[0.197]***
$LABPTA_{EU}\_LMIC_{ij,t}$			-0.408	-0.368
			(0.101)***	(0.102)***
			[0.176]**	[0.204]*
$CELABPTA_{EU}\_INTL_{ij,t}$			1.259	1.047
			(0.118)***	(0.075)***
			[0.199]***	[0.131]***
$CELABPTA_{EU}\_LMIC_{ij,t}$			0.279	0.234
			(0.160)*	(0.117)**
			[0.195]	[0.134]*
Observations	78201	78201	78201	78201
pseudo-R-squared	0.996	0.997	0.997	0.997
Three-way Fixed Effects	Yes	Yes	Yes	Yes

Robust standard errors, clustered by country-pair, in parentheses. Robust standard errors clustered by exporter, importer, and year in squared brackets (* p<0.10, ** p<0.05, *** p<0.01). Panels are separated to facilitate interpretation of estimates that refer to $(CE)LABPTA_{US,i,t}$ and those that refer to $(CE)LABPTA_{EU,i,t}$.

high-income countries.[48] Hence, CELABPTAs with the EU appear to favour international trade, in particular towards LMICs.

There are also some differences between model (4) and previous specifications. First, in line with the *comparative advantage* argument, labour clauses in trade agreements with the US appear to have a negative and significant effect on international exports relative to intra-national trade.[49] This finding suggests that labour conditions in these agreements may be creating a barrier to international trade flows, discouraging potential buyers because of higher labour costs.[50] On the other hand, in line with the *productivity* argument, LABPTAs with the EU have a positive and significant effect on international exports, in particular thanks to a growth in trade towards high-income economies.[51] A preliminary explanation of this divergence could relate to the design of these LABPTAs. While LABPTAs with the US typically involve sanctions (such as withholding trade privileges) to ensure the enforcement of labour standards, the EU relies on consultative measures and dialogue with civil society to implement labour provisions, with no punishments for failure to raise labour standards (Postnikov and Bastiaens 2014 at p. 925). It is possible that while the sanction-based approach works, leading to increased labour costs and loss of comparative advantage, the consultative approach does not. From this perspective, LABPTAs with the EU can signal better labour conditions while not affecting the comparative advantage of exporting firms, leaving them better off overall at the expense of workers' rights. Conversely, the more effective LABPTAs with the US can affect labour costs, harming the comparative advantage of suppliers and leading to an overall decline in international trade. Another (complementary) possibility is that, thanks to consultations and stakeholder engagements, LABPTAs with the EU are better equipped to help suppliers improve productivity and efficiency, leading to an overall increase in exports. A final possible explanation relates to the membership of these agreements. While the US has signed LABPTAs with multiple low-income countries, the EU has only entered into trade agreements with middle-income countries. The argument is that labour clauses are likely to have a greater impact on lower-income countries, which rely almost exclusively on cheap labour for competitiveness in manufacturing. At the same time, these agreements may not equally impact flows of medium-income countries, where export competitiveness can also rely on other factors,

[48] Note that significance is only at the 10% level.

[49] The effect is a decline of almost $[exp(0.688) - 1] \times 100 = 99\%$ relative to intra-national trade.

[50] Real or expected.

[51] Indeed, the coefficient on $LABPTA_{EU}\_LMIC_{ij,t}$ shows that exports towards high-income economies will grow more rapidly than those to LMICs.

such as infrastructure and higher human capital. This would explain why LABPTAs with the US – which involve low-income countries – have a negative effect on export volumes and hence harm the comparative advantage of the countries involved; while LABPTAs with the EU – which do not include low-income countries – do not harm the competitiveness of their signatory countries to the same extent.[52] This hypothesis is further explored in the next paragraph. However, it should be noted that while $LABPTA_{US}\_INTL_{ij,t}$ shows consistent results across a multitude of robustness checks, the positive coefficient of $LABPTA_{EU}\_INTL_{ij,t}$ is unstable; hence it should be interpreted with caution.

As discussed, LABPTAs can have distinctive effects for countries with different income levels. For instance, lower-income countries may be more affected by labour clauses as they rely more on cheap labour as a form of comparative advantage in international exports (Kamata 2018). To examine this hypothesis Table 3.3 reports the results of estimating Equation (4.5) on three subsamples of exporters: low-income (LI), lower-middle-income (LMI) and upper-middle-income (UMI) countries.[53]

For ease of interpretation, Column (1) reports the estimated coefficients for the entire sample corresponding to Column (4) in Table 3.2. There many interesting findings. First, PTAs have a large and statistically significant effect on bilateral trade on UMI countries, but do not affect the other income groups. This finding reinforces the idea that PTAs are less consequential in lower-income countries but have strong effects in more advanced economies (Venables 2003; Deme and Ndrianasy 2017). Moreover, LI economies appear to explain most of the effects of LABPTAs and CELABPTAs with the US in the full sample. For instance, comparing the coefficients of $LABPTA_{US}\_INTL_{ij,t}$ across columns (2), (3) and (4), reveals that trade agreements with labour conditions harm the comparative advantage of lower-income countries, but they have no effect on UMI economies. Moreover, the effect of $LABPTA_{US}_INTL_{ij,t}$on LI countries is twice the size of the impact on LMI countries. A reasonable explanation is that in lower-income countries, where cheap labour is the primary source of comparative advantage, labour conditions alienate

[52]The demand-side effect of these agreements may trigger a positive coefficient on $LABPTA_{EU}\_INTL_{ij,t}$

[53]In Table 3.3 I use the World Bank classification in 1995, which is the median year of my sample. As the World Bank country classifications change over time to represent the current income status of a country, it is necessary to select a reference year to allow for consistent comparison across groups. Note that because some countries were not classified by income group and some countries are high-income, a total of 6,945 observations are dropped in the split samples estimates.

Table 3.3: Heterogeneity in LABPTA and CELABPTA effects based on income

Dependent variable: bilateral exports	(1) Full Sample	(2) Low inc.	(3) Lower-middle inc.	(4) Higher-middle inc.
PTA	-0.0263	-0.0344	0.119	0.294
	(0.070)	(0.085)	(0.066)*	(0.064)***
	[0.126]	[0.097]	[0.125]	[0.103]***
$\boldsymbol{(CE)LABPTA_{US,i,t}}$				
$LABPTA_{US}\_INTL_{ij,t}$	-0.688	-1.515	-0.736	-0.0452
	(0.135)***	(0.262)***	(0.253)***	(0.198)
	[0.174]***	[0.235]***	[0.355]**	[0.160]
$LABPTA_{US}\_LMIC_{ij,t}$	-0.301	-0.685	-0.320	-0.197
	(0.111)***	(0.213)***	(0.160)**	(0.130)
	[0.107]***	[0.189]***	[0.162]**	[0.150]
$CELABPTA_{US}\_INTL_{ij,t}$	0.337	0.202	0.355	-0.190
	(0.057)***	(0.161)	(0.118)***	(0.130)
	[0.123]***	[0.234]	[0.136]***	[0.144]
$CELABPTA_{US}\_LMIC_{ij,t}$	-0.0651	-0.0267	-0.171	-0.226
	(0.082)	(0.180)	(0.107)	(0.152)
	[0.150]	[0.206]	[0.148]	[0.223]
$\boldsymbol{(CE)LABPTA_{EU,i,t}}$				
$LABPTA_{EU}\_INTL_{ij,t}$	0.519		0.305	0.196
	(0.128)***		(0.411)	(0.195)
	[0.197]***		[0.484]	[0.224]
$LABPTA_{EU}\_LMIC_{ij,t}$	-0.368		-1.104	-0.346
	(0.102)***		(0.210)***	(0.094)***
	[0.204]*		[0.324]***	[0.106]***
$CELABPTA_{EU}\_INTL_{ij,t}$	1.047	1.448	0.856	1.131
	(0.075)***	(0.296)***	(0.126)***	(0.160)***
	[0.131]***	[0.252]***	[0.077]***	[0.207]***
$CELABPTA_{EU}\_LMIC_{ij,t}$	0.234	-0.357	-0.117	0.251
	(0.117)**	(0.186)*	(0.155)	(0.137)*
	[0.134]*	[0.286]	[0.242]	[0.193]
Observations	78201	29470	27297	14489
pseudo-R-squared	0.997	0.999	0.996	0.997
Three-way Fixed Effects	Yes	Yes	Yes	Yes

Robust standard errors, clustered by country-pair, in parentheses. Robust standard errors clustered by exporter, importer, and year in squared brackets (* p<0.10, ** p<0.05, *** p<0.01).

price-sensitive buyers. The coefficients of $LABPTA_{US}\_LMIC_{ij,t}$ in columns (2) and (3) appear to confirm these results, indicating that, on average, LABPTAs harm exports of LI and LMI countries towards LMICs relative to exports to high-income countries. Hence, in line with the *demand-side* argument, the overall decline in international exports revealed by $LABPTA_{US}\_INTL_{ij,t}$ can be explained mainly by a reduction of trading towards more price-sensitive markets. Additionally, it appears that CELABPTAs with the US have a positive effect on the international exports of LI and LMI countries, while harming UMI exporters, again suggesting that lower-income countries are better able to exploit the comparative advantage of lower labour costs to expand international trade flows as competitors take part in LABPTAs. It is noticeable that the coefficient for LMI countries is larger than that for LI countries, and is the only significant one. It predicts that for every 1% increase in CELABPTA, international exports will increase by 0.36%.[54]

The results of (CE)LABPTAs with the EU also show indicative patterns. First, the positive and significant effect of $LABPTA_{EU}\_INTL_{ij,t}$ in the full sample does not appear to depend on any particular subgroup. Note that the lack of LABPTAs with low-income countries may influence the finding in the full sample. In the case of the LABPTAs with the US, low-income countries are the group that experiences the largest drop of exports on entering into a LABPTAs with the US. The lack of LABPTAs with the EU for this group of countries could explain the difference in the baseline findings.[55] Second, consistent with the *demand-side* argument, the increase in international exports ($LABPTA_{EU}\_INTL_{ij,t}$) appears to rely on increasing trade with high-income economies. Indeed, $LABPTA_{EU}\_LMIC_{ij,t}$ is negative, large in magnitude and highly significant for LMICs. This suggests that having a LABPTA will lead (on average) to exports of 66% more with high-income countries than with LMICs.[56] Again, lower-income countries, which rely more on cheap labour, experience most of the differential impact. Third, the positive effects of CELABPTAs on international exports are substantial, significant and consistent across all three subsamples, confirming the hypothesis that as country competitors engage in LABPTAs, new market niches open, which suppliers can exploit. This finding is consistent with the idea that CELABPTAs affect the comparative advantage of competitors. Finally, CELABPTAs

[54] A potential explanation is that LMI countries have more advanced industrial sectors; hence, they can deliver goods of better quality. From this perspective, they would be able to seize most of the gains from the change in comparative advantage.

[55] $LABPTA_{US}\_INTL_{ij,t}$ has a negative and significant effect on international exports in low-income countries.

[56] This is the estimated effect of $LABPTA_{EU}\_LMIC_{ij,t}$ for UMI countries. In LMI countries, the estimated effect is about three times larger.

with the EU do not appear to significantly increase exports towards LMICs relative to high-income markets in any of the subsamples, as the effect emerges only with the increased statistical power of the full sample.

To gain further analytical insights and to determine the robustness of the results of the baseline estimates, I run a battery of robustness checks that are thoroughly discussed in the Annex. They include (among others): estimating Equation (4.5) using alternative specifications of high-income economies and competition measures; testing for the phase-in effects of LABPTAs and for reverse causality (Baier and Bergstrand 2007); employing the analytical bias correction for PPML standard errors developed by Weidner and Zylkin (2020); and interacting the dyad fixed effect α_{ij} with a time trend to account for the time-varying unobserved heterogeneity that may be affecting the estimates (Bergstrand, Larch, and Yotov 2015; Larch et al. 2019). Only some results of the baseline specification – Column 4 of Table 3.2 – are consistent across all models. From the rigorous robustness analysis, the following findings stand out.

LABPTAs with the US appear to be consistently associated with a decline in exports relative to intra-national trade. This finding supports the *comparative advantage* argument, suggesting that controlling for the effects of these agreements on trade towards the US, LABPTAs can harm the comparative advantage of exporting firms in international exports. Conversely, LABPTAs with the EU do not significantly affect trade volumes once we account for time-varying heterogeneity.[57] As previously discussed, this differential effect may be explained by the different design, the different effectiveness or the different membership of the two different types of agreements.

Contrary to the expectations of the *demand-side* argument, it does not appear that LABPTAs with the US and the EU promote imports from high-income countries relative to LMICs. However, there is an interesting heterogeneity when one examines countries by level of income. In particular, also accounting for time-varying heterogeneity (Table 3.16 in the Annex), it appears that lower-income countries export significantly less to LMICs than to high-income countries when they enter into LABPTAs with the US. This result supports the *demand-side* argument, suggesting that in lower-income economies, which often rely overwhelmingly on cheap labour to be competitive in exporting manufactured products internationally, improving labour standards can cause a decline

[57] Cf. Column 2 of Table 3.16.

in demand from price-sensitive exporters.

The models find mixed evidence to support the idea that LABPTAs have systemic effects and impact competitors' exports. CELABPTAs with the US appear to increase export volumes in most of the robustness checks; however, this impact is no longer significant when controlling for time-varying heterogeneity.[58] Moreover, while CELABPTAs – both with the EU and the US – do not appear to affect competitors' export destinations, CELABPTAs with the EU appear to have a positive and significant impact on international export relative to domestic trade that is consistent across multiple model specifications. This finding is in line with the *comparative advantage* argument. It suggests that countries may benefit from competitors' engagement in LABPTAs with the EU, possibly because they are able to exploit market niches left open by signatory countries.
[59]

It may be asked why LABPTAs with the US, which have a more stringent design and have direct effects on the signatory countries, do not affect competitors' exports, while LABPTAs with the EU have a significant and robust effect on competitors. Moreover, it may be wondered why LABPTAs with the EU affect competitors' trade flows without having any discernible effect on the trade volumes of the signatory countries.[60] As noted above, a possible explanation relates to the fact that there are no LABPTAs with the EU for lower-income countries. The literature acknowledges that income is an essential predictor of labour conditions (Lim and Prakash 2017; Adolph, Quince, and Prakash 2017). From this perspective, middle-income countries (and their competitors) may have more possibilities to engage in intense exploitation of workers and compensate for a competitor's entry into a trade agreement with the EU. Conversely, lower-income countries (and their competitors), which already rely overwhelmingly on cheap labour for exports and where the workforce already enjoys limited labour rights, may have fewer possibilities to downgrade. Competitors' downgrading could explain their increased comparative advantage in producing cheap goods, and hence

[58] Cf. Column (2) of Table 3.16.

[59] Table 3.12 shows that $CELABPTA_{EU}$ leads to a significant increase in exports towards both developing countries and high-income economies, although the effect on exports towards LMICs is significantly larger. This can be explained by the fact that even in high-income economies, markets for socially unsustainable but cheap goods continue to exist and thrive (Tully and Winer 2014).

[60] It is important to note that LABPTAs with the EU can affect competitors' trade flows while not having any discernible effect on the trade volumes of signatory countries. The reason is that CELABPTA is an aggregate measure that sums up all of the competitors' engagement in LABPTAs, while LABPTA looks only at the signatory-country level. Insignificant changes at the signatory-country level may add up to significant changes at the aggregate level.

the increasing volumes of international exports.[61] Nevertheless, these estimates on the systemic effects of LABPTAs with the EU should be interpreted with caution.[62] This explanation is only a hypothesis, and further qualitative and quantitative analysis is needed to understand precisely how LABPTAs with the EU are able to affect competitors' trade flows. In sum, while the model suggests that CELABPTAs with the EU can have a positive effect on international trade, further research is required to fully illustrate why this effect is different from the impact of LABPTAs.

3.6 Conclusion

Most of the scholarship examining LABPTAs has focused on the issue of compliance, examining whether these agreements can improve working conditions in developing countries. Minimal attention has been given to the trade effects of these agreements. Yet, according to both the 'race to the top' and the 'race to the bottom' literature, the impact of LABPTAs on trade could lead to substantial spill-overs to labour outcomes.

This paper contributes to the political economy literature, making an original attempt to examine the effects of LABPTAs on the trade flows of signatory countries and their competitors. It builds on the recent advancements in structural gravity estimation to find the unbiased estimates of (CE)LABPTA effects on export volumes and destinations, testing the results with a battery of robustness checks. It explores whether LABPTAs negatively affect the comparative advantage of signatory countries, harming export volumes, or whether they boost international trade in a way consistent with a productivity gain mechanism. Moreover, it examines whether LABPTAs that signal better labour standards attract demand from high-income countries, where consumers are more socially concerned. Finally, the paper examines the systemic effects of these agreements, evaluating their impact on the trade of competitor states.

The main findings of the paper are the following. First, that LABPTAs with the US hurt international trade with both higher- and lower-income countries relative to intra-national trade. This suggests that labour provisions in these agreements can negatively affect the comparative

[61] Note that the lack of LABPTAs with low-income countries may also explain the fact that we do not find a direct effect of LABPTAs with the EU. Indeed, low-income countries appear to be the group most affected by LABPTAs with the US.

[62] In fact, the previous paper finds the opposite: that LABPTAs with the US generate downgrading, whereas those with the EU do not.

advantage of exporting firms, leading to less trade, not more. Second, in low-income countries, LABPTAs have a differential impact on exports towards LMICs and high-income economies. On average, a lower-income country with a LABPTA will trade 76% less with LMICs than with high-income countries.[63] This confirms the idea that for lower-income economies (which rely overwhelmingly on cheap labour to be competitive in manufacturing exports), (a commitment to) improving labour standards can cause a decline in demand from more price-sensitive importers. Third, the models find that having more competitors engaging in trade agreements with the EU leads to an increase in international exports relative to intra-national trade. This suggests that these agreements enable competitors to take advantage of new market possibilities.

In conclusion, the findings of this paper suggest that LABPTAs can affect export volumes and export destinations of signatory countries and their competitors. Further research should explore in more detail why LABPTAs with the US and with the EU have differentiated effects.

[63] Estimate from Column (4) of Table 3.16.

3.7 Annexes

3.7.1 Descriptive information

3.7.1.1 List of exporters and importers

Table 3.4: List of exporters

iso3c	Exporter	iso3c	Exporter	iso3c	Exporter
AFG	Afghanistan	GMB	Gambia	NPL	Nepal
AGO	Angola	GNB	Guinea-Bissau	OMN	Oman
ALB	Albania	GNQ	Equatorial Guinea	PAK	Pakistan
ARE	United Arab Emirates	GRD	Grenada	PAN	Panama
ARG	Argentina	GTM	Guatemala	PER	Peru
ATG	Antigua and Barbuda	GUY	Guyana	PHL	Philippines
BDI	Burundi	HND	Honduras	PNG	Papua New Guinea
BEN	Benin	HTI	Haiti	POL	Poland
BFA	Burkina Faso	HUN	Hungary	PRK	Korea, Dem. People's Rep. of
BGD	Bangladesh	IDN	Indonesia	PRY	Paraguay
BGR	Bulgaria	IND	India	QAT	Qatar
BHR	Bahrain	IRN	Iran	ROU	Romania
BHS	Bahamas	IRQ	Iraq	RWA	Rwanda
BLZ	Belize	ISR	Israel	SAU	Saudi Arabia
BOL	Bolivia	JAM	Jamaica	SDN	Sudan
BRA	Brazil	JOR	Jordan	SEN	Senegal
BRB	Barbados	KEN	Kenya	SGP	Singapore
BRN	Brunei Darussalam	KHM	Cambodia	SLB	Solomon Islands
BTN	Bhutan	KNA	Saint Kitts and Nevis	SLE	Sierra Leone
CAF	Central African Republic	KOR	Korea	SLV	El Salvador
CHL	Chile	KWT	Kuwait	SOM	Somalia
CHN	China	LAO	Lao People's Democratic Republic	STP	Sao Tome and Principe
CIV	Côte d'Ivoire	LBN	Lebanon	SUR	Suriname
CMR	Cameroon	LBR	Liberia	SYC	Seychelles
COD	Congo (Democratic Republic of the)	LBY	Libyan Arab Jamahiriya	SYR	Syrian Arab Republic
COG	Congo	LCA	Saint Lucia	TCD	Chad
COL	Colombia	LKA	Sri Lanka	TGO	Togo
COM	Comoros	MAR	Morocco	THA	Thailand
CPV	Cape Verde	MDG	Madagascar	TTO	Trinidad and Tobago
CRI	Costa Rica	MDV	Maldives	TUN	Tunisia
CUB	Cuba	MEX	Mexico	TZA	Tanzania, United Rep. of
CYP	Cyprus	MLI	Mali	UGA	Uganda
DJI	Djibouti	MLT	Malta	URY	Uruguay
DMA	Dominica	MMR	Burma	VCT	Saint Vincent and the Grenadines
DOM	Dominican Republic	MNG	Mongolia	VEN	Venezuela
DZA	Algeria	MOZ	Mozambique	VNM	Viet Nam
ECU	Ecuador	MRT	Mauritania	VUT	Vanuatu
EGY	Egypt	MUS	Mauritius	WSM	Samoa
ETH	Ethiopia	MWI	Malawi	YEM	Yemen
FJI	Fiji	MYS	Malaysia	ZMB	Zambia
GAB	Gabon	NER	Niger	ZWE	Zimbabwe
GHA	Ghana	NGA	Nigeria		
GIN	Guinea	NIC	Nicaragua		

Table 3.5: List of importers

iso3c	Importer	iso3c	Importer	iso3c	Importer
ABW	Aruba	GHA	Ghana	NRU	Nauru
AFG	Afghanistan	GIB	Gibraltar	NZL	New Zealand
AGO	Angola	GIN	Guinea	OMN	Oman
AIA	Anguilla	GMB	Gambia	PAK	Pakistan
ALB	Albania	GNB	Guinea-Bissau	PAN	Panama
AND	Andorra	GNQ	Equatorial Guinea	PCN	Pitcairn
ANT	Netherland Antilles	GRC	Greece	PER	Peru
ARE	United Arab Emirates	GRD	Grenada	PHL	Philippines
ARG	Argentina	GRL	Greenland	PLW	Palau
ARM	Armenia	GTM	Guatemala	PNG	Papua New Guinea
ASM	American Samoa	GUM	Guam	POL	Poland
ATA	Antarctica	GUY	Guyana	PRK	Korea, Dem. People's Rep. of
ATF	French Southern Antartic territories	HKG	Hong Kong	PRT	Portugal
ATG	Antigua and Barbuda	HMD	Heard and Mcdonald Islands	PRY	Paraguay
AUS	Australia	HND	Honduras	PYF	French Polynesia
AUT	Austria	HRV	Croatia	QAT	Qatar
AZE	Azerbaijan	HTI	Haiti	ROU	Romania
BDI	Burundi	HUN	Hungary	RUS	Russian Federation
BEL	Belgium	IDN	Indonesia	RWA	Rwanda
BEN	Benin	IND	India	SAU	Saudi Arabia
BFA	Burkina Faso	IOT	British Indian Ocean Territory	SCG	Serbia and Montenegro
BGD	Bangladesh	IRL	Ireland	SDN	Sudan
BGR	Bulgaria	IRN	Iran	SEN	Senegal
BHR	Bahrain	IRQ	Iraq	SGP	Singapore
BHS	Bahamas	ISL	Iceland	SGS	South Georgia and the South Sandwich Islands
BIH	Bosnia and Herzegovina	ISR	Israel	SHN	Saint Helena
BLR	Belarus	ITA	Italy	SLB	Solomon Islands
BLZ	Belize	JAM	Jamaica	SLE	Sierra Leone
BMU	Bermuda	JOR	Jordan	SLV	El Salvador
BOL	Bolivia	JPN	Japan	SMR	San Marino
BRA	Brazil	KAZ	Kazakstan	SOM	Somalia
BRB	Barbados	KEN	Kenya	SPM	St. Pierre and Miquelon
BRN	Brunei Darussalam	KGZ	Kyrgyzstan	SRB	Serbia
BTN	Bhutan	KHM	Cambodia	STP	Sao Tome and Principe
BVT	Bouvet Island	KIR	Kiribati	SUN	USSR
CAF	Central African Republic	KNA	Saint Kitts and Nevis	SUR	Suriname
CAN	Canada	KOR	Korea	SVK	Slovakia
CCK	Cocos (Keeling) Islands	KWT	Kuwait	SVN	Slovenia
CHE	Switzerland	LAO	Lao People's Democratic Republic	SWE	Sweden
CHL	Chile	LBN	Lebanon	SYC	Seychelles
CHN	China	LBR	Liberia	SYR	Syrian Arab Republic
CIV	Côte d'Ivoire	LBY	Libyan Arab Jamahiriya	TCA	Turks and Caicos Islands
CMR	Cameroon	LCA	Saint Lucia	TCD	Chad
COD	Congo (Democratic Republic of the)	LKA	Sri Lanka	TGO	Togo
COG	Congo	LTU	Lithuania	THA	Thailand
COK	Cook Islands	LVA	Latvia	TJK	Tajikistan
COL	Colombia	MAC	Macau (Aomen)	TKL	Tokelau
COM	Comoros	MAR	Morocco	TKM	Turkmenistan
CPV	Cape Verde	MCO	Monaco	TLS	East Timor
CRI	Costa Rica	MDA	Moldova, Rep.of	TON	Tonga
CUB	Cuba	MDG	Madagascar	TTO	Trinidad and Tobago
CXR	Christmas Island	MDV	Maldives	TUN	Tunisia
CYM	Cayman Islands	MEX	Mexico	TUR	Turkey
CYP	Cyprus	MHL	Marshall Islands	TUV	Tuvalu
CZE	Czech Republic	MKD	Macedonia	TWN	Taiwan
DEU	Germany	MLI	Mali	TZA	Tanzania, United Rep. of
DJI	Djibouti	MLT	Malta	UGA	Uganda
DMA	Dominica	MMR	Burma	UKR	Ukraine
DNK	Denmark	MNE	Montenegro	UMI	US Minor Outlying Islands
DOM	Dominican Republic	MNG	Mongolia	URY	Uruguay
DZA	Algeria	MNP	Northern Mariana Islands	USA	United States of America
ECU	Ecuador	MOZ	Mozambique	UZB	Uzbekistan
EGY	Egypt	MRT	Mauritania	VAT	Holy See
ERI	Eritrea	MSR	Montserrat	VCT	Saint Vincent and the Grenadines
ESH	Western Sahara	MUS	Mauritius	VEN	Venezuela
ESP	Spain	MWI	Malawi	VGB	British Virgin Islands
EST	Estonia	MYS	Malaysia	VNM	Viet Nam
ETH	Ethiopia	NCL	New Caledonia	VUT	Vanuatu
FIN	Finland	NER	Niger	WLF	Wallis and Futuna
FJI	Fiji	NFK	Norfolk Island	WSM	Samoa
FLK	Falkland Islands	NGA	Nigeria	YEM	Yemen
FRA	France	NIC	Nicaragua	YUG	Yugoslavia
FSM	Micronesia (Federated States of)	NIU	Niue	ZAF	South Africa
GAB	Gabon	NLD	Netherlands	ZMB	Zambia
GBR	United Kingdom	NOR	Norway	ZWE	Zimbabwe
GEO	Georgia	NPL	Nepal		

3.7.1.2 List of ISIC sectors

Table 3.6: List of ISIC sectors included in the TradeProd data

	isic	Description
1	311	Food manufacturing
2	313	Beverage industries
3	314	Tobacco manufactures
4	321	Manufacture of textiles
5	322	Manufacture of wearing apparel, except footwear
6	323	Manf. of leather, leather products, leather substitutes and fur, except footwear and wearing apparel
7	324	Manufacture of footwear, except vulcanized or moulded rubber or plastic footwear
8	331	Manufacture of wood and wood and cork products, except furniture
9	332	Manufacture of furniture and fixtures, except primarily of metal
10	341	Manufacture of paper and paper products
11	342	Printing, publishing and allied industries
12	351	Manufacture of industrial chemicals
13	352	Manufacture of other chemical products
14	353	Petroleum refineries
15	355	Manufacture of rubber products
16	356	Manufacture of plastic products not elsewhere classified
17	361	Manufacture of pottery, china and earthenware
18	362	Manufacture of glass and glass products
19	369	Manufacture of other non-metallic mineral products
20	371	Iron and steel basic industries
21	372	Non-ferrous metal basic industries
22	381	Manufacture of fabricated metal products, except machinery and equipment
23	382	Manufacture of machinery except electrical
24	383	Manufacture of electrical machinery apparatus, appliances and supplies
25	384	Manufacture of transport equipment
26	385	Manf. of photographic, optical, professional, scientific, measuring and controlling equipment & NES

3.7.1.3 List of (LAB)PTAs

Table 3.7: List of (LAB)PTAs by year of signing and entry into force

	PTA	Signing	Entry Into Force	LABPTA
1	Israel US	1985	1985	Yes
2	Jordan Kuwait	1986		No
3	Algeria Morocco	1989	1989	No
4	Libya Morocco	1990	1990	No
5	Bhutan India	1990		No
6	African Economic Community	1991	1994	No
7	EC Hungary	1991	1994	Yes
8	EC Poland	1991	1994	Yes
9	MERCOSUR	1991	1991	No
10	El Salvador Guatemala	1991		No
11	Australia Papua New Guinea	1991	1991	No
12	CEFTA	1992	1993	No
13	EFTA Israel	1992	1993	No
14	EFTA Poland	1992	1993	No
15	EFTA Romania	1992	1993	No
16	Jordan Lebanon	1992	1993	No
17	Jordan Libya	1992		No
18	NAFTA	1992	1994	Yes
19	ASEAN	1992	1992	No
20	Cross Boarder Initiative	1992		No
21	Bulgaria EC	1993	1993	Yes
22	Bulgaria EFTA	1993	1993	No
23	COMESA	1993	1994	No
24	EC Romania	1993	1993	Yes
25	ECOWAS	1993	1993	No
26	EFTA Hungary	1993	1993	No
27	Bolivia Mexico	1994	1995	No
28	Costa Rica Mexico	1994	1995	No
29	CEMAC	1994	1999	No
30	Group of Three	1994	1995	No
31	Hungary Slovenia	1994	1995	No
32	Romania Slovakia	1994	1995	No
33	West African Economic and Monetary Union	1994	1994	No
34	Honduras Mexico	1994		No
35	Colombia Mexico Venezuela	1994	1995	No
36	Czech Republic Romania	1994	1995	No
37	Israel PLO	1994	1994	No
38	Moldova Romania	1994	1995	No
39	Bulgaria Czech Republic	1995	1996	No
40	Bulgaria Slovakia	1995	1996	No
41	EC Israel Euro-Med Association Agreement	1995	2000	Yes
42	EC Tunisia Euro-Med Association Agreement	1995	1998	Yes
43	Fiji Tonga	1995		No
44	Armenia Cyprus	1995		No
45	Jordan PLO	1995		No
46	Bolivia MERCOSUR	1996	1997	No
47	Bulgaria Slovenia	1996	1997	No

	PTA	Signing	Entry Into Force	LABPTA
48	Chile MERCOSUR	1996	1996	No
49	EC Morocco Euro-Med Association Agreement	1996	2000	Yes
50	Egypt Jordan	1996	1998	No
51	Israel Slovakia	1996	1997	No
52	Israel Turkey	1996	1997	No
53	Canada Chile	1996	1997	No
54	Canada Israel	1996	1997	No
55	Czech Republic Israel	1996	1997	No
56	Lithuania Poland	1996	1997	No
57	Algeria Jordan	1997	1999	No
58	EC Jordan Euro-Med Association Agreement	1997	2002	Yes
59	EFTA Morocco	1997	1999	No
60	Greater Arab Free Trade Agreement	1997	1998	No
61	Hungary Israel	1997	1998	No
62	Hungary Turkey	1997	1998	No
63	Israel Poland	1997	1998	No
64	Mexico Nicaragua	1997	1998	No
65	Romania Turkey	1997	1998	No
66	Latvia Poland	1997	1999	No
67	Bulgaria Turkey	1998	1999	No
68	Central America Dominican Republic	1998	2001	No
69	Chile Mexico	1998	1999	No
70	Chile Peru	1998	1998	No
71	Egypt Jordan	1998	1999	No
72	Egypt Tunisia	1998	2007	No
73	Hungary Lithuania	1998	2000	No
74	India Sri Lanka	1998	2001	No
75	Israel Slovenia	1998	1998	No
76	Jordan Morocco	1998	1999	No
77	Jordan Tunisia	1998	1999	No
78	Ecuador Peru	1998		No
79	Estonia Hungary	1998	2001	No
80	Faroe Islands Poland	1998	1998	No
81	Estonia Poland	1998	2002	No
82	Bulgaria Macedonia	1999	2000	No
83	Hungary Latvia	1999	2000	No
84	Morocco Tunisia	1999	1999	No
85	Poland Turkey	1999	2000	No
86	Egypt Saudi Arabia	1999		No
87	East African Community (EAC)	1999	2000	No
88	EC Mexico	2000	2000	Yes
89	EFTA Mexico	2000	2001	No
90	Israel Mexico	2000	2000	No
91	Jordan UAE	2000	2001	No
92	Jordan US	2000	2001	Yes
93	Lebanon UAE	2000		No
94	Mexico Northern Triangle	2000	2001	No
95	Syria UAE	2000	2001	No
96	New Zealand Singapore	2000	2001	No
97	Bulgaria Estonia	2001	2002	No
98	Bulgaria Israel	2001	2002	No
99	Bulgaria Lithuania	2001	2002	No

	PTA	Signing	Entry Into Force	LABPTA
100	Caribbean Community (CARICOM) revised	2001	2006	No
101	Croatia Hungary	2001	2001	No
102	EC Egypt Euro-Med Association Agreement	2001	2004	Yes
103	EFTA Jordan	2001	2002	No
104	Gulf Cooperation Council (GCC)	2001	2003	No
105	Iraq Tunisia	2001		No
106	Iraq UAE	2001		No
107	Israel Romania	2001	2001	No
108	Jordan Kuwait	2001	2005	No
109	Jordan Syria	2001	2002	No
110	Libya Tunisia	2001		No
111	Morocco UAE	2001	2003	No
112	Pacific Isl. Countries Trade Agreement (PICTA)	2001	2003	No
113	Algeria Iraq	2001		No
114	Iraq Libya	2001		No
115	Iraq Syria	2001		No
116	Iraq Yemen	2001		No
117	Saudi Arabia Syria	2001		No
118	Bahrain Jordan	2001	2005	No
119	Canada Costa Rica	2001	2002	No
120	Albania Macedonia	2002	2002	No
121	Bulgaria Latvia	2002	2003	No
122	Algeria EC Euro-Med Association Agreement	2002	2005	Yes
123	Central America Panama	2002	2003	No
124	Chile EC	2002	2003	Yes
125	EC Lebanon Euro-Med Association Agreement	2002	2006	Yes
126	EFTA Singapore	2002	2003	No
127	Jordan Lebanon	2002	2003	No
128	Pakistan Sri Lanka	2002	2005	No
129	Syria Tunisia	2002	2005	No
130	Bahrain Iraq	2002		No
131	Iraq Jordan	2002		No
132	Iraq Lebanon	2002		No
133	Iraq Qatar	2002		No
134	Iraq Sudan	2002		No
135	Japan Singapore	2002	2002	No
136	Albania Croatia	2002	2003	No
137	Albania Kosovo	2003	2003	No
138	Bosnia and Herzegovina Bulgaria	2003	2004	No
139	Albania Romania	2003	2004	No
140	Bosnia and Herzegovina Romania	2003	2003	No
141	Bulgaria Serbia	2003	2004	No
142	Chile EFTA	2003	2004	No
143	Chile Korea	2003	2004	No
144	Chile US	2003	2004	Yes
145	China Hong Kong	2003	2004	No
146	China Macao	2003	2004	No
147	Egypt Libya	2003	2007	No
148	Jordan Sudan	2003	2003	No
149	Macedonia Romania	2003	2004	No
150	Albania Bulgaria	2003	2003	No
151	Romania Serbia	2003	2004	No

	PTA	Signing	Entry Into Force	LABPTA
152	Singapore US	2003	2004	Yes
153	Albania Moldova	2003	2004	No
154	Albania Serbia	2003	2004	No
155	Albania Bosnia and Herzegovina	2003	2004	No
156	Panama Taiwan	2003	2004	No
157	Australia Singapore	2003	2003	No
158	Bulgaria Moldova	2004	2004	No
159	CAFTA & Dominican Republic	2004	2006	Yes
160	ECCAS-CEEAC	2004		No
161	EFTA Lebanon	2004	2007	No
162	Agadir Agreement	2004	2006	No
163	EFTA Tunisia	2004	2005	No
164	Israel Jordan	2004		No
165	Jordan Singapore	2004	2005	No
166	Mexico Uruguay	2004	2004	No
167	Morocco Turkey	2004	2006	No
168	Morocco US	2004	2006	Yes
169	SAFTA	2004	2006	No
170	Association of Southeast Asian Nations China	2004	2005	No
171	Syria Turkey	2004	2007	No
172	Tunisia Turkey	2004	2005	No
173	Bahrain US	2004	2006	Yes
174	Japan Mexico	2004	2005	No
175	MERCOSUR - SACU	2004		No
176	Australia Thailand	2004	2005	No
177	Paraguay Taiwan	2004		No
178	Chile China	2005	2006	No
179	EFTA Korea	2005	2006	No
180	India Singapore	2005	2005	No
181	Korea Singapore	2005	2006	No
182	Trans Pacific Strategic EPA	2005	2006	No
183	Egypt Turkey	2005	2007	No
184	Guatemala Taiwan	2005	2006	No
185	Japan Malaysia	2005	2006	No
186	New Zealand Thailand	2005	2005	No
187	Bhutan India	2006	2006	No
188	Chile Colombia	2006	2009	No
189	Chile Panama	2006	2008	No
190	China Pakistan	2006	2007	No
191	Colombia US	2006	2012	Yes
192	Oman US	2006	2009	Yes
193	Panama Singapore	2006	2006	No
194	Peru US	2006	2009	Yes
195	Chile Peru	2006	2009	No
196	Association of Southeast Asian Nations Korea	2006	2010	No
197	Malawi Zimbabwe	2006		No
198	Albania EC SAA	2006	2009	Yes
199	Albania Turkey	2006	2008	No
200	Japan Philippines	2006	2008	No
201	Nicaragua Taiwan	2006	2008	No

3.7.2 Endogeneity discussion

It is important to address some clear concerns. First, $LABPTA\_INTL_{ij,t}$ and $LABPTA\_LMIC_{ij,t}$ are likely to be endogenous. There may be unobserved heterogeneity in trade flow determinants between i and j associated with the likelihood of the country i signing a LABPTA. Paraphrasing Baier and Bergstrand, unobserved stringent labour regulations in country i may support exports towards the northern market j and favour selection into LABTAs (2007). Arguably, the inclusion of dyadic fixed effects α_{ij} accounts for this kind of endogeneity for the same reasons discussed in Baier and Bergstrand (2007).

Second, endogeneity may also be affecting the estimates of $CELABPTA\_INTL_{ij,t}$ and $CELABPTA\_LMIC_{ij,t}$. It is argued that the inclusion of α_{ij} and $\alpha_{i,t}$ should account for much of this concern. Indeed, $CELABPTA\_LMIC_{ij,t}$ and $CELABPTA\_INTL_{ij,t}$ are endogenous if there are unobserved dyadic characteristics that affect both trade flows between i and j and the likelihood of its *competitors* z signing LABPTAs. For example, if the exporter i and the importer j have a wide difference in relative factor endowments, trade between them is likely to be higher. These same characteristics are likely to be positively correlated with the probability of i signing a trade agreement with a high-income economy and negatively correlated with its likelihood of signing a trade agreement with the competitor z. Negotiating a trade agreement is a long and costly process, and policymakers are likely to prioritise more welfare-enhancing agreements over less profitable ones.[64] To the extent that endogeneity comes from unobserved dyadic characteristics between i and j, such as in the example above, the inclusion of dyadic fixed effects α_{ij} addresses the issue (Baier and Bergstrand 2007).

Another concern is whether unobserved characteristics relating to an exporter and its competitors z may be causing endogeneity. Some considerations have to be made in this regard. Competitors do not enter into the model individually, but only in aggregate form as $\sum_{z \neq i} W_{iz,t} \times LABPTA_{z,t}$. Hence, endogeneity occurs if there are unobserved characteristics that affect both exports of i to j and the *average* likelihood of competitors z entering into a trade agreement. In Equation (4.5), these concerns are limited. Indeed, the $\alpha_{i,t}$ controls for the *average* likelihood of competitors z entering into a trade agreement, if this depends on the *distance* of i - in terms of regulation, factor endowments, language, etc. - *from the average* of its competitors.[65] Consider

[64] Along this line of reasoning, it should not come as a surprise that the US first signed a trade agreement with Mexico, and only later started negotiating trade agreements with other Central American countries such as the CAFTA.

[65] Arguably, the problem would be substantial if the model was examining exporter–competitor dyads. Building on

the following example where the exporter i has stringent labour regulations relative to the average of its competitors. These regulations may be positively correlated with i exports towards the high-income country j, while reasonably reducing the likelihood of the competitor z of signing a LABPTA. Socially concerned consumers will import more from a country with adequate labour regulations than with its competitors, and policymakers may prefer to sign a trade agreement with a country with good working conditions.[66] Conversely, if the labour regulations of i are in line with the average of its competitors, it is unlikely that this will significantly improve its exports towards the northern country j or it will reduce the *average* likelihood of any of its competitors z of signing a LABPTA. Indeed, i will not have any particular advantage (or disadvantage) compared to its competitors in the eyes of foreign consumers and policymakers. In other words: the endogeneity is caused by unobserved characteristics separating i from the *average* of its competitors rather than by the unobserved heterogeneity between individual i–z dyads. The good news is that $\alpha_{i,t}$ already controls for the unobserved characteristics that separate i from the *average* of its competitors. Indeed, just as it controls for the unobserved average trade barrier (multilateral resistance term) of Anderson and Van Wincoop (2003), it also controls for the unobserved *average distance* of i from its competitors z which may be causing this form of endogeneity.

In sum, it is argued that (4.5) allows the estimation of unbiased coefficient estimates of the effects of LABPTAs and CELABPTAs on international exports and export destinations in the context of a structural gravity estimation.

the example given previously: differences in relative factor endowments between i and z are likely to affect both on the trade between i and j and the selection of z and i into a LABPTA.

