WHO ARE THE WINNERS AND LOSERS OF TRADE LIBERALIZATION?

EXAMINING THE ROLE OF TRADE COMPETITIVENESS IN THE MODERN POLITICS OF GLOBALIZATION

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Abstract

The liberal international order is facing existential threats. Externally, the rise of China as superpower, the Russian invasion of Ukraine, and the Covid-19 Pandemic challenge American geopolitical hegemony and threaten economic prosperity in the West. Internally, populist parties use popular discontent with the adverse economic effects of globalization to their advantage and make electoral gains in many Western countries. Trade liberalization is a central pillar of the liberal international order but also one of the main drivers of rising economic inequality. Therefore, it is no surprise that societal support for this aspect of globalization appears to be especially fragile. This dissertation investigates determinants of support for trade liberalization and argues that trade competitiveness plays a crucial role. It analyzes drivers of liberal trade policy on three levels: public opinion, decision-makers, and international bargaining. Identifying winners and losers of trade liberalization is a central challenge for this research agenda and this dissertation contributes by introducing a novel measure of the economic self-interests of voters and constituencies in trade policy. The empirical findings suggest that trade competitiveness indeed plays a major role in driving public opinion, legislators' attitudes and voting behavior, and even the bargaining outcome in trade negotiations.

Zusammenfassung

Die liberale internationale Ordnung ist mehreren existentiellen Bedrohungen ausgesetzt. Von außen stellen der Aufstieg Chinas, die Russischen Invasion der Ukraine sowie die Covid-19 Pandemie Gefahren für die amerikanische Hegemonie sowie den wirtschaftlichen Wohlstand des Westens dar. Von innen nutzen populistische Parteien die Unzufriedenheit mit den negativen wirtschaftlichen Auswirkungen der Globalisierung zu ihrem Vorteil und erzielen dadurch Wahlerfolge in vielen westlichen Ländern. Handelsliberalisierung ist eine zentrale Säule der liberalen internationalen Ordnung, aber auch eine Hauptursache für steigende wirtschaftliche Ungleichheit. Es ist daher nicht verwunderlich, dass die gesellschaftliche Unterstützung für Handelsliberalisierung besonders fragil wirkt. Diese Dissertation untersucht die Ursachen von Unterstützung für Handelsliberalisierung und argumentiert, dass die globale Wettbewerbsfähigkeit eine entschiedende Rolle spielt. Sie analysiert die Einflussfaktoren von liberaler Handelspolitik auf den drei Ebenenen der öffentlichen Meinung, dem Verhalten von Entscheidungsträger:innen sowie in internationalen Verhandlungen. Eine zentrale Herausforderung dieser Forschung ist die genaue Identifizierung von Gewinner:innen und Verlierer:innen der Globalisierung. Um diese Herausforderung zu addressieren, schlägt diese Dissertation ein neuartiges Maß des wirtschaftlichen Eigeninteresses von Wähler:innen und Wahlbezirken in Handelspolitik vor. Die Ergebnisse der empirischen Untersuchungen mithilfe dieses Maßes stützen die These, dass globale Wettbewerbsfähigkeit tatsächlich eine große Rolle für die öffentliche Meinung, die Einstellungen und das Wahlverhalten von Abgeordneten und auch für das Verhandlungsergebnis in Freihandelsabkommen spielt.

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1 | Introduction

1.1 Support for the liberal international order

Since the Second World War, the world has been dominated by the western liberal international order, which was built around co-binding security institutions, American hegemony, and economic openness (Deudney and Ikenberry 1999). This liberal international order has been credited with defending the West against the expansionist Soviet Union, the rise of free trade, the promotion of human rights, and the democratic peace among its core member states. However, the liberal international order now seems to be stumbling from crisis into crisis as it is facing both internal and external challenges. Consequently, there is now a growing scholarly debate whether we are witnessing its final demise (Lake, Martin and Risse 2021).

Internally, support for the liberal international order has been weakened by the electoral successes of populist adversaries in many Western countries (Kriesi et al. 2008). This rising public skepticism and the resulting increasing influence of protectionist, isolationist, and nationalist actors has been characterized as "backlash against globalization" (Walter 2021). Economic factors such as the rising economic inequality and stagnation have been identified as one of the major reasons for the increasing skepticism towards the liberal international order especially among the working and middle classes in Western democracies and support for populist parties (Ikenberry 2018; Rodrik 2018). Many of these adverse economic effects of globalization are a result of trade liberalization, which has caused job losses in many industrialized countries (Autor, Dorn and Hanson 2016).