[66] The contrary is also possible: policymakers aiming to improve labour conditions in supplier countries may engage in negotiating LABPTAs with countries with loose labour regulations to address the issue. While this matters in terms of the expected direction of the bias, it is irrelevant in terms of the existence of the bias.

3.7.3 Robustness checks: Discussion and Tables

To make sure of the robustness of the findings of the main specification, a series of sensitivity checks were run. The results are discussed below.

First, I examine the effects of stringency of labour provisions in LABPTAs. Arguably, more 'legalised' LABPTAs provide credible signals to importers while raising compliance costs for developing countries. From this perspective, I expect that increased stringency will lead to more substantial effects. In Table 3.8, I explore this possibility, comparing the results of the baseline model, in Column (1), to a model accounting for the stringency of LABPTAs, in Column (2). Stringency is measured using Lechner's `esr_all_sum` variable (2016). To illustrate the difference: in Column (1), both NAFTA and the US–Jordan LABPTA take a value of one because they are LABPTAs. However, in Column (2), the US–Jordan PTA has a value of 6 and NAFTA has a value of 16, to account for the different levels of legalisation of labour provisions in these agreements (cf. Lechner 2016). The results are almost identical in terms of sign and significance of the coefficients. The only exception is the effect of competitors' engagement in LABPTAs with the EU, which, accounting for stringency, no longer significantly affects trade with LMICs. In sum, the results of Column (2) indicate that more legalised agreements lead to more substantial effects, in line with the theoretical expectations.

Second, I checked whether results are consistent when using a different specification for LMICs. The World Bank classification of countries by income is dynamic and changes every year to reflect each country's current status. To make sure that the results presented in Table 3.2 are not dependent on the specific group of high-income economies selected, Table 3.9 compares the models using different definitions of LMICs.[67] Column (1) replicates the results of Table 3.2. For ease of comparison, column (2) and (3) re-estimate the same model using a definition of high-income economies at the beginning (1987) and end of the sample (2006).[68] The results are almost identical in terms of magnitude and significance for the first three columns, suggesting that the particular composition of the high-income group does not bias the estimates. The only difference is on the effect of $CELABPTA_{EU}\_LMIC_{ij,t}$, which is no longer significant with alternative specifications. This robustness check shows that the coefficient on $CELABPTA_{EU}\_LMIC_{ij,t}$ is unstable; it is therefore wise to advise against drawing inferences from this result. Finally, Column (4) uses a com-

[67] In the main model I consider high-income economies all of the countries that are LMICs in the median year of the sample, 1995.

[68] The first year for which this classification is available is 1987.

pletely different approach and defines emerging economies as non-OECD countries.[69] Results on the effects of LABPTA and CELABPTA on international trade are unchanged. Moreover, consistent with other specifications, $LABPTA_{EU}\_LMIC_{ij,t}$ appears to have a negative effect on exports towards LMICs relative to high-income economies. The most relevant difference is that Column (4) finds that LABPTAs with the US do not significantly favour trade towards OECD countries ($LABPTA_{US}\_LMIC_{ij,t}$ (NON-OECD)), over trade towards emerging economies. While this is an interesting finding, it should be interpreted with caution; it is likely that income, rather than membership of an international organisation, explains different importing behaviours in international markets.

Third, Table 4.11 directly examines whether the results for the main specification depend on the competition measure selected. In the main specification of Column (1), I consider all goods exported in order to measure similarity in export profiles. In Column (2), I measure competition by looking only at the similarity in exports of manufacturing goods, which are the exports included in the dependent variable. The results are almost identical to those for the main specification in terms of sign and significance. Only $CELABPTA_{EU}\_LMIC_{ij,t}$ is no longer significant with this alternative competition measure. All in all, Table 4.11 reinforces confidence in the robustness of the sign and the significance of (CE)LABPTA effects, which do not appear to depend on the specific measure of the competition selected.

Fourth, one might suspect that the differential impact of (CE)LABPTAs on trade towards EMEs relative to high-income economies can be explained by the increase in exports towards LABPTA countries.[70] Trade flows towards LMICs may decline relative to those towards high-income destinations because exporters will benefit from LABPTAs with the EU or the US, and not because LABPTAs will have an impact on third-party countries. In Table 3.11, I run the models of the main specification removing the observations that report trade flows between members of LABPTAs.[71] If the differential impact is explained simply by the effect on signatory countries, $LABPTA_{US}\_LMIC_{ij,t}$ and $LABPTA_{EU}\_LMIC_{ij,t}$ should no longer be significant. The results in models (2), and (4) and (6) of Table 3.11 are almost identical to the baseline models. They show that although removing trade flows with the EU and the US slightly reduces in magnitude the effects of (CE)LABPTAs, the differential impact on trade towards LMICs and high-income

[69] The reference year for OECD membership is 1995, the median year of the sample.

[70] In particular, the increase in exports towards the EU and the US.

[71] I.e. all the observations where a country has a LABPTA with the US (or the EU) and where the US (or the EU) is the export destination.

economies is explained by changing trade patterns with third parties.

Fifth, Table 3.12 examines in greater detail how (CE)LABPTAs affect trade patterns. The main specification, reported in Column (1), examines the effects of (CE)LABPTAs on international trade relative to intra-national trade and on trading with high-income importers relative to trading with low-income importers. However, these categories are partially overlapping. In fact, *(CE)LABPTA_INTL* captures international exports towards both high and lower-income countries. Similarly, *(CE)LABPTA_LMIC* captures both international and intra-national trade towards LMIC markets. It is possible to gain further insights on how (CE)LABPTAs affect international trade creating mutually exclusive categories. In this vein I interact $LABPTA$ and $CELABPTA$ with three variables, $SMCY_{ij}$, $ILMIC_j$ and IHI_j where $SMCY_{ij}$ is a dummy variable indicating intra-national trade, $ILMIC_j$ indicates *international* trade with LMICs and IHI_j indicates *international* trade with high-income economies. Of course, due to collinearity, it is not possible to include all of these interactions in a single model. In Column (2), I exclude the interactions with $SMCY_{ij}$; all results have therefore to be interpreted as the difference in the impact of (CE)LABPTAs relative to intra-national trade. For ease of comparison, Column (3) estimates the model excluding the interactions with IHI_{ij}. Here, all results can be interpreted as the difference in the impact of (CE)LABPTAs relative to international exports towards high-income economies. Many interesting findings stand out. Column (2) reveals that LABPTAs with the US have a negative effect on international trade with both high-income countries and LMICs. Additionally, the comparison with Column (3) reveals that the decline in *international* exports towards LMICs is significantly larger than the decline towards high-income countries, consistent with the hypothesis that LABPTAs hurt the comparative advantage of developing countries, in particular harming trade with lower-income economies. Moreover, while Column (1) reveals that CELABPTAs with the US have a positive impact on international trade in general, only international trade towards LMICs is significantly larger than intra-national trade.[72] This suggests that it is especially lower-income countries, importing less from LABPTA members, which will revert towards countries with rising CELABPTAs. Looking at LABPTAs with the EU, Column (2) shows that although trade with both high-income and lower-income economies increases significantly relative to domestic trade, the effect on exports towards high-income economies is larger in magnitude. However, Column (3) further reveals that the effect is not significantly smaller for LMICs than for high-income economies.

[72] According to Column (2), a 1% increase in competitors' engagement leads to a 3% rise in trade towards LMICs relative to domestic trade.

Finally, columns (2) and (3) confirm that CELABPTAs promote international exports towards high- and lower-income economies relative to domestic trade. Moreover, the effect on the rise in international exports towards LMICs is significantly larger than the effect on trade towards high-income countries. Note that the differential impact of (CE)LABPTAs with the EU on exports towards high-income economies relative to lower-income economies is of the expected sign. However, it is necessary to discuss why LABPTAs have a positive effect on exports towards LMICs, while CELABPTAs (also) have a positive impact on exports towards high-income economies. One possible explanation is that although using by-income country classification is a useful proxy to reveal the underlying phenomena, the situation on the ground is likely to be more complex. In emerging economies, there is a rising middle class that may be socially concerned; in high-income economies, markets for socially unsustainable but cheap goods continue to exist and thrive. From this perspective, it is possible that although socially concerned businesses and consumers from both high-income and lower-income countries displace trade towards LABPTA countries, firms from both developed countries and LMICs targeting the lower segments of the market will instead increase imports from competitors.

Sixth, scholars have argued that estimates of PPML high-dimensional fixed effects may be biased and that standard errors might be too narrow (Jochmans 2017; Pfaffermayr 2019; Egger and Staub 2016). To address these issues, Table 3.13 presents the estimates of the baseline models with the bias correction proposed by Weidner and Zylkin (2020). Results of the baseline specifications appear to be robust to this correction across all models. The main difference is that, after the correction, the positive and coefficient $CELABPTA_{EU\_}LMIC_{ij,t}$ is only significant at the 10% level. All in all, these estimates suggest that the main model does not suffer from a significant incidental parameter problem. Note, however, that the results only consider error clustered at the country-dyad level, since multi-way clustering is not available for the command.[73]

Seventh, it is possible that trade adjusts to the signing of LABPTAs slowly, rather than all at once. In the main specification, I use four-year intervals to deal with this concern. An additional way to control for the sluggish adjustments of exports to trade policies is to include lags of explanatory variables (cf. Baier and Bergstrand 2007; Larch et al. 2019; Brandi et al. 2020). Table 3.14 estimates Equation (4.5) adding lagged explanatory variables to explicitly capture the phasing-in effect of LABPTA and CELABPTA.[74] The main finding that stands out from the results in

[73]To date, the `ppml_fe_bias` Stata® command is unable to compute the bias correction allowing for multi-way clustering of the standard errors.

[74]Note that, given the use of four-year interval data, in this specification lags correspond to t-4 and t-8. Three year

columns (2) and (3) is that there is no significant phase-in effect observable in the vast majority of cases, suggesting that the main specification gives unbiased results while allowing the use of the full sample.[75] There are three noticeable exceptions. First, Column (3) suggests that PTAs have a positive and significant effect on trade that occurs within a four-year lag. Second, columns (2) and (3) suggest that countries adjust sluggishly to competitors' engagement in LABPTAs with the US and that international trade will increase after four years.[76] Third, the effect coefficient on $CELABPTA_{EU}\_LMIC_{ij,t-1}$ suggests a non linear relationship between competitors' engagement in LABPTAs and increasing exports towards LMICs. As confirmed by other robustness checks, the coefficient on this variable appears model-dependent, and the reader should be careful in drawing inferences from its results. Lastly, Column (4) of Table 3.14 includes the leads (t+1) of all variables. The coefficient on lead variables can be interpreted as a test for the 'strict exogeneity' or reverse causality of the regressors in the model. If LABPTAs and CELABPTAs are strictly exogenous to changes in trade flow, leads on these variables should be uncorrelated with the concurrent level of trade flows (Baier and Bergstrand 2007). Alternatively, these coefficients can be interpreted as anticipatory effects. In the main specification, I consider LABPTAs and CELABPTAs of trade agreements that have entered into force. It is well known that trade agreements take years to negotiate, and, even once they are signed, it can take time before they enter into force. Firms may start adapting to the changing international trade landscape before the agreements are fully in force. Column (4) shows that none of the coefficients in the leads is significant, except for $LABPTA_{EU}\_INTL_{ij,t}$. While this is good news for the model, it raises some questions over how to interpret the $LABPTA_{EU}\_INTL_{ij,t}$ coefficient, for which both lags and leads in Column (4) appear large, positive and significant. Arguably, given the lengthy negotiation periods of trade deals with the EU, it is possible that this captures an anticipatory effect; however, the reader should be careful in giving a causal interpretation to this coefficient.

Eighth, to further examine whether the main model has endogeneity problems, or rather captures anticipatory behaviours, I estimate the model using the year the (CE)LABPTA was signed rather than the year of its entry into force. Arguably, a significant coefficient coinciding with the signing date would suggest anticipatory behaviours. Table 3.15 investigates this hypothesis, revealing interesting patterns. Column (2) estimates the Equation (4.5) considering only (CE)LABPTA

lags were also tested, but the results were always insignificant at the conventional levels.

[75] The lack of significance of the main regressors after the inclusion of the lags is likely to depend on the increased multicollinearity of the model.

[76] The *L.$CELABPTA_{US}\_INTL_{ij,t}$ coefficients are large – 1.461 and 1.326 in columns (2) and (3), respectively – and significant.

signing date. The results are almost identical to those of the baseline model presented in Column (1), suggesting that firms respond in anticipation to the (CE)LABPTA, not waiting for the agreement to enter into force. To gain further insight, Column (3) examines the effects of signing of (CE)LABPTAs, controlling for their entry into force. For our purposes, the main finding of interest is that the differential effects in exports towards LMICs of $LABPTA_{US}\_LMIC_{ij,t}$ and $CELABPTA_{EU}\_LMIC_{ij,t}$ appear to be explained by signing date. This suggests that firms in high-income (emerging) economies start to reorient their supply lines in anticipation of the entry into force of a LABPTA. A possible explanation is that sometimes the improvement of labour standards has been made a condition for signing of the agreement. For instance, the 2006 US–Morocco trade agreement required reinforcement of the protection against anti-union discrimination before its ratification (International Labour Organization (ILO) 2013).

Ninth, a potential concern with the model estimated so far is that there might be bilateral time-varying unobserved heterogeneity affecting our estimates. The inclusion of bilateral fixed effects (α_{ij}) in the main models only captures bilateral time-invariant heterogeneity, and is unable to control for characteristics changing over time. Aiming to capture bilateral unobservables more flexibly, in Table 3.16, I follow Bergstrand, Larch, and Yotov (2015) and Larch et al. (2019) and interact the pair fixed effects (α_{ij}) with a time trend ($Trend$). For comparison, I report the results of Table 3.3 in columns (1), (3), (5) and (7) respectively. Columns (2), (4), (6) and (8) re-estimate the model including the $\alpha_{ij} \times Trend$ interaction.[77] The results for the full sample – columns (1) and (2) – suggest that part of the (CE)LABPTA effects in the baseline model captures common changes in bilateral unobserved heterogeneity (Larch et al. 2019 at p. 507). Hence, one should be cautious in drawing g strong inferences based on this main specification. Indeed, only $LABPTA_{US}\_INTL_{ij,t}$ and $LABPTA_{EU}\_INTL_{ij,t}$ remain significant when controlling for time-varying heterogeneity. On the other hand, the results for the lower-income groups presented in columns (3) and (4) largely confirm the estimates of the main specification. Additionally, controlling for time-varying unobserved heterogeneity, LABPTAs with the US harm international trade, an effect that is mostly driven by a drop in imports from LMICs..[78] Model (4) also confirms the positive effect of CELABPTAs with the EU on international trade. Finally, controlling for unobserved time-varying heterogeneity, it appears that $CELABTA/EU\_LMIC$ has a negative effect on exports

[77] Note that the sample size slightly shrinks with the inclusion of $\alpha_{ij} \times Trend$; the reason is that more observations are dropped because they are separated by a fixed effect.

[78] The coefficients for $LABPTA_{US}\_INTL_{ij,t}$ and $LABPTA_{US}\_LMIC_{ij,t}$ are both negative and significant in Column (4).

towards developing countries relative to high-income economies. In line with other robustness checks, this confirms that the coefficient for this variable is extremely model-dependent. Column (6) examines LMICs and reveals that with the inclusion of $\alpha_{ij} \times Trend$ the estimates are no longer significant for this subgroup. Finally, Model (8) examines the results for UMI countries. The model shows results in line with the lower-income group, suggesting that LABPTAs with the US are associated with waning international exports, explained in particular by a decline in trade towards LMICs, and that competitors' engagement with LABPTAs with the EU leads to rising international exports. The model also finds that in UMI countries, CELABPTAs with the US favour exports towards high-income countries over exports towards LMICs. This finding is surprising and against the theoretical expectations; however, it should be viewed with caution as it is the only result of its kind across many different specifications. All in all, the results of Table 3.16 show that we should be careful not to generalise all the findings of the baseline model, as accounting for time-varying unobserved heterogeneity appears to explain some of the effects seen. However, many results are consistent under alternative specifications, suggesting that some of the mechanisms described in the theory are occurring.

3.7.3.1 Controlling for stringency of (CE)LABPTAs

Table 3.8: The effects of LABPTA and CELABPTA accounting for stringency

Dependent variable: bilateral exports	(1) Dummy	(2) Stringency
PTA	-0.0263	-0.0786
	(0.070)	(0.067)
	[0.126]	[0.107]
$LABPTA_{US}\_INTL_{ij,t}$	-0.688	
	(0.135)***	
	[0.174]***	
$LABPTA_{US}\_INTL_{ij,t}$ Stringency		-0.0410
		(0.013)***
		[0.022]*
$LABPTA_{US}\_LMIC_{ij,t}$	-0.301	
	(0.111)***	
	[0.107]***	
$LABPTA_{US}\_LMIC_{ij,t}$ Stringency		-0.0236
		(0.008)***
		[0.008]***
$CELABPTA_{US}\_INTL_{ij,t}$	0.337	
	(0.057)***	
	[0.123]***	
$CELABPTA_{US}\_INTL_{ij,t}$ Stringency		0.248
		(0.047)***
		[0.107]**
$CELABPTA_{US}\_LMIC_{ij,t}$	-0.0651	
	(0.082)	
	[0.150]	
$CELABPTA_{US}\_LMIC_{ij,t}$ Stringency		0.0421
		(0.040)
		[0.072]
$LABPTA_{EU}\_INTL_{ij,t}$	0.519	
	(0.128)***	
	[0.197]***	
$LABPTA_{EU}\_INTL_{ij,t}$ Stringency		0.0633
		(0.013)***
		[0.017]***
$LABPTA_{EU}\_LMIC_{ij,t}$	-0.368	
	(0.102)***	
	[0.204]*	
$LABPTA_{EU}\_LMIC_{ij,t}$ Stringency		-0.0426
		(0.010)***
		[0.019]**
$CELABPTA_{EU}\_INTL_{ij,t}$	1.047	
	(0.075)***	
	[0.131]***	
$CELABPTA_{EU}\_INTL_{ij,t}$ Stringency		0.229
		(0.043)***
		[0.114]**
$CELABPTA_{EU}\_LMIC_{ij,t}$	0.234	
	(0.117)**	
	[0.134]*	
$CELABPTA_{EU}\_LMIC_{ij,t}$ Stringency		-0.0228
		(0.051)
		[0.097]
Observations	78201	78201
pseudo-R-squared	0.997	0.997
Three-way Fixed Effects	Yes	Yes

Robust standard errors, clustered by country-pair, in parentheses. Robust standard errors clustered by exporter, importer, and year in squared brackets (* p<0.10, ** p<0.05, *** p<0.01).

3.7.3.2 Alternative Developing Countries

Table 3.9: Alternative operalizations of developing countries

	(1) WB 95	(2) WB 87	(3) WB 06	(4) OECD 95
PTA	-0.0263	-0.0274	-0.0265	0.0139
	(0.070)	(0.069)	(0.070)	(0.054)
	[0.126]	[0.123]	[0.125]	[0.098]
$LABPTA_{US}\_INTL_{ij,t}$	-0.688	-0.678	-0.664	-0.619
	(0.135)***	(0.135)***	(0.142)***	(0.161)***
	[0.174]***	[0.186]***	[0.187]***	[0.206]***
$CELABPTA_{US}\_INTL_{ij,t}$	0.337	0.345	0.350	0.274
	(0.057)***	(0.060)***	(0.059)***	(0.056)***
	[0.123]***	[0.115]***	[0.117]***	[0.102]***
$LABPTA_{EU}\_INTL_{ij,t}$	0.519	0.529	0.525	0.733
	(0.128)***	(0.127)***	(0.130)***	(0.110)***
	[0.197]***	[0.206]**	[0.204]**	[0.165]***
$CELABPTA_{EU}\_INTL_{ij,t}$	1.047	1.047	1.030	1.076
	(0.075)***	(0.075)***	(0.075)***	(0.073)***
	[0.131]***	[0.128]***	[0.134]***	[0.133]***
$LABPTA_{US}\_LMIC_{ij,t}$	-0.301			
	(0.111)***			
	[0.107]***			
$LABPTA_{US}\_LMIC_{ij,t}$ (1987)		-0.311		
		(0.114)***		
		[0.128]**		
$LABPTA_{US}\_LMIC_{ij,t}$ (2006)			-0.244	
			(0.115)**	
			[0.118]**	
$LABPTA_{US}\_LMIC_{ij,t}$ (Non-OECD)				0.0429
				(0.118)
				[0.067]
$LABPTA_{EU}\_LMIC_{ij,t}$	-0.368			
	(0.102)***			
	[0.204]*			
$LABPTA_{EU}\_LMIC_{ij,t}$ (1987)		-0.367		
		(0.102)***		
		[0.187]**		
$LABPTA_{EU}\_LMIC_{ij,t}$ (2006)			-0.361	
			(0.105)***	
			[0.206]*	
$LABPTA_{EU}\_LMIC_{ij,t}$ (Non-OECD)				-0.578
				(0.100)***
				[0.167]***
$CELABPTA_{US}\_LMIC_{ij,t}$	-0.0651			
	(0.082)			
	[0.150]			
$CELABPTA_{US}\_LMIC_{ij,t}$ (1987)		-0.0836		
		(0.092)		
		[0.119]		
$CELABPTA_{US}\_LMIC_{ij,t}$ (2006)			-0.0171	
			(0.087)	
			[0.135]	
$CELABPTA_{US}\_LMIC_{ij,t}$ (Non-OECD)				-0.225
				(0.091)**
				[0.141]
$CELABPTA_{EU}\_LMIC_{ij,t}$	0.234			

	(1) WB 95	(2) WB 87	(3) WB 06	(4) OECD 95
	(0.117)**			
	[0.134]*			
$CELABPTA_{EU\_}LMIC_{ij,t}$ (1987)		0.209		
		(0.118)*		
		[0.178]		
$CELABPTA_{EU\_}LMIC_{ij,t}$ (2006)			0.161	
			(0.121)	
			[0.190]	
$CELABPTA_{EU\_}LMIC_{ij,t}$ (Non-OECD)				0.319
				(0.112)***
				[0.163]*
Observations	78201	78201	78201	78201
pseudo-R-squared	0.997	0.997	0.997	0.997
Three-way Fixed Effects	Yes	Yes	Yes	Yes

Robust standard errors, clustered by country-pair, in parentheses. Robust standard errors clustered by exporter, importer, and year in squared brackets (* p<0.10, ** p<0.05, *** p<0.01).

3.7.3.3 Alternative Competition Measure

Table 3.10: Alternative competition measures

	(1) Baseline	(2) Comp. in Manufacturing
PTA	-0.0263	-0.0300
	(0.070)	(0.070)
	[0.126]	[0.124]
$LABPTA_{US}\_INTL_{ij,t}$	-0.688	-0.523
	(0.135)***	(0.134)***
	[0.174]***	[0.149]***
$LABPTA_{US}\_LMIC_{ij,t}$	-0.301	-0.233
	(0.111)***	(0.109)**
	[0.107]***	[0.078]***
$LABPTA_{EU}\_INTL_{ij,t}$	0.519	0.471
	(0.128)***	(0.130)***
	[0.197]***	[0.256]*
$LABPTA_{EU}\_LMIC_{ij,t}$	-0.368	-0.361
	(0.102)***	(0.099)***
	[0.204]*	[0.182]**
$CELABPTA_{US}\_INTL_{ij,t}$	0.337	
	(0.057)***	
	[0.123]***	
$CELABPTA_{US}\_INTL_{ij,t}$ (Manuf)		0.361
		(0.064)***
		[0.164]**
$CELABPTA_{US}\_LMIC_{ij,t}$	-0.0651	
	(0.082)	
	[0.150]	
$CELABPTA_{US}\_LMIC_{ij,t}$ (Manuf)		-0.0888
		(0.105)
		[0.133]
$CELABPTA_{EU}\_INTL_{ij,t}$	1.047	
	(0.075)***	
	[0.131]***	
$CELABPTA_{EU}\_INTL_{ij,t}$ (Manuf)		1.579
		(0.104)***
		[0.148]***
$CELABPTA_{EU}\_LMIC_{ij,t}$	0.234	
	(0.117)**	
	[0.134]*	
$CELABPTA_{EU}\_LMIC_{ij,t}$ (Manuf)		0.0701
		(0.132)
		[0.130]
Observations	78201	78201
Three-way Fixed Effects	Yes	Yes

Robust standard errors, clustered by country-pair, in parentheses. Standard errors clustered by exporter, importer, and year in squared brackets (* p<0.10, ** p<0.05, *** p<0.01).

3.7.3.4 Without EU and US as destinations

Table 3.11: LABPTA & CELABPTA without EU and US as destinations

	(1) Full Sample	(2) No-USA	(3) Full Sample	(4) No-EU	(5) Full Sample	(6) No-EU&US
PTA	0.0286	0.0268	0.00724	0.0288	-0.0263	-0.00549
	(0.073)	(0.069)	(0.072)	(0.070)	(0.070)	(0.068)
	[0.143]	[0.123]	[0.112]	[0.105]	[0.126]	[0.113]
$LABPTA_{US}\_INTL_{ij,t}$	-0.110	-0.166			-0.688	-0.706
	(0.164)	(0.112)			(0.135)***	(0.121)***
	[0.229]	[0.199]			[0.174]***	[0.190]***
$LABPTA_{US}\_LMIC_{ij,t}$	-0.308	-0.287			-0.301	-0.320
	(0.108)***	(0.099)***			(0.111)***	(0.115)***
	[0.119]***	[0.122]**			[0.107]***	[0.100]***
$CELABPTA_{US}\_INTL_{ij,t}$	0.917	0.862			0.337	0.298
	(0.051)***	(0.053)***			(0.057)***	(0.062)***
	[0.193]***	[0.189]***			[0.123]***	[0.120]**
$CELABPTA_{US}\_LMIC_{ij,t}$	0.250	0.213			-0.0651	-0.0404
	(0.088)***	(0.098)**			(0.082)	(0.095)
	[0.164]	[0.200]			[0.150]	[0.175]
$LABPTA_{EU}\_INTL_{ij,t}$			0.272	0.227	0.519	0.517
			(0.142)*	(0.139)	(0.128)***	(0.124)***
			[0.169]	[0.110]**	[0.197]***	[0.140]***
$LABPTA_{EU}\_LMIC_{ij,t}$			-0.408	-0.291	-0.368	-0.203
			(0.101)***	(0.112)***	(0.102)***	(0.116)*
			[0.176]**	[0.176]*	[0.204]*	[0.194]
$CELABPTA_{EU}\_INTL_{ij,t}$			1.259	1.211	1.047	1.054
			(0.118)***	(0.116)***	(0.075)***	(0.074)***
			[0.199]***	[0.208]***	[0.131]***	[0.133]***
$CELABPTA_{EU}\_LMIC_{ij,t}$			0.279	0.245	0.234	0.242
			(0.160)*	(0.159)	(0.117)**	(0.117)**
			[0.195]	[0.196]	[0.134]*	[0.128]*
Observations	78201	76239	78201	76239	78201	76239
pseudo-R-squared	0.997	0.997	0.997	0.997	0.997	0.997
Three-way Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors, clustered by country-pair, in parentheses. Robust standard errors clustered by exporter, importer, and year in squared brackets (* p<0.10, ** p<0.05, *** p<0.01). In Colum (2), (4) and (6) I drop the observations when the importer is the EU or the US, and the exporter has a LABPTA with the EU or the US respectively.

3.7.3.5 Further export destinations

Table 3.12: LABPTA & CELABPTA effects on domestic, LMICs and high-income export destinations

	(1) Baseline model	(2) Ref. intra-national	(3) Ref. high-income
PTA	-0.026	-0.036	-0.036
	[0.126]	[0.118]	[0.114]
LABPTA/US			
$\times\_INTL$	-0.688		
	[0.174]***		
$\times\_LMIC$	-0.301		
	[0.107]***		
$\times\_IHI$		-0.362	
		[0.176]**	
$\times\_ILMIC$		-0.661	-0.299
		[0.167]***	[0.035]***
$\times\_SMCY$			0.362
			[0.165]**
CELABPTA/US			
$\times\_INTL$	0.337		
	[0.123]***		
$\times\_LMIC$	-0.065		
	[0.150]		
$\times\_IHI$		0.217	
		[0.149]	
$\times\_ILMIC$		0.355	0.137
		[0.104]***	[0.103]
$\times\_SMCY$			-0.217
			[0.178]
LABPTA/EU			
$\times\_INTL$	0.519		
	[0.197]***		
$\times\_LMIC$	-0.368		
	[0.204]*		
$\times\_IHI$		0.748	
		[0.231]***	
$\times\_ILMIC$		0.398	-0.350
		[0.175]**	[0.235]
$\times\_SMCY$			-0.748
			[0.268]***
CELABPTA/EU			
$\times\_INTL$	1.047		
	[0.131]***		
$\times\_LMIC$	0.234		
	[0.134]*		
$\times\_IHI$		0.695	
		[0.124]***	
$\times\_ILMIC$		1.182	0.486
		[0.131]***	[0.141]***
$\times\_SMCY$			-0.695
			[0.133]***
Observations	78201	78201	78201
pseudo-R-squared	0.997	0.997	0.997
Three-way Fixed Effects	Yes	Yes	Yes

Robust standard errors clustered by exporter, importer, and year in squared brackets (* p<0.10, ** p<0.05, *** p<0.01). The model report in bold the variable of interest and below the dummy used for the interaction. These dummies, depend on the characteristics of the destination country and are thus defined. $INTL$: 1 for international trade, 0 otherwise. $LMIC$: 1 for export destination not a high-income country, 0 otherwise. IHI: 1 for international trade and export destination is a high-income country, 0 otherwise. $ILMICs$: 1 for international trade and export destination is a **not** a high-income country, 0 otherwise. $SMCY$: 1 for intra-national trade, 0 otherwise. All variables are included in current values (t).

3.7.3.6 Analytical bias correction

Table 3.13: Analytical correction of estimates and standard errors

	(1) PPML	(2) PPML EC	(3) PPML	(4) PPML EC	(5) PPML	(6) PPML EC	(7) PPML	(8) PPML EC
PTA	0.347	0.353	0.0286	0.0199	0.00724	-0.0144	-0.0263	-0.0461
	(0.088)***	(0.124)***	(0.073)	(0.099)	(0.072)	(0.099)	(0.070)	(0.093)
$LABPTA_{US}\_INTL_{ij,t}$			-0.110	-0.116			-0.688	-0.706
			(0.164)	(0.272)			(0.135)***	(0.211)***
$LABPTA_{US}\_LMIC_{ij,t}$			-0.308	-0.334			-0.301	-0.338
			(0.108)***	(0.140)**			(0.111)***	(0.137)**
$CELABPTA_{US}\_INTL_{ij,t}$			0.917	0.906			0.337	0.321
			(0.051)***	(0.052)***			(0.057)***	(0.039)***
$CELABPTA_{US}\_LMIC_{ij,t}$			0.250	0.275			-0.0651	-0.0619
			(0.088)***	(0.101)***			(0.082)	(0.102)
$LABPTA_{EU}\_INTL_{ij,t}$					0.272	0.308	0.519	0.557
					(0.142)*	(0.202)	(0.128)***	(0.219)**
$LABPTA_{EU}\_LMIC_{ij,t}$					-0.408	-0.384	-0.368	-0.335
					(0.101)***	(0.117)***	(0.102)***	(0.118)***
$CELABPTA_{EU}\_INTL_{ij,t}$					1.259	1.234	1.047	1.050
					(0.118)***	(0.239)***	(0.075)***	(0.116)***
$CELABPTA_{EU}\_LMIC_{ij,t}$					0.279	0.291	0.234	0.267
					(0.160)*	(0.310)	(0.117)**	(0.148)*
Observations	78201	78201	78201	78201	78201	78201	78201	78201
Three-way Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors, clustered by country-pair in parentheses (* p<0.10, ** p<0.05, *** p<0.01). The PPML_EC Columns apply the analitical correction to estimates and standard errors proposed by Weidner and Zylkin (2020)

3.7.3.7 Lags and Leads

Table 3.14: Estimations with lags and lead of explanatory variables

	(1) Baseline	(2) Lag	(3) two lag	(4) Lags and lead
$PTA_{ij,t}$	-0.026	-0.070	-0.124	-0.032
	[0.070]	[0.117]	[0.103]	[0.063]
$PTA_{ij,t-1}$		0.143	0.142	0.150
		[0.117]	[0.069]**	[0.092]
$PTA_{ij,t-2}$			-0.109	-0.160
			[0.096]	[0.121]
$PTA_{ij,t+1}$				-0.045
				[0.074]
$LABPTA_{US}\_INTL_{ij,t}$	-0.688	-0.302	-0.127	0.224
	[0.135]***	[0.173]*	[0.125]	[0.724]
$LABPTA_{US}\_INTL_{ij,t-1}$		0.081	0.214	0.147
		[0.192]	[0.302]	[0.654]
$LABPTA_{US}\_INTL_{ij,t-2}$			-0.070	-2.453
			[0.232]	[0.789]***
$LABPTA_{US}\_INTL_{ij,t+1}$				-0.249
				[0.176]
$LABPTA_{US}\_LMIC_{ij,t}$	-0.301	-0.193	-0.076	-1.547
	[0.111]***	[0.100]*	[0.096]	[0.361]***
$LABPTA_{US}\_LMIC_{ij,t-1}$		-0.011	-0.080	0.048
		[0.206]	[0.239]	[0.316]
$LABPTA_{US}\_LMIC_{ij,t-2}$			0.342	-0.329
			[0.352]	[0.205]
$LABPTA_{US}\_LMIC_{ij,t+1}$				-0.006
				[0.098]
$CELABPTA_{US}\_INTL_{ij,t}$	0.337	0.111	0.148	0.465
	[0.057]***	[0.072]	[0.133]	[0.636]
$CELABPTA_{US}\_INTL_{ij,t-1}$		1.416	1.326	1.678
		[0.516]***	[0.414]***	[0.952]*
$CELABPTA_{US}\_INTL_{ij,t-2}$			0.099	-0.640
			[0.430]	[0.680]
$CELABPTA_{US}\_INTL_{ij,t+1}$				0.139
				[0.453]
$CELABPTA_{US}\_LMIC_{ij,t}$	-0.065	0.073	0.142	-0.143
	[0.082]	[0.149]	[0.184]	[0.380]
$CELABPTA_{US}\_LMIC_{ij,t-1}$		0.130	0.014	0.112
		[0.238]	[0.344]	[0.345]
$CELABPTA_{US}\_LMIC_{ij,t-2}$			-0.004	-0.192
			[0.202]	[0.315]
$CELABPTA_{US}\_LMIC_{ij,t+1}$				0.255
				[0.165]
$LABPTA_{EU}\_INTL_{ij,t}$	0.519	0.505	0.534	2.595
	[0.128]***	[0.182]***	[0.234]**	[0.852]***
$LABPTA_{EU}\_INTL_{ij,t-1}$		0.007	-0.006	0.896
		[0.183]	[0.138]	[0.368]**
$LABPTA_{EU}\_INTL_{ij,t-2}$			0.318	-0.119
			[0.168]*	[0.314]
$LABPTA_{EU}\_INTL_{ij,t+1}$				0.644
				[0.265]**
$LABPTA_{EU}\_LMIC_{ij,t}$	-0.368	-0.176	-0.382	0.000
	[0.102]***	[0.192]	[0.184]**	[.]
$LABPTA_{EU}\_LMIC_{ij,t-1}$		-0.011	0.010	-0.531
		[0.174]	[0.213]	[0.181]***
$LABPTA_{EU}\_LMIC_{ij,t-2}$			-0.176	-0.242

	(1) Baseline	(2) Lag	(3) two lag	(4) Lags and lead
			[0.246]	[0.157]
$LABPTA_{EU\_}LMIC_{ij,t+1}$				0.150
				[0.221]
$CELABPTA_{EU\_}INTL_{ij,t}$	1.047	0.453	-0.145	0.120
	[0.075]***	[0.241]*	[0.251]	[0.801]
$CELABPTA_{EU\_}INTL_{ij,t-1}$		-0.116	0.379	0.193
		[0.131]	[0.310]	[0.417]
$CELABPTA_{EU\_}INTL_{ij,t-2}$			-0.266	-0.006
			[0.200]	[0.521]
$CELABPTA_{EU\_}INTL_{ij,t+1}$				-0.222
				[0.218]
$CELABPTA_{EU\_}LMIC_{ij,t}$	0.234	0.354	0.229	0.487
	[0.117]**	[0.157]**	[0.126]*	[0.243]**
$CELABPTA_{EU\_}LMIC_{ij,t-1}$		-0.337	-0.243	-0.281
		[0.152]**	[0.147]*	[0.159]*
$CELABPTA_{EU\_}LMIC_{ij,t-2}$			-0.080	0.069
			[0.124]	[0.155]
$CELABPTA_{EU\_}LMIC_{ij,t+1}$				0.158
				[0.158]
Observations	78201	56738	33417	19399
pseudo-R-squared	0.997	0.997	0.998	0.998
Three-way Fixed Effects	Yes	Yes	Yes	Yes

Robust standard errors clustered by exporter, importer, and year in squared brackets (* p<0.10, ** p<0.05, *** p<0.01).

3.7.3.8 Signing vs Entry into Force of (CE)LABPTAs

Table 3.15: Signing vs Entry into Force of (CE)LABPTAs

	(1) Entry into Force	(2) Ratification	(3) EIF & Ratification
PTA	-0.026		0.199
	[0.070]		[0.095]**
PTA ratif.		-0.088	-0.260
		[0.062]	[0.086]***
$LABPTA_{US}\_INTL_{ij,t}$	-0.688		0.202
	[0.135]***		[0.271]
$LABPTA_{US}\_INTL_{ij,t}$ ratif.		-0.655	-0.788
		[0.114]***	[0.229]***
$LABPTA_{US}\_LMIC_{ij,t}$	-0.301		0.175
	[0.111]***		[0.204]
$LABPTA_{US}\_LMIC_{ij,t}$ ratif.		-0.343	-0.508
		[0.098]***	[0.178]***
$CELABPTA_{US}\_INTL_{ij,t}$	0.337		1.809
	[0.057]***		[0.368]***
$CELABPTA_{US}\_INTL_{ij,t}$ ratif.		0.443	-1.350
		[0.053]***	[0.339]***
$CELABPTA_{US}\_LMIC_{ij,t}$	-0.065		-0.125
	[0.082]		[0.211]
$CELABPTA_{US}\_LMIC_{ij,t}$ ratif.		-0.005	0.165
		[0.088]	[0.221]
$LABPTA_{EU}\_INTL_{ij,t}$	0.519		0.731
	[0.128]***		[0.199]***
$LABPTA_{EU}\_INTL_{ij,t}$ ratif.		0.470	0.057
		[0.120]***	[0.169]
$LABPTA_{EU}\_LMIC_{ij,t}$	-0.368		-0.160
	[0.102]***		[0.152]
$LABPTA_{EU}\_LMIC_{ij,t}$ ratif.		-0.370	-0.208
		[0.106]***	[0.150]
$CELABPTA_{EU}\_INTL_{ij,t}$	1.047		1.114
	[0.075]***		[0.227]***
$CELABPTA_{EU}\_INTL_{ij,t}$ ratif.		1.035	-0.097
		[0.068]***	[0.187]
$CELABPTA_{EU}\_LMIC_{ij,t}$	0.234		-0.218
	[0.117]**		[0.228]
$CELABPTA_{EU}\_LMIC_{ij,t}$ ratif.		0.315	0.475
		[0.122]***	[0.220]**
Observations	78201	78201	78201
pseudo-R-squared	0.997	0.997	0.997
Three-way Fixed Effects	Yes	Yes	Yes

Robust standard errors clustered by exporter, importer, and year in squared brackets (* p<0.10, ** p<0.05, *** p<0.01).

3.7.3.9 Controlling for unboserved dyad heterogeneity

Table 3.16: Controlling for Unboserved Dyad Heterogeneity

	(1) Full Sample	(2) Full Sample	(3) LI	(4) LI	(5) LMI	(6) LMI	(7) HMI	(8) HMI
PTA	-0.026	0.034	-0.034	0.004	0.119	0.145	0.294	0.076
	(0.070)	(0.036)	(0.085)	(0.092)	(0.066)*	(0.077)*	(0.064)***	(0.086)
	[0.126]	[0.068]	[0.097]	[0.173]	[0.125]	[0.078]*	[0.103]***	[0.111]
$LABPTA_{US}\_INTL_{ij,t}$	-0.688	-0.350	-1.515	-1.902	-0.736	0.271	-0.045	-0.670
	(0.135)***	(0.083)***	(0.262)***	(0.301)***	(0.253)***	(0.145)*	(0.198)	(0.211)***
	[0.174]***	[0.144]**	[0.235]***	[0.266]***	[0.355]**	[0.143]*	[0.160]	[0.314]**
$LABPTA_{US}\_LMIC_{ij,t}$	-0.301	-0.079	-0.685	-0.565	-0.320	0.138	-0.197	-0.445
	(0.111)***	(0.078)	(0.213)***	(0.221)**	(0.160)**	(0.127)	(0.130)	(0.182)**
	[0.107]***	[0.116]	[0.189]***	[0.240]**	[0.162]**	[0.161]	[0.150]	[0.175]**
$CELABPTA_{US}\_INTL_{ij,t}$	0.337	-0.146	0.202	-0.406	0.355	-0.157	-0.190	0.087
	(0.057)***	(0.064)**	(0.161)	(0.232)*	(0.118)***	(0.106)	(0.130)	(0.219)
	[0.123]***	[0.136]	[0.234]	[0.289]	[0.136]***	[0.162]	[0.144]	[0.219]
$CELABPTA_{US}\_LMIC_{ij,t}$	-0.065	0.066	-0.027	-0.026	-0.171	0.207	-0.226	-0.578
	(0.082)	(0.091)	(0.180)	(0.270)	(0.107)	(0.144)	(0.152)	(0.206)***
	[0.150]	[0.211]	[0.206]	[0.363]	[0.148]	[0.177]	[0.223]	[0.262]**
$LABPTA_{EU}\_INTL_{ij,t}$	0.519	-0.031			0.305	-0.075	0.196	0.049
	(0.128)***	(0.117)			(0.411)	(0.445)	(0.195)	(0.157)
	[0.197]***	[0.104]			[0.484]	[0.532]	[0.224]	[0.158]
$LABPTA_{EU}\_LMIC_{ij,t}$	-0.368	-0.166			-1.104	0.191	-0.346	-0.095
	(0.102)***	(0.098)*			(0.210)***	(0.199)	(0.094)***	(0.132)
	[0.204]*	[0.176]			[0.324]***	[0.265]	[0.106]***	[0.147]
$CELABPTA_{EU}\_INTL_{ij,t}$	1.047	1.108	1.448	1.526	0.856	-0.136	1.131	2.071
	(0.075)***	(0.144)***	(0.296)***	(0.342)***	(0.126)***	(0.388)	(0.160)***	(0.280)***
	[0.131]***	[0.323]***	[0.252]***	[0.292]***	[0.077]***	[0.286]	[0.207]***	[0.288]***
$CELABPTA_{EU}\_LMIC_{ij,t}$	0.234	-0.147	-0.357	-0.533	-0.117	-0.207	0.251	0.123
	(0.117)**	(0.117)	(0.186)*	(0.207)***	(0.155)	(0.169)	(0.137)*	(0.201)
	[0.134]*	[0.168]	[0.286]	[0.252]**	[0.242]	[0.270]	[0.193]	[0.327]
Observations	78201	69842	29470	25284	27297	24760	14489	13276
pseudo-R-squared	0.997	0.999	0.9991	0.9996	0.996	0.998	0.997	0.998
α_i, j	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
$\alpha\_i, j \times Trend$	No	Yes	No	Yes	No	Yes	No	Yes

Robust standard errors, clustered by country-pair, in parentheses. Standard errors clustered by exporter, importer, and year in squared brackets (* p<0.10, ** p<0.05, *** p<0.01). LI= low-income countries; LMI= lower-middle income countries; UMI= upper-middle income countries

Chapter 4

The Impact of the China Shock on Brazil's Efforts to Combat Child Labour

4.1 Introduction

A global consensus exists about the need to eradicate child labour (CL) (Sahin and Ghosh 2016 at p. 27). Indeed, Convention No. 182 on the Worst Forms of Child Labour recently became the first Convention in ILO history to achieve universal ratification (ILO 2020).[1] Moreover, the eradication of child labour is one of the UN sustainable development goals (8.7). Thanks to multilateral efforts, economic growth and national legislations, the world has made substantial progress towards reaching this objective (Chatterjee and Ray 2016; Guedes Vieira 2018; Tariq and Ab-Rahim 2020). According to ILO estimates, there were almost "134 million fewer children in employment in 2016 than in 2000" (International Labour Organization 2017 at p. 11). However, despite this progress, the incidence of child labour remains a disturbing feature of many emerging economies harming the welfare, health and socio-economic opportunities of millions of children, while also damaging the long term development of these countries (Chatterjee and Ray 2016; Sahin and Ghosh 2016; Guedes Vieira 2018). Recent global estimates suggest that in 2015, there were over 152 million children and adolescents working (International Labour Organization 2017).[2]

Scholars have studied in depth the multiple economic, social and cultural elements causing

[1] In August 2020.
[2] Age 5 to 17.

this phenomenon (Guedes Vieira 2018 at p. 10).[3] The focus of political economists has been the impact of globalization on working children (Tariq and Ab-Rahim 2020; Fors 2012a). In particular, existing empirical studies investigate the effects of increasing trade openness on child labour. Most results suggest that liberalizations are associated with a decline of children working (Neumayer and De Soysa 2005; Eric V. Edmonds and Pavcnik 2006a; Davies and Voy 2009; Edmonds 2016). The idea is that trade improves incomes and living standards of poor households hence reducing the supply of child labour (Ab-Rahim and Tariq 2016 at p. 18).

Looking at federative state-level data on child labour (age 5-14) from Brazil, this paper aims to contribute to this literature further examining the complicated relationship that links child labour to international trade.[4] Drawing insights from the scholarship examining the relationship between trade and collective labour standards, we contend that existing studies might have overestimated the positive effects of trade openness on the employment of children. Academics have argued extensively that the influence of trade on labour standards does not depend on the overall level of trade openness. Rather it is affected by the labour standards of trading partners (Greenhill, Mosley, and Prakash 2009 at p. 699). Some scholars contend that trade can engender a "California effect", whereby firms exporting to destinations with higher levels of labour standards are incentivized to improve working conditions (Greenhill, Mosley, and Prakash 2009; Vogel 1995). Recently, however, some studies found evidence of a "Shanghai Effect" whereby, as China rises as a major export destination at the expense of other importers, developing countries start to reflect the lower labour standards of China (Adolph, Quince, and Prakash 2017; Gamso 2017; Newman et al. 2018; Isaksson and Kotsadam 2018). According to this literature, the increasing salience of Chinese imports may generate different incentives when it comes to labour rights. While exporting to countries with high labour standards can create "artificial" stimuli to ameliorate working conditions, Chinese purchases may create downward pressure on workers rights. This impact is attributable to multiple causes: China's stated policy of non-intervention in the domestic affairs of political and economic partners (Jacobs 2011); its own history of violation of core labour rights; the intense price competition that Chinese firms experience combined with limited accountability mechanisms such as the restricted presence of labour activists, independent unions, or a free press in the country (Eccles, Newquist, and Schatz 2007; Estlund 2017; Adolph, Quince, and Prakash 2017).

[3] Cfr. with Fors (2012b) for a literature review of all the micro and macroeconomic factors affecting child labour.

[4] From now on the word "state" will exclusively be used to refer to the federative units of Brazil. In contrast, the word "country" is used to refer to nations in general.

Aiming to contribute to this debate, this paper examines whether the rise of China as the largest destination for Brazilian exports affected child labour incidence in the country. We argue that despite the general downward trend, which can be explained by economic growth and the success of national policies such as the Bolsa Família, the rise of China as a major export destination may have slowed progress in preventing children from joining the workforce. Moreover, we engage with the literature examining the spatial dynamics that trade competition generates to assess whether increasing export shares towards China affect labour standards of competitors states (Mosley 2017b; Koenig-Archibugi 2017; Mosley and Uno 2007). The *race to the bottom* literature would suggest that states can competitively increase the number of children in the workforce to reduce production costs and attract Chinese buyers (cfr. Davies and Vadlamannati 2013; Olney 2013). Conversely, other scholars contend that trade competition can trigger divergent strategic behaviours. In this perspective, some states specialize in targeting the Chinese market experiencing a rise (or a slower decline) in child labour incidence. At the same time, their competitors can decide to specialize in targeting higher-end markets, promoting a faster decline in the number of children working (cfr. Koenig-Archibugi 2017; Baland and Duprez 2009).

To test whether the growing relevance of China as a major export destination increases the number of children in the workforce of the state and whether this affects child labour incidence in competitor states, we employ a Spatially Lagged Autoregressive model (SLX) using OLS and a shift-share instrumental approach to account for the potential endogeneity of our findings (Bastos, Silva, and Verhoogen 2018). Our results are consistent with the "Shanghai Effect" hypothesis showing that states that rely more on China for exports have higher child labour incidence. However, they also reveal that more child labour in a state reduces the frequency of children in the workforce of its competitors. This result suggests that Brazilian states engage in divergent forms of strategic interactions. Rather than downgrading in parallel with their competitors to exploit the rise of Chinese markets, they experience a decline in the share of children in the workforce that (should) facilitate trade towards more socially concerned nations (cfr. Koenig-Archibugi 2017; Baland and Duprez 2009).

We also explore the trade-CL link from the opposite perspective and examine if having more children in the workforce enhances exports towards China relative to other destinations. Indeed,

we contend that the relationship between trade and child labour can go in both directions. While exporting more to China may lead to an increasing number of children working, it is also possible that having more child labour promotes exports towards China. For the same reasons discussed above, importers from China may be more willing to purchase cheaper goods even if this price advantage comes at the expense of workers' welfare. Finally, we also examine if a state engagement in child labour shapes its competitors' export profile. The idea is that if states where more children are employed have a comparative advantage in exporting to China, their competitors may struggle to target the Chinese market and will have to rely more on alternative importers. In other words, child labour in competing states may depress exports towards China and favour exports to alternative destinations. To test these hypotheses, we use a Pseudo Poisson Maximum Likelihood estimator (PPML) on a structural gravity equation with three-way fixed effects and multi-way clustering of the errors (Correia, Guimarães, and Zylkin 2020; Larch et al. 2019; Anderson and Van Wincoop 2003; Baier and Bergstrand 2007). We adopt an innovative identification strategy that allows us to identify the effect of a country-level variable in the context of three-way fixed effects interacting the variable of interest with a dummy for Chinese exports (Beverelli et al. 2018; Heid, Larch, and Yotov 2020). Controlling for time-varying unobserved heterogeneity, we find that having more children in the workforce has a positive impact on exports towards China relative to the rest of the world. On the other hand, we do not find (consistent) evidence suggesting that child labour impact export destinations of competitor states. These effects are consistent across a series of robustness checks.

The next section of this paper reviews the relevant literature and introduces the main hypotheses examined. The third section presents the data and the variables of interest. Section four and five discuss the model specification and the main results of the analysis. The final section concludes.

4.2 Literature review, historical and theoretical context

4.2.1 The relationship between trade openness and child labour

Child labour has many causes, which include economic, social and cultural elements. Scholars argue that difficult access to quality public education, insufficient socio-economic policies, cultural influences that have an "exclusively positive view of work as a means of social advancement" and, most importantly, *poverty* are among the most relevant (Cfr. Guedes Vieira 2018 at p. 10;

Edmonds 2016; Tariq and Ab-Rahim 2020; Banerjee and Nag 2013; Fors 2012a). International trade is also considered a prominent channel that can affect the incidence of child labour (Fors 2012a). Theoretical models predict that trade openness can both increase or reduce the incidence of child work (cfr. Basu and Van 1998; Cigno and Rosati 2005; Doepke and Zilibotti 2010; Sahin and Ghosh 2016; Tariq and Ab-Rahim 2020). Generally speaking, pessimistic views argue that trade openness induces firms and governments seeking to retain and attract export opportunities to 'weaken their labour standards in an effort to reduce their production costs' (Gamso 2017 at p. 4). Provided that children have lower wages than adults, trade liberalization may induce firms aiming to gain a comparative advantage to employ more children (Singh and Zammit 2004; Davies and Vadlamannati 2013). Pessimists also argue that, even if trade openness positively impacts the wages of unskilled workers, it could increase the number of children in the workforce. Growing returns for unskilled child labour reduce the relative returns from education hence incentivizing children to work (cfr. Neumayer and De Soysa 2005; Doepke and Zilibotti 2010). Conversely, more optimistic studies contend that trade openness can reduce the number of children in the workforce. Liberalizations increment the value of exported goods, which may increase the real wages in the exporting sectors (Davies and Voy 2009; Tariq and Ab-Rahim 2020). The rising income of unskilled labour will reduce poverty, allowing parents to invest in the education of their children rather than sending them to work (Basu and Van 1998; Neumayer and De Soysa 2005; Tariq and Ab-Rahim 2020).

The empirical literature confirms more optimistic views. Using cross-country data, many scholars found that trade openness and FDI are negatively correlated with child labour (Neumayer and De Soysa 2005; Davies and Voy 2009; Eric V. Edmonds and Pavcnik 2006a; Edmonds 2016; Ab-Rahim and Tariq 2016). According to these scholars, the dominant channel through which trade influences child labour is by improving living standards in developing countries (Edmonds 2010). Hence, it is thanks to the effect of trade openness on income that liberalization reduces the rate of children working (Edmonds and Pavcnik 2005; Eric V. Edmonds and Pavcnik 2006b; Edmonds and Schady 2012). It is important to note that these studies share a collective focus on the *supply-side* of child labour while by-and-large ignoring the *demand-side*. Indeed, as Dinopoulos and Laixun (2007) stress, while the supply-side effect of trade liberalization can be normatively positive, in that it can alleviate pressure felt by parents to have their children involved in market activities, the demand-side effect requires further attention. Estevez (2010) finds that, when facing

competition from more advanced firms in other countries, Southern firms increase their demand for child labour leading to more children working. Moreover, as French and Wokutch (2005) note, benevolent parents are not the only actors in the supply-side story. In fact, in some areas of Brazil where the production of low-skill manufactured exports (such as shoes) make up a large part of the local economy, children sometimes want to work, alone or alongside their parents, whether for personal spending money or to contribute to their household. In light of this research, it appears that an exclusive focus on parents' choices and in general on the supply of child labour may conceal heterogeneity in the effects of trade. This research aims to contribute to this literature and examine how changes in importers' demand affect child labour.

The debate that examines the relationship between child labour and trade liberalization is embedded in a broader discussion on the effects of globalization and labour standards (Caraway 2009). In this domain, scholars examining how international trade affects freedom of association and bargaining rights moved from merely looking at *how much* a country trades to examine *with whom* a country trades (Greenhill, Mosley, and Prakash 2009; Gamso 2017; Mosley 2017a). They argued that what triggered improvements in labour standards was not trade *per se*, but bilateral exports with countries with high labour conditions. Looking at over 90 developing countries for 15 years, Greenhill, Mosley, and Prakash (2009) found that producer countries improved their protection of collective labour rights when the export destination countries had stringent labour laws. They adopted the term "California Effect" to describe how states with strong labour laws facilitated the diffusion of decent working standards in other jurisdictions.[5] Bilateral trade flows with developed countries can contribute to improving labour conditions in numerous ways. For instance, the United States and European Union (EU) often promote improvements in labour conditions through political pressure, conditioning market access to labour reforms and stringent monitoring (Hafner-Burton, Mosley, and Galantucci 2019; Gamso 2017; Hafner-Burton 2005; Postnikov and Bastiaens 2014). Moreover, multinational corporations from advanced economies - facing pressures from trade unions, NGOs and human rights groups – often adopt private regulations to ensure that their suppliers respect basic human and labour rights (Adolph, Quince,

[5]The insight is drawn from the environmental literature. Vogel illustrated that trade relations with highly regulated markets, such as California, facilitated the diffusion of environmental standards to other countries (Vogel 1995; Greenhill, Mosley, and Prakash 2009). He introduced the term 'California effect' to illustrate how the introduction of stringent emission limits for Californian automobiles had influenced regulatory policies in the United States and Europe.

and Prakash 2017; Mosley 2017a).[6] For companies, this is a self-interested behaviour, given that international scandals can affect long term profits (cfr. Eccles, Newquist, and Schatz 2007; Lin-Hi and Blumberg 2011).

Recently, scholars started to examine the effect of the rise of emerging economies as major export destination countries. Adolph, Quince, and Prakash (2017) finds that African countries start to reflect the lower labour standards of emerging markets as exports to China increase significantly at the expense of Northern destinations. This "Shangai effect" occurs as the results of the different characteristics of South-South trade. Contrary to traditional trading partners, China tends to highly value the principle of non-interference into the domestic affairs of other countries. Moreover, in contrast to developed countries, multinational "firms in developing countries perceive relatively little pressure from the public with regards to corporate social responsibility disclosure" (Ali, Frynas, and Mahmood 2017 at p. 273). The argument of the "Shanghai Effect" is that Chinese multinationals may not value to the same extent as Northern multinationals the process-standards of their suppliers, and hence may create a downward pressure in labour standards.

To the best of our knowledge, the child labour literature has remained focused on looking at trade openness per se, with no attention to the possible heterogeneous effects of different export destinations. Building on the insights of the aforementioned trade-labour scholarship, we argue that child labour scholars may have overestimated the positive impact of liberalization on children working. Indeed, most of the studies examining the liberalization-CL link focused on a period when the largest importers had on average superior labour standards compared to the developing countries and had strong sentiments against child employment (cfr. Neumayer and De Soysa 2005; Davies and Voy 2009; Eric V. Edmonds and Pavcnik 2006a). This may have created incentives for suppliers to not engage in child labour. The rise of emerging economies as a major export destination could have changed the incentive structures for developing countries to tackle child labour, potentially triggering an increase in child labour incidence. To be sure, we do not question that growth and development can lead to a reduction of child labour in the long run. Rather, we argue that when the major export destination are countries with high labour standards, they can create additional incentives to avoid child labour, that might be no longer there as other importers

[6] A recent study by Distelhorst and Locke corroborated this idea. Looking at firm-level data – rather than country-level – they showed that retailers in the north consistently reward suppliers employing higher standards, with increasing purchases (Distelhorst and Locke 2018).

rise to prominence. The aim is hence to expand the understanding of the CL-trade link exploring the effects of different demands.

4.2.2 The rise of China as a significant import destination for Brazilian exports

It is hard to overstate the importance of China in the global economy. Since the country joined the WTO in 2001, it experienced a spectacular rise in both exports and imports, and in 2013 it became the world's leading trading nation (Jenkins 2019, 2012).[7] This has had major impacts on Brazil, that is China's most significant partner in Latin America.

Brazil started to unilaterally liberalize, engaging in global trade, in the early 1990s (Dix-Carneiro, Soares, and Ulyssea 2018 at p. 159). After difficult periods of adjustment, which included extremely high rates of inflation (reaching 2.781% in 1993) and widespread hollowing out of *de facto* labour standards, the economy began to stabilize following the implementation of the Real Plan in the mid-1990s and rapid growth in inward foreign investment and exports, in particular investment from and exports to the United States and European countries (Fleury and Humphrey 1993; Ferraz, Kupfer, and Serrano 1999; Matesco and Hasenclever 2000). However, the export profile of the country significantly changed at the turn of the millennium. Between 2001 and 2015, Brazil's exports to China increased almost twenty-fold, and imports have grown almost twenty-four-fold (Sturgeon et al. 2013).[8] Since 2010, China is the single largest importer of Brazilian products. Figure 4.1 compares export shares and export volumes of the four largest importers of Brazilian goods between 2001 and 2015. China imports accounted for only 3.5% of the total in 2001, while today it accounts for almost 20% of the total. The figure also reveals that while China becomes increasingly important as an export destination, the shares of exports going to the United States and the European Union have constantly declined.[9].

[7] Including imports and exports.

[8] Figures from authors calculations using COMEX data. Do note that Brazil has a positive trade balance with China.

[9] To note that this rise of China as an economic and political partner of Brazil is not only the consequence of Chinese economic growth but also the results of strategic considerations. Indeed, after Lula became president in 2003, developing relations with China became part of a government strategy to diversify the country's foreign relations (Jenkins 2019). The global financial crisis further boosted economic relations, and in 2012, China-Brazil relations became part of a Strategic Global Partnership (Jenkins 2019 at p. 300). To note, however, that Worker's Party (PT) governments in the mid-2000s and early 2010s tried to combat the "primarization" of exports through economic planning.

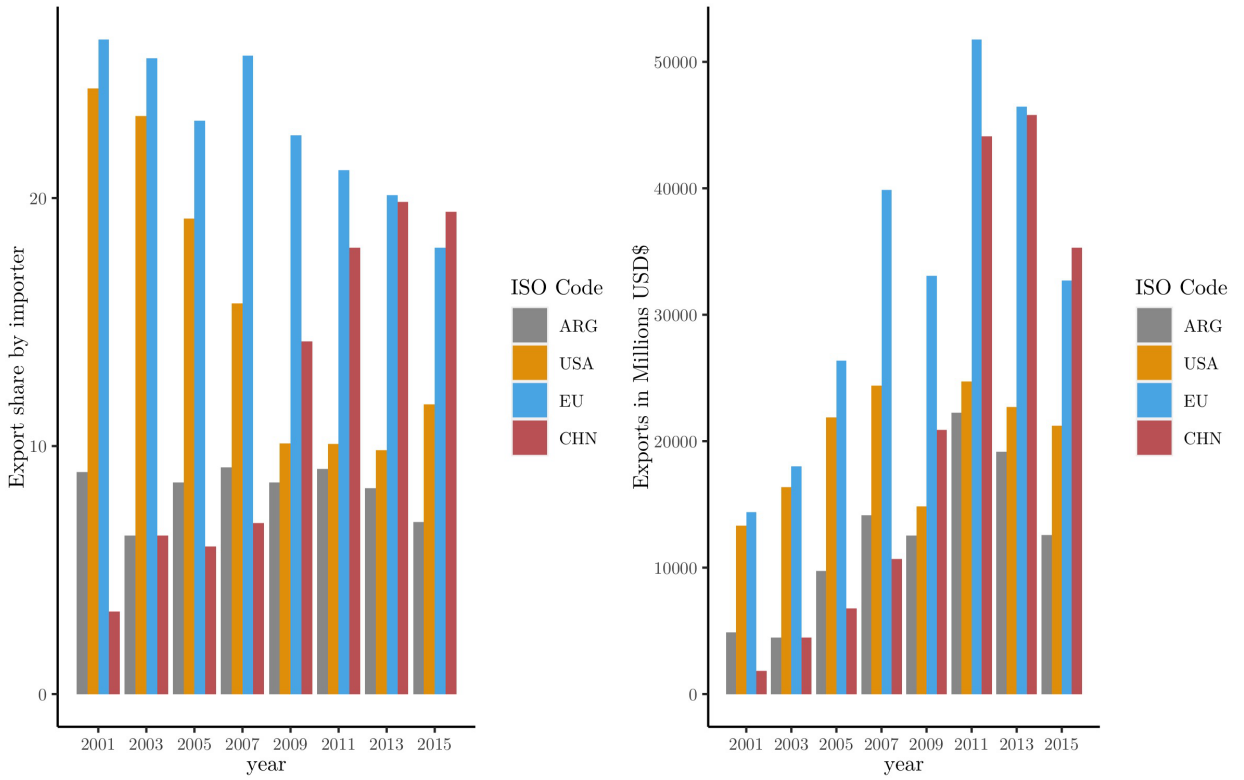


Figure 4.1: Import share and import volumes from the largest importers

The rise of China changed Brazil's role in the global economy, leading to the so-called "primarization" of Brazilian exports (Sturgeon et al. 2013; Mortatti, Miranda, and Bacchi 2011; Jenkins 2015; De Freitas 2020). On the one hand, the country benefited from the massive demand of China for primary products and the constant rise of commodity prices.[10] On the other hand, Brazil struggled to challenge the competitiveness of Chinese manufacturing products, increasingly relying on imports for technological goods going through an early de-industrialization process (Callegari, Melo, and Carvalho 2018; Da Costa Oreiro, Agostini, and Gala 2020). This process harmed the domestic manufacturing sector that lost market shares in the USA, the EU, and Latin America (Jenkins 2014; Callegari, Melo, and Carvalho 2018). Indeed, Chinese imports are characterized by the demand of goods with a low level of processing, creating new challenges for the country to upgrade towards higher added value activities (Zhang and Schimanski 2014; Callegari, Melo, and Carvalho 2018; Sturgeon et al. 2013). For instance, soybeans are the most crucial export to China; in 2015, they accounted for over 45% of the total exports to the country. Less than 1% of this value was from processed soybeans.[11] This phenomenon is partially explained by

[10] Especially until 2011 (Callegari, Melo, and Carvalho 2018).

[11] Result from authors' calculations. But this is a well-know phenomenon that Brazil hardly exports any soybean

China's policy of imposing tariff measures to favour domestic producers (Jenkins 2012 at p. 28-29).[12]

Scholars are starting to examine the impact of the Chinese rise and the "primarization" of exports on Brazil. Some attention has been on investigating its economic impact or the shocks it had on the labour market.[13] To our knowledge, this is the first paper that empirically examines if the China Shock has affected child labour (cfr. Costa, Garred, and Pessoa 2016; Paz 2016; Jenkins 2019, 2015). A preliminary analysis of the data shows that, in the past three decades, Brazil made tremendous progress towards the eradication of child labour. Between 1995 and 2013, the number of children working declined by nearly 60%, which corresponds to about 4.5 million children, as illustrated by Figure 4.2.[14] Reducing children in the workforce has been a priority in the agenda and the policies of the Brazilian government. The administration of President Lula implemented the Bolsa Família program, which provides a stipend to needy families for each of up to 3 children that they keep in school (Brauw et al. 2015). The program has been generally very successful at inadvertently reducing the supply of child labour and has received praise within and without Brazil (The World Bank 2008). Moreover, since the 1990s, Brazil increased the focus of labour inspection on the identification and eradication of child labour which De Almeida and Kassouf (2016) find has had a substantial and significant impact on the rate of child labour in Brazil. These efforts, together with significant economic growth, undoubtedly played an essential role in tackling this issue.

4.2.3 Hypotheses

In this paper, we ask whether the rise of China as a significant export destination has facilitated or delayed these improvements. Building on Adolph, Quince, and Prakash (2017), we argue that China's rising trade salience may have partially harmed efforts to eradicate child labour in the country. The fundamental idea is that exporting to China generates different competitive pressures when it comes to child labour compared to other major trading partners (Gamso 2017). Several

meal, flour, or oil to China (Jenkins 2019).

[12] Indeed China imposes 9% tariffs on processed soybeans while only a 3% tariff on unprocessed ones (cfr. Sturgeon et al. 2013).

[13] It is important to keep in mind that many indicators have improved significantly in the past two decades. Unemployment managed to hit a record low in 2014, Brazil was finally removed from the UN Hunger Map, and the percentage of people living in extreme poverty (under $5 per day) declined from 40% in 2002 to a low of 18% in 2014 (cfr. Costa, Garred, and Pessoa 2016; Paz 2016; Jenkins 2019, 2015).

[14] Source: Dias (2016).

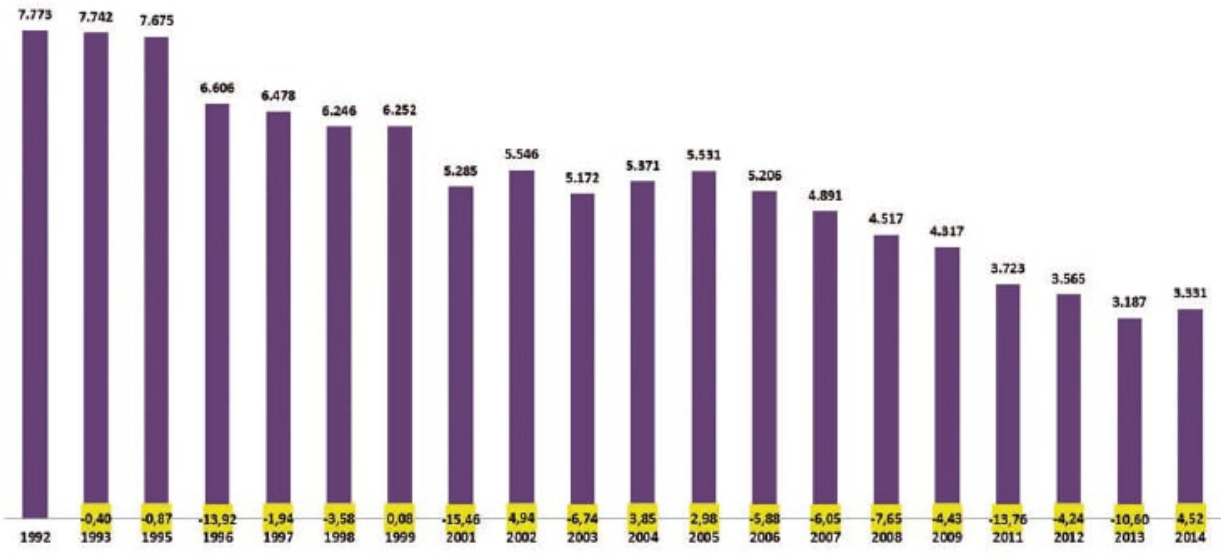


Figure 4.2: Million of Child Workers in Brazil, age 5-17, 1992-2014

arguments can be made in support of this claim.

First, there are reasons to believe that Chinese firms and consumers will be less concerned with child labour than companies from other countries. Indeed, labour standards in China are markedly lower than in other major importers and are much worse than in Brazil (Kucera and Sari 2018). Child labour itself is widely diffused in China. Some estimates suggest that about 7.7% of all Chinese children aged 10-15 are working (Tang, Zhao, and Zhao 2018). Importers that do not need to worry about child labour or decent labour standard at home are not likely to incentivise suppliers abroad to reduce the number of children working. Moreover, Chinese firms are less likely to face severe scrutiny from NGOs, activist groups, trade unions and media when it comes to labour conditions in their suppliers (Adolph, Quince, and Prakash 2017; Jenkins 2019). This lack of scrutiny could create incentives to turn a blind eye to child labour for Chinese importers. Along these lines, recent evidence suggests that Chinese penetration discourages unionisation or private regulation involvement in other developing countries (Newman et al. 2018; Isaksson and Kotsadam 2018).

Second, Chinese firms generate intense price competition for suppliers that is likely to increase the incidence of child labour. In Brazil, child labour is a source of comparative advantage when it comes to labour cost.[15] It is estimated that on average, children earn 72% of the minimum salary.

[15]It may be argued that though children are cheaper they are also less productive, hence child labour does not necessarily provide a comparative advantage. Qualitative evidence, however, suggests the contrary. For instance, a recent study from the Cocoa supply chain in Brazil finds that low salaries are "one of the determining factors for the

In the agricultural sector the situation is even worse as children are paid 60% of the minimum salary (Dias 2016, at p.28).[16] Aiming to remain competitive and take full advantage of Chinese growth, producers in Brazil may try to cut labour costs, employing children. To be sure, importers from other countries also fiercely pursue price advantages. However, the reduced concern for child labour and most importantly, the limited scrutiny of Chinese firms, may result in more children working when China is the main importer.

Third, exports to China are more likely to come from rural areas of the country, given that they are concentrated in the agricultural and mineral sector. Both of these elements could have an impact on the incidence of children employment. Agriculture accounts for the largest share of children working in Brazil (International Labour Organization 2017). In 2015, 56.4% of the estimated 618800 children (age 5-14) working was employed in the agricultural sector (Sholl Cintra, Bobadilla, and Gauto 2017). Moreover, agriculture is by far the sector where children are more intensively involved in the production of traded goods (Edmonds 2010).[17] Hence, there is the concrete possibility that increasing demand for cheap agricultural labour in rural areas, will incentivise child labour. Moreover, even if children do not work directly for the exporting companies, Chinese imports may increase the demand for child labour provided that they are employed in a sector, formal or informal, "which supplies inputs to the export sector" (Neumayer and De Soysa 2005 at p. 45; Maskus 1997; Ab-Rahim and Tariq 2016). Again, this is more likely to occur in rural areas of the country, where child labour is embedded in cultural habits. For instance, Salzburger (2010) argues that in the Northern region of the country, "most of the people who are parents today started working before they were eight years old" (at p. 2).

Finally, evidence from coffee production in the country suggests that, in Brazil, increases in worker wages may be positively associated with child labour and negatively associated with school attendance (Kruger 2007). In this vein, Kruger (2007) argues that growth in the value of labour's output, may incentivise parents to take advantage of higher wages sending children to work. Hence, even if Costa, Garred, and Pessoa (2016) finds that in Brazil, locations benefiting from rising Chinese commodity demand experienced faster wage growth this may not have had a positive

existence of child labour" and that "there is a direct relationship between child labour and the low price paid for cocoa" (Picolotto et al. 2018, at p.34). Moreover, evidence suggests that children are often employed in activities where they are likely to be as productive as adults. For instance, in the Cocoa Supply chain, they are employed to use their "small hands" to remove the seed from the cocoa pod (Picolotto et al. 2018, at p.30).

[16] Estimates are for children age 10-17; younger children are likely to be paid even less.

[17] As Edmonds (2010) notices, children often work in sectors that are not involved directly in international trade. For instance, in the manufacturing sector, exporting firms tend to be relatively more "skill-intensive" and scarcely employ children. In agriculture, however, children tend to be more directly involved in the production of exported goods.

impact on the number of children working. We hence hypothesise that:

> ***Hypothesis 1:*** *The more China becomes a salient importer, the more children will be employed.*

In this paper, we also aim to contribute to the literature examining how competitive dynamics triggered by international trade can shape labour outcomes (Davies and Vadlamannati 2013; Olney 2013; Barrientos et al. 2016). Scholars argued that globalisation could trigger a *race to the bottom* in labour standards (Mosley 2017b). The idea is that in order to diminish production costs, attract more investment, and remain competitive in global exports, countries may competitively undercut labour standards. In this perspective, the more a firm's competitors are able to target the Chinese market, the more it might face pressure to reduce costs to take full advantage of the Chinese rise. In other words, to remain attractive for Chinese importers and avoid losing (relative) access to this market, firms may decide to downgrade in parallel with their peers (*convergent competition*). Alternatively, scholars have recently hypothesised that firms can also engage in *divergent* patters of strategic competition (Koenig-Archibugi 2017; Duprez 2012; Baland and Duprez 2009). The idea is that rather competing for the same end market, firms could decide to exploit the market niche left open by their competitor specialisation targeting exporters with dissimilar preferences when it comes to labour standards.[18] In this view, the more a firm has competitors exporting to China, the less it will employ children in order to be able to target more child labour conscious markets. Building from these insights, we also explore the following hypotheses:

> ***Hypothesis 2.1 (Convergent competition)***: *The more a state's competitors export to China, the more it will employ children.*

and

> ***Hypothesis 2.2 (Divergent competition)***: *The more a state's competitors export to China, the less it will employ children.*

Finally, we aim to expand the literature on child labour, examining how having children in the workforce affects trade patterns. To our knowledge, this is the first paper examining this

[18] Do note that this theory was postulated to examine if labour policies aiming at improving labour standards may displace these abuses to competitors (cfr. Koenig-Archibugi 2017; Duprez 2012; Baland and Duprez 2009). The idea is that as some suppliers focus on targeting socially concerned buyers, others may decide to specialise in targeting the more price-sensitive segment of the market. We argue that there is no economic or theoretical reason to believe that this form of strategic competition may not be occurring in the opposite direction as well. In other words, the more competitors export to China, the more a state will have incentives to improve its labour standards.

relationship.[19] We argue that there are good reasons to believe that the China-CL link runs in both directions. As previously discussed, increasing exports towards China can create incentives to employ more children. However, it is also possible that having more children working may attract more Chinese buyers in the first place. Indeed, the same reasons that explain why exporting more to China could lead to increasing children working could also explain the phenomenon in the opposite direction. Price sensitive Chinese importers facing little scrutiny on the labour conditions of their suppliers abroad might be more willing to purchase from suppliers that, directly or indirectly, employ children. Some empirical evidence seems to support the idea that Chinese firms may be more inclined to turn a blind eye to questionable behaviours. Indeed, Grauwe, Houssa, and Piccillo (2012) found that China is more likely to import from African countries with authoritarian and corrupt regimes than other significant importers. Finally, we also examine if the effects of child labour on export patterns exhibit spatial dynamics. We hypothesize that the more a firm will employ child labour, the less its competitors trade with China. Indeed, if hiring more children is a source of comparative advantage thanks to lower labour costs, having competitors employing children will, all else equal, cause a decline in exports towards China.[20] Hence we also test the following hypotheses:

> ***Hypothesis 3***: *The more a state has a high child labour incidence, the more it will export to China relative to other importers.*

> ***Hypothesis 4***: *The more a state has competitors engaging in child labour the less it will export to China relative to other importers.*

4.3 Data and Summary Statistics

While it would be extremely interesting to test our hypothesis on firm-level, in this study, we use data measured at the state-sector-year level. The reason is that firm-level data on child labour is not available. We note, however, that it is not uncommon to construct measures of trade exposure or competition and labour outcomes at regional levels when analysing changes in collective demand, such as in this study where we are exploring the inter-relationship between trade competition and exports to China and the collective demand for child labour (see, for example,

[19] Previous studies showed that reducing child labour can increase international trade (Siroën 2017).

[20] This effect is going to be particularly large if using child labour is also a source of loss of comparative advantage in exporting to more socially concerned markets. If this is the case, not only having competitors engaging in child labour will alienate Chinese buyers, but it will also attract alternative importers.

Gaddis and Pieters 2012). Moreover, we argue that using state-level data may also have some benefits. In particular, in our analysis, we can capture the effect of the China Shock on children that may not be directly employed by exporting firms, but that formally or informally supply inputs to the export sector. We would not be able to capture this effect using more granular data.

We rely on two primary sources for our data: the COMEXSTAT and the IBGE. The former, a trade statistics portal maintained by the Brazilian Ministério do Desenvolvimento, Indústria, Comércio Exterior e Serviços (MDIC), provides regularly updated bilateral import and export statistics at the national, regional, state and municipal level in Brazil. This data is further disaggregated by international trade partners, product type (according to a variety of international, regional, and national product classification codes) and measured in dollar amount. From here, we drew the primary export statistics that we also use to create our trade competition W matrix.

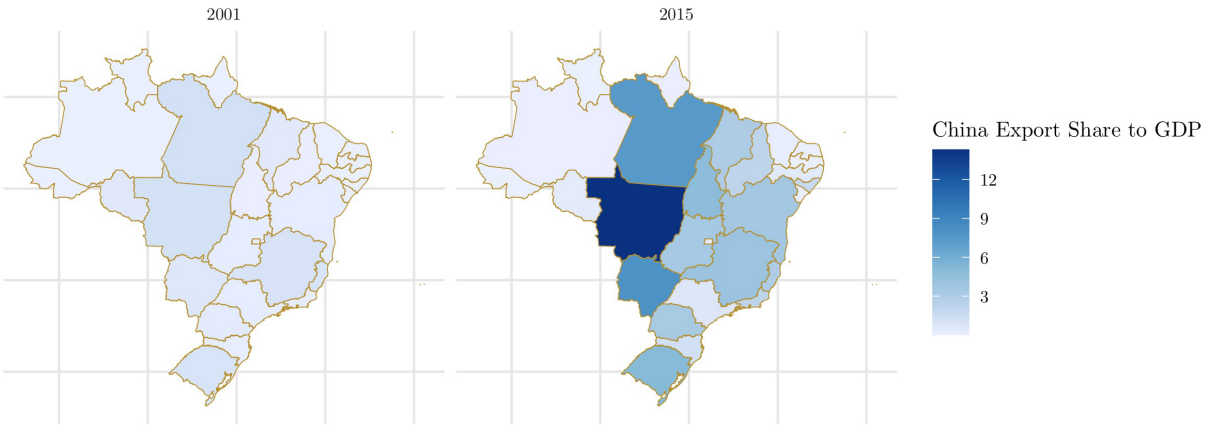


Figure 4.3: Exports towards China as a share of the state GDP: 2001-2015 comparison

The Instituto Brasileiro de Geografia e Estatistica (IBGE), is the Brazilian government's statis-

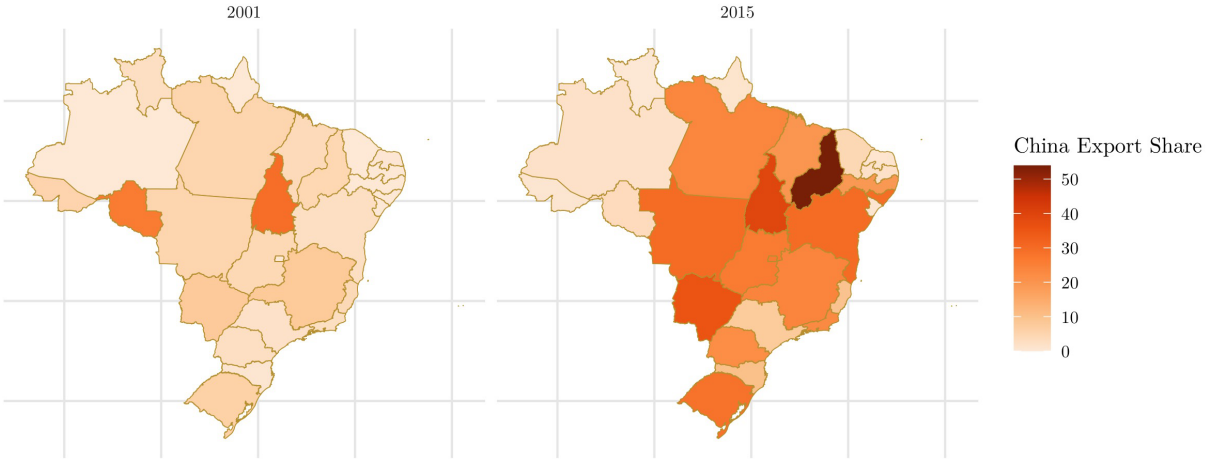


Figure 4.4: Share of exports towards China relative to alternative destinations: 2001-2015 comparison

tics institute which is responsible for collection and maintenance of official economic, demographic, and geographic data. One of their main data products is the Pesquisa Nacional da Amostra Domiciliar, or PNAD, an annual household survey conducted across Brazil. It contains information on individuals' socio-economic, political, educational, demographic characteristics and other information. The PNAD survey is run every year except for those years in which the decennial Censo Demografico occurs (such as in 2010). This means that to construct a full panel across the years of our study, 2001-2015, we supplement the PNAD survey data with that of the decennial census. This is not problematic because, due to the stratified sampling procedure of PNAD, it is representative at the state level, the level at which we run our analysis, making the data supplementary (Silva, Pessoa, and Lila 2002; IBGE 2007). Of particular interest for us are responses contained in the census and survey microdata concerning whether a respondent had worked that week for pay or non-wage remuneration and their age. Using these answers, we constructed our child labour indicator. We measure the Child labour Rate as:

$$\mathrm{CL}_{ik,t} = \Sigma\mathrm{ChildEmp}_{ik,t}/\Sigma\mathrm{Child}_{i,t} \tag{4.1}$$

That is, the proportion of children, aged 5-14, employed in state i, sector k, at time t of all children in state i and time t.[21] An alternative measure could have been the absolute number of children as employed in a given state and sector at any given year, but this would ignore variation in the sampling as well as variation in influential factors such as variation in population over time and across states. In addition to this child labour variable, we utilized responses concerning the level of education, race and ethnicity, sex, and informal employment in order to create state-level controls for the rate of primary school completion, the proportion of people of colour, proportion of the population that is female, and the rate of informal employment. It is important to note that as we merge sectoral level data on child labour with sectoral level trade data, we only include in our sample those children that work for sectors involved in exports. Excluding, for instance, those that work in retail, services or constructions. We matched the sectoral trade and child labour data by converting the existing sectoral classifications in the COMEX and PNAD/Census data using concordance tables (modified where necessary) available online from the IBGE.[22]

[21] We choose the age group 5-14 because the ILO defines child labour in Convention 138 as including children up to the age of 15. To be sure, the Convention allows for developing countries to set to 14 the minimum working age for children, and indeed, the Brazilian constitution prohibits work all children under the age of 14. However, we include children aged 14 in our sample because in Brazil this is the last year of compulsory schooling, and hence working during this time could affect their educational and mental development of young persons.