Thus, the prospect of an ever continuing globalization of production through trade liberalization - a central aspects of the liberal international order - has massively darkened. For a long time, the main critics of free trade where positioned among the political left which is wary of the increasing power of multinational enterprises and the disadvantageous effects of economic globalization on inequality, climate change, and food security (Steger and Wilson 2012; Börzel and Zürn 2021). But the exit of the United Kingdom from the European Union and former US President Donald Trump's efforts to partially reverse trade liberalization have shown that the political right increasingly calls into question the globalization of production (Colantone and Stanig 2018*b*) and oppose the cosmopolitan cultural values that accompany economic globalization (Norris and Inglehart 2019).

On top of this rising domestic opposition to trade liberalization, external challenges to the liberal international order intensify. The rise of China as new superpower is challenging American geopolitical hegemony (Mearsheimer 2019). China rejects core concepts of the liberal international order such as democracy and promotes its state-capitalism system as alternative to the West's market economy (Weiss and Wallace 2021). In the past two years, the Covid-19 Pandemic and the Russian invasion of Ukraine in February 2022 have both demonstrated the vulnerability of global supply chains and the threats of an over-reliance on global trade flows for the domestic economies (Sforza and Steininger 2020; Coveri et al. 2020; Bonadio et al. 2021; Liadze et al. 2022; IMF 2022). Moreover, these crises have revealed the potentially devastating effects of trade disruptions on nearly all aspects of modern politics such as health policy, food supply, and national security. In the first months after the outbreak of the Covid-19 Pandemic, many countries experienced shortages of personal protective equipment products such as face masks because the few low-cost producers of these products such as China imposed export controls (Gereffi 2020). The Russian invasion of Ukraine has highlighted how the reliance of European countries on energy imports from autocratic countries limits their geopolitical capabilities (Berger et al. 2022). Furthermore, the invasion is massively disrupting food supplies especially in the Global South and might

threaten the political stability of these countries (Glauben et al. 2022).

These recent crises have even caused the participants at the World Economic Forum in Davos, usually a gathering of avid supporters of globalization, to question the notion that ever closer economic ties will improve the state of the world (Gelles 2022). Now even politicians of the political center who remain generally supportive of free trade argue for a new approach to globalization. For example, French President Emmanuel Macron believes that "this kind of globalisation was reaching the end of its cycle, it was undermining democracy." (Mallet and Khalaf 2020). This might lead to a political push in industrialized countries to incentivize a return of some critical industry sectors such as health care production or energy production from abroad (UNCTAD 2020). To what degree deglobalization could prevent similar crises in the future is hotly debated but diversification and increased resilience of supply chains will become a key challenge for trade policy (Gereffi 2020; Miroudot 2020).

These developments have sparked a renewed debate about the virtues of globalization and determinants of support for trade liberalization. This dissertation will contribute to this academic discussion by addressing the following overarching research question:
"What determines societal support for trade liberalization?"

Since the successful but difficult conclusion of the Uruguay Round, the main vehicle of trade liberalization have been bilateral or multilateral trade agreements. Indeed, the number of preferential trade agreements (PTAs) has increased exponentially since the beginning of the 1990s. As of June 2022, the World Trade Organization (WTO) was notified by national governments of 355 PTAs that are currently in force, a massive increase since 2000 when only 81 PTAs were notified with the WTO (WTO 2022). Version 2.1 (2022) of the Design of Trade Agreements (DESTA) dataset, which actively searches for existing PTAs that are not notified with the WTO, lists even more than 850 signed PTAs (Dür, Baccini and Elsig 2014). Today, every country in the world has signed at least one PTA. The term PTA includes bilateral and regional agreements, free trade areas (FTAs), customs unions (CUs), common markets (CMs), and economic unions (Mansfield and Milner 2012). These forms of PTAs

differ in various aspects but share in common that they aim to increase economic integration between their members by enhancing market access and thus create legal restrictions on the trade policies of its members (Johns and Peritz 2015).