[22] Original tables available at: https://concla.ibge.gov.br/classificacoes/correspondencias/atividades-economicas.h

We also rely on multiple secondary data sources for various controls. The IBGE provides macroeconomic, political, and population data at the state level; the Instituto de Pesquisa Econômica Aplicada (IPEA), a government-led, policy-oriented research institute headquartered in Rio de Janeiro and Brasília; and the Repositório de Dados Eleitorais of the Tribual Superior Eleitoral (TSE) from which we draw recent gubernatorial election data. From the IBGE and IPEA, we take measures for the GDP per capita and GDP growth per state, as well as the estimated population for each state in each year. Each of these macro-level controls allows us to proxy for state-level economic and demographic growth. We also include a dichotomous variable that indicates whether there is a Worker's Party (PT) governor in each state and year. Feierherd (2017) finds that local PT governments can have a strong influence over labour-related outcomes in Brazil given their outspoken dedication to protecting workers and the weak or defenceless and their ties to local labour inspection offices and officers. Our main dependent and independent variables are measured at the state-sector-year level while our other controls are measured at the state-year level.

Figure 4.3 and 4.4 help to visualize state-level evolution of export to China. Two elements stand out. First, that export to China as a share of GDP went from being close to 0 for most Brazilian states to become an important part of their GDP, particularly in the more rural areas of the country. Second, Figure 4.4 shows that the states that rely more on China for exports are located in the Center-West or the Northeast, while traditionally more export-oriented regions of the South and Southeast seem to rely less on China for their exports. Figures 4.5 and 4.6 illustrate the evolution of the distribution of child labour rates in Brazil from 2001-2015. It is clear by looking at the graphs, that the rate of child labour has declined markedly over the years throughout much of the country. This is most striking in some of the northeastern states such as Maranhão and Piauí, with more modest decreases in the South, Southeast, and Center-West. Toward the end of the period, there appears to be a general equalization of the spread of child labour across the states and regions, as those states in which child labour was more widespread saw drastic reductions. According to Dias (2016), using data from PNAD, child labour in Brazil decreased 57.1% between 1992 and 2014 in absolute terms, representing 4.4 million children. What is troubling is that at the tail end of this period, there has been a regressive increase in child labour. For instance, despite the overall decline between 2013 and 2014, there was an increase in the number of children working

tml

in the majority of Brazilian states.[23]. It is worth noticing that, given the general trends in exports towards China and child labour, if our model is misspecified, we are more likely to find a negative, rather than a positive association between the two.

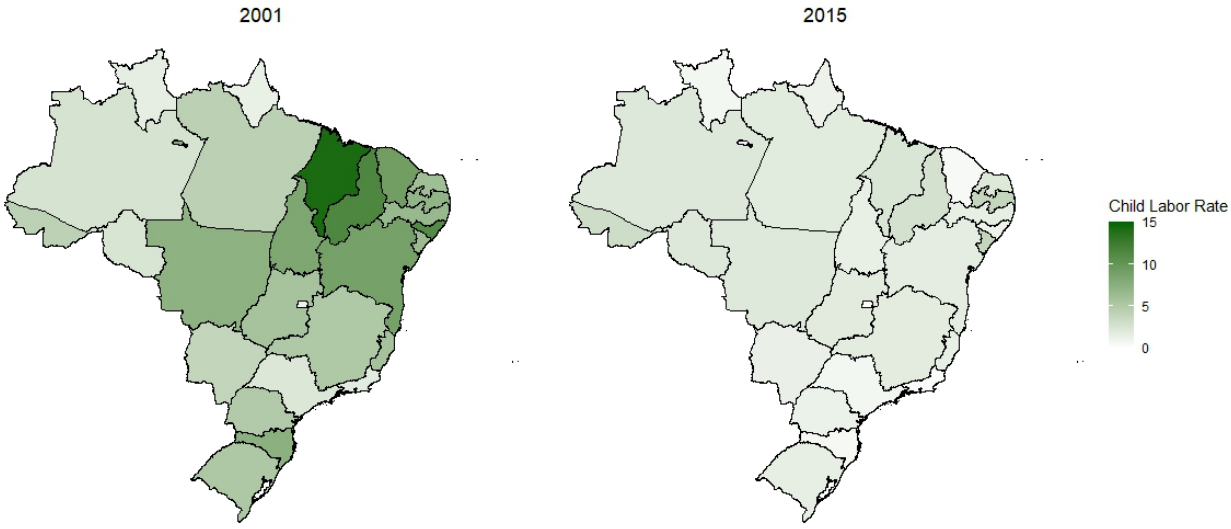


Figure 4.5: Child labour in Brazil 2001 and 2015

4.4 Model Specification

4.4.1 Constructing spatial weight matrix

An important component of spatial econometric models is the spatial weights matrix. It is a non-random matrix that specifies the spatial relationship between observations exogenously. Hence, the spatial weights matrix W specifies what constitutes a neighbourhood and how and whether potential neighbours interact. There are many possible ways to define the spatial weight matrix. There are (queen and rook) contiguity matrices, inverted distance, nearest neighbours, k nearest neighbours, economically interactive, and on. While there is an ongoing discussion as to how best to determine empirically what is the correct matrix (which has led to some scepticism regarding the use of spatial econometrics in general) we side with a theory-driven approach advanced by the likes of Corrado and Fingleton (2012) and Cook, An, and Favero (2019).

[23]This is likely due in part to the persistent, sequential economic crises the country has endured amid economic restructuring characterized by rapid de-industrialization and a return to a focus on production and exports of commodities following the China Shock in the early 2000s (Jenkins and De Freitas Barbosa 2012; Millar 2014; Jenkins 2015; Da Costa Oreiro, Agostini, and Gala 2020).

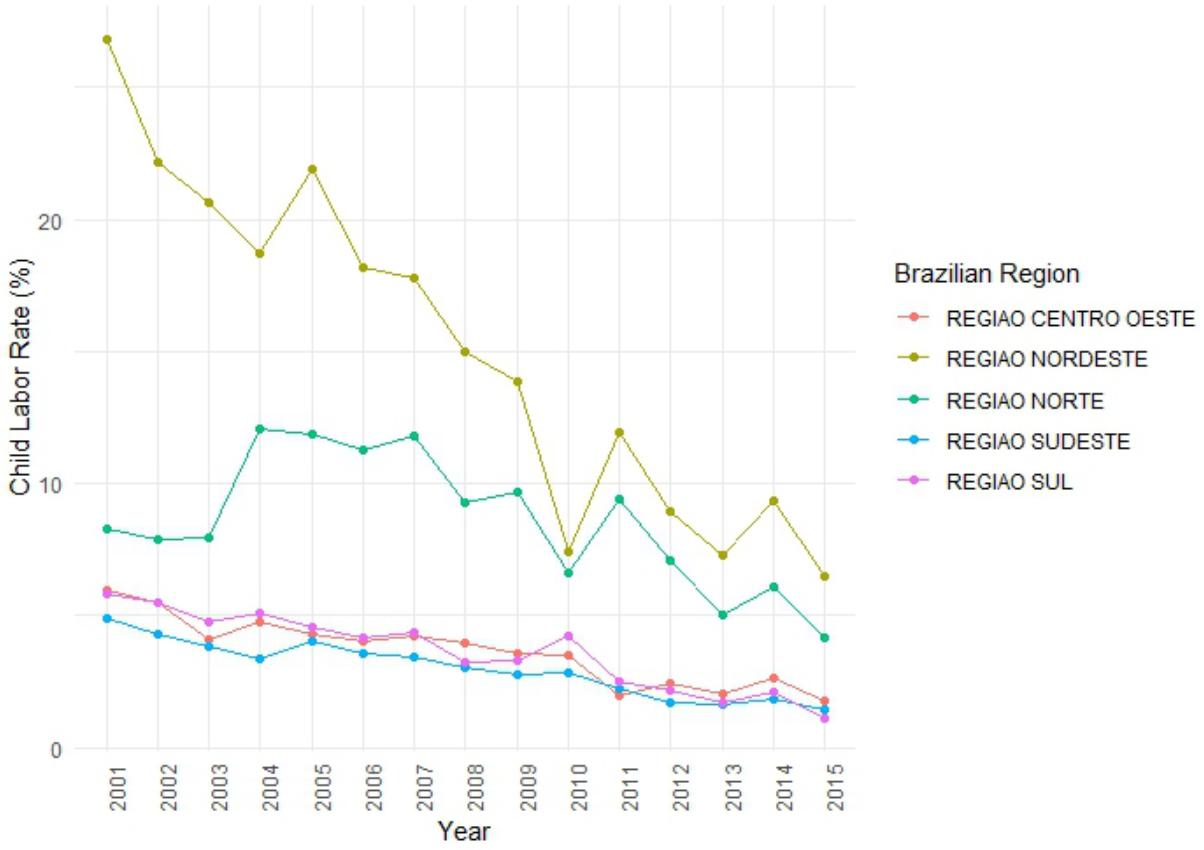


Figure 4.6: Child labour in Regions of Brazil 2001-2015

We use two main spatial weights matrices. The first examines spatial dynamics looking at patterns of export competition. In this vein, international political economists have long noted that spatial dynamics often transcend simple geography (Beck, Gleditsch, and Beardsley 2006). The fundamental idea is that, in the global market, companies and geographic units such as states compete with other producers of similar goods around the world, regardless of where they are located. In building our competition weight (W) we follow Guler et al. (2002) and much of the succeeding literature, measuring similarity in export portfolios. This measure captures the similitude of states' sector-level export profiles – i.e. looking at product similarities in exports portfolios with no discrimination on export destinations (Chatagnier and Kavaklı 2017; Wang 2017; Baccini and Koenig-Archibugi 2014; Cao 2010; Simmons and Elkins 2004; Elkins, Guzman, and Simmons 2006; Polillo and Guillén 2005; Guler et al. 2002).[24] We used exported good product classification based on the International Standard Industrial Classification of All Economic Activities (ISIC) rev. 3. In the baseline specification, we look at similarity in exported goods at two digits of the ISIC rev. 3 (United Nations 1990).[25] The result is a $W_{ISIC,iz,t}$ matrix that measures the Pearson correlation (similarity) of exported goods between state i and competitor z at time t.[26] There are practical reasons to prefer ISIC to the HS product classification. Most importantly, we can match child labour data to the specific ISIC sector in which children are working. At the same time, it is not possible to achieve similar concordance using the HS classification. Second, we believe that looking at similarity in exported goods by the economic activity that produced them allows to

[24]It must be said that the recent scholarship has developed an alternative approach that measures competition taking into account the similarity in export destination (Kim, Liao, and Imai 2020). While this is a welcomed advancement, these measures are inadequate to address the questions of this paper. Including export destination as a measure of similarity - beyond being the main dependent variable - would be theoretically inconsistent. For instance, two states with completely different export destinations would not be competing even if they export the same goods. Hence, changes in child labour in one state would not affect the other. This is hardly justifiable theoretically. For instance, if a state that widely adopts child labour and trades exclusively with China starts implementing policies that reduce child labour, it may favour its competitors' (at the sector-level) access to the Chinese market, even if initially they had no access to it. Hence, competition should focus on similarity of products or the productive industries rather than at the current export destination.

[25]The complete list of sectors at the two and the three-digit level of the ISIC rev.3 is presented in Table 4.6 in the Annexes. While it is possible to measure competition at the fourth digit and the first digit of the ISIC classification, these alternatives have problems. The first digit appears to be very broad, grouping together all manufacturing and all agriculture production, hence it is arguably a less precise measure of competition. Conversely, the fourth digit is very detailed. However, in developing countries, refined granular data for exported products suffer from severe problems of missing observations; this may be particularly true for the poorer states of Brazil. Hence, using fine-grained product-level measures risks creating a systematic bias as poorer states would regularly have a less precise measure of competition. Using a more accurate, yet, less detailed measure of the product specification is a compromise between the precision of the measure and the risk of bias.

[26]For computational reasons, in estimating the Spatial Durbin Model we average this matrix across all of the years creating a W_{iz} matrix. We also follow Cao and Prakash (2011) in replacing $W_{iz,t}$ with 0 if $W_{iz,t} < 0$, therefore assuming that countries with very dissimilar export profiles are not competing with each other - i.e. are not neighbours.

account for some degree of elasticity of the productive sector.[27]

The second is the traditional $W_{GEO,iz}$ matrix based on geography that accounts for the possibility that geographical distance has frictional effects on market activity.[28] Workers, including child workers, prefer to find jobs in their local environment because commuting and moving entails monetary and psychological costs. Moreover, practices arguably diffuse between locations that are geographically proximate through processes of learning and emulation. For these reasons, we also employ a row-normalized queen contiguity matrix.[29] This means that neighbours are defined solely by whether states share a border. We then take the initial contiguity matrices and construct sparse block-diagonal matrices in which the diagonals are the original neighbour matrix surrounded by zero matrices on the off-diagonal blocks. This allows for relatively easier creation of spatially lagged variables and neighbour lists, given the multidimensional (state-sector-year) data being used. These block diagonal neighbour matrices are then used to construct neighbour lists in R to test for spatial dependence with the Moran's I Test using first the ISIC 2-digit competition W matrix and then the geographic W matrix.[30] As this test is not specified for a particular spatial process, it can be applied directly to the data. The results are reported in 4.1 and 4.2.

Table 4.1: Moran's I Tests with ISIC 2dgt Competition W

	Moran I statistic SD	Moran I statistic	Variance	P-Value
Export Share to China	10.271	0.197	0.000	0.000
Child labour Rate	14.433	0.278	0.000	0.000

Table 4.2: Moran's I Tests with Geo W

	Moran I statistic SD	Moran I statistic	Variance	P-Value
Export Share to China	10.82	0.421	0.002	0.000
Child labour Rate	13.545	0.528	0.002	0.000

A positive value for Moran's I indicate positive spatial autocorrelation, that is, units near one another or with non-geographic 'spatial' dependence are similar with regards to either export share

[27] For instance, facilities producing textiles may be able to adapt to market demand in producing different goods.

[28] Do note, hence, that we use the word "competitor" to identify both neighbours and competitors in export profiles.

[29] Instead the ISIC W matrix is not row standardized. The reason for this difference is that the overall export competition that a state faces is not always the same. Some states may export a lot of goods that other states export as well, while other states may be alone in exporting their goods. Arguably the former states will face overall more pressure than their competitors when it comes to trade competition. On the other hand, looking at geography, we do not believe that we can make any assumption about the total export competition they face based on the number of borders they share with others. Hence, we row-normalize the data.

[30] For more information on this test, see, for example, Cook, An, and Favero (2019)

or child labour rates. A negative Moran's I indicates the opposite, that geographically (or otherwise) related units are highly *dissimilar*. In the case of both export share to China and child labour rate, the test results reported in Tables 4.1 and 4.2 indicate that there is significant (p-values well below 0.001) and strong (Moran's I standard deviate of 10 and greater) positive spatial dependence.

4.4.2 Testing for spatial dependence in child labour incidence between states

The Spatially Lagged Dependent Variable (SLX) Model has gained popularity in spatial econometrics in recent years for its simplicity, flexibility, and ease of identification (Halleck Vega and Elhorst 2015; Ward and Gleditsch 2019). The SLX model can use a variety of estimators, can parameterize the W matrix in the case of prior theoretical ambiguity, and can more easily test for and overcome questions of endogeneity that frequently accompany spatial econometric modelling (Elhorst and Vega 2017). Moreover, the SLX (and its extensions in the Spatial Durbin and Spatial Durbin Error Models) explicitly model local as opposed to global spillovers, meaning the specific local effect of an explanatory variable on some outcome, rather than the average spillover of the outcome across all units (as modelled by in the Spatial Autoregressive Model) or unmeasured/immeasurable spatial dependence (as in the Spatial Error Model). Furthermore, Lesage and Pace (2014) argues that, in point of fact, global spillovers are rarer than local spillovers, which further motivates the use of the SLX model for our main specification (though we do include SDM models as a test of the robustness of our results). A cross-sectional SLX model can be written as:

$$\begin{aligned} \mathbf{y} &= \mathbf{X}\boldsymbol{\beta} + \mathbf{w}\mathbf{X}\theta + \boldsymbol{\varepsilon} \\ \boldsymbol{\varepsilon} &\sim N\left(\mathbf{0}, \sigma^2\mathbf{I}\right) \end{aligned} \tag{4.2}$$

Where $\mathbf{W}$ is the weight matrix and $\mathbf{y}$, $\mathbf{X}$, and $\boldsymbol{\epsilon}$ are the dependent and independent variables and the error term, respectively. This is, in fact, an unrestricted version of multiple alternatives, nested models. Restricting θ=0 reduces the SLX to linear least squares model and adding spatially lagged dependent variable or errors leads to the SDM and SDEM models. The cross-sectional SLX is extended to panel data applications by indexing the data and, in our case, including time, sector, and spatial fixed effects which are allowed to be correlated with the regressors (Beer and Riedl 2012).

The panel SLX is written as:

$$\begin{aligned} \mathbf{y} &= +\mathbf{X}\boldsymbol{\beta} + \mathbf{W}\mathbf{X}\theta + \Psi\mu + \boldsymbol{\varepsilon} \\ \boldsymbol{\varepsilon} &\sim N\left(\mathbf{0}, \sigma^2\boldsymbol{\Omega}\right) \\ \Omega &= \boldsymbol{\Sigma}_N \otimes \boldsymbol{\omega}_T \end{aligned} \tag{4.3}$$

where the fixed effects are collected in Ψ. The weight matrix is expanded by taking the Kronecker product of a cross-sectional weight matrix and identity matrix I_T where T is the number of time periods, assuming time invariance in the spatial relationship. As Beer and Riedl (2012) point out, an AR(1) process and heteroscedasticity are assumed and are accounted for during estimation in the block-diagonal variance-covariance matrix Ω's component matrices, Σ_N and ω_T.

To identify the impact of the rising salience of china as a trade partner on child labour, we employ the following baseline SLX specification is:

$$CL_{ikt} = ExpShareChn_{\text{ikt}-1}\beta + WExpShareChn_{\text{ikt}-2}\theta + X_{it-1}\gamma + Z_{it}\delta + \Psi + \varepsilon \tag{4.4}$$

where CL_{ikt} is the child labour rate in state i, sector k, year t; $ExpShareChn_{ikt-1}$ is the temporally lagged share of exports to China in state i, sector k; $WExpShareChn_{ikt-1}$ is the spatio-temporally lagged share of exports to China in state i, sector k; X are temporally lagged economic control variables; Z are the contemporary (i.e. non-lagged) sociodemographic control variables; and Ψ contains the state, sector, and time fixed effects. We estimate this model via Maximum-Likelihood using the two different W matrices to test whether the results are robust to multiple measures of competition and geographic based spatial dependence.

According to the ***Hypothesis 1*** and to the logic of the "Shanghai Effect" we expect β to be positive. This implies that as the export share to China increases, so does the child labour rate. The effects of the competitors' (or neighbours') exports share to China is more ambiguous, as it could go one of two ways. If suppliers engage in forms of *convergent competition*, having competitors exporting more to China could trigger an increase in the number of children working, and θ will be positive (***Hypothesis 2.1***). Conversely, θ will be negative if states engage in forms of *divergent competition*. In this perspective, the more a state competitor will export towards China, the less it will engage in child labour in order to attract other importers where goods produced with the use of child labour are less desirable (***Hypothesis 2.2***).

We initially estimate our SLX models by OLS with state and year clustered standard errors. Recognizing that, given the bi-directionality of our analysis, we are explicitly studying an endogenous relationship, we also re-estimate our models using an instrumental variables approach to test the robustness of the initial OLS estimates. We develop an instrument that is an adaptation of the approach in Bastos, Silva, and Verhoogen (2018) and Beitrand (2004), which resembles a shift-share instrument. This approach harnesses cross-sectional, time-invariant variation in one variable and time-varying, cross-sectionally invariant variation in another and produces an instrument through the interaction of the two that varies across time and space that is plausibly exogenous from the outcome. In this case, we take the export share to China at the beginning of our analysis for each state and interact it with the change in the exchange rate between the Brazilian Real and US Dollar in each year, exploiting the respective cross-sectional and temporal variation contained in each separate variable to create a variable that is exogenous to our child labour variable. This arguably has an impact on the changing composition of Brazil's importers as Brazil's trade with a given trade partner in a given year (here, China) is dependent on trade in previous years and the strength or weakness of the local currency against the currency of major importers in the contemporary period. It is arguably exogenous to child labour as Brazil's trade with China in 2001 as well as its exchange rate evolution across a period of relative stability that saw overall decreases in child labour are unlikely to have a direct impact on child labour outcomes across the period of analysis. Weak instrument diagnostics and Wu-Hausman Tests confirm the validity of the instrument (results included in Table 4.3).

4.4.3 A gravity model to identify the effects of child labour on exports towards China

Structural gravity models are the workhorse of empirical trade literature. They have strong theoretical foundations, a remarkable fit with the data, and they have been widely used by the applied literature to explain bilateral trade flows (Heid, Larch, and Yotov 2020; Carrère, Mrázová, and Neary 2020; Arkolakis, Costinot, and Rodríguez-Clare 2012). They were initially developed as an intuitive way to understand trade flows (Tinbergen 1962; Shepherd 2016). The basic idea is that trade between country i and j directly depend on the size of their economies and inversely dependent on their distance - i.e. the costs of trading.

In recent years, scholars have developed a wide range of econometric practices allowing to consistently identifying the determinants of international trade in the framework of theory consistent structural gravity equation (cfr. Larch et al. 2019; Anderson and Van Wincoop 2003). We adopt most of these techniques, including a Pseudo Poisson Maximum Likelihood estimation to address issues of heteroscedasticity and zeros in trade data (cfr. Santos Silva and Tenreyro 2006, 2011; Head and Mayer 2014); three-way fixed effects to control for changes in the multilateral resistance' term and to address endogeneity concerns regarding the variables of interest (Anderson and Van Wincoop 2003; Feenstra 2004; Baier and Bergstrand 2007) and interacting bilateral fixed effects with a trend term to account for bilateral unobserved time-varying heterogeneity (Larch et al. 2019; Bergstrand, Larch, and Yotov 2015). Moreover, we employ a wide range of robustness checks, including phase-ins of agreements, reverse causality, and country-selection biases. Finally, we base our inferences on standard errors that are clustered by all the dimension of the panel: exporter, importer, and time (multi-way clustering). Indeed, while the standard approach has been to cluster errors at the country pair level, Egger and Nigai (2015) and Larch et al. (2019) have demonstrated that in panel settings, not accounting for the possible auto-correlation of the errors across time within countries can lead to false inferences. The baseline specification we adopt to estimate the effects of child labour on exports towards China is the following:

$$T_{ij,t} = exp\Big[\beta_0 + \beta_1 CL_{i,t} \times CHN_j + \beta_2 \sum_{z \neq i} WCL_{i,t} \times CHN_j + \alpha_{i,t} + \alpha_{j,t} + \alpha_{ij}\Big] + \varepsilon_{ij,t} \tag{4.5}$$

Where $T_{ij,t}$ are nominal exports flows, between a state i and a country j in a given year t. $\alpha_{i,t}$, $\alpha_{j,t}$ are exporter-year importer-year fixed effects. They control for all the time-varying characteristics of the importer and the exporter, such as GDP or exchange rates, and for the multilateral resistance terms described by Anderson and Van Wincoop (2003; Feenstra 2004; Carrère, Olarreaga, and Raess 2017). α_{ij} are state-county pair fixed effects that account for all the time-invariant bilateral characteristics that may affect export patters, such as geographical distance, or common colonial ties. Three-way fixed is the standard approach used in the literature to identify the causal impact of policy variables on bilateral trade flows (cfr. Yotov et al. 2016; Anderson, Larch, and Yotov 2019). Indeed, Baier and Bergstrand (2007) demonstrated that bilateral fixed effect could address most of the endogeneity concerns.

Using three-way fixed effects is considered a theory-consistent and endogeneity-robust approach to gravity estimation. The issue, however, is that these fixed effects do not allow to estimate

the effects of any country/state level variables - such as child labour - on bilateral exports. Indeed, state-level variables are perfectly collinear with the exporter-year importer-year fixed effects. To overcome this issue and examine the effects of child labour on exports, we build on two recent papers. Beverelli et al. (2018) and Heid, Larch, and Yotov (2020) demonstrated that it is possible to identify the effects of country-level variables in the context of a structural gravity model with three-way fixed effects interacting the state-level variable of interest with a dummy identifying the importer.[31] Equation 4.5 follows the same logic interacting the share of children working in the state ($CL_{i,t}$) with a dummy identifying if the importer is China (CHN_j).[32] This interaction varies on the i, j and t dimension and it is hence identified in the presence of three-way fixed effects. β_1 will capture the differential impact that child labour has on exports towards China relative to the rest of the world. We expect this coefficient to be positive, indicating that having more children working favours exports towards China (***Hypothesis 3***). The idea is that on average in Chinese companies may reward states with lower production costs, even if this comes at the price of having more children involved in the production.

To examine the spatial effects of child labour, we adopt a similar strategy. β_2 estimates the effects of increasing child labour in competitors states. It is the result of the interaction between the Chinese dummy CHN_j and $\sum_{z \neq i} WCL_{i,t}$. More precisely, this variable captures the spatially weighted sum of competitors states (z) engagement in child labour. More analytically this is thus defined: $\sum_{z \neq i} WCL_{i,t} = \sum_{z \neq i} W_{iz,t} \times CL_{z,t}$, where the share of children working in the competitor $CL_{z,t}$ is weighted by the level of competition between i and z ($W_{iz,t}$). If ***Hypothesis 4*** is correct β_2 should be negative, indicating that, all else equal, the more a state has close competitors engaging with child labour the less the state will target the Chinese market.[33]

A potential concern with Equation 4.5 is that there might be bilateral time-varying unobserved heterogeneity affecting our estimates. The inclusion of bilateral fixed effects (α_{ij}) only captures bilateral time-invariant heterogeneity, but it is unable to control for state-country pair characteristics changing over time. For instance, qualitative evidence suggests that bilateral transportation costs changed over-time. According to a recent study by United Nations Conference on Trade and

[31] Their focus is to understand the effects of institutional quality and non-discriminatory trade policies on international trade; hence they interact the exporter-level variables with a dummy identifying intra-national trade.

[32] The dummy takes the value of 1 if the importer is China and 0 otherwise.

[33] To note that to ease the interpretation in the context of a PPML, we take the natural logarithm of this variable to use it in the model (cfr. Santos Silva and Tenreyro 2006).

Development (UNCTAD) (2019), between 2010 and 2015 freight rates of shipping cargo between Santos (Sao Paulo) and Shanghai declined by over 79%. This decline positively impacts trade from all over Brazil; however, it favours particularly exports from states where large international ports are based. International shipping expenses account for almost the entirety of the transportation expenses for these states, but for *cerrado* regions domestic carrying costs remain extremely high. For instance, the domestic transportation costs of soybeans harvested in Mato Grosso is estimated to be 25–30% of the soybeans' total cost at the port (United States International Trade Commission (USITC) 2012 at p. XXIV). Since there have been limited improvements in the Brazilian transport infrastructure, bilateral transportation costs have changed at different rates for coastal states compared to more remote regions of Brazil (Confederação Nacional do Transporte - CNT 2015).[34] Given that bilateral transportation costs changed over time, not accounting for them creates an omitted variable bias, that is likely to downward bias our estimates (Wooldridge 2010). Indeed, (larger) declines in transportation costs are likely to be associated with an increase in exports towards China and negatively associated with child labour. States facing a loss in competitiveness due to a slower decline in transportation costs (remote regions), may look for alternative ways to remain competitive resisting the reduction of children working. Aiming to capture bilateral unobservable more flexibly, we follow Bergstrand, Larch, and Yotov (2015) and Larch et al. (2019) in interacting the pair fixed effects (α_{ij}) with a time trend ($Trend$). This approach allows accounting for all the pair specific heterogeneity that trends over time, including time-varying transportation costs. Hence, the alternative model specification we use is:

$$T_{ij,t} = exp\Big[\beta_0 + \beta_1 CL_{i,t} \times CHN_j + \beta_2 \sum_{z \neq i} WCL_{i,t} \times CHN_j + \alpha_{i,t} + \alpha_{j,t} + (\alpha_{ij} \times trend)\Big] + \varepsilon_{ij,t} \quad (4.6)$$

[34] Indeed, improvements in the transport infrastructure of the country are not comparable to improvements in international shipping. According to United States International Trade Commission (USITC) (2012), the lack of these infrastructures is one of the main causes negatively affecting the competitiveness of Brazil in international exports. For instance, the paved highways in Brazil are only 15% of the network, and according to some review, over 69% of these paved roads had problems (Araújo, Campos, and Bandeira 2013). Moreover, also the waterway and the railway network are scarcely developed and mostly concentrated in the southern regions of the country (cfr. United States International Trade Commission (USITC) 2012).

4.5 Results and discussion

4.5.1 SLX model results

Our main spatial econometric results are presented in Table 4.3. The first two columns report the results from the OLS estimations using our preferred W matrix: one that measures competition based on ISIC 2-digit export similarity as the interstate weights, and the other using the geographic contiguity matrix. Looking at our preferred specification, Column (1), we see that there is a statistically and substantively significant positive impact of export share to China and the child labour rate in a given state, sector, and year in Brazil. We find that a 1% increase in the share of exports to China out of the total exports leads to an average increase in the child labour rate of nearly 0.1%. While this may seem negligible, when applied to the estimated numbers of child labourers in Brazil this can be an absolute increase of thousands of child workers.[35] This finding is in line with the expectation set out in ***Hypothesis 1***. If we look to Column (2), where we report the findings from the SLX models using the geographic contiguity matrix we can see that the results for the direct effect of increasing export share to China hold up and are nearly identical.

The models also find that a 1% increase in the share of exports going to competing states actually leads to a similar and larger (up to 0.5%) *decrease* in the share of child labour. What this appears to show is that, on average, as exports to China in a given state increase, there is a subsequent increase in the child labour rate; yet as exports to China in competitor (or neighbouring) states increase, the incidence of child labour will actually decline. This finding is in line with ***Hypothesis 2.2 (Divergent competition)*** suggesting that rather than triggering a race to the bottom, the competitors' ability to target the Chinese market creates incentives to reduce the number of children in the workforce targeting high-end markets. In other words, competing or neighbouring exporters are less likely to engage in child labour as they aim at targeting the other main export destinations (i.e. the US, EU, Argentina and Japan) which are less amenable to the use of child labour.

[35] Do note that in the period analysed the export share to China increased by almost 17% and that the number of children working in 2015 was over 600.000. Hence, this effect may have had an impact on the life of tens of thousands of children.

In the third and fourth columns of Table 4.3, we report the estimates from the SLX-IV models, along with the IV diagnostics. Here we find our initial findings not only supported but, in fact, inflated, suggesting that endogeneity in the OLS estimates was downwardly biasing our coefficients. Here we see that an increase of exports shares to China by 1%, in fact, is associated with a roughly 0.5% increase in the child labour rate and that the indirect effect of competitors' exports to China is in fact much larger than that of neighbouring states.

Table 4.3: SLX Results

	SLX w/Comp W	SLX w/Geo W	SLX-IV w/Comp W	SLX-IV w/Geo W
Export Share to China	0.093**	0.090**	0.517***	0.469**
	(0.043)	(0.045)	(0.139)	(0.205)
W.Export Share to China	−0.099***	−0.449***	−0.829***	−0.114***
	(0.024)	(0.149)	(0.008)	(0.187)
Education Rate	−0.004**	−0.004**	−0.003***	−0.003***
	(0.002)	(0.002)	(0.001)	(0.001)
Race/Ethnicity (non-white)	0.000	0.001	−0.000	−0.000
	(0.001)	(0.001)	(0.001)	(0.001)
Female Population	−0.003	−0.003	−0.001	−0.000
	(0.003)	(0.003)	(0.002)	(0.002)
PT Government	−0.008	−0.007	−0.011	−0.011
	(0.010)	(0.009)	(0.010)	(0.010)
Informality	−0.002	−0.001	−0.001	−0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Ln. UF Population	−0.078	0.017	−0.108*	−0.183
	(0.097)	(0.068)	(0.099)	(0.101)
Ln. UF GDPpc	−0.177**	−0.184**	−0.271***	−0.256***
	(0.080)	(0.085)	(0.025)	(0.025)
*Delta*UF GDP	−0.000	−0.000	0.000	0.000
	(0.001)	(0.001)	(0.000)	(0.000)
Weak Instrument			248.493***	414.197***
Wu-Hausman			4.499**	8.007***
R^2	0.557	0.544	0.542	0.555
Adj. R^2	0.554	0.541	0.539	0.552
Num. obs.	12285	12285	12285	12285

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

By and large, the controls either function as expected or simply show no discernible or significant correlation with the child labour outcome. Education is understandably negatively and

significantly correlated with the child labour rate, since it represents the inverse, for many children, of the choice to work (excluding idle children) and likely captures the effect of public programs such as the Bolsa Familia in Brazil. The proportion of female residents in the state population is negative though not significantly correlated with the child labour rate, and the logarithm of GDP per capita is negatively and highly significantly correlated with the child labour rate, as one might expect with such a proxy for local development.

As Cook, An, and Favero (2019) point out, when using spatial econometrics, researchers are rarely interested solely in the reported coefficients, which "contain a wealth of information on relationships among the observations" (LeSage and Pace 2009 at p. 33). Within the reported coefficients in a spatial models, which represent pre-spatial effects within a given unit, are contained the direct and indirect (spillover) effects which we capture in the Export Share and W.Export Share variables in Table 4.3 which provide insight into the complex interrelationships between international economic activity, the changing global economy, and important social sustainability outcomes such as child labour.

If, as expected, exports to China and the "primaritization" of the Brazilian economy are having the perverse effect we hypothesise and the results in Table 4.3 support, we should expect the strongest impact to occur in export sectors such as mining, agriculture, and low skill manufacturing. In order to test this, we re-estimate the above equations and interact the export share to China variables with a categorical sector identifier at the ISIC rev.3 sector level (i.e. 1-digit sector codes). The results are displayed in Table 4.4. The significant effects are in the agricultural, hunting, forestry, and manufacturing sectors with the strongest effect being in manufacturing. By and large, this fits well within theoretical expectations concerning the "Shanghai Effect". Chinese import may change the incentives structure of developing country triggering lower levels of regulatory enforcement. However, Table 4.4 also reveals important sectoral differences. We do not find a significant effect on the mining sector. This is in line with qualitative evidence that shows that in Latin America, Chinese mining companies have been sensitive to international criticism, and adopted a series of best practices to ensure that decent labour standard was ensured to employees (Kotschwar, Moran, and Muir 2012).

Table 4.4: Within Sector Effect of Export Share to China

	Effect of Export Share to China
Agriculture, hunting and forestry	0.003*
	(0.002)
Manufacturing	0.016*
	(0.010)
Mining and Quarrying	0.002
	(0.001)
AIC (Spatial model)	−18906.663
LR test: statistic	113.380
LR test: p-value	0.000

***$p < 0.01$; **$p < 0.05$; *$p < 0.1$

We also conduct a number of alternative model specifications to test the robustness of these results. The tables can be found in the Appendix, although we provide an overview here. First, as reflected in the Moran's I statistic tests conducted earlier, there is a significant degree of spatial dependence in child labour rates between states. Motivated by this and the concern that this omitted source of spatial dependence is driving our SLX results, we estimate Spatial Durbin Models using MLE, which include the spatially lagged dependent variable (i.e. the global spillover effect mentioned before). Second, we added state-year and sector-year fixed effects (by interacting state and year dummies) to our original SLX specification along with the standalone state and year fixed effects to control for unmeasured or immeasurable time-varying omitted variables along with those that are constant within states or years. These results are reported in Table 4.8. Third, given that there may be an autoregressive pattern in the year to year evolution of child labour rates, we further added time-lagged child labour rate and these results are reported in Table 4.9. Our original results are robust to each of these supplementary analyses.

4.5.2 Gravity estimation results

Table 4.5 presents the results of estimating Equations 4.5 and 4.6 using the W_{ISIC} spatial weight matrix.[36] Column (1) uses the controls for endogeneity using dyadic fixed effects (α_{ij}). Child labour appears to have a positive effect on exports towards China. Conversely, competitor engagement in child labour (CELC) appears to have a negative and significant effect on the capacity of a state to export towards China confirming the finding of the SLX about the existence of divergent competition patterns. The model predicts that a 1% increase in competitor engagement in child labour, will lead to a 0.061% decline in exports towards China relative to the rest of the world. This result is significant at the 10% level ($p = 0.055$). While these coefficients are of the expected sign, not accounting for time-varying unobserved dyadic heterogeneity may downward bias on the estimates of child labour. To address this issue Column (2) uses the alternative and arguably preferable approach of Equation 4.6 that interacts the dyadic fixed effects with a trend term ($\alpha_{ij} \times trend$) (cfr. Bergstrand, Larch, and Yotov 2015; Larch et al. 2019). Controlling for time-varying unobserved heterogeneity, child labour appears to have a positive and significant effect on exports towards China. The model predicts that a 1% growth in the share of children working in the state leads to an increase in exports towards China of approximately 0.026% relative to the rest of the world. Conversely, the effect of competitor engagement in child labour, while it remains negative, is no longer significant. A possible explanation is that part of the effect of competitor engagement in child labour reflects common changes in bilateral unobserved heterogeneity, rather than the indirect effect of child labour. In sum, once we account for time-varying unobserved heterogeneity, the model confirms ***Hypothesis 3***, while we do not find evidence for the existence of competitive behaviours.[37]

We run a battery of sensitivity checks to test the robustness of the results of Table 4.5. By and large, every time that we control for unobserved time-varying heterogeneity the robustness check confirms the results of model 2, while not controlling for $\alpha \times trend$ results are model-dependent. This finding further supports our confidence that model 2 is correctly specified. Some of the robustness tests we run are: including an alternative sample of relevant importers, alternative specification of the competition measure, phase-in effects of child labour, reverse causality and examination of disaggregated data. While the Tables are reported in the Annex, we here briefly

[36] We use the Stata ® command `ppmlhdfe`, from Correia, Guimarães, and Zylkin (2020), to estimate our models.
[37] Hence we reject ***Hypothesis 4***.

Table 4.5: The effects of child labour on exports towards China

	α_{ij}	$\alpha_{ij} \times trend$
	(1)	(2)
$CL_{i,t} \times CHN_j$	0.001	0.026
	(0.027)	(0.019)
	[0.009]	[0.002]***
$CECL_{i,t} \times CHN_j$	-0.061	-0.052
	(0.054)	(0.054)
	[0.032]*	[0.034]
Observations	61477	61477
pseudo-R-squared	0.977	0.986
Three-way Fixed Effects	Yes	Yes

Robust standard errors clustered by exporter, importer, and year in squared brackets (* p<0.10, ** p<0.05, *** p<0.01). Fixed effects estimates are not reported for brevity.

present relevant results.

First, Table 4.10, examines whether the main results are driven by the specific set of importers selected. In the main analysis, we examine export to 241 different importers, many of which are small and remote countries with most entries that are 0. To be sure, Santos Silva and Tenreyro (2011) demonstrated that PPML provides consistent estimates in the presence of a large number of 0s, we estimate the model including 85 importers accounting for 98% of the total volume of exports (Santos Silva and Tenreyro 2011). While looking exclusively at the largest importers risk to create a selection bias, the idea of this test is to show that the results are not explained by a rise in Chinese exports relative to small importers.[38] Results are consistent and strikingly similar to the baseline specification using this different sample of importers.

Second, we examine if the results are driven by the specific competition measure we selected. Table 4.11 presents the results using three different W matrices. The baseline is $W_{ISIC2,ijt}$ which measures competition in terms of similarity of export portfolios at the ISIC rev 3, two-digit level, $W_{GEO,ij}$ that is the traditional spatial matrix based on geography and $W_{ISIC3,ijt}$ that uses the three-digit level to measure similarity in export portfolios. The results overlap with the main specification in terms of sign and significance of the relevant coefficients.

[38] For computational reasons, many gravity articles only feature a reduced set of importers, (cfr. Dai, Yotov, and Zylkin 2014; Egger and Tarlea 2015).

Third, the results presented in the main specification could plausibly be over/underestimating the effects of child labour on exports towards China. This could be because exports sluggishly adjust to changes in child labour rather than all at once, or because child labour has a non-linear effect on export destination over time. To examine these possibilities Columns 2 to 4 of Tables 4.12 and 4.13 expand the baseline model, including lags of the variable of interests. The use of lags to account for the sluggish adjustment of trade to policy changes is a standard practice in the trade literature (cfr. Baier and Bergstrand 2007; Heid, Larch, and Yotov 2020; Brandi et al. 2020). Table 4.12 examine the baseline model with simple α_{ij} fixed effects: two results are worth mentioning. First, it does not appear that child labour has a phase in effect in affecting exports towards China. Indeed lags are never significant. On the other hand, competitor engagement in child labour is significant and positive at the third lag, suggesting that the indirect effects of child labour on export destination may be non-linear. The effects of competitor engagement in child labour appear to have inconsistent patterns. Hence, these results should be interpreted with some caution. Columns 2 to 4 of Table 4.13 account for time-varying pair heterogeneity. None of the lags is ever significant, confirming that using current variables provides unbiased results in this model (Brandi et al. 2020). Column (5) of both Tables include a lead variable. This test is known as the test for strict exogeneity (Baier and Bergstrand 2007). If the lead variable was significant, it would mean that our model failed to properly capture the exogeneity of the child labour. This test is particularly important considering the results of the spatial model that show a positive effect of export shares towards china on child labour. None of the lead variables is significant, suggesting that the model correctly addresses endogeneity concerns.

Fourth, an alternative way to test if trade sluggishly adjusts to changes in child labour is using data over non-consecutive years. Cheng and Wall (2005) argued that in the context of a fixed-effects model, using data over consecutive years may fail to capture the effects of trade policies given that trade flows may require some time to adjust. The standard practice in the literature is to use data with four years intervals (Baier, Bergstrand, and Clance 2018; Heid, Larch, and Yotov 2020; Yotov et al. 2016). Column (2) and (5) of Table 4.14 report results using quadrennial data. None of the variables of interest appears to be significant. One possible explanation is that the effect of child labour on exports towards China over time fades away. Another possibility is that the coefficient is no longer significant because of the reduction of the

sample size. In Column (5), that estimates the model with four-year intervals, the effect of child labour on exports towards China is six-time larger that in the estimation over consecutive years Column (4). Hence, we suspect that the lack of significance may be caused by the increase in the standard errors resulting from the loss of observations, rather than by a decline in the coefficient. To examine this hypothesis, Model (3) and (6) estimate the model using biannual data. These models provide interesting insights. First, Column (6) confirms the positive and significant effect of child labour on exports towards China. The main coefficient of interest (child labour) is larger than the baseline specification and significant at the 1% level. Second, the effect of competitor engagement in child labour estimated over Equation 4.5 is positive and significant but is of the opposite sign compared to the main specification. Once more, the effects of child labour on competitors' exports appear to be model dependent, and hence inference should be avoided.

Fifth, to increase our analytical depth, Tables 4.15 and 4.16 examine the effects of child labour across different Brazilian regions. In both tables, Column (1) presents the results of the baseline specification to ease interpretation. Table 4.15, uses the specification of Equation 4.5. Results suggest that child labour significantly favours exports towards China for the Norte Este and the Centro Oeste regions; hinting that these regions that are poor or particularly remote tend to avoid reducing child labour in order to fully exploit the rise of China as the main importer destination. Similarly, competitor engagement in child labour is only significant for the Norte, which is another remote and poor region. Table 4.16 partially confirms these results, suggesting that increase (slower decline) of child labour in the North Este is what drives the national aggregates. Conversely, competitor engagement in child labour appears to have inconsistent patterns across different regions. Given the lack of a clear theoretical explanation, these results suggest avoiding inferences on the indirect effects of child labour.

Finally, Tables 4.17 and 4.18 exploit the availability of data on child labour to examine if child labour has heterogeneous effects across sectors.[39] The results of Table 4.17 that do not account for time-varying heterogeneity are insignificant.[40] Conversely, Table 4.18 reveals significant sectoral level heterogeneity. It appears that the results of the baseline specification are largely driven

[39]Do note that while in the main analysis our time frame is 2001-2015, we only have data on child labour at the sectoral level from 2002. Hence there is a drop in the total number of observations.

[40]Results for both tables were estimated using the `ppml_panel_sg` Stata ® command developed by Larch et al. (2019).

by the agricultural sector. Given that agriculture is by far the sector with the largest share of children working and accounts for the majority of exports towards China, this result increases our confidence in our findings. On the other hand, it appears that child labour in the manufacturing sectors harms exports towards China. We suspect that this is because China is mostly an importer of primary goods, while it can rely on domestic and regional supply chains for cheap manufacturing (Jenkins 2015). To the extent it imports manufactured products from Brazil, this may be driven by the specific product qualities or the local expertise rather than price. To note that this is not necessarily in contrast with the findings of 4.4. Indeed, while Chinese firms may initially decide to import from Brazilian firms because of specific product qualities, they may incentivize a cost-cutting culture that over time leads to more children employed.

4.5.3 Discussion

We argue that the results of the SLX and the gravity equations are interesting under many different perspectives. First, the paper shows that child labour and exports destinations have a two-way causal relationship. On the one hand, the SLX results suggest that exporting more to China can increase child labour incidence in Brazilian states. This is a novel finding in the context of the child labour literature that so far has not examined the effects of different export destinations. On the other hand, accounting for time-varying heterogeneity, the gravity equations suggest that having more children in the workforce promotes exporting towards China relative to other potential buyers in the first place. In sum, results confirm ***Hypothesis 1*** and ***Hypothesis 3*** suggesting that child labour and exports toward China are in a mutually reinforcing relationship.

Second, we examine the spatial dynamics involved in the process. On the one hand, we find that rather than triggering a *race to the bottom*, having competitors exporting more to China leads to reducing child labour. This suggests that states that are unable or unwilling to target the Chinese market, reduce their share of children working to address the demand of other major importers. On the other hand, we do not find (consistent) evidence showing the existence of a spatial relationship between competitor engagement in child labour and export destinations. While having competitors that export more to China affects state's willingness to engage in child labour, having competitors engaging in child labour not necessarily affects the ability of a state to target the Chinese market. In sum, our finding support ***Hypothesis 2.2*** but we do not find any

evidence in support of ***Hypothesis 4***.

Third, our results show that there is a sectoral level heterogeneity. The agricultural sector seems to explain the finding in our baseline analysis. This should not come as a surprise given that agriculture is by far the sector employing more children as well as the industry with more imports from China. Conversely, the data does not suggest that exports to China favour child labour (and vice-versa) in the mining sector. This seems to support qualitative studies finding that Chinese mining companies in South America have gone at great length to improve working conditions (Kotschwar, Moran, and Muir 2011). Further research could investigate what drives these sectoral differences.

Finally, we believe that our results should be interpreted in light of the general trends. In our time frame, child labour has declined significantly in Brazil, while exports to China have massively increased. Hence, rather than interpreting the coefficients of Table 4.3 as indicating an increase in child labour, we believe that they reveal that states exporting more to China experienced *slower* declines in child labour rates compared to others. Similarly, the coefficient of Table 4.5 shows that those states with lower declines in child labour were better able to take advantage of the rising Chinese demand.

4.6 Conclusions

This paper examined the complex relations linking child labour with international trade, investigating if and how the rise of China as the leading trade partner of Brazil has affected child labour incidence in the country. Theoretically, we argued that there might be a two-way relationship between child labour and exports towards China. On the one hand, having more children in the workforce could facilitate exporting to China. Chinese firms are cost-conscious and subject to relatively less scrutiny when it comes to labour standards in supplier firms abroad. In this perspective, they are more likely to turn a blind eye to labour abuses if it provides an economic advantage. On the other, we argued in line with the "Shangai effect" that the rise of China as the leading trade partner of Brazil may create downward pressure on labour outcomes leading to more children working. Using an SLX model with a shift-share instrument and state-of-the-art gravity

equation techniques, we find evidence suggesting that this is a two-way causal relationship.[41] Child labour leads to more exports towards China relative to other destinations, and the more a state exports towards China (relative to other destinations), the higher the incidence of child labour.

Moreover, the paper investigated the spatial dynamics involved in this relationship. We try to evaluate if competitors engagement in child labour affects exports towards China, and if having competitors' exporting more to China affects child labour. We find no evidence that more child labour in competitor states impact the supplier ability to export towards China. However, the SLX model suggests that the more a state has competitors with high Chinese export shares, the less it will have children in the workforce. In contrast with the "race to the bottom" hypothesis this finding suggests that states and firms may engage in *divergent* patterns of strategic competition, whereby rather than downgrading in parallel with their competitors they attempt to reduce the number of children in the workforce to facilitate trade with more socially concerned countries.

It is essential to keep in mind, however, that this study comes with some caveats. In particular, due to data limitation, our study focus on a state-level analysis. This could create some aggregation bias as it captures both the direct and indirect effects of trading with China. Arguably a preferable approach would require more granular data that, unfortunately, is not available for child labour. Qualitative studies on the topic could corroborate our findings or reveal unexpected aggregation bias. Second, these results are not at odds with the possibility that in the long run, exports to China may lead to a decline in child labour. Indeed, in our models, we "control" for income to identify the effect of export destination. In this way, we show the different effect that exporting to China has on child labour relative to other destinations. However, to the extent that rising exports lead to increased incomes, they may, in the long run, reduce child labour incidence.

In spite of these limitations, we believe that our paper makes significant contributions to the literature. With regards to child labour, we show that not only it is crucial to examine the effects of trade openness but that it is worth investigating whether different trading patterns may have heterogeneous effects. Moreover, the paper shows that child labour can be a source of comparative advantage in targeting the Chinese markets. Finally, the paper reveals that states (and firms) may engage in patterns of competitive interactions that are at odds with the expectations of "race to the

[41] In the context of the CL-export to China link, only if we account for time-varying heterogeneity.

bottom" literature. Hopefully, these results will renew interest in these topics, a new qualitative and quantitative research will address the many open questions relating to the relationship between child labour and trade.

Bibliography

Ab-Rahim, Rossazana, and Bilal Tariq. 2016. "The effect of trade openness on child labor: Empirical evidence from developing economies." *International Journal of Economics and Management* 10 (1): 155–71.

Adolph, Christopher, Vanessa Quince, and Aseem Prakash. 2017. "The Shanghai Effect: Do Exports to China Affect Labor Practices in Africa?" *World Development* 89: 1–18. https://doi.org/10.1016/j.worlddev.2016.05.009.

Agnosteva, Delina E., James E. Anderson, and Yoto V. Yotov. 2019. "Intra-national trade costs: Assaying regional frictions." *European Economic Review* 112: 32–50. https://doi.org/10.1016/j.euroecorev.2018.11.008.

Ahlquist, John S., and Layna Mosley. 2020. "Firm participation in voluntary regulatory initiatives: The Accord, Alliance, and US garment importers from Bangladesh." *Review of International Organizations*. https://doi.org/10.1007/s11558-020-09376-z.

Ali, Waris, Jedrzej George Frynas, and Zeeshan Mahmood. 2017. "Determinants of Corporate Social Responsibility (CSR) Disclosure in Developed and Developing Countries: A Literature Review." *Corporate Social Responsibility and Environmental Management* 24 (4): 273–94. https://doi.org/10.1002/csr.1410.

Amengual, Matthew. 2010. "Complementary Labor Regulation: The Uncoordinated Combination of State and Private Regulators in the Dominican Republic." *World Development* 38 (3): 405–14. https://doi.org/10.1016/j.worlddev.2009.09.007.

Amengual, Matthew, and Greg Distelhorst. 2019. "Can Sourcing Help Enforce Global Labor Standards? Evidence from the Gap Inc Supply Chain." In *"Investment and Labour Relations (Organized by the Wti)"*, 1–41. Bern. https://tinyurl.com/zqs8atw.

Amengual, Matthew, Greg Distelhorst, and Danny Tobin. 2020. "Global Purchasing as Labor Regulation: The Missing Middle." *Industrial & Labor Relations Review* 73 (4): 817–40. https://doi.org/10.1177/0019793919894240.

Anderson, James E. 2011. "The Gravity Model." *Annual Review of Economics* 3 (1): 133–60. https://doi.org/10.1146/annurev-economics-111809-125114.

Anderson, James E., Mario Larch, and Yoto V. Yotov. 2019. "Trade and investment in the global economy: A multi-country dynamic analysis." *European Economic Review* 120: 103311. https://doi.org/10.1016/j.euroecorev.2019.103311.

Anderson, James E., and Eric Van Wincoop. 2003. "Gravity with Gravitas: A Solution to the Border Puzzle." *American Economic Association* 93 (1): 170–92.

Anderson, James E., and Yoto V. Yotov. 2016. "Terms of trade and global efficiency effects of free trade agreements, 1990-2002." *Journal of International Economics* 99: 279–98. https://doi.org/10.1016/j.jinteco.2015.10.006.

Anderson, T. W., and Cheng Hsiao. 1982. "Formulation and estimation of dynamic models using panel data." *Journal of Econometrics* 18 (1): 47–82. https://doi.org/10.1016/0304-4076(82)90095-1.

Anner, Mark. 2019. "Predatory purchasing practices in global apparel supply chains and the employment relations squeeze in the Indian garment export industry." *International Labour Review* 158 (4): 705–27. https://doi.org/10.1111/ilr.12149.

———. 2020. "Squeezing workers' rights in global supply chains: purchasing practices in the Bangladesh garment export sector in comparative perspective." *Review of International Political Economy* 27 (2): 320–47. https://doi.org/10.1080/09692290.2019.1625426.

Araújo, Maria da Penha S., Vânia Barcellos G. Campos, and Renata Albergaria M. Bandeira. 2013. "An overview of road cargo transport in Brazil." *International Journal of Industrial Engineering and Management* 4 (3): 151–60.

Arellano, Manuel, and Stephen Bond. 1991. "Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations." *The Review of Economic Studies* 58 (2): 277. https://doi.org/10.2307/2297968.

Arkolakis, Costas, Arnaud Costinot, and Andrés Rodríguez-Clare. 2012. "New trade models, same old gains?" *American Economic Review* 102 (1): 94–130. https://doi.org/10.1257/aer.102.1.94.

Baccini, Leonardo, and Mathias Koenig-Archibugi. 2014. "Why do states commit to international labor standards? Interdependent ratification of core ILO conventions, 1948-2009." *World Politics* 66 (3): 446–90. https://doi.org/10.1017/S0043887114000124.

Baghdadi, Leila, Inmaculada Martinez-Zarzoso, and Habib Zitouna. 2013. "Are RTA agreements with environmental provisions reducing emissions?" https://doi.org/10.1016/j.jinteco.2013.04.001.

Baier, Scott L., and Jeffrey H. Bergstrand. 2002. "On the Endogeneity of International Trade Flows and Free Trade Agreements." https://www3.nd.edu/%7B~%7Djbergstr/Working%7B/_%7DPapers/EndogeneityAug2002.pdf.

———. 2007. "Do free trade agreements actually increase members' international trade?" *Journal*

of International Economics 71 (1): 72–95. https://doi.org/10.1016/j.jinteco.2006.02.005.

Baier, Scott L., Jeffrey H. Bergstrand, and Matthew W. Clance. 2018. "Heterogeneous effects of economic integration agreements." *Journal of Development Economics* 135 (September): 587–608. https://doi.org/10.1016/j.jdeveco.2018.08.014.

Baier, Scott L., Yoto V. Yotov, and Thomas Zylkin. 2019. "On the widely differing effects of free trade agreements: Lessons from twenty years of trade integration." *Journal of International Economics* 116: 206–26. https://doi.org/10.1016/j.jinteco.2018.11.002.

Baland, Jean Marie, and Cédric Duprez. 2009. "Are labels effective against child labor?" *Journal of Public Economics* 93 (11-12): 1125–30. https://doi.org/10.1016/j.jpubeco.2009.08.002.

Banerjee, Rakhi, and Ranjanendra Narayan Nag. 2013. "Globalization, Child Labour and Development Policies: A Theoretical Analysis." *Foreign Trade Review* 48 (1): 83–104. https://doi.org/10.1177/001573251204800104.

Barrientos, Stephanie, Peter Knorringa, Barbara Evers, Margareet Visser, and Maggie Opondo. 2016. "Shifting regional dynamics of global value chains: Implications for economic and social upgrading in African horticulture." *Environment and Planning A* 48 (7): 1266–83. https://doi.org/10.1177/0308518X15614416.

Bartley, Tim, and Niklas Egels-Zandén. 2016. "Beyond decoupling: Unions and the leveraging of corporate social responsibility in Indonesia." *Socio-Economic Review* 14 (2): 231–55. https://doi.org/10.1093/ser/mwv023.

Bartley, Tim, Sebastian Koos, Hiram Samel, Gustavo Setrini, and Nik Summers. 2015. *Looking behind the Label: Global Industries and the Conscientious Consumer*. Indiana University Press. https://doi.org/10.1017/CBO9781107415324.004.

Bastos, Paulo, Joana Silva, and Eric Verhoogen. 2018. "Export Destinations and Input Prices." *American Economic Review* 108 (2): 353–92. https://doi.org/10.1257/aer.20140647.

Basu, Kaushik, and Pham Hoang Van. 1998. "The Economics of Child Labor." *The American Economic Review* 88 (3): 412–27. https://www.jstor.org/stable/116842.

Beck, Nathaniel, Kristian Skrede Gleditsch, and Kyle Beardsley. 2006. "Space is more than geography: Using spatial econometrics in the study of political economy." *International Studies ...* 50 (1): 27–44. https://doi.org/10.1111/j.1468-2478.2006.00391.x.

Beck, Thorsten, George Clarke, Alberto Groff, Philip Keefer, and Patrick Walsh. 2001. "New Tools in Comparatlve Political Economy : The Database of Political Institutions." *The World Bank Economic Review* 15 (1): 165–76.

Beer, Christian, and Aleksandra Riedl. 2012. "Modelling spatial externalities in panel data: The Spatial Durbin model revisited." *Papers in Regional Science* 91 (2): 299–318. https://doi.org/10.1111/j.1435-5957.2011.00394.x.

Beitrand, Marianne. 2004. "From the invisible handshake to the invisible hand? How import competition changes the employment relationship." *Journal of Labor Economics* 22 (4): 723–65. https://doi.org/10.1086/423153.

Bergstrand, Jeffrey H. 1985. "The Gravity Equation in International Trade : Some Microeconomic Foundations and." *The Review of Economics and Statistics* 67 (3): 474–81.

Bergstrand, Jeffrey H., Mario Larch, and Yoto V. Yotov. 2015. "Economic integration agreements, border effects, and distance elasticities in the gravity equation." *European Economic Review* 78: 307–27. https://doi.org/10.1016/j.euroecorev.2015.06.003.

Berliner, Daniel, Anne Regan Greenleaf, Milli Lake, Margaret Levi, and Jennifer Noveck. 2015. "Governing Global Supply Chains: What We Know (and Don't) About Improving Labor Rights and Working Conditions." *Annual Review of Law and Social Science* 11 (1): 193–209. https://doi.org/10.1146/annurev-lawsocsci-120814-121322.

Beverelli, Cosimo, Alexander Keck, Mario Larch, and Yoto V. Yotov. 2018. "Institutions, Trade and Development: A Quantitative Analysis." CESifo Working Paper Series. CESifo Group Munich. https://doi.org/10.1201/9780203742433.

Bhagwati, Jagdish. 1995. "Trade Liberalisation and 'Fair Trade' Demands: Addressing the Environmental and Labour Standards Issues." *World Economy* 18 (6): 745–59. https://doi.org/10.1111/j.1467-9701.1995.tb00329.x.

———. 2001. "After Seattle : Free Trade and the WTO." *International Affairs* 77 (1): 15–29.

Bigler, Patrick, and Damian Raess. 2019. "Trade-labor linkages and international investment: Protectionism in disguise."

Blackman, Allen. 2012. "Does eco-certification boost regulatory compliance in developing countries? ISO 14001 in Mexico." *Journal of Regulatory Economics* 42 (3): 242–63. https://doi.org/10.1007/s11149-012-9199-y.

Blanton, Robert G., and Dursun Peksen. 2017. "Dying for Globalization? The Impact of Economic Globalization on Industrial Accidents." *Social Science Quarterly* 98 (5): 1487–1502. https://doi.org/https://doi.org/10.1111/ssqu.12367.

Bowen, Frances. 2014. *After Greenwashing: Symbolic corporate Environmentalism and Society*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9781139541213.

Brandi, Clara, Jakob Schwab, Axel Berger, and Jean Frédéric Morin. 2020. "Do environmental provisions in trade agreements make exports from developing countries greener?" *World Development* 129: 104899. https://doi.org/10.1016/j.worlddev.2020.104899.

Brauw, Alan de, Daniel O. Gilligan, John Hoddinott, and Shalini Roy. 2015. "The Impact of Bolsa Família on Schooling." *World Development* 70: 303–16. https://doi.org/10.1016/j.worlddev.2015.02.001.

Brown, Drusilla, Rajeev Dehejia, and Raymond Robertson. 2013. "Is there an Efficiency Case for International Labor Standards?" *Better Work Discussion Papers* 12. http://betterwork.org/global/?p=3652.

Brown, Drusilla, George Domat, Selven Veeraragoo, Rajeev Dehejia, and Raymond Robertson. 2015. "Are sweatshops profit-maximizing? Answer: No. Evidence from Better Work Vietnam." Better Work Discussion Paper. Geneva, CH: International Labour Office.

Brown, Drusilla K. 2000. "Department of Economics Tufts University" 02155 (617).

Callegari, Julia, Tatiana Massaroli Melo, and Carlos Eduardo Carvalho. 2018. "The peculiar insertion of Brazil into global value chains." *Review of Development Economics* 22 (3): 1321–42. https://doi.org/10.1111/rode.12386.

Cameron, Colin A., Jonah B. Gelbach, and Douglas L. Miller. 2011. "Robust inference with multiway clustering." *Journal of Business and Economic Statistics* 29 (2): 238–49. https://doi.org/10.1198/jbes.2010.07136.

Cao, Xun. 2010. "Networks as Channels of Policy Diffusion : Explaining Worldwide Changes in Capital." *International Studies Quarterly (2010)* 54: 823–54. https://doi.org/10.1111/j.1468-2478.2010.00611.x.

Cao, Xun, and Aseem Prakash. 2011. "Growing Exports by Signaling Product Quality: Trade Competition and the Cross-National Diffusion of ISO 9000 Quality Standards." *Journal of Policy Analysis and Managementnalysis and Management* 30 (1): 111–35. https://doi.org/10.1002/pam.

Caraway, Teri L. 2009. "Labor rights in East Asia: Progress or regress?" *Journal of East Asian Studies* 9 (2): 153–86. https://doi.org/10.1017/S1598240800002976.

Carrère, Céline, Monika Mrázová, and J Peter Neary. 2020. "Gravity without Apology: The Science of Elasticities, Distance, and Trade." https://doi.org/10.1093/ej/ueaa034.

Carrère, Céline, Marcelo Olarreaga, and Damian Raess. 2017. "Labor Clauses in Trade Agreements: worker protection or protectionism?" Discussion Paper 12251. London.

Chakrabarty, Sayan, and Ulrike Grote. 2009. "Child Labor in Carpet Weaving: Impact of Social Labeling in India and Nepal." *World Development* 37 (10): 1683–93. https://doi.org/10.1016/j.worlddev.2009.03.013.

Chaney, Thomas. 2008. "Distorted gravity: The intensive and extensive margins of international trade." *American Economic Review* 98 (4): 1707–21. https://doi.org/10.1257/aer.98.4.1707.

Chatagnier, J. Tyson, and Kerim Can Kavaklı. 2017. "From Economic Competition to Military Combat: Export Similarity and International Conflict." *Journal of Conflict Resolution* 61 (7): 1510–36. https://doi.org/10.1177/0022002715613565.

Chatterjee, Biswajit, and Runa Ray. 2016. "Impact of Trade vs. Non-trade Policies on the Incidence of Child Labour." *Foreign Trade Review* 51 (4): 287–97. https://doi.org/10.1177/0015732516650807.

Cheng, I-hui, and Howard J Wall. 2005. "of Trade and Integration." *Federal Reserve Bank of St. Louis Review* 87 (1): 49–64.

Cheow tong, Yeo. 1994. "Speech by Mr Yeo Cheow Tong, Minister For Trade And Industry, at the Opening of the Junior Chamber International -Asia-Pacific Conference (26/05/1994)." Singapore: Singapore Government Press Release. https://www.nas.gov.sg/archivesonline/data/pdfdoc/yct19940526s.pdf.

Cigno, Alessandro, and Furio Camillo Rosati. 2005. *The Economics of Child Labour*. Oxford University Press. https://doi.org/10.1093/0199264457.001.0001.

Clinton, B. 1993. "Presidential Speeches: Remarks on the Signing of NAFTA." https://millercenter.org/the-presidency/presidential-speeches/december-8-1993-remarks-signing-nafta.

Collier, Debbie, and Pamhidzai Bamu. 2012. "Linking trade to labour standards : A promising synergy or a double-edged sword?" *Acta Juridica* 1: 326–47.

Confederação Nacional do Transporte - CNT. 2015. "Pesquisa CNT de Rodovias."

Cook, Scott J., Seung Ho An, and Nathan Favero. 2019. "Beyond Policy Diffusion: Spatial Econometric Models of Public Administration." *Journal of Public Administration Research and Theory* 29 (4): 591–608. https://doi.org/10.1093/jopart/muy050.

Corrado, Luisa, and Bernard Fingleton. 2012. "Where is the economics in spatial econometrics?" *Journal of Regional Science* 52 (2): 210–39. https://doi.org/10.1111/j.1467-9787.2011.00726.x.

Correia, Sergio, Paulo Guimarães, and Tom Z. Zylkin. 2020. "Fast Poisson estimation with high-dimensional fixed effects." *Stata Journal* 20 (1): 95–115. https://doi.org/10.1177/1536867X20909691.

Costa, Francisco, Jason Garred, and João Paulo Pessoa. 2016. "Winners and losers from a commodities-for-manufactures trade boom." *Journal of International Economics* 102: 50–69. https://doi.org/10.1016/j.jinteco.2016.04.005.

Da Costa Oreiro, José Luis, Luciano D. Agostini, and Paulo Gala. 2020. "Deindustrialization , Economic Complexity and Exchange Rate Overvaluation : he case of Brazil (1998-2017)." https://doi.org/10.13140/RG.2.2.11506.53447.

Dai, Mian, Yoto V. Yotov, and Thomas Zylkin. 2014. "On the trade-diversion effects of free trade agreements." https://doi.org/10.1016/j.econlet.2013.12.024.

Dasgupta, Amit. 2000. "Labour Standards and the WTO: A New Form of Protectionism." *South Asia Economic Journal* 1 (2): 113–29. https://doi.org/10.7551/mitpress/7247.003.0045.

Davies, Ronald B., and Krishna Chaitanya Vadlamannati. 2013. "A race to the bottom in labor standards? An empirical investigation." *Journal of Development Economics* 103 (1): 1–14. https://doi.org/10.1016/j.jdeveco.2013.01.003.

Davies, Ronald B., and Annie Voy. 2009. "The effect of FDI on child labor." *Journal of Development Economics* 88 (1): 59–66. https://doi.org/10.1016/j.jdeveco.2008.02.001.

De Almeida, Roselaine Bonfim, and Ana Lúcia Kassouf. 2016. "The effect of labor inspections on reducing child labor in Brazil." Understanding Children's Work (UCW) Programme.

De Freitas, Guilherme Vergara Marçal. 2020. "How are elections affected by an external shock? The 'China shock' in Brazilian politics." PhD thesis, Escola de Economia de São Paulo. https://doi.org/10.1016/j.solener.2019.02.027.

Delmas, Magali A., and Vanessa Cuerel Burbano. 2011. "The Drivers of Greenwashing." *California Management Review* 54 (1): 64–87. https://doi.org/10.1525/cmr.2011.54.1.64.

Deme, Mamit, and Estrella R. Ndrianasy. 2017. "Trade-creation and trade-diversion effects of regional trade arrangements: low-income countries." *Applied Economics* 49 (22): 2188–2202. https://doi.org/10.1080/00036846.2016.1234700.

De Soyres, François, Julien Maire, and Guillaume Sublet. 2020. "An Empirical Investigation of Trade Diversion and Global Value Chains Background Paper." http://www.worldbank.org/.

De Soysa, Indra, and Krishna Chaitanya Vadlamannati. 2011. "Does Being Bound Together Suffocate, or Liberate? The Effects of Economic, Social, and Political Globalization on Human Rights, 1981-2005." *Kyklos* 64 (1): 20–53. https://doi.org/10.1111/j.1467-6435.2010.00493.x.

Dias, Júnior César. 2016. "O Trabalho Infantil nos principais grupamentos de atividades econômicas do Brasil." Fórum Nacional de Prevenção e Erradicação do Trabalho Infantil.

Dinopoulos, Elias, and Zhao Laixun. 2007. "Child labor and globalization." *Journal of Labor Economics* 25 (3): 553–79. https://doi.org/10.1086/513297.

Distelhorst, Greg, Jens Hainmueller, and Richard M. Locke. 2017. "Does Lean Improve Labor Standards? Management and Social Performance in the Nike Supply Chain." *Management Science* 63 (3): 707–28. https://doi.org/10.1287/mnsc.2015.2369.

Distelhorst, Greg, and Richard M. Locke. 2018. "Does Compliance Pay? Social Standards and Firm-Level Trade." *American Journal of Political Science* 62 (3): 695–711. https://doi.org/10.1111/ajps.12372.

Distelhorst, Greg, Richard M. Locke, Timea Pal, and Hiram Samel. 2015. "Production goes global, compliance stays local: Private regulation in the global electronics industry." *Regulation and Governance* 9 (3): 224–42. https://doi.org/10.1111/rego.12096.

Dix-Carneiro, Rafael, Rodrigo R. Soares, and Gabriel Ulyssea. 2018. "Economic shocks and crime: Evidence from the Brazilian trade liberalization." *American Economic Journal: Applied Economics* 10 (4): 158–95. https://doi.org/10.1257/app.20170080.

Doan, Thang N., and Yuqing Xing. 2018. "Trade efficiency, free trade agreements and rules of origin." *Journal of Asian Economics* 55: 33–41. https://doi.org/10.1016/j.asieco.2017.12.007.

Doepke, Matthias, and Fabrizio Zilibotti. 2010. "Do international labor standards contribute to the persistence of the child-labor problem?" *Journal of Economic Growth* 15 (1): 1–31. https://doi.org/10.1007/s10887-009-9048-8.

Duprez, Cédric. 2012. "Une analyse économique du commerce équitable." *Reflets et Perspectives de La Vie économique* 3 (LI): 105–2014.

Dür, Andreas, Leonardo Baccini, and Manfred Elsig. 2014. "Explanatory note of the Depth dataset."

Eaton, Jonathan, and Samuel Kortum. 2002. "Technology, Geography, and Trade." *Econometrica* 70 (5): 1741–79.

Eccles, Robert G., Scott C. Newquist, and Roland Schatz. 2007. "Reputation and its risks." *Harvard Business Review* 85 (2).

Edmonds, Eric V. 2010. "Trade, Child Labor, and Schooling in Poor Countries." In *Trade Adjustment Costs in Developing Countries: Impacts, Determinants and Policy Responses*, edited by Guido Porto and Bernard Hoekman, 179–95. The World Bank.

Edmonds, Eric V. 2016. "Economic Growth and Child Labor in Low Income Economies." GLM|LIC. Growth; Labour Markets in Low Income Countries Programme.

Edmonds, Eric V., and Nina Pavcnik. 2005. "The effect of trade liberalization on child labor." *Journal of International Economics* 65 (2): 401–19. https://doi.org/10.1016/j.jinteco.2004.04.001.

———. 2006a. "International trade and child labor: Cross-country evidence." *Journal of International Economics* 68 (1): 115–40. https://doi.org/10.1016/j.jinteco.2005.01.003.

———. 2006b. "Trade liberalization and the allocation of labor between households and markets in a poor country." *Journal of International Economics* 69 (2): 272–95. https://doi.org/10.1016/j.jinteco.2005.05.010.

Edmonds, Eric V., and Norbert Schady. 2012. "Poverty alleviation and child labor." *American Economic Journal: Economic Policy* 4 (4): 100–124. https://doi.org/10.1257/pol.4.4.100.

Egger, Peter H., and Sergey Nigai. 2015. "Structural gravity with dummies only: Constrained ANOVA-type estimation of gravity models." *Journal of International Economics* 97 (1): 86–99. https://doi.org/10.1016/j.jinteco.2015.05.004.

Egger, Peter H., and Kevin E. Staub. 2016. "GLM estimation of trade gravity models with fixed effects." *Empirical Economics* 50 (1): 137–75. https://doi.org/10.1007/s00181-015-0935-x.

Egger, Peter H., and Filip Tarlea. 2015. "Multi-way clustering estimation of standard errors in gravity models." *Economics Letters* 134: 144–47. https://doi.org/10.1016/j.econlet.2015.06.023.

Elhorst, J.Paul, and Solmaria Halleck Vega. 2017. "The SLX model : Extensions and the sensitivity of spatial spillovers to W." *Papeles de Economía Española* 152: 34–50.

Elkins, Zachary, Andrew T Guzman, and Beth A Simmons. 2006. "Competing for Capital : The Diffusion of Bilateral Investment Treaties , 1960 – 2000." *International Organization* 60 (Fall): 811–46. https://doi.org/10.1017/S0020818306060279.

Estevez, Kristian. 2010. "Essays on Child Labour Productivity and Trade." PhD thesis, University of Florida.

Estlund, Cynthia. 2017. *A New Deal for China's Workers*. Cambridge, MA: Harvard University Press.

Feenstra, Robert C. 2004. *Advanced International Trade*. Vol. 53. 9. Princeton, New Jersey: Princeton University Press. https://doi.org/10.1017/CBO9781107415324.004.

Feierherd, Germán. 2017. "Constructing the Left's Support Base Economic Informality and Segmented Enforcement in Brazil."

Ferraz, João Carlos, David Kupfer, and Franklin Serrano. 1999. "Macro/micro interactions: Eco-

nomic and institutional uncertainties and structural change in Brazilian industry." *Oxford Development Studies* 27 (3): 279–304. https://doi.org/10.1080/13600819908424179.

Flanagan, Robert J. 2006. *Globalization and labor conditions: working conditions and worker rights in a global economy*. New York: Oxford Universtity Press. https://doi.org/10.5860/choice.44-5148.

Fleury, Afonso, and John Humphrey. 1993. "Recursos humanos e a Difusão e adaptação de Novos Métodos para a Qualidade no Brasil." Discussion Paper. Instituto de Pesquisa Econômica Aplicada.

Fold, Niels, and Marianne Nylandsted Larsen. 2011. "Upgrading of smallholder agro-food production in Africa: the role of lead firm strategies and new markets." *International Journal of Technological Learning, Innovation and Development* 4 (1/2/3): 39. https://doi.org/10.1504/IJTLID.2011.041899.

Fors, Heather Congdon. 2012a. "Child labour: A review of recent theory and evidence with policy implications." *Journal of Economic Surveys* 26 (4): 570–93. https://doi.org/10.1111/j.1467-6419.2010.00663.x.

———. 2012b. "Child labour: A review of recent theory and evidence with policy implications." *Journal of Economic Surveys* 26 (4): 570–93. https://doi.org/10.1111/j.1467-6419.2010.00663.x.

Francois, Joseph, Lisa Lechner, and Miriam Manchin. 2019. "EU Trade Policy Initiatives and Stated Objectives: a Report." RESPECT mimeo. European Institute.

Franzese, Robert J., and Jude C. Hays. 2008. *Empirical Models of Spatial Inter-Dependence*. https://doi.org/10.1093/oxfordhb/9780199286546.003.0025.

Franzese, Robert J., Jude C. Hays, and Scott J. Cook. 2016. "Spatial- and Spatiotemporal-Autoregressive Probit Models of Interdependent Binary Outcomes." *Political Science Research and Methods* 4 (1): 151–73. https://doi.org/10.1017/psrm.2015.14.

Franzese, Robert Jr., and Jude C. Hays. 2008. "Contagion, Common Exposure, and Selection: Empirical Modeling of the Theories and Substance of Interdependence in Political Science."

Fredriksson, Per G., and Daniel L. Millimet. 2002. "Strategic interaction and the determination of environmental policy across U.S. States." *Journal of Urban Economics* 51 (1): 101–22. https://doi.org/10.1006/juec.2001.2239.

Freeman, Richard B. 2010. "Labor regulations, unions, and social protection in developing countries: Market distortions or efficient institutions?" In *Handbook of Development Economics*,

edited by Dani Rodrik and Mark R. Rosenzweig, 5:4657–4702. North-Holland: Elsevier. https://doi.org/10.1016/B978-0-444-52944-2.00008-2.

French, Lawrence J., and Richard E. Wokutch. 2005. "Child Workers , Globalization , and International Business Ethics : A Case Study in Brazil ' s Export-Oriented Shoe Industry." *Business Ethics Quarterly* 15 (4): 615–40.

Gaddis, Isis, and Janneke Pieters. 2012. "Trade liberalization and female labor force participation: Evidence from Brazil." IZA Discussion Papers. Bonn: IZA – Institute of Labor Economics.

Gamso, Jonas. 2017. "South–South trade and collective labour laws: do developing countries race to the top when they trade with the South?" *Journal of International Relations and Development* 22 (4): 954–982. https://doi.org/10.1057/s41268-017-0124-y.

Gaulier, Guillaume, and Soledad Zignago. 2010. "BACI: International Trade Database at the Product-Level (the 1994-2007 Version)." *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.1994500.

Gereffi, Gary. 2014. "Global value chains in a post-Washington Consensus world." *Review of International Political Economy* 21 (1): 9–37. https://doi.org/10.1080/09692290.2012.756414.

———. 2018. *Global Value Chains and Development: Redefining the Contours of 21st century Capitalism*. Cambridge, UK: Cambridge University Press. https://doi.org/10.1093/jeg/lbz015.

Ghosh, Sucharita, and Steven Yamarik. 2004. "Are regional trading arrangements trade creating? An application of extreme bounds analysis." *Journal of International Economics* 63 (2): 369–95. https://doi.org/10.1016/S0022-1996(03)00058-8.

Gibbon, Peter, and Stefano Ponte. 2005. *Trading down: Africa, Value Chains, and the Global Economy*. Philadelphia: Temple University Press.

Giumelli, Francesco, and Gerda van Roozendaal. 2017. "Trade agreements and labour standards clauses: Explaining labour standards developments through a qualitative comparative analysis of US free trade agreements." *Global Social Policy* 17 (1): 38–61. https://doi.org/10.1177/1468018116637209.

Grady, Tom O. 2020. *Introduction to Causal Inference for Undergraduates*. Online Pub. https://doi.org/10.1007/978-0-387-35433-0_1.

Grauwe, Paul de, Romain Houssa, and Giulia Piccillo. 2012. "African trade dynamics: is China a different trading partner?" *Journal of Chinese Economic and Business Studies* 10 (1): 15–45. https://doi.org/10.1080/14765284.2012.638460.

Greenhill, Brian, Layna Mosley, and Aseem Prakash. 2009. "Trade-based diffusion of labor rights:

A panel study, 1986-2002." *American Political Science Review* 103 (4): 669–90. https://doi.org/10.1017/S0003055409990116.

Gruère, Guillaume. 2013. "A Characterisation of Environmental Labelling and Information Schemes." OECD Environment Working Papers No. 62. Paris. http://www.oecd-ilibrary.org/environment-and-sustainable-development/a-characterisation-of-environmental-labelling-and-information-schemes%7B/_%7D5k3z11hpdgq2-en.

Guedes Vieira, Marcia. 2018. "Child Labor in Brazil and Uruguay." *Oxford Research Encyclopedia of Latin American History*, no. July: 1–24. https://doi.org/10.1093/acrefore/9780199366439.013.485.

Guler, Isin, Mauro F. Guillen, John Muir Macpherson, and Mauro F. Guillen. 2002. "Global Competition, Institutions, and the Diffusion of Organizational Practices: The International Spread of ISO 9000 Quality Certificates." *Administrative Science Quarterly* 47 (2): 207. https://doi.org/10.2307/3094804.

Hafner-Burton, Emilie M. 2005. *Trading human rights: How preferential trade agreements influence government repression*. Vol. 59. 3. https://doi.org/10.1017/S0020818305050216.

———. 2009. *Emilie M. Hafner-Burton, Forced to Be Good: Why Trade Agreements Boost Human Rights*. Ithaca, NY: Cornell University Press. https://doi.org/10.1007/s12142-009-0144-0.

Hafner-Burton, Emilie M., Layna Mosley, and Robert Galantucci. 2019. "Protecting Workers Abroad and Industries at Home : Rights-based Conditionality in Trade Preference Programs." *Journal of Conflict Resolution* 63 (5): 1253–82. https://doi.org/10.1177/0022002718783236.

Hainmueller, Jens, and Michael J. Hiscox. 2015. "The Socially Conscious Consumer? Field Experimental Tests of Consumer Support for Fair Labor Standards." MIT Political Science Department Research Paper No. 2012-15. https://ssrn.com/abstract=2062435.

Hale, Thomas, David Held, and Kevin Young. 2013. *Gridlock: Why Global Cooperation Is Failing When We Need It Most*. Cambridge, UK: Polity Press.

Halleck Vega, Solmaria, and J. Paul Elhorst. 2015. "The slx model." *Journal of Regional Science* 55 (3): 339–63. https://doi.org/10.1111/jors.12188.

Hansen, Bruce E. 2019. *Econometrics*.

Hasnat, Baban. 2002. "The impact of core labour standards on exports." *International Business Review* 11 (5): 563–75. https://doi.org/10.1016/S0969-5931(02)00037-9.

Häberli, Christian, Marion Jansen, and José Antonio Monteiro. 2012. "Regional trade agreements and domestic labour market regulation." In *Policy Priorities for International Trade and Jobs*,

287–326. https://doi.org/10.1787/9789264180178-en.

Head, Keith, and Thierry Mayer. 2014. "Gravity Equations: Workhorse,Toolkit, and Cookbook." In *Handbook of International Economics*, edited by Gita Gopinath, Elhanan Helpman, and Kenneth Rogoff, 4:131–95. 313522. North-Holland.

Heid, Benedikt, Mario Larch, and Yoto Yotov. 2020. "Estimating the Effects of Non-discriminatory Trade Policies within Structural Gravity Models." http://hdl.handle.net/10419/173011.

Helpman, Elhanan, Marc Melitz, and Yona Rubinstein. 2008. "Estimating Trade Flows: Trading Partners and Trading Volumes." *The Quarterly Journal of Economics* 23 (2): 441–87. https://doi.org/10.1256/qj.05.227.

Hill, Jennifer, and Yu Sung Su. 2013. "Assessing lack of common support in causal inference using bayesian nonparametrics: Implications for evaluating the effect of breastfeeding on children's cognitive outcomes." *Annals of Applied Statistics* 7 (3): 1386–1420. https://doi.org/10.1214/13-AOAS630.

Horner, Rory. 2014. "Strategic decoupling, recoupling and global production networks: India's pharmaceutical industry." *Journal of Economic Geography* 14 (6): 1117–40. https://doi.org/10.1093/jeg/lbt022.

———. 2016. "A New Economic Geography of Trade and Development? Governing South–South Trade, Value Chains and Production Networks." *Territory, Politics, Governance* 4 (4): 400–420. https://doi.org/10.1080/21622671.2015.1073614.

Hughes, Steve, and Nigel Haworth. 2011. *The International Labour Organisation (ILO): Coming in From the Cold*. London: Routledge. https://doi.org/10.1177/1748895810383803.

Hwang, Jungbin, Byunghoon Kang, and Seojeong Lee. 2019. "A Doubly Corrected Robust Variance Estimator for Linear GMM."

Hwang, Jungbin, and Gonzalo Valdés. 2020. "Finite-sample Corrected Inference for Two-step GMM in Time Series." University of Connecticut.

IBGE. 2007. "Sistema integrado de pesquisas domiciliares." Rio de Janeiro.

ILO. 2020. *World Employment and Social Outlook*. https://www.ilo.org/wesodata/?chart=Z2VuZGVyPVsiVG90YWwiXSZ1bml0PSJSYXRlIiZzZWN0b3I9WyJJbmR1c3RyeSIsIlNlcnZpY2VzIiwiQWdyaWN1bHR1cmUiXSZ5ZWFyRnJvbT0xOTkxJmluY29tZT1bXSZpbmRpY2F0b3I9WyJ0b3RhbEVtcGxveW1lbnQiXSZzdGF0dXM9WyJUb3RhbCJdJnJlZ2lvbj1bIldvcmxkIl0mY29.

International Labor Organization, and Walk Free Foundation. 2017. *Global Estimates of Modern*

Slavery: Forced Labour and Forced Marriage. http://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/publication/wcms%7B/_%7D575479.pdf.

International Labour Organization. 2016. *Assessment of labour provisions in trade and investment agreements*. Studies On. Geneva. https://www.ilo.org/global/publications/books/WCMS%7B/_%7D498944/lang--en/index.htm.

———. 2017. "Global Estimates of Child Labour."

International Labour Organization (ILO). 2013. *Social Dimensions of Free Trade Agreements*. Revised ed. Geneva: / International Labour Organization; International Institute for Labour Studies.

Isaksson, Ann Sofie, and Andreas Kotsadam. 2018. "Racing to the bottom? Chinese development projects and trade union involvement in Africa." *World Development* 106: 284–98. https://doi.org/10.1016/j.worlddev.2018.02.003.

Jacobs, Bert. 2011. "A Dragon and a Dove? A Comparative Overview of Chinese and European Trade Relations with Sub-Saharan Africa." *Journal of Current Chinese Affairs* 40 (4): 17–60. https://doi.org/10.1177/186810261104000402.

Jamali, Dima, Peter Lund-Thomsen, and Søren Jeppesen. 2017. "SMEs and CSR in Developing Countries." *Business and Society* 56 (1): 11–22. https://doi.org/10.1177/0007650315571258.

Jamali, Dima, Peter Lund-Thomsen, and Navjote Khara. 2017. *CSR Institutionalized Myths in Developing Countries: An Imminent Threat of Selective Decoupling*. Vol. 56. 3. https://doi.org/10.1177/0007650315584303.

Jenkins, Rhys. 2012. "China and Brazil: Economic Impacts of a Growing Relationship." *Journal of Current Chinese Affairs* 41 (1): 21–47. https://doi.org/10.1177/186810261204100102.

———. 2014. "Chinese Competition and Brazilian Exports of Manufactures." *Oxford Development Studies* 42 (3): 395–418. https://doi.org/10.1080/13600818.2014.881989.

———. 2015. "Is Chinese Competition Causing Deindustrialization in Brazil?" *Latin American Perspectives* 42 (6): 42–63. https://doi.org/10.1177/0094582X15593553.

———. 2019. "How China is Reshaping the Global Economy: Development Impacts in Africa and Latin America." Oxford: Oxford Universtity Press. https://books.google.co.kr/books?hl=en%7B/&%7Dlr=%7B/&%7Did=OQN6DwAAQBAJ%7B/&%7Doi=fnd%7B/&%7Dpg=PP1%7B/&%7Dots=22h%7B/_%7DongUSX%7B/&%7Dsig=vAqAeyIMxhiphRhnrDVaOjRHoic%7B/&%7Dredir%7B/_%7Desc=y%7B/#%7Dv=onepage%7B/&%7Dq%7B/&%7Df=false.

Jenkins, Rhys, and Alexandre De Freitas Barbosa. 2012. "Fear for manufacturing? China and

the future of industry in Brazil and Latin America." *China Quarterly*, no. 209: 59–81. https://doi.org/10.1017/S0305741011001482.

Jochmans, Koen. 2017. "Two-Way Models for Gravity." *Review of Economics and Statistics* 99 (3): 478–85. https://doi.org/10.1162/REST.

Kamata, Isao. 2018. "Can RTA labor provisions prevent the deterioration of domestic labor standards?: the cases of statutory minimum wages and employment protection regulations." Institute of Developing Economies. http://hdl.handle.net/2344/00050363.

Kaplinsky, Raphael, and Masuma Farooki. 2011. "What are the implications for global value chains when the market shifts from the north to the south?" *International Journal of Technological Learning, Innovation and Development* 4 (1-3): 13–38. https://doi.org/10.1504/IJTLID.2011.041898.

Kaplinsky, Raphael, Anne Terheggen, and Julia Tijaja. 2011. "China as a Final Market: The Gabon Timber and Thai Cassava Value Chains." *World Development* 39 (7): 1177–90. https://doi.org/10.1016/j.worlddev.2010.12.007.

Kepaptsoglou, Konstantinos, Matthew G. Karlaftis, and Dimitrios Tsamboulas. 2010. "The Gravity Model Specification for Modeling International Trade Flows and Free Trade Agreement Effects: A 10-Year Review of Empirical Studies." *The Open Economics Journal* 3 (1): 1–13. https://doi.org/10.2174/1874919401003010001.

Kim, In Song, Steven Liao, and Kosuke Imai. 2020. "Measuring Trade Profile with Granular Product-Level Data." *American Journal of Political Science* 64 (1): 102–17. https://doi.org/10.1111/ajps.12473.

Kim, Moonhawk. 2012. "Ex Ante Due Diligence: Formation of PTAs and Protection of Labor Rights." *International Studies Quarterly* 56 (4): 704–19. https://doi.org/10.1111/j.1468-2478.2012.00758.x.

Koenig-Archibugi, Mathias. 2017. "Does transnational private governance reduce or displace labor abuses? Addressing sorting dynamics across global supply chains." *Regulation and Governance* 11 (4): 343–52. https://doi.org/10.1111/rego.12169.

Kotschwar, Barbara, Theodore Moran, and Julia Muir. 2011. "Do Chinese Mining Companies Exploit More." *Americas Quaterly* Fall.

———. 2012. "Chinese Investment in Latin American Resources: The Good, the Bad, and the Ugly." Washington, D.C.

Kruger, Diana I. 2007. "Coffee production effects on child labor and schooling in rural Brazil."

Journal of Development Economics 82 (2): 448–63. https://doi.org/10.1016/j.jdeveco.2006.04.003.

Krugman, Paul. 1995. "Increasing Returns, Imperfect Competition and the Positive Theory of International Trade." In *Handbook of International Economics*, edited by Edited by G. Grossman Rogoff and K., Elsevier S, 1244–76. Amsterdam.

———. 1997. *Development, Geography, and Economic Theory*. Vol. 6. Cambridge, Massachusetts: MIT Press. https://doi.org/10.2307/490811.

Kucera, David, and Dora Sari. 2018. "New Labour Rights Indicators: Method and Trends for 2000-2015." *International Labour Review* 158 (3): 419–46. https://doi.org/10.1111/ilr.12084.

Larch, Mario, Joschka Wanner, Yoto V. Yotov, and Thomas Zylkin. 2019. "Currency Unions and Trade: A PPML Re-assessment with High-dimensional Fixed Effects." *Oxford Bulletin of Economics and Statistics* 81 (3): 487–510. https://doi.org/10.1111/obes.12283.

Lechner, Lisa. 2016. "The domestic battle over the design of non-trade issues in preferential trade agreements." *Review of International Political Economy* 23 (5): 840–71. https://doi.org/10.1080/09692290.2016.1231130.

———. 2018. "Good for some, bad for others: US investors and non-trade issues in preferential trade agreements." *Review of International Organizations* 13 (2): 163–87. https://doi.org/10.1007/s11558-018-9299-2.

Lechner, Michael, and Anthony Strittmatter. 2017. "Practical Procedures to Deal with Common Support Problems in Matching Estimation." IZA Discussion Papers. Bonn: IZA – Institute of Labor Economics Suggested.

Leeg, Tobias. 2018. "Negotiating sustainable trade: explaining the difference in social standards in US and EU preferential trade agreements." *Contemporary Politics* 24 (4): 398–417. https://doi.org/10.1080/13569775.2017.1422093.

LeSage, James, and R. Kelley Pace. 2009. *Introduction to spatial econometrics*. Edited by N. Balakrishnan and W. Schucany. Boca Raton, FL: CRC Press, Taylor & Francis Group. https://doi.org/10.1111/j.1467-985x.2010.00681_13.x.

Lesage, James P., and R. Kelley Pace. 2014. "The biggest myth in spatial econometrics." *Econometrics* 2 (4): 217–49. https://doi.org/10.3390/econometrics2040217.

Lim, Sijeong, Layna Mosley, and Aseem Prakash. 2015. "Revenue Substitution? How Foreign Aid Inflows Moderate the Effect of Bilateral Trade Pressures on Labor Rights." *World Development* 67: 295–309. https://doi.org/10.1016/j.worlddev.2014.10.025.

Lim, Sijeong, and Aseem Prakash. 2017. "Do Economic Problems at Home Undermine Worker Safety Abroad?: A Panel Study, 1980–2009." *World Development* 96: 562–77. https://doi.org/10.1016/j.worlddev.2017.03.038.

Lin-Hi, Nick, and Igor Blumberg. 2011. "The relationship between corporate governance, global governance, and sustainable profits: Lessons learned from BP." *Corporate Governance* 11 (5): 571–84. https://doi.org/10.1108/14720701111176984.

Locke, Richard M. 2013. "Private regulation (and its limitations) in the global economy." *The Politics of Representation in the Global Age: Identification, Mobilization, and Adjudication*, 200–228. https://doi.org/10.1017/CBO9781139794961.013.

Lund-Thomsen, Peter, Dima Jamali, and Antonio Vives. 2014. "CSR in SMEs: An analysis of donor-financed management tools." *Social Responsibility Journal* 10 (4): 602–19. https://doi.org/10.1108/SRJ-02-2013-0012.

Lund-Thomsen, Peter, and Adam Lindgreen. 2014. "Corporate Social Responsibility in Global Value Chains: Where Are We Now and Where Are We Going?" *Journal of Business Ethics* 123 (1): 11–22. https://doi.org/10.1007/s10551-013-1796-x.

Lyon, Thomas P., and A. Wren Montgomery. 2015. "The Means and End of Greenwash." *Organization & Environment* 28 (2): 223–49. https://doi.org/10.1177/1086026615575332.

Malesky, Edmund J., and Layna Mosley. 2018. "Chains of Love? Global Production and the Firm-Level Diffusion of Labor Standards." *American Journal of Political Science* 62 (3): 712–28. https://doi.org/10.1111/ajps.12370.

Marquis, Christopher, Michael W. Toffel, and Yanhua Zhou. 2016. "Scrutiny, norms, and selective disclosure: A global study of greenwashing." *Organization Science* 27 (2): 483–504. https://doi.org/10.1287/orsc.2015.1039.

Marshall, Monty G., Ted Robert Gurr, and Keith Jaggers. 2017. "Polity IV Project. Political Regime Characteristics and Transitions, 1800-2017 Dataset Users' Manual." Vienna: Center for Systemic Peace. https://doi.org/10.1177/0738894213499673.

Marx, Axel, Jan Wouters, Glenn Rayp, and Laura Beke. 2015. *Global governance of labour rights: assessing the effectiveness of transnational public and private policy initiatives*. London, England: Edward Elgar Publishing. https://doi.org/10.1007/s41027-017-0060-9.

Maskus, Keith E. 1997. "Should core labor standards be imposed through international trade policy?" http://papers.ssrn.com/sol3/papers.cfm?abstract%7B/_%7Did=44605.

Matesco, Virene Roxo, and Lia Hasenclever. 2000. "As Empresas Transnacionais e o Seu Papel

na Competitividade Industrial e Dos Países: o Caso do Brasil." In *O Brasil E Os Desafios Da Globalização*, 161–92. Rio de Janeiro: Relume-Dumará: VEIGA. https://doi.org/10.1017/CBO9781107415324.004.

Mattoo, Aaditya, Alen Mulabdic, and Michele Ruta. 2019. "Trade Creation and Trade Diversion in Deep Agreements." Policy Research Working Paper. World Bank.

Mayer, Frederick, and Gary Gereffi. 2010. "Regulation and economic globalization: Prospects and limits of private governance." *Business and Politics* 12 (3). https://doi.org/10.2202/1469-3569.1325.

Mayer, Frederick W., Nicola Phillips, and Anne C. Posthuma. 2017. "The political economy of governance in a 'global value chain world'." *New Political Economy* 22 (2): 129–33. https://doi.org/10.1080/13563467.2016.1273343.

Mayer, Thierry, Rodrigo Paillacar, and Soledad Zignago. 2010. "TradeProd. The CEPII Trade, Production and Bilateral Protection Database: Explanatory Notes TradeProd." MPRA Paper.

Meardi, Guglielmo, and Paul Marginson. 2014. "Global labour governance: Potential and limits of an emerging perspective." *Work, Employment and Society* 28 (4): 651–62. https://doi.org/10.1177/0950017014534007.

Melitz, Marc J., and Giancarlo I. P. Ottaviano. 2008. "Market Size, Trade, and Productivity." *Review of Economic Studies* 75 (1): 295–316. http://ideas.repec.org/a/bla/restud/v75y2008i1p295-316.html%7B/%%7D5Cnhttp://www3.interscience.wiley.com/cgi-bin/fulltext/119395823/PDFSTART.

Menashe, Maayan. 2020. "The Race to the Bottom Revisited: International Labour Law, Global Trade and Evolutionary Game Theory." *Oxford Journal of Legal Studies* 40 (1): 53–81. https://doi.org/10.1093/ojls/gqz029.

Millar, Kathleen M. 2014. "The precarious present: Wageless labor and disrupted life in Rio de Janeiro, Brazil." *Cultural Anthropology* 29 (1): 32–53. https://doi.org/10.14506/ca29.1.04.

Millimet, Daniel L., Roy, Jayjit. 2016. "Empirical Test of the Pollution Haven Hypothesis when Environmental Regulation is Endogenous." *Journal of Applied Econometrics* 31: 654–77. https://doi.org/10.1002/jae.

Mortatti, Caio Marcos, Sílvia Helena Galvão de Miranda, and Mirian Rumenos Piedade Bacchi. 2011. "Determinantes do comércio Brasil-China de commodities e produtos industriais: Uma aplicação VECM." *Economia Aplicada* 15 (2): 311–35. https://doi.org/10.1590/S1413-80502011000200007.

Mosley, Layna. 2010. "The overall picture." In *Labor Rights and Multinational Production*, Cambridge, 135–66. Cambridge, UK: Cambridge University Press. https://doi.org/10.1038/sj.bdj.2011.97.

———. 2011. *Labor rights and multinational production.* New York: Cambridge Uni versity Press. https://doi.org/10.1017/CBO9780511780998.

———. 2017a. "Labor and the Global Political Economy." *Oxford Research Encyclopedia of Politics*, no. July: 1–25. https://doi.org/10.1093/acrefore/9780190228637.013.189.

———. 2017b. "Workers' rights in global value chains: possibilities for protection and for peril." *New Political Economy* 22 (2): 153–68. https://doi.org/10.1080/13563467.2016.1273339.

Mosley, Layna, and Saika Uno. 2007. "Racing to the bottom or climbing to the top?: Economic globalization and collective labor rights." *Comparative Political Studies* 40 (8): 923–48. https://doi.org/10.1177/0010414006293442.

Muniz, Manuel Fuentes. 1995. "The NAFTA Labor Side Accord in Mexico and Its Repercussions for Workers." *Connecticut Journal of International Law* 10 (2): 379–402.

Neumayer, Eric, and Indra De Soysa. 2005. "Trade Openness , Foreign Direct Investment and Child Labor." *World Development* 33 (1): 43–63. https://doi.org/10.1016/j.worlddev.2004.06.014.

———. 2006. "Globalization and the right to free association and collective bargaining: An empirical analysis." *World Development* 34 (1): 31–49. https://doi.org/10.1016/j.worlddev.2005.06.009.

Newman, Carol, John Rand, Finn Tarp, and Neda Trifkovic. 2018. "The transmission of socially responsible behaviour through international trade." *European Economic Review* 101: 250–67. https://doi.org/10.1016/j.euroecorev.2017.10.013.

Nicita, Alessandro, and Marcelo Olarreaga. 2007. "Trade, production, and protection database, 1976-2004." *World Bank Economic Review* 21 (1): 165–71. https://doi.org/10.1093/wber/lhl012.

Nickell, Stephen. 1981. "Biases in Dynamic Models with Fixed Effects." *Econometrica* 49 (6): 1417–26.

Olivero, María Pía, and Yoto V. Yotov. 2012. "Dynamic gravity: Endogenous country size and asset accumulation." *Canadian Journal of Economics* 45 (1): 64–92. https://doi.org/10.1111/j.1540-5982.2011.01687.x.

Olney, William W. 2013. "A race to the bottom? Employment protection and foreign direct investment." https://doi.org/10.1016/j.jinteco.2013.08.003.

Palley, Thomas I. 2004. "The economic case for international labour standards." *Cambridge Journal of Economics* 28 (1): 21–36. https://doi.org/10.1093/cje/28.1.21.

Panagariya, Arvind. 2006. "Trade and Labor Standards: A Trade Economist's View." *Integration & Trade* 10: 1–37. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.878.3100%7B/&%7Drep=rep1%7B/&%7Dtype=pdf.

Payton, Autumn Lockwood, and Byungwon Woo. 2014. "Attracting investment: governments' strategic role in labor rights protection." *International Studies Quarterly* 58 (3): 462–74. https://doi.org/10.1111/isqu.12138.

Paz, Lourenço S. 2016. "The China Shock Impact on Brazil's Manufacturing Labor Market," no. December: 1–25.

Peksen, Dursun, and Robert G. Blanton. 2017. "The impact of ILO conventions on worker rights: Are empty promises worse than no promises?" *Review of International Organizations* 12 (1): 75–94. https://doi.org/DOI%2010.1007/s11558-015-9241-9.

Perkins, Richard, and Eric Neumayer. 2007. "Implementing multilateral environmental agreements: An analysis of EU directives." *Global Environmental Politics* 7 (3): 13–41. https://doi.org/10.1162/glep.2007.7.3.13.

Pevehouse, Jon C. 2002. "With a Little Help from My Friends? Regional Organizations and the Consolidation of Democracy." *American Journal of Political Science* 46 (3): 611–26.

Pfaffermayr, Michael. 2019. "Gravity models, PPML estimation and the bias of the robust standard errors." *Applied Economics Letters* 26 (18): 1467–71. https://doi.org/10.1080/13504851.2019.1581902.

Picolotto, André, Daniel Giovanaz, Julieta Casara, Luara Wandelli Loth, Lúcio Lambranho, Marques Casara, Poliana Dallabrida, Raquel Sabrina, and Tulio Kruse. 2018. "Cocoa Supply Chain. Advances and Challenges Toward the Promotion of Decent Work: A situational Analysis." 1. International Labour Organization (ILO). https://doi.org/10.16309/j.cnki.issn.1007-1776.2003.03.004.

Polillo, Simone, and Mauro F. Guillén. 2005. "Globalization Pressures and the State: The Worldwide Spread of Central Bank Independence." *American Journal of Sociology* 110 (6): 1764–1802. https://doi.org/10.1086/428685.

Pond, Amy. 2018. "Worker Influence on Capital Account Policy: Inflow Liberalization and Outflow Restrictions." *International Interactions* 44 (2): 244–67. https://doi.org/10.1080/03050629.2017.1344125.

Ponte, Stefano, Gary Gereffi, and Gale Raj-Reichert. 2019. "Introduction." In *Handbook on Global Value Chains*, edited by Stefano Ponte, Gary Gereffi, and Gale Raj-Reichert, 1–27. Edward Elgar Publishing. https://doi.org/10.4337/9781788113779.00005.

Ponte, Stefano, Gary Gereffi, Gale Raj-Reichert, Karina Fernandez-Stark, and Gary Gereffi. 2019. "Global value chain analysis: a primer (second edition)." Duke University: Center on Globalization, Governance & Competitiveness, D. https://doi.org/10.4337/9781788113779.00008.

Postnikov, Evgeny, and Ida Bastiaens. 2014. "Does dialogue work? The effectiveness of labor standards in EU preferential trade agreements." https://doi.org/10.1080/13501763.2014.910869.

Potoski, Matthew, and Aseem Prakash. 2009. "Information asymmetries as trade barriers: ISO 9000 increases international commerce." *Journal of Policy Analysis and Management* 28 (2): 221–38. https://doi.org/10.1002/pam.20424.

Raess, Damian, Andreas Dür, and Dora Sari. 2018. "Protecting labor rights in preferential trade agreements: The role of trade unions, left governments, and skilled labor." *Review of International Organizations* 13 (2): 143–62. https://doi.org/10.1007/s11558-018-9301-z.

Raess, Damian, and Dora Sari. 2018. "Labor Provisions in Trade Agreements (LABPTA): Introducing a New Dataset." *Global Policy* 9 (4): 451–66. https://doi.org/10.1111/1758-5899.12577.

Roodman, David. 2009a. "How to do xtabond2: An introduction to difference and system GMM in Stata." *The Stata Journal* 9 (1): 86–136.

———. 2009b. "Practitioners' corner: A note on the theme of too many instruments." *Oxford Bulletin of Economics and Statistics* 71 (1): 135–58. https://doi.org/10.1111/j.1468-0084.2008.00542.x.

Sahin, Soumya, and Ambar Nath Ghosh. 2016. "Effect of Ban on Exports Containing Child Labour in a Dynamic Model in Presence of Imperfect Monitoring." *Foreign Trade Review* 51 (1): 26–45. https://doi.org/10.1177/0015732515615259.

Salzburger, Sonja. 2010. "Made in Brazil: Confronting Child Labor." https://www.cetri.be/Made-in-Brazil-Confronting-Child?lang=fr.

Santos Silva, J. M. C., and Silvana Tenreyro. 2006. "The Log of Gravity." *The Review of Economics and Statistics* 88 (4): 641–58.

———. 2011. "Further simulation evidence on the performance of the Poisson pseudo-maximum likelihood estimator." *Economics Letters* 112 (2): 220–22. https://doi.org/10.1016/j.econlet.2011.05.008.

Sari, Dora, and David Kucera. 2016. "New 'Labour Rights Indicators': Coding Rules and Defini-

tions," no. April: 1–83.

Sari, Dora, Damian Raess, and David Kucera. 2016. "Do PTAs Including Labor Provisions Reduce Collective Labor Rights Violations? The Role of Labor Cooperation Provision." In *10th Annual Conference on the Political Economy of International Organizations*. https://www.peio.me/wp-content/uploads/2016/12/PEIO10%7B/_%7Dpaper%7B/_%7D63.pdf.

Shepherd, Ben. 2016. *The Gravity Model of International Trade: A User Guide (An updated version)*. United Nations Publication.

Sholl Cintra, João Pedro, Kassia Beatriz Bobadilla, and Maitê Gauto. 2017. "O Trabalho Infantil no Brasil. O desafio do trabalho infantil nas atividades agrícolas." São Paulo: Fundação ABRINQ.

Silva, Pedro Luis do Nascimento, Djalma Galvão Carneiro Pessoa, and Maurício Franca Lila. 2002. "Análise estatística de dados da PNAD: incorporando a estrutura do plano amostral - Statistical analysis of data from PNAD: incorporating the sample design." *Ciência & Saúde Coletiva* 7 (4): 659–70. http://www.scielo.br/scielo.php?script=sci%7B/_%7Darttext%7B/&%7Dpid=S1413-81232002000400005%7B/&%7Dnrm=iso.

Simmons, B. A., and Z. Elkins. 2004. "The globalisation of liberalisation: policy diffusion in the international political economy." *American Political Science Review* 98 (1): 171–89.

Simmons, Beth. 2010. "Treaty Compliance and Violation." *Annual Review of Political Science* 13 (1): 273–96. https://doi.org/10.1146/annurev.polisci.12.040907.132713.

Singh, Ajit, and Ann Zammit. 2004. "Labour Standards and the 'Race to the Bottom': Rethinking Globalization and Workers' Rights from Developmental and Solidaristic Perspectives." *Oxford Review of Economic Policy* 20 (1): 85–104. https://doi.org/10.1093/oxrep/grh006.

Siroën, Jean-Marc. 2017. "Core Labour Standards and Globalization." *Working Paper DT/2012-18*, no. July.

Sousa, José de, Thierry Mayer, and Soledad Zignago. 2012. "Market access in global and regional trade." *Regional Science and Urban Economics* 42 (6): 1037–52. https://doi.org/10.1016/j.regsciurbeco.2012.07.011.

Spar, Debora L., and Jennifer Burns. 2000. *Hitting the Wall: Nike and International Labor Practices*. Cambridge, MA: Harvard Business School Publishing. https://doi.org/10.1142/9781848160040_0018.

Spilker, Gabriele, Thomas Bernauer, and Víctor Umaña. 2016. "Selecting partner countries for preferential trade agreements: Experimental evidence from Costa Rica, Nicaragua, and Viet-

nam." *International Studies Quarterly* 60 (4): 706–18. https://doi.org/10.1093/isq/sqv024.

Spilker, Gabriele, and Tobias Böhmelt. 2012. "The impact of preferential trade agreements on governmental repression revisited." *Review of International Organizations* 8 (3): 343–61. https://doi.org/10.1007/s11558-012-9155-8.

Staritz, Cornelia, Gary Gereffi, and Olivier Cattaneo. 2011. *Shifting End Markets and Upgrading Prospects*. Vol. 4. 1.

Sturgeon, Timothy, Gary Gereffi, Andrew Guinn, and Ezequiel Zylberberg. 2013. "Brazil in Global Value Chains: Implications for Trade and Industrial Policy." *Funcex: Revista Brasileira de Comércio Exterior*, no. 115: 26–41.

Sutherland, Johanna. 1998. "International Trade and the GATT/WTO Social Clause: Broadening the Debate." *QUT Law Review* 14 (0). https://doi.org/10.5204/qutlr.v14i0.456.

Tang, Can, Liqiu Zhao, and Zhong Zhao. 2018. "Child labor in China." *China Economic Review* 51 (71403286): 149–66. https://doi.org/10.1016/j.chieco.2016.05.006.

Tariq, Bilal, and Rossazana Ab-Rahim. 2020. "Trade and Child Labor: A Review of Literature." *Journal of Public Administration and Governance* 10 (1): 17–40. https://doi.org/10.5296/jpag.v10i1.15429.

The World Bank. 2008. "Bolsa Família: Changing the Lives of Millions in Brazil." http://go.worldbank.org/3QI1C7B5U0.

Tinbergen, J. 1962. *Shaping the World Economy: Suggestions for an International Economic Policy*. New York: Twentieth Century Fund.

Trefler, Daniel. 2004. "The long and short of the Canada-U.S. free trade agreement." *American Economic Review* 94 (4): 870–95. https://doi.org/10.1257/0002828042002633.

Tully, Stephanie M., and Russell S. Winer. 2014. "The role of the beneficiary in willingness to pay for socially responsible products: A meta-analysis." *Journal of Retailing* 90 (2): 255–74. https://doi.org/10.1016/j.jretai.2014.03.004.

United Nations. 1990. "International Standard Industrial Classification of All Economic Activities. Revision 3."

United Nations Conference on Trade and Development (UNCTAD). 2019. *Review of Maritime Transport 2019*. https://unctad.org/en/Pages/Publications/Review-of-Maritime-Transport-(Series).aspx.

United States International Trade Commission (USITC). 2012. "Brazil: Competitive factors in Brazil affecting U.S. and Brazilian agricultural sales in selected third country markets." *Brazilian*

Agricultural Competitiveness and Trade, no. 332: 1–355.

Vadlamannati, Krishna Chaitanya. 2015. "Rewards of (dis)integration: Economic, social, and political globalization and freedom of association and collective bargaining rights of workers in developing countries." *Industrial and Labor Relations Review* 68 (1): 3–27. https://doi.org/10.1177/0019793914555851.

Van Daele, Arme. 2004. *International Labour Rights and the Social Clause: Friends Or Foes*. London: Cameron May Ldt.

VanGrasstek, Craig. 2013. *The History and Future of the World Trade Organization*. https://doi.org/10.30875/14b6987e-en.

Venables, Anthony J. 2003. "Winners and losers from regional integration agreements." *Economic Journal* 113 (490): 747–61. https://doi.org/10.1111/1468-0297.t01-1-00155.

Viner, Jacob. 1950. *The Customs Union Issue*. Carnegie E. New York: Oxford Universtity Press. https://doi.org/10.1111/j.1467-9957.1992.tb00215.x.

Vogel, David. 1995. *Trading up: consumer and environmental regulation in a global economy*. Cambridge, Massachusetts: Harvard University Press. https://doi.org/10.2307/2625603.

———. 2005. *The Market for Virtue: The Potential and Limits of Corporate Social Responsibility*. Washington, D.C.: Brookings Institution Press. https://doi.org/10.5840/beq200717225.

Von Stein, Jana. 2015. "Making Promises, Keeping Promises: Democracy, Ratification and Compliance in International Human Rights Law." *British Journal of Political Science* 46 (3): 655–79. https://doi.org/10.1017/S0007123414000489.

W. Abbott, Kenneth, and Duncan Snidal. 2000. "Hard and Soft Law in International Governance." *International Organization* 54 (3): 421–56. https://doi.org/10.1162/002081800551280.

Wang, Zhiyuan. 2017. "Democracy, Policy Interdependence, and Labor Rights." *Political Research Quarterly* 70 (3): 549–63.

———. 2018. "Economic Competition, Policy Interdependence, and Labour Rights." *New Political Economy* 23 (6): 656–73. https://doi.org/10.1080/13563467.2018.1384452.

Ward, Michael D., and Kristian Skrede Gleditsch. 2019. *Spatial Regression Models*. ResearchMe. SAGE Publications, Inc. https://doi.org/10.4135/9781071802588.n5.

Weidner, Martin, and Thomas Zylkin. 2020. "Bias and Consistency in Three-way Gravity Models." ArXiv Preprint arXiv:1909.01327. http://arxiv.org/abs/1909.01327.

Weil, David. 2014. *The Fissured Workplace: why work became so bad for so many and what can be done to improve it*. London, England: Harvard University Press. http://arxiv.org/abs/arXiv:

1011.1669v3.

Windmeijer, Frank. 2005. "A finite sample correction for the variance of linear efficient two-step GMM estimators." *Journal of Econometrics* 126 (1): 25–51. https://doi.org/10.1016/j.jeconom.2004.02.005.

Wooldridge, Jeffrey M. 2002. *Introductory Econometrics: A Modern Approach*. 5th ed.

Wooldridge, Jeffrey M. 2010. *Econometric Analysis of Cross Section and Panel Data*. 2nd ed. Vol. 58. 2. Cambridge, Massachusetts: Massachusetts Institute of Technology. https://doi.org/10.1515/humr.2003.021.

World Bank. 2020. "World Development Indicators: Trade (% of GDP)." https://data.worldbank.org/indicator/NE.TRD.GNFS.ZS.

Ye, Fangjin. 2019. "The impact of bilateral investment treaties (BITs) on collective labor rights in developing countries." *The Review of International Organizations*, 1–23. https://doi.org/10.1007/s11558-019-09367-9.

Yotov, Yoto V., Roberta Piermartini, Jose Antonio Monteiro, and Mario Larch. 2016. *An Advanced Guide to Trade Policy Analysis: The Structural Gravity Model*. Geneva: World Trade Organization.

Zhang, Liping, and Silvana Schimanski. 2014. "Cadeias Globais de Valor e os Países em Desenvolvimento." *Boletim de Economia E Política Internacional - BEPI* 18: 73–92. http://www.floridatechonline.com/online-degree-.

Zhu, Qinghua, James Cordeiro, and Joseph Sarkis. 2012. "International and domestic pressures and responses of Chinese firms to greening." *Ecological Economics* 83: 144–53. https://doi.org/10.1016/j.ecolecon.2012.04.007.

4.7 Annexes

4.7.1 Classification of goods

Table 4.6: ISIC classification of exported goods

	Code	Description
1	A	Agriculture, hunting and forestry
2	01	Agriculture, hunting and related service activities
3	011	Growing of crops; market gardening; horticulture
4	012	Farming of animals
5	02	Forestry, logging and related service activities
6	020	Forestry, logging and related service activities
7	B	Fishing
8	05	Fishing, operation of fish hatcheries and fish farms; service activities incidental to fishing
9	050	Fishing, operation of fish hatcheries and fish farms; service activities incidental to fishing
10	C	Mining and quarrying
11	10	Mining of coal and lignite; extraction of peat
12	101	Mining and agglomeration of hard coal
13	102	Mining and agglomeration of lignite
14	103	Extraction and agglomeration of peat
15	11	Extraction of crude petroleum and natural gas; service activities incidental to oil and gas
16	111	Extraction of crude petroleum and natural gas
17	13	Mining of metal ores
18	131	Mining of iron ores
19	132	Mining of non-ferrous metal ores, except uranium and thorium ores
20	14	Other mining and quarrying
21	141	Quarrying of stone, sand and clay
22	142	Mining and quarrying n.e.c.
23	D	Manufacturing
24	15	Manuf. of food products and beverages
25	151	Production, processing and preservation of meat, fish, fruit, vegetables, oils and fats
26	152	Manuf. of dairy products
27	153	Manuf. of grain mill products, starches and starch products, and prepared animal feeds
28	154	Manuf. of other food products
29	155	Manuf. of beverages
30	16	Manuf. of tobacco products
31	160	Manuf. of tobacco products
32	17	Manuf. of textiles
33	171	Spinning, weaving and finishing of textiles
34	172	Manuf. of other textiles
35	173	Manuf. of knitted and crocheted fabrics and articles
36	18	Manuf. of wearing apparel; dressing and dyeing of fur
37	181	Manuf. of wearing apparel, except fur apparel
38	182	Dressing and dyeing of fur; manufacture of articles of fur
39	19	Tanning and dressing of leather
40	191	Tanning and dressing of leather; manufacture of luggage, handbags, saddlery and harness
41	192	Manuf. of footwear
42	20	Manuf. of wood except furniture; manufacture of articles of straw and plaiting materials
43	201	Sawmilling and planing of wood
44	202	Manuf. of products of wood, cork, straw and plaiting materials
45	21	Manuf. of paper and paper products
46	210	Manuf. of paper and paper products
47	22	Publishing, printing and reproduction of recorded media
48	221	Publishing
49	222	Printing and service activities related to printing
50	23	Manuf. of coke, refined petroleum products and nuclear fuel
51	231	Manuf. of coke oven products
52	232	Manuf. of refined petroleum products
53	233	Processing of nuclear fuel
54	24	Manuf. of chemicals and chemical products

55	241	Manuf. of basic chemicals
56	242	Manuf. of other chemical products
57	243	Manuf. of man-made fibres
58	25	Manuf. of rubber and plastics products
59	251	Manuf. of rubber products
60	252	Manuf. of plastics products
61	26	Manuf. of other non-metallic mineral products
62	261	Manuf. of glass and glass products
63	269	Manuf. of non-metallic mineral products n.e.c.
64	27	Manuf. of basic metals
65	271	Manuf. of basic iron and steel
66	272	Manuf. of basic precious and non-ferrous metals
67	28	Manuf. of fabricated metal products, except machinery and equipment
68	281	Manuf. of structural metal products, tanks, reservoirs and steam generators
69	289	Manuf. of other fabricated metal products; metal working service activities
70	29	Manuf. of machinery and equipment n.e.c.
71	291	Manuf. of general purpose machinery
72	292	Manuf. of special purpose machinery
73	293	Manuf. of domestic appliances n.e.c.
74	30	Manuf. of office, accounting and computing machinery
75	300	Manuf. of office, accounting and computing machinery
76	31	Manuf. of electrical machinery and apparatus n.e.c.
77	311	Manuf. of electric motors, generators and transformers
78	312	Manuf. of electricity distribution and control apparatus
79	313	Manuf. of insulated wire and cable
80	314	Manuf. of accumulators, primary cells and primary batteries
81	315	Manuf. of electric lamps and lighting equipment
82	319	Manuf. of other electrical equipment n.e.c.
83	32	Manuf. of radio, television and communication equipment and apparatus
84	321	Manuf. of electronic valves and tubes and other electronic components
85	322	Manuf. of television and radio transmitters and apparatus for line telephony and line telegraphy
86	323	Manuf. of television and radio receivers, sound or video recording or reproducing apparatus
87	33	Manuf. of medical, precision and optical instruments, watches and clocks
88	331	Manuf. of medical appliances and instruments and appliances, except optical instruments
89	332	Manuf. of optical instruments and photographic equipment
90	333	Manuf. of watches and clocks
91	34	Manuf. of motor vehicles, trailers and semi-trailers
92	341	Manuf. of motor vehicles
93	342	Manuf. of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers
94	343	Manuf. of parts and accessories for motor vehicles and their engines
95	35	Manuf. of other transport equipment
96	351	Building and repairing of ships and boats
97	352	Manuf. of railway and tramway locomotives and rolling stock
98	353	Manuf. of aircraft and spacecraft
99	359	Manuf. of transport equipment n.e.c.
100	36	Manuf. of furniture; manufacturing n.e.c.
101	361	Manuf. of furniture
102	369	Manufacturing n.e.c.
103	E	Electricity, gas and water supply
104	40	Electricity, gas, steam and hot water supply
105	401	Production, collection and distribution of electricity
106	402	Manuf. of gas; distribution of gaseous fuels through mains
107	K	Real estate, renting and business activities
108	74	Other business activities
109	742	Architectural, engineering and other technical activities
110	749	Business activities n.e.c.
111	O	Other community, social and personal service activities
112	92	Recreational, cultural and sporting activities
113	921	Motion picture, radio, television and other entertainment activities
114	93	Other service activities
115	930	Other service activities

4.7.2 Spatial Durbin Model Results

Table 4.7: SDM Results

	Geo W	TS2 Comp W
Export Share to China	0.040^{*}	0.061^{***}
	(0.020)	(0.022)
W. Export Share to China	-0.213^{***}	-0.074^{***}
	(0.039)	(0.00)
W. Child labour	0.623^{***}	0.601^{***}
	(0.008)	(0.014)
State FE	Yes	Yes
Sector FE	Yes	Yes
Year FE	Yes	Yes
Num. obs.	12285	12285
AIC (Spatial model)	−100642.4912	−98678.0444
LR test: statistic	3765.1423	1435.5237
LR test: p-value	0.0000	0.0000

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

4.7.3 Four-Way FE SLX Models

Table 4.8: Four-way FE SLX Results

	SLX w/Comp W	SLX w/Geo W	SLX-IV w/Comp W	SLX-IV w/Geo W
Export Share to China	0.092***	0.088***	0.047*	0.057**
	(0.026)	(0.030)	(0.025)	(0.028)
W.Export Share to China	−0.109***	−0.464***	−0.059***	−0.252***
	(0.005)	(0.052)	(0.005)	(0.048)
State FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes
State-Year FE	Yes	Yes		
Sector-Year FE			Yes	Yes
R^2	0.561	0.547	0.634	0.631
Adj. R^2	0.545	0.531	0.619	0.616
Num. obs.	12285	12285	12285	12285

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

4.7.4 Four-Way FEs with Lagged Dependent Variable

Table 4.9: SLX w/Temporally Lagged DV

	SLX w/Comp W	SLX w/Geo W
Export Share to China	0.091***	0.088***
	(0.026)	(0.030)
W.Export Share to China	−0.110***	−0.457***
	(0.005)	(0.052)
Lagged Child labour Rate	−1.292	0.993
	(0.890)	(0.898)
State FE	Yes	Yes
Year FE	Yes	Yes
Sector FE	Yes	Yes
State-Year FE	Yes	Yes
R^2	0.561	0.547
Adj. R^2	0.545	0.531
Num. obs.	12285	12285

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

4.7.5 Only using top 98% importers

Table 4.10: The effects of child labour on exports towards China (largest 85 importers)

	α_{ij}		$\alpha_{ij} \times trend$	
	All importers	Top 85 importers	All importers	Top 85 importers
$CL_{i,t} \times CHN_j$	0.001	0.001	0.026	0.025
	(0.027)	(0.026)	(0.019)	(0.019)
	[0.009]	[0.009]	[0.002]***	[0.002]***
$CECL_{i,t} \times CHN_j$	-0.061	-0.059	-0.052	-0.051
	(0.054)	(0.054)	(0.054)	(0.054)
	[0.032]*	[0.031]*	[0.034]	[0.033]
Observations	61477	31575	61477	31306
pseudo-R-squared	0.977	0.973	0.986	0.983
Three-way Fixed Effects	Yes	Yes	Yes	Yes

Robust standard errors, clustered by country-pair, in parentheses. Standard errors clustered by exporter, importer, and year in squared brackets (* p<0.10, ** p<0.05, *** p<0.01). Fixed effects estimates are not reported for brevity.

4.7.6 Alternative competition measures

Table 4.11: The effects of child labour on exports towards China: alternative competition measures

	α_{ij}			$\alpha_{ij} \times trend$		
	(1)	(2)	(3)	(4)	(5)	(6)
	$W_{ISIC2,ijt}$	$W_{GEO,ij}$	$W_{ISIC3,ijt}$	$W_{ISIC2,ijt}$	$W_{GEO,ij}$	$W_{ISIC3,ijt}$
$CL_{i,t} \times CHN_j$	0.001	0.004	-0.000	0.026	0.027	0.026
	(0.027)	(0.028)	(0.026)	(0.019)	(0.019)	(0.019)
	[0.009]	[0.008]	[0.008]	[0.002]***	[0.003]***	[0.003]***
$CECL_{i,t} \times CHN_j$	-0.061			-0.052		
	(0.054)			(0.054)		
	[0.032]*			[0.034]		
$W_{GEO,ij}CL_{i,t} \times CHN_j$		-0.100			-0.034	
		(0.138)			(0.139)	
		[0.083]			[0.083]	
$CE(TS3)CL_{i,t} \times CHN_j$			-0.052			-0.043
			(0.081)			(0.072)
			[0.024]**			[0.039]
Observations	61477	61477	61477	61477	61477	61477
pseudo-R-squared	0.977	0.977	0.977	0.986	0.986	0.986
Three-way Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors, clustered by country-pair, in parentheses. Standard errors clustered by exporter, importer, and year in squared brackets (* p<0.10, ** p<0.05, *** p<0.01). Fixed effects estimates are not reported for brevity.

4.7.7 Lags and leads

Table 4.12: The effects of child labour on exports towards China: lags and leads

	(1) Value	(2) Value	(3) Value	(4) Value	(5) Value
Child labour					
$CL_{i,t} \times CHN_j$	0.001	0.005	0.010	0.014	0.024
	[0.009]	[0.011]	[0.016]	[0.016]	[0.013]*
$CL_{i,t-1} \times CHN_j$		0.002	0.012	0.017	0.013
		[0.016]	[0.018]	[0.020]	[0.024]
$CL_{i,t-2} \times CHN_j$			-0.015	0.001	-0.002
			[0.016]	[0.017]	[0.018]
$CL_{i,t-3} \times CHN_j$				-0.009	0.014
				[0.022]	[0.020]
$CL_{i,t+1} \times CHN_j$					-0.041
					[0.031]
Competitor engagement in child labour					
$CECL_{i,t} \times CHN_j$	-0.061	-0.054	-0.034	-0.002	-0.021
	[0.032]*	[0.036]	[0.026]	[0.029]	[0.032]
$CECL_{i,t-1} \times CHN_j$		-0.005	-0.043	-0.027	-0.007
		[0.053]	[0.031]	[0.045]	[0.050]
$CECL_{i,t-2} \times CHN_j$			0.045	-0.038	-0.065
			[0.041]	[0.071]	[0.078]
$CECL_{i,t-3} \times CHN_j$				0.087	0.065
				[0.044]**	[0.058]
$CECL_{i,t+1} \times CHN_j$					-0.032
					[0.036]
Observations	61477	57040	52563	48097	43200
pseudo-R-squared	0.977	0.978	0.978	0.978	0.980
Three-way Fixed Effects	Yes	Yes	Yes	Yes	Yes

Robust standard errors clustered by exporter, importer, and year in squared brackets (* p<0.10, ** p<0.05, *** p<0.01)

Table 4.13: The effects of child labour on exports towards China: lags and leads ($\alpha_{i,j} \times trend$)

	(1) Value	(2) Value	(3) Value	(4) Value	(5) Value
Child labour					
$CL_{i,t} \times CHN_j$	0.026	0.028	0.027	0.018	0.007
	[0.002]***	[0.004]***	[0.009]***	[0.014]	[0.026]
$CL_{i,t-1} \times CHN_j$		0.015	0.020	0.013	-0.008
		[0.011]	[0.021]	[0.026]	[0.030]
$CL_{i,t-2} \times CHN_j$			-0.006	-0.003	-0.030
			[0.020]	[0.028]	[0.028]
$CL_{i,t-3} \times CHN_j$				-0.015	-0.017
				[0.024]	[0.019]
$CL_{i,t+1} \times CHN_j$					-0.047
					[0.029]
Competitor engagement in child labour					
$CECL_{i,t} \times CHN_j$	-0.052	-0.062	-0.037	-0.016	-0.023
	[0.034]	[0.054]	[0.037]	[0.041]	[0.029]
$CECL_{i,t-1} \times CHN_j$		0.014	-0.026	-0.007	0.020
		[0.058]	[0.034]	[0.045]	[0.040]
$CECL_{i,t-2} \times CHN_j$			0.045	-0.035	-0.065
			[0.053]	[0.073]	[0.069]
$CECL_{i,t-3} \times CHN_j$				0.090	0.048
				[0.056]	[0.052]
$CECL_{i,t+1} \times CHN_j$					0.013
					[0.045]
Observations	61477	57040	52563	48097	43200
pseudo-R-squared	0.986	0.986	0.986	0.987	0.988
Three-way Fixed Effects	Yes	Yes	Yes	Yes	Yes
$\alpha_{i,j} \times trend$	Yes	Yes	Yes	Yes	Yes

Robust standard errors clustered by exporter, importer, and year in squared brackets (* p<0.10, ** p<0.05, *** p<0.01)

4.7.8 Non-consecutive years

Table 4.14: The effects of child labour on exports towards China: non consecutive years

	α_{ij}			$\alpha_{ij} \times trend$		
	(1) Consecutive yrs	(2) 4 yrs intervals	(3) 2 yrs intervals	(4) Consecutive years	(5) 4 yrs intervals	(6) 2 yrs intervals
$CL_{i,t} \times CHN_j$	0.001	0.014	0.026	0.026	0.121	0.047
	(0.027)	(0.072)	(0.043)	(0.019)	(0.122)	(0.036)
	[0.009]	[0.046]	[0.016]	[0.002]***	[0.083]	[0.004]***
$CECL_{i,t} \times CHN_j$	-0.061	-0.022	0.097	-0.052	-0.034	0.097
	(0.054)	(0.179)	(0.062)	(0.054)	(0.248)	(0.070)
	[0.032]*	[0.034]	[0.016]***	[0.034]	[0.127]	[0.039]**
Observations	61477	14470	27164	61477	14470	27164
pseudo-R-squared	0.977	0.980	0.978	0.986	0.991	0.987
Three-way Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors, clustered by country-pair, in parentheses. Standard errors clustered by exporter, importer, and year in squared brackets (* p<0.10, ** p<0.05, *** p<0.01).

195

4.7.9 Effects on different Regions

Table 4.15: The effects of child labour on exports towards China: reginal differences (α_{ij})

	(1)	(2)	(3)	(4)	(5)
	All Regions	Nord Este	Centro Oeste	Norte	SUl & Sudeste
$CL_{i,t} \times CHN_j$	0.001	0.063	0.111	0.014	-0.008
	(0.027)	(0.040)	(0.030)***	(0.092)	(0.049)
	[0.009]	[0.029]**	[0.028]***	[0.126]	[0.026]
$CECL_{i,t} \times CHN_j$	-0.061	-0.212	0.695	-0.517	-0.063
	(0.054)	(0.585)	(0.633)	(0.540)	(0.059)
	[0.032]*	[0.344]	[0.896]	[0.244]**	[0.044]
Observations	61477	17111	8757.000	9340	21239
pseudo-R-squared	0.977	0.966	0.985	0.986	0.981
Three-way Fixed Effects	Yes	Yes	Yes	Yes	Yes

Robust standard errors, clustered by country-pair, in parentheses. Standard errors clustered by exporter, importer, and year in squared brackets (* p<0.10, ** p<0.05, *** p<0.01).

Table 4.16: The effects of child labour on exports towards China: reginal differences ($\alpha_{ij} \times trend$)

	(1)	(2)	(3)	(4)	(5)
	All Regions	Nord Este	Centro Oeste	Norte	SUl & Sudeste
$CL_{i,t} \times CHN_j$	0.026	0.033	-0.055	0.052	0.012
	(0.019)	(0.027)	(0.092)	(0.034)	(0.033)
	[0.002]***	[0.010]***	[0.135]	[0.045]	[0.016]
$CECL_{i,t} \times CHN_j$	-0.052	0.819	-0.707	2.033	-0.060
	(0.054)	(0.392)**	(0.373)*	(0.510)***	(0.057)
	[0.034]	[0.163]***	[0.369]*	[1.031]**	[0.040]
Observations	61477	17111	9340	8757	21239
pseudo-R-squared	0.986	0.978	0.991	0.988	0.988
Three-way Fixed Effects	Yes	Yes	Yes	Yes	Yes

Robust standard errors, clustered by country-pair, in parentheses. Standard errors clustered by exporter, importer, and year in squared brackets (* p<0.10, ** p<0.05, *** p<0.01).

4.7.10 Sectoral level estimation

Table 4.17: The effects of child labour on exports towards China by sector α_ij

	(1)	(2)	(3)
	Agriculture	Mining	Manufacturing
$CL1\_i,t \times CHN\_j$	0.007	-6.505	-0.183
	(0.065)	(7.791)	(0.247)
	[0.072]	[7.262]	[0.122]
$CECL1\_i,t \times CHN\_j$	0.080	-9.147	-0.063
	(0.407)	(6.037)	(0.292)
	[0.367]	[7.336]	[0.145]
Observations	27150	14094	55981
pseudo-R-squared	0.984	0.988	0.981
Three-way Fixed Effects	Yes	Yes	Yes

Robust standard errors, clustered by country-pair, in parentheses. Standard errors clustered by exporter, importer, and year in squared brackets (* p<0.10, ** p<0.05, *** p<0.01).

Table 4.18: The effects of child labour on exports towards China by sector $\alpha\_ij \times Trend$

	(1)	(3)	(4)
	Agriculture	Mining	Manufacturing
$CL1\_i,t \times CHN\_j$	0.093	-8.999	-0.281
	(0.037)**	(6.203)	(0.243)
	[0.056]*	[8.152]	[0.110]**
$CECL1\_i,t \times CHN\_j$	0.592	-7.717	-0.170
	(0.216)***	(5.343)	(0.253)
	[0.172]***	[5.509]	[0.117]
Observations	27150	14094	55981
pseudo-R-squared	0.990	0.993	0.989
Three-way Fixed Effects	Yes	Yes	Yes

Robust standard errors, clustered by country-pair, in parentheses. Standard errors clustered by exporter, importer, and year in squared brackets (* p<0.10, ** p<0.05, *** p<0.01).

Chapter 5

Critical Discussion and Conclusions

This thesis explores the complex system of relationships that links global labour governance (GLG), exports and working standards. Motivated by theories and empirical evidence from the spatial interaction literature, it argues that prior scholarship has largely ignored the effects that a shock in one country (or firm) can have on competitors. The main argument of this work is that researchers should take a *systemic approach* in order to explore how competitive dynamics interact with trade, labour governance and working conditions and come together to shape outcomes for a target country (or firm) and its competitors. The body of the thesis consists of three empirical papers exploring these systemic effects. Chapter 2 analyses the impact of preferential trade agreements with labour clauses (LABPTAs) on labour outcomes; Chapter 3 studies the effects of LABPTAs on trade flows and export destinations; and Chapter 4 examines the relationship between the rise of China as a major export destination and child labour incidence in Brazil. Through these papers, the thesis contributes to addressing the following overarching research questions:

1) *What is the impact of global labour governance on working conditions?* (Chapter 2)
2) *What is the impact of global labour governance on export flows?* (Chapter 3)
3) *What is the impact of trade on labour standards?* (Chapter 4)

The main findings can be summarised as follows. In the paper titled "*The Systemic Effects of Trade Agreements with Labour Clauses: Diffusion or Displacement?*" I examine whether LABPTAs with the US and the EU affect the working standards of signatory countries and their competitors. Following insights from the theoretical literature, I hypothesise that LABPTAs can trigger a *displacement* effect whereby the promotion of decent working conditions in a given

country, results in increased labour abuses elsewhere (Koenig-Archibugi 2017; Baland and Duprez 2009). A testable implication of this argument is that the more a given country's competitors engage in LABPTAs, the more its own labour standards will decline. Using a dynamic generalised methods of moment estimator, I find that competitors' engagement in LABPTAs with the US is negatively associated with respect (in practice) of freedom of association and collective bargaining (FACB) rights. I do not find evidence that LABPTAs with the EU have effects on competitors' labour conditions. The results also show that LABPTAs with neither the US nor the EU have a significant impact on the working conditions of the signatory countries.

The systemic effects of LABPTAs are further explored in the third chapter, which analyses their impact on trade volumes and export destinations. Using a structural gravity methodology, the paper finds that the more a country has competitors engaging in LABPTAs with the EU, the more its international export volumes will increase relative to domestic trade. This finding suggests that countries can benefit from competitors' engagement in LABPTAs, possibly because they are able to exploit new market niches for price-sensitive goods. Conversely, the paper does not find that LABPTAs with the US generate a systemic effect, given they do not have a significant impact on competitors' trade flows. Nevertheless, consistent with the *comparative advantage* argument the paper discovers that controlling for the trade-enhancing effect of liberalisation with the US, these LABPTAs reduce international exports relative to domestic trade of the signatory countries. This effect appears to be larger for lower-income countries, where cheap labour is more likely to be a source of comparative advantage in the export of manufacturing goods. This group of states will also trade significantly less with low- and medium-income countries than with high-income economies once they enter into LABPTAs with the US.

In the paper "*The Impact of the China Shock on Brazil's Efforts to Combat Child Labour*" we address the last question and examine the trade–labour link using a systemic approach. The research focuses on child labour in Brazil and how it has been affected by the rise of Chinese imports. Consistent with the 'Shanghai effect' argument, we find that as China rises as a major import destination at the expense of alternative buyers, child labour incidence grows in Brazil's federal states. However, our results also show that increasing exports to China triggers patterns of *divergent* strategic competition among competitors. We find that the more a state exports to China, the less its competitors will employ children in the workforce. This suggests that, rather

than competing for the same end market, firms in competitor states have incentives to reduce child labour to try to target exporters with different preferences on labour standards. The paper also finds evidence of a two-way relationship between child labour and exports. Our gravity results show that the more a state has children in the workforce, the more it will attract Chinese importers. However, the paper does not find evidence that child labour in one state affects its competitors' exports.

While the findings outlined above suggest that LABPTAs and international trade can generate significant effects on competitors, they also reveal interesting heterogeneity. First, the papers find that LABPTAs with the EU and with the US have different effects. The thesis discusses multiple factors that can explain this difference. One possibility relates to their LABPTA design. Indeed, LABPTAs with the US tend to be more stringent, and labour clauses are often linked to relevant enforcement mechanisms. More rigorous LABPTAs may be better able to signal (to buyers and competitors alike) a credible commitment to improving working standards, hence triggering the displacement effects. Another possibility relates to the membership of these agreements. In the period under investigation, while the US signed LABPTAs with several low-income countries, the EU did not.[1] Given that for lower-income countries (and their competitors), labour costs are likely to be the primary source of comparative advantage, LABPTAs may have a greater impact on this group. Hence, the lack of effects of LABPTAs with the EU is possibly explained by the different membership. Along these lines, evidence from Chapter 3 suggests that the trade effects of LABPTAs are larger for lower-income countries than for states in other income groups. Finally, it is also possible that the difference in the systemic effects of these agreements has to do with the way in which the measure of competitors' engagement in trade agreements with the EU ($WLABPTA_{EU,i,t}$) is built. Chapter 2 discusses the inherent difficulties of creating this measure given the continuous wave of enlargement of this institution. While I stand by the approach taken in the paper, there is no clear solution to the issue, and alternative strategies could be taken leading to (or explaining) different results.

Second, the effects of these agreements across trade and working standards appear to be heterogeneous as illustrated by Table 5.1. LABPTAs with the US have a significant effect on the trade flows of signatory countries, but they do not affect their labour conditions. A possible explanation

[1] In the period 1985–2012, all LABPTAs signed by the EU were with lower-middle-, upper-middle- and high-income countries.

Table 5.1: The effects of LABPTAs on trade and labour standards

	Labour Standards effects		**Trade Effects**	
	Signatory	**Competitors**	**Signatory**	**Competitors**
$\boldsymbol{LABPTA_{US}}$	✗	✔	✔	✗
$\boldsymbol{LABPTA_{EU}}$	✗	✗	✗	✔

is that although LABPTAs with the US are not able to improve working standards of signatory states in general, they have a positive impact on the least-developed countries. Indeed, Chapter 3 illustrates that trade-wise, low-income countries are the group most affected by LABPTAs with the US, driving the average trade effect. A similar phenomenon may occur with labour conditions. This would clarify why this thesis finds no labour effect on signatory countries, while finding a trade effect.

Likewise, the systemic effects of these agreements on trade and working standards are heterogeneous. LABPTAs with the US appear to lead to deteriorating labour conditions in competitor states, even if they do not have any observable impact on competitors' trade flows. A possible explanation has been discussed within the papers. Countries and firms may strategically act in anticipation of the consequences of their competitors' engagement in LABPTAs, not waiting for their impact to materialise. Indeed, competitive dynamics can be triggered by the reputational effect of LABPTAs. The findings of this dissertation strongly suggest that this signalling function is critical to explaining the systemic effects of LABPTAs. The results in Chapter 2 show that LABPTAs affect competitors' working conditions when they are signed, before the agreements enter into force. Similarly, as a robustness check of Chapter 3, I also find that the trade effects of LABPTAs start to emerge as the agreements are signed. From this perspective, it is possible that LABPTAs with the US incentivise competitors to strategically downgrade their labour standards precisely to avoid the (negative) trade impact. For instance, buyers from the US may try to negotiate cheaper subcontracts with their existing suppliers, threatening to move their supply chain to the signatory country of the LABPTA. Looking at competitors' engagement in LABPTAs with the EU, it appears that these agreements have an impact only in increasing competitors' export volumes; they do not have any other relevant effect. This suggests that as a country signs a LABPTA with the EU, its competitors become better able to take advantage of new market niches for cheap products. However, it is crucial to keep in mind that these results may also be affected by the way in which the $WLABPTA$ series is built. Scholars should therefore be cautious

in drawing inferences from this specific result.

A final note about Chapter 4 is necessary. Consistent with the results of Chapter 2 and with the logic of the displacement effect, the paper in Chapter 4 shows that trade shocks can trigger patterns of strategic diversification in labour standards. Indeed, the displacement approach assumes the same competitive dynamic of strategic diversification. The difference is that while displacement starts from the positive shock to labour standards that a LABPTA can trigger, the Shanghai effect starts from the negative shock that exports to China may generate. The paper also shows that competitors' engagement in child labour does not have an impact on states' exports towards China. This suggests that strategic diversification occurs in labour outcomes in response to trade shocks, and that it does not occur in trade flows in response to shocks to labour outcomes.

In conclusion, this thesis argues that scholars should take a systemic approach in order to examine the link between GLG, trade and working standards. Both Chapter 2 and Chapter 4 cite evidence consistent with the idea that competitors may engage in patterns of strategic diversification when it comes to labour standards. This form of competition complicates the evaluation of the impact of trade and GLG on working conditions. The improvement/deterioration of labour conditions in one country can result in their deterioration/improvement in that country's competitors. This implies that a systemic analysis of the GLG–trade–working conditions link is essential to evaluate whether local upgrading aggregates to deliver global developments, and not accounting for the systemic effects could lead to misleading conclusions. The systemic perspective, however, involves numerous empirical challenges. Most importantly, this approach requires reliable data on labour standards, trade and participation in GLG initiatives of the target countries (or firms) and their competitors. This data is often difficult to acquire or non-existent. To overcome these problems, the thesis uses data with a high level of aggregation (country or state level) to make a first attempt to empirically evaluate the complex interactions between competitive dynamics, trade, labour standards and GLG. Thanks to this approach, the dissertation finds evidence showing the existence of systemic effects; however, this strategy has its limitations and, for example, it is not able to precisely explain the significant amount of heterogeneity revealed by its results. Further qualitative and quantitative research – possibly using firm-level data – is necessary to fully reveal how these systemic effects unfold. In sum, the work in this thesis is a first attempt to engage with the questions of the systemic effects of trade and labour governance and by no means claims to

have provided a definite answer to the questions it asks. Its main contribution is to open up a new strand of empirical research, which further studies should continue to analyse in depth.

Chapter 6

Bibliography

Ab-Rahim, Rossazana, and Bilal Tariq. 2016. "The effect of trade openness on child labor: Empirical evidence from developing economies." *International Journal of Economics and Management* 10 (1): 155–71.

Adolph, Christopher, Vanessa Quince, and Aseem Prakash. 2017. "The Shanghai Effect: Do Exports to China Affect Labor Practices in Africa?" *World Development* 89: 1–18. https://doi.org/10.1016/j.worlddev.2016.05.009.

Agnosteva, Delina E., James E. Anderson, and Yoto V. Yotov. 2019. "Intra-national trade costs: Assaying regional frictions." *European Economic Review* 112: 32–50. https://doi.org/10.1016/j.euroecorev.2018.11.008.

Ahlquist, John S., and Layna Mosley. 2020. "Firm participation in voluntary regulatory initiatives: The Accord, Alliance, and US garment importers from Bangladesh." *Review of International Organizations*. https://doi.org/10.1007/s11558-020-09376-z.

Ali, Waris, Jedrzej George Frynas, and Zeeshan Mahmood. 2017. "Determinants of Corporate Social Responsibility (CSR) Disclosure in Developed and Developing Countries: A Literature Review." *Corporate Social Responsibility and Environmental Management* 24 (4): 273–94. https://doi.org/10.1002/csr.1410.

Amengual, Matthew. 2010. "Complementary Labor Regulation: The Uncoordinated Combination of State and Private Regulators in the Dominican Republic." *World Development* 38 (3): 405–14. https://doi.org/10.1016/j.worlddev.2009.09.007.

Amengual, Matthew, and Greg Distelhorst. 2019. "Can Sourcing Help Enforce Global Labor Standards? Evidence from the Gap Inc Supply Chain." In *"Investment and Labour Relations*

(Organized by the Wti)", 1–41. Bern. https://tinyurl.com/zqs8atw.

Amengual, Matthew, Greg Distelhorst, and Danny Tobin. 2020. "Global Purchasing as Labor Regulation: The Missing Middle." *Industrial & Labor Relations Review* 73 (4): 817–40. https://doi.org/10.1177/0019793919894240.

Anderson, James E. 2011. "The Gravity Model." *Annual Review of Economics* 3 (1): 133–60. https://doi.org/10.1146/annurev-economics-111809-125114.

Anderson, James E., Mario Larch, and Yoto V. Yotov. 2019. "Trade and investment in the global economy: A multi-country dynamic analysis." *European Economic Review* 120: 103311. https://doi.org/10.1016/j.euroecorev.2019.103311.

Anderson, James E., and Eric Van Wincoop. 2003. "Gravity with Gravitas: A Solution to the Border Puzzle." *American Economic Association* 93 (1): 170–92.

Anderson, James E., and Yoto V. Yotov. 2016. "Terms of trade and global efficiency effects of free trade agreements, 1990-2002." *Journal of International Economics* 99: 279–98. https://doi.org/10.1016/j.jinteco.2015.10.006.

Anderson, T. W., and Cheng Hsiao. 1982. "Formulation and estimation of dynamic models using panel data." *Journal of Econometrics* 18 (1): 47–82. https://doi.org/10.1016/0304-4076(82)90095-1.

Anner, Mark. 2019. "Predatory purchasing practices in global apparel supply chains and the employment relations squeeze in the Indian garment export industry." *International Labour Review* 158 (4): 705–27. https://doi.org/10.1111/ilr.12149.

———. 2020. "Squeezing workers' rights in global supply chains: purchasing practices in the Bangladesh garment export sector in comparative perspective." *Review of International Political Economy* 27 (2): 320–47. https://doi.org/10.1080/09692290.2019.1625426.

Araújo, Maria da Penha S., Vânia Barcellos G. Campos, and Renata Albergaria M. Bandeira. 2013. "An overview of road cargo transport in Brazil." *International Journal of Industrial Engineering and Management* 4 (3): 151–60.

Arellano, Manuel, and Stephen Bond. 1991. "Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations." *The Review of Economic Studies* 58 (2): 277. https://doi.org/10.2307/2297968.

Arkolakis, Costas, Arnaud Costinot, and Andrés Rodríguez-Clare. 2012. "New trade models, same old gains?" *American Economic Review* 102 (1): 94–130. https://doi.org/10.1257/aer.102.1.94.

Baccini, Leonardo, and Mathias Koenig-Archibugi. 2014. "Why do states commit to interna-

tional labor standards? Interdependent ratification of core ILO conventions, 1948-2009." *World Politics* 66 (3): 446–90. https://doi.org/10.1017/S0043887114000124.

Baghdadi, Leila, Inmaculada Martinez-Zarzoso, and Habib Zitouna. 2013. "Are RTA agreements with environmental provisions reducing emissions?" https://doi.org/10.1016/j.jinteco.2013.04.001.

Baier, Scott L., and Jeffrey H. Bergstrand. 2002. "On the Endogeneity of International Trade Flows and Free Trade Agreements." https://www3.nd.edu/%7B~%7Djbergstr/Working%7B/_%7DPapers/EndogeneityAug2002.pdf.

———. 2007. "Do free trade agreements actually increase members' international trade?" *Journal of International Economics* 71 (1): 72–95. https://doi.org/10.1016/j.jinteco.2006.02.005.

Baier, Scott L., Jeffrey H. Bergstrand, and Matthew W. Clance. 2018. "Heterogeneous effects of economic integration agreements." *Journal of Development Economics* 135 (September): 587–608. https://doi.org/10.1016/j.jdeveco.2018.08.014.

Baier, Scott L., Yoto V. Yotov, and Thomas Zylkin. 2019. "On the widely differing effects of free trade agreements: Lessons from twenty years of trade integration." *Journal of International Economics* 116: 206–26. https://doi.org/10.1016/j.jinteco.2018.11.002.

Baland, Jean Marie, and Cédric Duprez. 2009. "Are labels effective against child labor?" *Journal of Public Economics* 93 (11-12): 1125–30. https://doi.org/10.1016/j.jpubeco.2009.08.002.

Banerjee, Rakhi, and Ranjanendra Narayan Nag. 2013. "Globalization, Child Labour and Development Policies: A Theoretical Analysis." *Foreign Trade Review* 48 (1): 83–104. https://doi.org/10.1177/001573251204800104.

Barrientos, Stephanie, Peter Knorringa, Barbara Evers, Margareet Visser, and Maggie Opondo. 2016. "Shifting regional dynamics of global value chains: Implications for economic and social upgrading in African horticulture." *Environment and Planning A* 48 (7): 1266–83. https://doi.org/10.1177/0308518X15614416.

Bartley, Tim, and Niklas Egels-Zandén. 2016. "Beyond decoupling: Unions and the leveraging of corporate social responsibility in Indonesia." *Socio-Economic Review* 14 (2): 231–55. https://doi.org/10.1093/ser/mwv023.

Bartley, Tim, Sebastian Koos, Hiram Samel, Gustavo Setrini, and Nik Summers. 2015. *Looking behind the Label: Global Industries and the Conscientious Consumer*. Indiana University Press. https://doi.org/10.1017/CBO9781107415324.004.

Bastos, Paulo, Joana Silva, and Eric Verhoogen. 2018. "Export Destinations and Input Prices."

American Economic Review 108 (2): 353–92. https://doi.org/10.1257/aer.20140647.

Basu, Kaushik, and Pham Hoang Van. 1998. "The Economics of Child Labor." *The American Economic Review* 88 (3): 412–27. https://www.jstor.org/stable/116842.

Beck, Nathaniel, Kristian Skrede Gleditsch, and Kyle Beardsley. 2006. "Space is more than geography: Using spatial econometrics in the study of political economy." *International Studies ...* 50 (1): 27–44. https://doi.org/10.1111/j.1468-2478.2006.00391.x.

Beck, Thorsten, George Clarke, Alberto Groff, Philip Keefer, and Patrick Walsh. 2001. "New Tools in Comparatlve Political Economy : The Database of Political Institutions." *The World Bank Economic Review* 15 (1): 165–76.

Beer, Christian, and Aleksandra Riedl. 2012. "Modelling spatial externalities in panel data: The Spatial Durbin model revisited." *Papers in Regional Science* 91 (2): 299–318. https://doi.org/10.1111/j.1435-5957.2011.00394.x.

Beitrand, Marianne. 2004. "From the invisible handshake to the invisible hand? How import competition changes the employment relationship." *Journal of Labor Economics* 22 (4): 723–65. https://doi.org/10.1086/423153.

Bergstrand, Jeffrey H. 1985. "The Gravity Equation in International Trade : Some Microeconomic Foundations and." *The Review of Economics and Statistics* 67 (3): 474–81.

Bergstrand, Jeffrey H., Mario Larch, and Yoto V. Yotov. 2015. "Economic integration agreements, border effects, and distance elasticities in the gravity equation." *European Economic Review* 78: 307–27. https://doi.org/10.1016/j.euroecorev.2015.06.003.

Berliner, Daniel, Anne Regan Greenleaf, Milli Lake, Margaret Levi, and Jennifer Noveck. 2015. "Governing Global Supply Chains: What We Know (and Don't) About Improving Labor Rights and Working Conditions." *Annual Review of Law and Social Science* 11 (1): 193–209. https://doi.org/10.1146/annurev-lawsocsci-120814-121322.

Beverelli, Cosimo, Alexander Keck, Mario Larch, and Yoto V. Yotov. 2018. "Institutions, Trade and Development: A Quantitative Analysis." CESifo Working Paper Series. CESifo Group Munich. https://doi.org/10.1201/9780203742433.

Bhagwati, Jagdish. 1995. "Trade Liberalisation and 'Fair Trade' Demands: Addressing the Environmental and Labour Standards Issues." *World Economy* 18 (6): 745–59. https://doi.org/10.1111/j.1467-9701.1995.tb00329.x.

———. 2001. "After Seattle : Free Trade and the WTO." *International Affairs* 77 (1): 15–29.

Bigler, Patrick, and Damian Raess. 2019. "Trade-labor linkages and international investment:

Protectionism in disguise."

Blackman, Allen. 2012. "Does eco-certification boost regulatory compliance in developing countries? ISO 14001 in Mexico." *Journal of Regulatory Economics* 42 (3): 242–63. https://doi.org/10.1007/s11149-012-9199-y.

Blanton, Robert G., and Dursun Peksen. 2017. "Dying for Globalization? The Impact of Economic Globalization on Industrial Accidents." *Social Science Quarterly* 98 (5): 1487–1502. https://doi.org/https://doi.org/10.1111/ssqu.12367.

Bowen, Frances. 2014. *After Greenwashing: Symbolic corporate Environmentalism and Society*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9781139541213.

Brandi, Clara, Jakob Schwab, Axel Berger, and Jean Frédéric Morin. 2020. "Do environmental provisions in trade agreements make exports from developing countries greener?" *World Development* 129: 104899. https://doi.org/10.1016/j.worlddev.2020.104899.

Brauw, Alan de, Daniel O. Gilligan, John Hoddinott, and Shalini Roy. 2015. "The Impact of Bolsa Família on Schooling." *World Development* 70: 303–16. https://doi.org/10.1016/j.worlddev.2015.02.001.

Brown, Drusilla, Rajeev Dehejia, and Raymond Robertson. 2013. "Is there an Efficiency Case for International Labor Standards?" *Better Work Discussion Papers* 12. http://betterwork.org/global/?p=3652.

Brown, Drusilla, George Domat, Selven Veeraragoo, Rajeev Dehejia, and Raymond Robertson. 2015. "Are sweatshops profit-maximizing? Answer: No. Evidence from Better Work Vietnam." Better Work Discussion Paper. Geneva, CH: International Labour Office.

Brown, Drusilla K. 2000. "Department of Economics Tufts University" 02155 (617).

Callegari, Julia, Tatiana Massaroli Melo, and Carlos Eduardo Carvalho. 2018. "The peculiar insertion of Brazil into global value chains." *Review of Development Economics* 22 (3): 1321–42. https://doi.org/10.1111/rode.12386.

Cameron, Colin A., Jonah B. Gelbach, and Douglas L. Miller. 2011. "Robust inference with multiway clustering." *Journal of Business and Economic Statistics* 29 (2): 238–49. https://doi.org/10.1198/jbes.2010.07136.

Cao, Xun. 2010. "Networks as Channels of Policy Diffusion : Explaining Worldwide Changes in Capital." *International Studies Quarterly (2010)* 54: 823–54. https://doi.org/10.1111/j.1468-2478.2010.00611.x.

Cao, Xun, and Aseem Prakash. 2011. "Growing Exports by Signaling Product Quality: Trade

Competition and the Cross-National Diffusion of ISO 9000 Quality Standards." *Journal of Policy Analysis and Managementnalysis and Management* 30 (1): 111–35. https://doi.org/10.1002/pam.

Caraway, Teri L. 2009. "Labor rights in East Asia: Progress or regress?" *Journal of East Asian Studies* 9 (2): 153–86. https://doi.org/10.1017/S1598240800002976.

Carrère, Céline, Monika Mrázová, and J Peter Neary. 2020. "Gravity without Apology: The Science of Elasticities, Distance, and Trade." https://doi.org/10.1093/ej/ueaa034.

Carrère, Céline, Marcelo Olarreaga, and Damian Raess. 2017. "Labor Clauses in Trade Agreements: worker protection or protectionism?" Discussion Paper 12251. London.

Chakrabarty, Sayan, and Ulrike Grote. 2009. "Child Labor in Carpet Weaving: Impact of Social Labeling in India and Nepal." *World Development* 37 (10): 1683–93. https://doi.org/10.1016/j.worlddev.2009.03.013.

Chaney, Thomas. 2008. "Distorted gravity: The intensive and extensive margins of international trade." *American Economic Review* 98 (4): 1707–21. https://doi.org/10.1257/aer.98.4.1707.

Chatagnier, J. Tyson, and Kerim Can Kavaklı. 2017. "From Economic Competition to Military Combat: Export Similarity and International Conflict." *Journal of Conflict Resolution* 61 (7): 1510–36. https://doi.org/10.1177/0022002715613565.

Chatterjee, Biswajit, and Runa Ray. 2016. "Impact of Trade vs. Non-trade Policies on the Incidence of Child Labour." *Foreign Trade Review* 51 (4): 287–97. https://doi.org/10.1177/0015732516650807.

Cheng, I-hui, and Howard J Wall. 2005. "of Trade and Integration." *Federal Reserve Bank of St. Louis Review* 87 (1): 49–64.

Cheow tong, Yeo. 1994. "Speech by Mr Yeo Cheow Tong, Minister For Trade And Industry, at the Opening of the Junior Chamber International -Asia-Pacific Conference (26/05/1994)." Singapore: Singapore Government Press Release. https://www.nas.gov.sg/archivesonline/data/pdfdoc/yct19940526s.pdf.

Cigno, Alessandro, and Furio Camillo Rosati. 2005. *The Economics of Child Labour*. Oxford University Press. https://doi.org/10.1093/0199264457.001.0001.

Clinton, B. 1993. "Presidential Speeches: Remarks on the Signing of NAFTA." https://millercenter.org/the-presidency/presidential-speeches/december-8-1993-remarks-signing-nafta.

Collier, Debbie, and Pamhidzai Bamu. 2012. "Linking trade to labour standards : A promising synergy or a double-edged sword?" *Acta Juridica* 1: 326–47.

Confederação Nacional do Transporte - CNT. 2015. "Pesquisa CNT de Rodovias."

Cook, Scott J., Seung Ho An, and Nathan Favero. 2019. "Beyond Policy Diffusion: Spatial Econometric Models of Public Administration." *Journal of Public Administration Research and Theory* 29 (4): 591–608. https://doi.org/10.1093/jopart/muy050.

Corrado, Luisa, and Bernard Fingleton. 2012. "Where is the economics in spatial econometrics?" *Journal of Regional Science* 52 (2): 210–39. https://doi.org/10.1111/j.1467-9787.2011.00726.x.

Correia, Sergio, Paulo Guimarães, and Tom Z. Zylkin. 2020. "Fast Poisson estimation with high-dimensional fixed effects." *Stata Journal* 20 (1): 95–115. https://doi.org/10.1177/1536867X20909691.

Costa, Francisco, Jason Garred, and João Paulo Pessoa. 2016. "Winners and losers from a commodities-for-manufactures trade boom." *Journal of International Economics* 102: 50–69. https://doi.org/10.1016/j.jinteco.2016.04.005.

Da Costa Oreiro, José Luis, Luciano D. Agostini, and Paulo Gala. 2020. "Deindustrialization , Economic Complexity and Exchange Rate Overvaluation : he case of Brazil (1998-2017)." https://doi.org/10.13140/RG.2.2.11506.53447.

Dai, Mian, Yoto V. Yotov, and Thomas Zylkin. 2014. "On the trade-diversion effects of free trade agreements." https://doi.org/10.1016/j.econlet.2013.12.024.

Dasgupta, Amit. 2000. "Labour Standards and the WTO: A New Form of Protectionism." *South Asia Economic Journal* 1 (2): 113–29. https://doi.org/10.7551/mitpress/7247.003.0045.

Davies, Ronald B., and Krishna Chaitanya Vadlamannati. 2013. "A race to the bottom in labor standards? An empirical investigation." *Journal of Development Economics* 103 (1): 1–14. https://doi.org/10.1016/j.jdeveco.2013.01.003.

Davies, Ronald B., and Annie Voy. 2009. "The effect of FDI on child labor." *Journal of Development Economics* 88 (1): 59–66. https://doi.org/10.1016/j.jdeveco.2008.02.001.

De Almeida, Roselaine Bonfim, and Ana Lúcia Kassouf. 2016. "The effect of labor inspections on reducing child labor in Brazil." Understanding Children's Work (UCW) Programme.

De Freitas, Guilherme Vergara Marçal. 2020. "How are elections affected by an external shock? The 'China shock' in Brazilian politics." PhD thesis, Escola de Economia de São Paulo. https://doi.org/10.1016/j.solener.2019.02.027.

Delmas, Magali A., and Vanessa Cuerel Burbano. 2011. "The Drivers of Greenwashing." *California Management Review* 54 (1): 64–87. https://doi.org/10.1525/cmr.2011.54.1.64.

Deme, Mamit, and Estrella R. Ndrianasy. 2017. "Trade-creation and trade-diversion effects of

regional trade arrangements: low-income countries." *Applied Economics* 49 (22): 2188–2202. https://doi.org/10.1080/00036846.2016.1234700.

De Soyres, François, Julien Maire, and Guillaume Sublet. 2020. "An Empirical Investigation of Trade Diversion and Global Value Chains Background Paper." http://www.worldbank.org/.

De Soysa, Indra, and Krishna Chaitanya Vadlamannati. 2011. "Does Being Bound Together Suffocate, or Liberate? The Effects of Economic, Social, and Political Globalization on Human Rights, 1981-2005." *Kyklos* 64 (1): 20–53. https://doi.org/10.1111/j.1467-6435.2010.00493.x.

Dias, Júnior César. 2016. "O Trabalho Infantil nos principais grupamentos de atividades econômicas do Brasil." Fórum Nacional de Prevenção e Erradicação do Trabalho Infantil.

Dinopoulos, Elias, and Zhao Laixun. 2007. "Child labor and globalization." *Journal of Labor Economics* 25 (3): 553–79. https://doi.org/10.1086/513297.

Distelhorst, Greg, Jens Hainmueller, and Richard M. Locke. 2017. "Does Lean Improve Labor Standards? Management and Social Performance in the Nike Supply Chain." *Management Science* 63 (3): 707–28. https://doi.org/10.1287/mnsc.2015.2369.

Distelhorst, Greg, and Richard M. Locke. 2018. "Does Compliance Pay? Social Standards and Firm-Level Trade." *American Journal of Political Science* 62 (3): 695–711. https://doi.org/10.1111/ajps.12372.

Distelhorst, Greg, Richard M. Locke, Timea Pal, and Hiram Samel. 2015. "Production goes global, compliance stays local: Private regulation in the global electronics industry." *Regulation and Governance* 9 (3): 224–42. https://doi.org/10.1111/rego.12096.

Dix-Carneiro, Rafael, Rodrigo R. Soares, and Gabriel Ulyssea. 2018. "Economic shocks and crime: Evidence from the Brazilian trade liberalization." *American Economic Journal: Applied Economics* 10 (4): 158–95. https://doi.org/10.1257/app.20170080.

Doan, Thang N., and Yuqing Xing. 2018. "Trade efficiency, free trade agreements and rules of origin." *Journal of Asian Economics* 55: 33–41. https://doi.org/10.1016/j.asieco.2017.12.007.

Doepke, Matthias, and Fabrizio Zilibotti. 2010. "Do international labor standards contribute to the persistence of the child-labor problem?" *Journal of Economic Growth* 15 (1): 1–31. https://doi.org/10.1007/s10887-009-9048-8.

Duprez, Cédric. 2012. "Une analyse économique du commerce équitable." *Reflets et Perspectives de La Vie économique* 3 (LI): 105–2014.

Dür, Andreas, Leonardo Baccini, and Manfred Elsig. 2014. "Explanatory note of the Depth dataset."

Eaton, Jonathan, and Samuel Kortum. 2002. "Technology, Geography, and Trade." *Econometrica* 70 (5): 1741–79.

Eccles, Robert G., Scott C. Newquist, and Roland Schatz. 2007. "Reputation and its risks." *Harvard Business Review* 85 (2).

Edmonds, Eric V. 2010. "Trade, Child Labor, and Schooling in Poor Countries." In *Trade Adjustment Costs in Developing Countries: Impacts, Determinants and Policy Responses*, edited by Guido Porto and Bernard Hoekman, 179–95. The World Bank.

Edmonds, Eric V. 2016. "Economic Growth and Child Labor in Low Income Economies." GLM|LIC. Growth; Labour Markets in Low Income Countries Programme.

Edmonds, Eric V., and Nina Pavcnik. 2005. "The effect of trade liberalization on child labor." *Journal of International Economics* 65 (2): 401–19. https://doi.org/10.1016/j.jinteco.2004.04.001.

———. 2006a. "International trade and child labor: Cross-country evidence." *Journal of International Economics* 68 (1): 115–40. https://doi.org/10.1016/j.jinteco.2005.01.003.

———. 2006b. "Trade liberalization and the allocation of labor between households and markets in a poor country." *Journal of International Economics* 69 (2): 272–95. https://doi.org/10.1016/j.jinteco.2005.05.010.

Edmonds, Eric V., and Norbert Schady. 2012. "Poverty alleviation and child labor." *American Economic Journal: Economic Policy* 4 (4): 100–124. https://doi.org/10.1257/pol.4.4.100.

Egger, Peter H., and Sergey Nigai. 2015. "Structural gravity with dummies only: Constrained ANOVA-type estimation of gravity models." *Journal of International Economics* 97 (1): 86–99. https://doi.org/10.1016/j.jinteco.2015.05.004.

Egger, Peter H., and Kevin E. Staub. 2016. "GLM estimation of trade gravity models with fixed effects." *Empirical Economics* 50 (1): 137–75. https://doi.org/10.1007/s00181-015-0935-x.

Egger, Peter H., and Filip Tarlea. 2015. "Multi-way clustering estimation of standard errors in gravity models." *Economics Letters* 134: 144–47. https://doi.org/10.1016/j.econlet.2015.06.023.

Elhorst, J.Paul, and Solmaria Halleck Vega. 2017. "The SLX model : Extensions and the sensitivity of spatial spillovers to W." *Papeles de Economía Española* 152: 34–50.

Elkins, Zachary, Andrew T Guzman, and Beth A Simmons. 2006. "Competing for Capital : The Diffusion of Bilateral Investment Treaties , 1960 – 2000." *International Organization* 60 (Fall): 811–46. https://doi.org/10.1017/S0020818306060279.

Estevez, Kristian. 2010. "Essays on Child Labour Productivity and Trade." PhD thesis, University of Florida.

Estlund, Cynthia. 2017. *A New Deal for China's Workers*. Cambridge, MA: Harvard University Press.

Feenstra, Robert C. 2004. *Advanced International Trade*. Vol. 53. 9. Princeton, New Jersey: Princeton University Press. https://doi.org/10.1017/CBO9781107415324.004.

Feierherd, Germán. 2017. "Constructing the Left's Support Base Economic Informality and Segmented Enforcement in Brazil."

Ferraz, João Carlos, David Kupfer, and Franklin Serrano. 1999. "Macro/micro interactions: Economic and institutional uncertainties and structural change in Brazilian industry." *Oxford Development Studies* 27 (3): 279–304. https://doi.org/10.1080/13600819908424179.

Flanagan, Robert J. 2006. *Globalization and labor conditions: working conditions and worker rights in a global economy*. New York: Oxford Universtity Press. https://doi.org/10.5860/choice.44-5148.

Fleury, Afonso, and John Humphrey. 1993. "Recursos humanos e a Difusão e adaptação de Novos Métodos para a Qualidade no Brasil." Discussion Paper. Instituto de Pesquisa Econômica Aplicada.

Fold, Niels, and Marianne Nylandsted Larsen. 2011. "Upgrading of smallholder agro-food production in Africa: the role of lead firm strategies and new markets." *International Journal of Technological Learning, Innovation and Development* 4 (1/2/3): 39. https://doi.org/10.1504/IJTLID.2011.041899.

Fors, Heather Congdon. 2012a. "Child labour: A review of recent theory and evidence with policy implications." *Journal of Economic Surveys* 26 (4): 570–93. https://doi.org/10.1111/j.1467-6419.2010.00663.x.

———. 2012b. "Child labour: A review of recent theory and evidence with policy implications." *Journal of Economic Surveys* 26 (4): 570–93. https://doi.org/10.1111/j.1467-6419.2010.00663.x.

Francois, Joseph, Lisa Lechner, and Miriam Manchin. 2019. "EU Trade Policy Initiatives and Stated Objectives: a Report." RESPECT mimeo. European Institute.

Franzese, Robert J., and Jude C. Hays. 2008. *Empirical Models of Spatial Inter-Dependence*. https://doi.org/10.1093/oxfordhb/9780199286546.003.0025.

Franzese, Robert J., Jude C. Hays, and Scott J. Cook. 2016. "Spatial- and Spatiotemporal-

Autoregressive Probit Models of Interdependent Binary Outcomes." *Political Science Research and Methods* 4 (1): 151–73. https://doi.org/10.1017/psrm.2015.14.

Franzese, Robert Jr., and Jude C. Hays. 2008. "Contagion, Common Exposure, and Selection: Empirical Modeling of the Theories and Substance of Interdependence in Political Science."

Fredriksson, Per G., and Daniel L. Millimet. 2002. "Strategic interaction and the determination of environmental policy across U.S. States." *Journal of Urban Economics* 51 (1): 101–22. https://doi.org/10.1006/juec.2001.2239.

Freeman, Richard B. 2010. "Labor regulations, unions, and social protection in developing countries: Market distortions or efficient institutions?" In *Handbook of Development Economics*, edited by Dani Rodrik and Mark R. Rosenzweig, 5:4657–4702. North-Holland: Elsevier. https://doi.org/10.1016/B978-0-444-52944-2.00008-2.

French, Lawrence J., and Richard E. Wokutch. 2005. "Child Workers , Globalization , and International Business Ethics : A Case Study in Brazil ' s Export-Oriented Shoe Industry." *Business Ethics Quarterly* 15 (4): 615–40.

Gaddis, Isis, and Janneke Pieters. 2012. "Trade liberalization and female labor force participation: Evidence from Brazil." IZA Discussion Papers. Bonn: IZA – Institute of Labor Economics.

Gamso, Jonas. 2017. "South–South trade and collective labour laws: do developing countries race to the top when they trade with the South?" *Journal of International Relations and Development* 22 (4): 954–982. https://doi.org/10.1057/s41268-017-0124-y.

Gaulier, Guillaume, and Soledad Zignago. 2010. "BACI: International Trade Database at the Product-Level (the 1994-2007 Version)." *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.1994500.

Gereffi, Gary. 2014. "Global value chains in a post-Washington Consensus world." *Review of International Political Economy* 21 (1): 9–37. https://doi.org/10.1080/09692290.2012.756414.

———. 2018. *Global Value Chains and Development: Redefining the Contours of 21st century Capitalism*. Cambridge, UK: Cambridge University Press. https://doi.org/10.1093/jeg/lbz015.

Ghosh, Sucharita, and Steven Yamarik. 2004. "Are regional trading arrangements trade creating? An application of extreme bounds analysis." *Journal of International Economics* 63 (2): 369–95. https://doi.org/10.1016/S0022-1996(03)00058-8.

Gibbon, Peter, and Stefano Ponte. 2005. *Trading down: Africa, Value Chains, and the Global Economy*. Philadelphia: Temple University Press.

Giumelli, Francesco, and Gerda van Roozendaal. 2017. "Trade agreements and labour standards

clauses: Explaining labour standards developments through a qualitative comparative analysis of US free trade agreements." *Global Social Policy* 17 (1): 38–61. https://doi.org/10.1177/1468018116637209.

Grady, Tom O. 2020. *Introduction to Causal Inference for Undergraduates*. Online Pub. https://doi.org/10.1007/978-0-387-35433-0_1.

Grauwe, Paul de, Romain Houssa, and Giulia Piccillo. 2012. "African trade dynamics: is China a different trading partner?" *Journal of Chinese Economic and Business Studies* 10 (1): 15–45. https://doi.org/10.1080/14765284.2012.638460.

Greenhill, Brian, Layna Mosley, and Aseem Prakash. 2009. "Trade-based diffusion of labor rights: A panel study, 1986-2002." *American Political Science Review* 103 (4): 669–90. https://doi.org/10.1017/S0003055409990116.

Gruère, Guillaume. 2013. "A Characterisation of Environmental Labelling and Information Schemes." OECD Environment Working Papers No. 62. Paris. http://www.oecd-ilibrary.org/environment-and-sustainable-development/a-characterisation-of-environmental-labelling-and-information-schemes%7B/_%7D5k3z11hpdgq2-en.

Guedes Vieira, Marcia. 2018. "Child Labor in Brazil and Uruguay." *Oxford Research Encyclopedia of Latin American History*, no. July: 1–24. https://doi.org/10.1093/acrefore/9780199366439.013.485.

Guler, Isin, Mauro F. Guillen, John Muir Macpherson, and Mauro F. Guillen. 2002. "Global Competition, Institutions, and the Diffusion of Organizational Practices: The International Spread of ISO 9000 Quality Certificates." *Administrative Science Quarterly* 47 (2): 207. https://doi.org/10.2307/3094804.

Hafner-Burton, Emilie M. 2005. *Trading human rights: How preferential trade agreements influence government repression*. Vol. 59. 3. https://doi.org/10.1017/S0020818305050216.

———. 2009. *Emilie M. Hafner-Burton, Forced to Be Good: Why Trade Agreements Boost Human Rights*. Ithaca, NY: Cornell University Press. https://doi.org/10.1007/s12142-009-0144-0.

Hafner-Burton, Emilie M., Layna Mosley, and Robert Galantucci. 2019. "Protecting Workers Abroad and Industries at Home : Rights-based Conditionality in Trade Preference Programs." *Journal of Conflict Resolution* 63 (5): 1253–82. https://doi.org/10.1177/0022002718783236.

Hainmueller, Jens, and Michael J. Hiscox. 2015. "The Socially Conscious Consumer? Field Experimental Tests of Consumer Support for Fair Labor Standards." MIT Political Science Department Research Paper No. 2012-15. https://ssrn.com/abstract=2062435.

Hale, Thomas, David Held, and Kevin Young. 2013. *Gridlock: Why Global Cooperation Is Failing When We Need It Most*. Cambridge, UK: Polity Press.

Halleck Vega, Solmaria, and J. Paul Elhorst. 2015. "The slx model." *Journal of Regional Science* 55 (3): 339–63. https://doi.org/10.1111/jors.12188.

Hansen, Bruce E. 2019. *Econometrics*.

Hasnat, Baban. 2002. "The impact of core labour standards on exports." *International Business Review* 11 (5): 563–75. https://doi.org/10.1016/S0969-5931(02)00037-9.

Häberli, Christian, Marion Jansen, and José Antonio Monteiro. 2012. "Regional trade agreements and domestic labour market regulation." In *Policy Priorities for International Trade and Jobs*, 287–326. https://doi.org/10.1787/9789264180178-en.

Head, Keith, and Thierry Mayer. 2014. "Gravity Equations: Workhorse,Toolkit, and Cookbook." In *Handbook of International Economics*, edited by Gita Gopinath, Elhanan Helpman, and Kenneth Rogoff, 4:131–95. 313522. North-Holland.

Heid, Benedikt, Mario Larch, and Yoto Yotov. 2020. "Estimating the Effects of Non-discriminatory Trade Policies within Structural Gravity Models." http://hdl.handle.net/10419/173011.

Helpman, Elhanan, Marc Melitz, and Yona Rubinstein. 2008. "Estimating Trade Flows: Trading Partners and Trading Volumes." *The Quarterly Journal of Economics* 23 (2): 441–87. https://doi.org/10.1256/qj.05.227.

Hill, Jennifer, and Yu Sung Su. 2013. "Assessing lack of common support in causal inference using bayesian nonparametrics: Implications for evaluating the effect of breastfeeding on children's cognitive outcomes." *Annals of Applied Statistics* 7 (3): 1386–1420. https://doi.org/10.1214/13-AOAS630.

Horner, Rory. 2014. "Strategic decoupling, recoupling and global production networks: India's pharmaceutical industry." *Journal of Economic Geography* 14 (6): 1117–40. https://doi.org/10.1093/jeg/lbt022.

———. 2016. "A New Economic Geography of Trade and Development? Governing South–South Trade, Value Chains and Production Networks." *Territory, Politics, Governance* 4 (4): 400–420. https://doi.org/10.1080/21622671.2015.1073614.

Hughes, Steve, and Nigel Haworth. 2011. *The International Labour Organisation (ILO): Coming in From the Cold*. London: Routledge. https://doi.org/10.1177/1748895810383803.

Hwang, Jungbin, Byunghoon Kang, and Seojeong Lee. 2019. "A Doubly Corrected Robust Variance Estimator for Linear GMM."

Hwang, Jungbin, and Gonzalo Valdés. 2020. "Finite-sample Corrected Inference for Two-step GMM in Time Series." University of Connecticut.

IBGE. 2007. "Sistema integrado de pesquisas domiciliares." Rio de Janeiro.

ILO. 2020. *World Employment and Social Outlook*. https://www.ilo.org/wesodata/?chart=Z2VuZGVyPVsiVG90YWwiXSZ1bml0PSJSYXRlIiZzZWN0b3I9WyJJbmR1c3RyeSIsIlNlcnZpY2VzIiwiQWdyaWN1bHR1cmUiXSZ5ZWFyRnJvbT0xOTkxJmluY29tZT1bXSZpbmRpY2F0b3I9WyJ0b3RhbEVtcGxveW1lbnQiXSZzdGF0dXM9WyJUb3RhbCJdJnJlZ2lvbj1bIldvcmxkIl0mY29.

International Labor Organization, and Walk Free Foundation. 2017. *Global Estimates of Modern Slavery: Forced Labour and Forced Marriage*. http://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/publication/wcms%7B/_%7D575479.pdf.

International Labour Organization. 2016. *Assessment of labour provisions in trade and investment agreements*. Studies On. Geneva. https://www.ilo.org/global/publications/books/WCMS%7B/_%7D498944/lang--en/index.htm.

———. 2017. "Global Estimates of Child Labour."

International Labour Organization (ILO). 2013. *Social Dimensions of Free Trade Agreements*. Revised ed. Geneva: / International Labour Organization; International Institute for Labour Studies.

Isaksson, Ann Sofie, and Andreas Kotsadam. 2018. "Racing to the bottom? Chinese development projects and trade union involvement in Africa." *World Development* 106: 284–98. https://doi.org/10.1016/j.worlddev.2018.02.003.

Jacobs, Bert. 2011. "A Dragon and a Dove? A Comparative Overview of Chinese and European Trade Relations with Sub-Saharan Africa." *Journal of Current Chinese Affairs* 40 (4): 17–60. https://doi.org/10.1177/186810261104000402.

Jamali, Dima, Peter Lund-Thomsen, and Søren Jeppesen. 2017. "SMEs and CSR in Developing Countries." *Business and Society* 56 (1): 11–22. https://doi.org/10.1177/0007650315571258.

Jamali, Dima, Peter Lund-Thomsen, and Navjote Khara. 2017. *CSR Institutionalized Myths in Developing Countries: An Imminent Threat of Selective Decoupling*. Vol. 56. 3. https://doi.org/10.1177/0007650315584303.

Jenkins, Rhys. 2012. "China and Brazil: Economic Impacts of a Growing Relationship." *Journal of Current Chinese Affairs* 41 (1): 21–47. https://doi.org/10.1177/186810261204100102.

———. 2014. "Chinese Competition and Brazilian Exports of Manufactures." *Oxford Development*

Studies 42 (3): 395–418. https://doi.org/10.1080/13600818.2014.881989.

———. 2015. "Is Chinese Competition Causing Deindustrialization in Brazil?" *Latin American Perspectives* 42 (6): 42–63. https://doi.org/10.1177/0094582X15593553.

———. 2019. "How China is Reshaping the Global Economy: Development Impacts in Africa and Latin America." Oxford: Oxford Universtity Press. https://books.google.co.kr/books?hl=en%7B/&%7Dlr=%7B/&%7Did=OQN6DwAAQBAJ%7B/&%7Doi=fnd%7B/&%7Dpg=PP1%7B/&%7Dots=22h%7B/_%7DongUSX%7B/&%7Dsig=vAqAeyIMxhiphRhnrDVaOjRHoic%7B/&%7Dredir%7B/_%7Desc=y%7B/#%7Dv=onepage%7B/&%7Dq%7B/&%7Df=false.

Jenkins, Rhys, and Alexandre De Freitas Barbosa. 2012. "Fear for manufacturing? China and the future of industry in Brazil and Latin America." *China Quarterly*, no. 209: 59–81. https://doi.org/10.1017/S0305741011001482.

Jochmans, Koen. 2017. "Two-Way Models for Gravity." *Review of Economics and Statistics* 99 (3): 478–85. https://doi.org/10.1162/REST.

Kamata, Isao. 2018. "Can RTA labor provisions prevent the deterioration of domestic labor standards?: the cases of statutory minimum wages and employment protection regulations." Institute of Developing Economies. http://hdl.handle.net/2344/00050363.

Kaplinsky, Raphael, and Masuma Farooki. 2011. "What are the implications for global value chains when the market shifts from the north to the south?" *International Journal of Technological Learning, Innovation and Development* 4 (1-3): 13–38. https://doi.org/10.1504/IJTLID.2011.041898.

Kaplinsky, Raphael, Anne Terheggen, and Julia Tijaja. 2011. "China as a Final Market: The Gabon Timber and Thai Cassava Value Chains." *World Development* 39 (7): 1177–90. https://doi.org/10.1016/j.worlddev.2010.12.007.

Kepaptsoglou, Konstantinos, Matthew G. Karlaftis, and Dimitrios Tsamboulas. 2010. "The Gravity Model Specification for Modeling International Trade Flows and Free Trade Agreement Effects: A 10-Year Review of Empirical Studies." *The Open Economics Journal* 3 (1): 1–13. https://doi.org/10.2174/1874919401003010001.

Kim, In Song, Steven Liao, and Kosuke Imai. 2020. "Measuring Trade Profile with Granular Product-Level Data." *American Journal of Political Science* 64 (1): 102–17. https://doi.org/10.1111/ajps.12473.

Kim, Moonhawk. 2012. "Ex Ante Due Diligence: Formation of PTAs and Protection of Labor Rights." *International Studies Quarterly* 56 (4): 704–19. https://doi.org/10.1111/j.1468-2478

.2012.00758.x.

Koenig-Archibugi, Mathias. 2017. "Does transnational private governance reduce or displace labor abuses? Addressing sorting dynamics across global supply chains." *Regulation and Governance* 11 (4): 343–52. https://doi.org/10.1111/rego.12169.

Kotschwar, Barbara, Theodore Moran, and Julia Muir. 2011. "Do Chinese Mining Companies Exploit More." *Americas Quaterly* Fall.

———. 2012. "Chinese Investment in Latin American Resources: The Good, the Bad, and the Ugly." Washington, D.C.

Kruger, Diana I. 2007. "Coffee production effects on child labor and schooling in rural Brazil." *Journal of Development Economics* 82 (2): 448–63. https://doi.org/10.1016/j.jdeveco.2006.04.003.

Krugman, Paul. 1995. "Increasing Returns, Imperfect Competition and the Positive Theory of International Trade." In *Handbook of International Economics*, edited by Edited by G. Grossman Rogoff and K., Elsevier S, 1244–76. Amsterdam.

———. 1997. *Development, Geography, and Economic Theory*. Vol. 6. Cambridge, Massachusetts: MIT Press. https://doi.org/10.2307/490811.

Kucera, David, and Dora Sari. 2018. "New Labour Rights Indicators: Method and Trends for 2000-2015." *International Labour Review* 158 (3): 419–46. https://doi.org/10.1111/ilr.12084.

Larch, Mario, Joschka Wanner, Yoto V. Yotov, and Thomas Zylkin. 2019. "Currency Unions and Trade: A PPML Re-assessment with High-dimensional Fixed Effects." *Oxford Bulletin of Economics and Statistics* 81 (3): 487–510. https://doi.org/10.1111/obes.12283.

Lechner, Lisa. 2016. "The domestic battle over the design of non-trade issues in preferential trade agreements." *Review of International Political Economy* 23 (5): 840–71. https://doi.org/10.1080/09692290.2016.1231130.

———. 2018. "Good for some, bad for others: US investors and non-trade issues in preferential trade agreements." *Review of International Organizations* 13 (2): 163–87. https://doi.org/10.1007/s11558-018-9299-2.

Lechner, Michael, and Anthony Strittmatter. 2017. "Practical Procedures to Deal with Common Support Problems in Matching Estimation." IZA Discussion Papers. Bonn: IZA – Institute of Labor Economics Suggested.

Leeg, Tobias. 2018. "Negotiating sustainable trade: explaining the difference in social standards in US and EU preferential trade agreements." *Contemporary Politics* 24 (4): 398–417. https:

//doi.org/10.1080/13569775.2017.1422093.

LeSage, James, and R. Kelley Pace. 2009. *Introduction to spatial econometrics*. Edited by N. Balakrishnan and W. Schucany. Boca Raton, FL: CRC Press, Taylor & Francis Group. https://doi.org/10.1111/j.1467-985x.2010.00681_13.x.

Lesage, James P., and R. Kelley Pace. 2014. "The biggest myth in spatial econometrics." *Econometrics* 2 (4): 217–49. https://doi.org/10.3390/econometrics2040217.

Lim, Sijeong, Layna Mosley, and Aseem Prakash. 2015. "Revenue Substitution? How Foreign Aid Inflows Moderate the Effect of Bilateral Trade Pressures on Labor Rights." *World Development* 67: 295–309. https://doi.org/10.1016/j.worlddev.2014.10.025.

Lim, Sijeong, and Aseem Prakash. 2017. "Do Economic Problems at Home Undermine Worker Safety Abroad?: A Panel Study, 1980–2009." *World Development* 96: 562–77. https://doi.org/10.1016/j.worlddev.2017.03.038.

Lin-Hi, Nick, and Igor Blumberg. 2011. "The relationship between corporate governance, global governance, and sustainable profits: Lessons learned from BP." *Corporate Governance* 11 (5): 571–84. https://doi.org/10.1108/14720701111176984.

Locke, Richard M. 2013. "Private regulation (and its limitations) in the global economy." *The Politics of Representation in the Global Age: Identification, Mobilization, and Adjudication*, 200–228. https://doi.org/10.1017/CBO9781139794961.013.

Lund-Thomsen, Peter, Dima Jamali, and Antonio Vives. 2014. "CSR in SMEs: An analysis of donor-financed management tools." *Social Responsibility Journal* 10 (4): 602–19. https://doi.org/10.1108/SRJ-02-2013-0012.

Lund-Thomsen, Peter, and Adam Lindgreen. 2014. "Corporate Social Responsibility in Global Value Chains: Where Are We Now and Where Are We Going?" *Journal of Business Ethics* 123 (1): 11–22. https://doi.org/10.1007/s10551-013-1796-x.

Lyon, Thomas P., and A. Wren Montgomery. 2015. "The Means and End of Greenwash." *Organization & Environment* 28 (2): 223–49. https://doi.org/10.1177/1086026615575332.

Malesky, Edmund J., and Layna Mosley. 2018. "Chains of Love? Global Production and the Firm-Level Diffusion of Labor Standards." *American Journal of Political Science* 62 (3): 712–28. https://doi.org/10.1111/ajps.12370.

Marquis, Christopher, Michael W. Toffel, and Yanhua Zhou. 2016. "Scrutiny, norms, and selective disclosure: A global study of greenwashing." *Organization Science* 27 (2): 483–504. https://doi.org/10.1287/orsc.2015.1039.

Marshall, Monty G., Ted Robert Gurr, and Keith Jaggers. 2017. "Polity IV Project. Political Regime Characteristics and Transitions, 1800-2017 Dataset Users' Manual." Vienna: Center for Systemic Peace. https://doi.org/10.1177/0738894213499673.

Marx, Axel, Jan Wouters, Glenn Rayp, and Laura Beke. 2015. *Global governance of labour rights: assessing the effectiveness of transnational public and private policy initiatives*. London, England: Edward Elgar Publishing. https://doi.org/10.1007/s41027-017-0060-9.

Maskus, Keith E. 1997. "Should core labor standards be imposed through international trade policy?" http://papers.ssrn.com/sol3/papers.cfm?abstract%7B/_%7Did=44605.

Matesco, Virene Roxo, and Lia Hasenclever. 2000. "As Empresas Transnacionais e o Seu Papel na Competitividade Industrial e Dos Países: o Caso do Brasil." In *O Brasil E Os Desafios Da Globalização*, 161–92. Rio de Janeiro: Relume-Dumará: VEIGA. https://doi.org/10.1017/CBO9781107415324.004.

Mattoo, Aaditya, Alen Mulabdic, and Michele Ruta. 2019. "Trade Creation and Trade Diversion in Deep Agreements." Policy Research Working Paper. World Bank.

Mayer, Frederick, and Gary Gereffi. 2010. "Regulation and economic globalization: Prospects and limits of private governance." *Business and Politics* 12 (3). https://doi.org/10.2202/1469-3569.1325.

Mayer, Frederick W., Nicola Phillips, and Anne C. Posthuma. 2017. "The political economy of governance in a 'global value chain world'." *New Political Economy* 22 (2): 129–33. https://doi.org/10.1080/13563467.2016.1273343.

Mayer, Thierry, Rodrigo Paillacar, and Soledad Zignago. 2010. "TradeProd. The CEPII Trade, Production and Bilateral Protection Database: Explanatory Notes TradeProd." MPRA Paper.

Meardi, Guglielmo, and Paul Marginson. 2014. "Global labour governance: Potential and limits of an emerging perspective." *Work, Employment and Society* 28 (4): 651–62. https://doi.org/10.1177/0950017014534007.

Melitz, Marc J., and Giancarlo I. P. Ottaviano. 2008. "Market Size, Trade, and Productivity." *Review of Economic Studies* 75 (1): 295–316. http://ideas.repec.org/a/bla/restud/v75y2008i1p295-316.html%7B/%%7D5Cnhttp://www3.interscience.wiley.com/cgi-bin/fulltext/119395823/PDFSTART.

Menashe, Maayan. 2020. "The Race to the Bottom Revisited: International Labour Law, Global Trade and Evolutionary Game Theory." *Oxford Journal of Legal Studies* 40 (1): 53–81. https://doi.org/10.1093/ojls/gqz029.

Millar, Kathleen M. 2014. "The precarious present: Wageless labor and disrupted life in Rio de Janeiro, Brazil." *Cultural Anthropology* 29 (1): 32–53. https://doi.org/10.14506/ca29.1.04.

Millimet, Daniel L., Roy, Jayjit. 2016. "Empirical Test of the Pollution Haven Hypothesis when Environmental Regulation is Endogenous." *Journal of Applied Econometrics* 31: 654–77. https://doi.org/10.1002/jae.

Mortatti, Caio Marcos, Sílvia Helena Galvão de Miranda, and Mirian Rumenos Piedade Bacchi. 2011. "Determinantes do comércio Brasil-China de commodities e produtos industriais: Uma aplicação VECM." *Economia Aplicada* 15 (2): 311–35. https://doi.org/10.1590/S1413-805020 11000200007.

Mosley, Layna. 2010. "The overall picture." In *Labor Rights and Multinational Production*, Cambridge, 135–66. Cambridge, UK: Cambridge University Press. https://doi.org/10.1038/sj.bdj.2 011.97.

———. 2011. *Labor rights and multinational production.* New York: Cambridge Uni versity Press. https://doi.org/10.1017/CBO9780511780998.

———. 2017a. "Labor and the Global Political Economy." *Oxford Research Encyclopedia of Politics*, no. July: 1–25. https://doi.org/10.1093/acrefore/9780190228637.013.189.

———. 2017b. "Workers' rights in global value chains: possibilities for protection and for peril." *New Political Economy* 22 (2): 153–68. https://doi.org/10.1080/13563467.2016.1273339.

Mosley, Layna, and Saika Uno. 2007. "Racing to the bottom or climbing to the top?: Economic globalization and collective labor rights." *Comparative Political Studies* 40 (8): 923–48. https://doi.org/10.1177/0010414006293442.

Muniz, Manuel Fuentes. 1995. "The NAFTA Labor Side Accord in Mexico and Its Repercussions for Workers." *Connecticut Journal of International Law* 10 (2): 379–402.

Neumayer, Eric, and Indra De Soysa. 2005. "Trade Openness , Foreign Direct Investment and Child Labor." *World Development* 33 (1): 43–63. https://doi.org/10.1016/j.worlddev.2004.06.014.

———. 2006. "Globalization and the right to free association and collective bargaining: An empirical analysis." *World Development* 34 (1): 31–49. https://doi.org/10.1016/j.worlddev.200 5.06.009.

Newman, Carol, John Rand, Finn Tarp, and Neda Trifkovic. 2018. "The transmission of socially responsible behaviour through international trade." *European Economic Review* 101: 250–67. https://doi.org/10.1016/j.euroecorev.2017.10.013.

Nicita, Alessandro, and Marcelo Olarreaga. 2007. "Trade, production, and protection database,

1976-2004." *World Bank Economic Review* 21 (1): 165–71. https://doi.org/10.1093/wber/lhl012.

Nickell, Stephen. 1981. "Biases in Dynamic Models with Fixed Effects." *Econometrica* 49 (6): 1417–26.

Olivero, María Pía, and Yoto V. Yotov. 2012. "Dynamic gravity: Endogenous country size and asset accumulation." *Canadian Journal of Economics* 45 (1): 64–92. https://doi.org/10.1111/j.1540-5982.2011.01687.x.

Olney, William W. 2013. "A race to the bottom? Employment protection and foreign direct investment." https://doi.org/10.1016/j.jinteco.2013.08.003.

Palley, Thomas I. 2004. "The economic case for international labour standards." *Cambridge Journal of Economics* 28 (1): 21–36. https://doi.org/10.1093/cje/28.1.21.

Panagariya, Arvind. 2006. "Trade and Labor Standards: A Trade Economist's View." *Integration & Trade* 10: 1–37. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.878.3100%7B/&%7Drep=rep1%7B/&%7Dtype=pdf.

Payton, Autumn Lockwood, and Byungwon Woo. 2014. "Attracting investment: governments' strategic role in labor rights protection." *International Studies Quarterly* 58 (3): 462–74. https://doi.org/10.1111/isqu.12138.

Paz, Lourenço S. 2016. "The China Shock Impact on Brazil's Manufacturing Labor Market," no. December: 1–25.

Peksen, Dursun, and Robert G. Blanton. 2017. "The impact of ILO conventions on worker rights: Are empty promises worse than no promises?" *Review of International Organizations* 12 (1): 75–94. https://doi.org/DOI%2010.1007/s11558-015-9241-9.

Perkins, Richard, and Eric Neumayer. 2007. "Implementing multilateral environmental agreements: An analysis of EU directives." *Global Environmental Politics* 7 (3): 13–41. https://doi.org/10.1162/glep.2007.7.3.13.

Pevehouse, Jon C. 2002. "With a Little Help from My Friends? Regional Organizations and the Consolidation of Democracy." *American Journal of Political Science* 46 (3): 611–26.

Pfaffermayr, Michael. 2019. "Gravity models, PPML estimation and the bias of the robust standard errors." *Applied Economics Letters* 26 (18): 1467–71. https://doi.org/10.1080/13504851.2019.1581902.

Picolotto, André, Daniel Giovanaz, Julieta Casara, Luara Wandelli Loth, Lúcio Lambranho, Marques Casara, Poliana Dallabrida, Raquel Sabrina, and Tulio Kruse. 2018. "Cocoa Supply

Chain. Advances and Challenges Toward the Promotion of Decent Work: A situational Analysis." 1. International Labour Organization (ILO). https://doi.org/10.16309/j.cnki.issn.1007-1776.2003.03.004.

Polillo, Simone, and Mauro F. Guillén. 2005. "Globalization Pressures and the State: The Worldwide Spread of Central Bank Independence." *American Journal of Sociology* 110 (6): 1764–1802. https://doi.org/10.1086/428685.

Pond, Amy. 2018. "Worker Influence on Capital Account Policy: Inflow Liberalization and Outflow Restrictions." *International Interactions* 44 (2): 244–67. https://doi.org/10.1080/03050629.2017.1344125.

Ponte, Stefano, Gary Gereffi, and Gale Raj-Reichert. 2019. "Introduction." In *Handbook on Global Value Chains*, edited by Stefano Ponte, Gary Gereffi, and Gale Raj-Reichert, 1–27. Edward Elgar Publishing. https://doi.org/10.4337/9781788113779.00005.

Ponte, Stefano, Gary Gereffi, Gale Raj-Reichert, Karina Fernandez-Stark, and Gary Gereffi. 2019. "Global value chain analysis: a primer (second edition)." Duke University: Center on Globalization, Governance & Competitiveness, D. https://doi.org/10.4337/9781788113779.00008.

Postnikov, Evgeny, and Ida Bastiaens. 2014. "Does dialogue work? The effectiveness of labor standards in EU preferential trade agreements." https://doi.org/10.1080/13501763.2014.910869.

Potoski, Matthew, and Aseem Prakash. 2009. "Information asymmetries as trade barriers: ISO 9000 increases international commerce." *Journal of Policy Analysis and Management* 28 (2): 221–38. https://doi.org/10.1002/pam.20424.

Raess, Damian, Andreas Dür, and Dora Sari. 2018. "Protecting labor rights in preferential trade agreements: The role of trade unions, left governments, and skilled labor." *Review of International Organizations* 13 (2): 143–62. https://doi.org/10.1007/s11558-018-9301-z.

Raess, Damian, and Dora Sari. 2018. "Labor Provisions in Trade Agreements (LABPTA): Introducing a New Dataset." *Global Policy* 9 (4): 451–66. https://doi.org/10.1111/1758-5899.12577.

Roodman, David. 2009a. "How to do xtabond2: An introduction to difference and system GMM in Stata." *The Stata Journal* 9 (1): 86–136.

———. 2009b. "Practitioners' corner: A note on the theme of too many instruments." *Oxford Bulletin of Economics and Statistics* 71 (1): 135–58. https://doi.org/10.1111/j.1468-0084.2008.00542.x.

Sahin, Soumya, and Ambar Nath Ghosh. 2016. "Effect of Ban on Exports Containing Child Labour in a Dynamic Model in Presence of Imperfect Monitoring." *Foreign Trade Review* 51 (1): 26–45.

https://doi.org/10.1177/0015732515615259.

Salzburger, Sonja. 2010. "Made in Brazil: Confronting Child Labor." https://www.cetri.be/Made-in-Brazil-Confronting-Child?lang=fr.

Santos Silva, J. M. C., and Silvana Tenreyro. 2006. "The Log of Gravity." *The Review of Economics and Statistics* 88 (4): 641–58.

———. 2011. "Further simulation evidence on the performance of the Poisson pseudo-maximum likelihood estimator." *Economics Letters* 112 (2): 220–22. https://doi.org/10.1016/j.econlet.2011.05.008.

Sari, Dora, and David Kucera. 2016. "New 'Labour Rights Indicators': Coding Rules and Definitions," no. April: 1–83.

Sari, Dora, Damian Raess, and David Kucera. 2016. "Do PTAs Including Labor Provisions Reduce Collective Labor Rights Violations? The Role of Labor Cooperation Provision." In *10th Annual Conference on the Political Economy of International Organizations*. https://www.peio.me/wp-content/uploads/2016/12/PEIO10%7B/_%7Dpaper%7B/_%7D63.pdf.

Shepherd, Ben. 2016. *The Gravity Model of International Trade: A User Guide (An updated version)*. United Nations Publication.

Sholl Cintra, João Pedro, Kassia Beatriz Bobadilla, and Maitê Gauto. 2017. "O Trabalho Infantil no Brasil. O desafio do trabalho infantil nas atividades agrícolas." São Paulo: Fundação ABRINQ.

Silva, Pedro Luis do Nascimento, Djalma Galvão Carneiro Pessoa, and Maurício Franca Lila. 2002. "Análise estatística de dados da PNAD: incorporando a estrutura do plano amostral - Statistical analysis of data from PNAD: incorporating the sample design." *Ciência & Saúde Coletiva* 7 (4): 659–70. http://www.scielo.br/scielo.php?script=sci%7B/_%7Darttext%7B/&%7Dpid=S1413-81232002000400005%7B/&%7Dnrm=iso.

Simmons, B. A., and Z. Elkins. 2004. "The globalisation of liberalisation: policy diffusion in the international political economy." *American Political Science Review* 98 (1): 171–89.

Simmons, Beth. 2010. "Treaty Compliance and Violation." *Annual Review of Political Science* 13 (1): 273–96. https://doi.org/10.1146/annurev.polisci.12.040907.132713.

Singh, Ajit, and Ann Zammit. 2004. "Labour Standards and the 'Race to the Bottom': Rethinking Globalization and Workers' Rights from Developmental and Solidaristic Perspectives." *Oxford Review of Economic Policy* 20 (1): 85–104. https://doi.org/10.1093/oxrep/grh006.

Siroën, Jean-Marc. 2017. "Core Labour Standards and Globalization." *Working Paper DT/2012-*

18, no. July.

Sousa, José de, Thierry Mayer, and Soledad Zignago. 2012. "Market access in global and regional trade." *Regional Science and Urban Economics* 42 (6): 1037–52. https://doi.org/10.1016/j.regsciurbeco.2012.07.011.

Spar, Debora L., and Jennifer Burns. 2000. *Hitting the Wall: Nike and International Labor Practices*. Cambridge, MA: Harvard Business School Publishing. https://doi.org/10.1142/9781848160040_0018.

Spilker, Gabriele, Thomas Bernauer, and Víctor Umaña. 2016. "Selecting partner countries for preferential trade agreements: Experimental evidence from Costa Rica, Nicaragua, and Vietnam." *International Studies Quarterly* 60 (4): 706–18. https://doi.org/10.1093/isq/sqv024.

Spilker, Gabriele, and Tobias Böhmelt. 2012. "The impact of preferential trade agreements on governmental repression revisited." *Review of International Organizations* 8 (3): 343–61. https://doi.org/10.1007/s11558-012-9155-8.

Staritz, Cornelia, Gary Gereffi, and Olivier Cattaneo. 2011. *Shifting End Markets and Upgrading Prospects*. Vol. 4. 1.

Sturgeon, Timothy, Gary Gereffi, Andrew Guinn, and Ezequiel Zylberberg. 2013. "Brazil in Global Value Chains: Implications for Trade and Industrial Policy." *Funcex: Revista Brasileira de Comércio Exterior*, no. 115: 26–41.

Sutherland, Johanna. 1998. "International Trade and the GATT/WTO Social Clause: Broadening the Debate." *QUT Law Review* 14 (0). https://doi.org/10.5204/qutlr.v14i0.456.

Tang, Can, Liqiu Zhao, and Zhong Zhao. 2018. "Child labor in China." *China Economic Review* 51 (71403286): 149–66. https://doi.org/10.1016/j.chieco.2016.05.006.

Tariq, Bilal, and Rossazana Ab-Rahim. 2020. "Trade and Child Labor: A Review of Literature." *Journal of Public Administration and Governance* 10 (1): 17–40. https://doi.org/10.5296/jpag.v10i1.15429.

The World Bank. 2008. "Bolsa Família: Changing the Lives of Millions in Brazil." http://go.worldbank.org/3QI1C7B5U0.

Tinbergen, J. 1962. *Shaping the World Economy: Suggestions for an International Economic Policy*. New York: Twentieth Century Fund.

Trefler, Daniel. 2004. "The long and short of the Canada-U.S. free trade agreement." *American Economic Review* 94 (4): 870–95. https://doi.org/10.1257/0002828042002633.

Tully, Stephanie M., and Russell S. Winer. 2014. "The role of the beneficiary in willingness to

pay for socially responsible products: A meta-analysis." *Journal of Retailing* 90 (2): 255–74. https://doi.org/10.1016/j.jretai.2014.03.004.

United Nations. 1990. "International Standard Industrial Classification of All Economic Activities. Revision 3."

United Nations Conference on Trade and Development (UNCTAD). 2019. *Review of Maritime Transport 2019*. https://unctad.org/en/Pages/Publications/Review-of-Maritime-Transport-(Series).aspx.

United States International Trade Commission (USITC). 2012. "Brazil: Competitive factors in Brazil affecting U.S. and Brazilian agricultural sales in selected third country markets." *Brazilian Agricultural Competitiveness and Trade*, no. 332: 1–355.

Vadlamannati, Krishna Chaitanya. 2015. "Rewards of (dis)integration: Economic, social, and political globalization and freedom of association and collective bargaining rights of workers in developing countries." *Industrial and Labor Relations Review* 68 (1): 3–27. https://doi.org/10.1177/0019793914555851.

Van Daele, Arme. 2004. *International Labour Rights and the Social Clause: Friends Or Foes*. London: Cameron May Ldt.

VanGrasstek, Craig. 2013. *The History and Future of the World Trade Organization*. https://doi.org/10.30875/14b6987e-en.

Venables, Anthony J. 2003. "Winners and losers from regional integration agreements." *Economic Journal* 113 (490): 747–61. https://doi.org/10.1111/1468-0297.t01-1-00155.

Viner, Jacob. 1950. *The Customs Union Issue*. Carnegie E. New York: Oxford Universtity Press. https://doi.org/10.1111/j.1467-9957.1992.tb00215.x.

Vogel, David. 1995. *Trading up: consumer and environmental regulation in a global economy*. Cambridge, Massachusetts: Harvard University Press. https://doi.org/10.2307/2625603.

———. 2005. *The Market for Virtue: The Potential and Limits of Corporate Social Responsibility*. Washington, D.C.: Brookings Institution Press. https://doi.org/10.5840/beq200717225.

Von Stein, Jana. 2015. "Making Promises, Keeping Promises: Democracy, Ratification and Compliance in International Human Rights Law." *British Journal of Political Science* 46 (3): 655–79. https://doi.org/10.1017/S0007123414000489.

W. Abbott, Kenneth, and Duncan Snidal. 2000. "Hard and Soft Law in International Governance." *International Organization* 54 (3): 421–56. https://doi.org/10.1162/002081800551280.

Wang, Zhiyuan. 2017. "Democracy, Policy Interdependence, and Labor Rights." *Political Research*

Quarterly 70 (3): 549–63.

———. 2018. "Economic Competition, Policy Interdependence, and Labour Rights." *New Political Economy* 23 (6): 656–73. https://doi.org/10.1080/13563467.2018.1384452.

Ward, Michael D., and Kristian Skrede Gleditsch. 2019. *Spatial Regression Models*. ResearchMe. SAGE Publications, Inc. https://doi.org/10.4135/9781071802588.n5.

Weidner, Martin, and Thomas Zylkin. 2020. "Bias and Consistency in Three-way Gravity Models." ArXiv Preprint arXiv:1909.01327. http://arxiv.org/abs/1909.01327.

Weil, David. 2014. *The Fissured Workplace: why work became so bad for so many and what can be done to improve it*. London, England: Harvard University Press. http://arxiv.org/abs/arXiv:1011.1669v3.

Windmeijer, Frank. 2005. "A finite sample correction for the variance of linear efficient two-step GMM estimators." *Journal of Econometrics* 126 (1): 25–51. https://doi.org/10.1016/j.jeconom.2004.02.005.

Wooldridge, Jeffrey M. 2002. *Introductory Econometrics: A Modern Approach*. 5th ed.

Wooldridge, Jeffrey M. 2010. *Econometric Analysis of Cross Section and Panel Data*. 2nd ed. Vol. 58. 2. Cambridge, Massachusetts: Massachusetts Institute of Technology. https://doi.org/10.1515/humr.2003.021.

World Bank. 2020. "World Development Indicators: Trade (% of GDP)." https://data.worldbank.org/indicator/NE.TRD.GNFS.ZS.

Ye, Fangjin. 2019. "The impact of bilateral investment treaties (BITs) on collective labor rights in developing countries." *The Review of International Organizations*, 1–23. https://doi.org/10.1007/s11558-019-09367-9.

Yotov, Yoto V., Roberta Piermartini, Jose Antonio Monteiro, and Mario Larch. 2016. *An Advanced Guide to Trade Policy Analysis: The Structural Gravity Model*. Geneva: World Trade Organization.

Zhang, Liping, and Silvana Schimanski. 2014. "Cadeias Globais de Valor e os Países em Desenvolvimento." *Boletim de Economia E Política Internacional - BEPI* 18: 73–92. http://www.floridatechonline.com/online-degree-.

Zhu, Qinghua, James Cordeiro, and Joseph Sarkis. 2012. "International and domestic pressures and responses of Chinese firms to greening." *Ecological Economics* 83: 144–53. https://doi.org/10.1016/j.ecolecon.2012.04.007.