The international political economy literature has studied extensively the effects of this rising regionalism on the multilateral system (Mansfield and Milner 1999; Bhagwati 2008), the economic implications of PTAs (Krueger 1997; Panagariya 1999; Baier and Bergstrand 2007), the effects of PTAs on the behaviour of its member countries (Rosendorff and Milner 2001; Johns and Peritz 2015), public opinion towards PTAs (Scheve and Slaughter 2001; O'Rourke and Sinnott 2001; Hainmueller and Hiscox 2006; Mansfield and Mutz 2009; Margalit 2012), legislators' attitudes and voting behavior regarding trade policy (Baldwin and Magee 2000; Hiscox 2002; Conconi, Facchini and Zanardi 2012; Choi 2015; Owen 2017), and the differences in the design of PTAs (WTO 2011; Dür, Baccini and Elsig 2014).

In the following section, I will first summarize the ideational foundations of the standard theoretical framework for the political economy of trade liberalization. This framework is based on assumptions about the drivers of support for trade liberalization both among voters and among firms. Then, I will drill deeper into the two competing sets of theoretical expectations about the preference structure of these groups: economic (self-)interest on the one hand and non-economic factors such as ideology, socialization, and gender on the other hand. Subsequently, I will discuss the difficulty of disentangling these two explanations empirically because a suitable measure of trade competitiveness - a key determinant of economic self-interest - is still lacking. This will lead to the core contribution of this dissertation: the introduction of a new measure of subnational trade competitiveness and its application to long-running questions in the modern politics of trade liberalization.

1.2 The political economy of trade liberalization

1.2.1 Ideational foundations

To put it in basic terms, when decision-makers choose a trade policy for their country, they can either move towards trade liberalization by removing barriers to trade or they can move towards protectionism by erecting new barriers to trade. For centuries, trade policy of European governments was driven by the theory of mercantilism, which equated state power with state wealth and therefore aimed at accumulating monetary reserves by maximizing exports and minimizing imports (Vaggi and Groenewegen 2003). During this protectionist era, governments heavily regulated trade and protected lucrative monopolies from foreign competition. During the nineteenth century, governments in Europe and the Americas gradually moved away from mercantilism and embraced trade liberalization under the influence of the now classical trade theory developed by Adam Smith and later extended by David Ricardo. Their theory is based on the concept of comparative advantage, which postulates that each country can maximize its welfare by specializing in producing those goods that they can make efficiently and importing all other goods from abroad (Smith 1776). Although this period of trade liberalization was interrupted by the two world wars and the economic crises during the first half of the twentieth century, this liberal trade theory has since then dominated (Western) trade policy.

Although there are good arguments for the influence of intellectuals like Adam Smith or individual bureaucrats on policy decisions (Morrison 2012; St. John 2018), the standard model of a government's choice of trade policy in the modern literature on the political economy of trade is the protection-for-sale model developed by Grossman and Helpman (1994), which focuses on the decision-making process of politicians (Martin 2015). This model is based on the assumption that politicians in representative democracies want to maximize their own welfare, which generally means that they want to maximize their chances to be re-elected. To

achieve re-election, they must weigh the interests of two groups when they make decisions on trade policy. On the one hand, they obviously need support from voters and thus they have to protect the welfare of the aggregate electorate. On the other hand, they require financial contributions from special interest groups to fund their election campaigns. Regarding the trade preferences of voters, Grossman and Helpman follow the classical argumentation that free trade is beneficial for any country and that the welfare of the aggregate electorate is thus best served by trade liberalization. Regarding the preferences of special interest groups, they argue that losses from trade liberalization are usually concentrated in a few industries whereas benefits from trade liberalization are spread wide throughout the economy, which creates a collective action problem (Olson 1965). Therefore, Grossman and Helpman assume that those firms that manage to form special interest groups to influence politicians are those firms that prefer protectionism. Consequently, Grossman and Helpman posit that the government must balance the interests of voters who favor liberalization and the interests of special interest groups that lobby for protectionism. Whilst the key insight from this protection-for-sale model that trade policy is the result of a decision by a government that faces a trade-off between competing interests has been widely accepted in the literature, the model's rigid assumptions about the trade preference structures of voters and firms have been criticized as somewhat simplistic (Martin 2015).

Political scientists have since expanded the protection-for-sale model and added much nuance to our understanding of the preference structure of voters, firms, and politicians themselves. Instead of assuming that voters always have a preference for the trade policies that maximize the general welfare of a country, scholars have focused more on individual preferences, which can depend on factors such as the class of the individual, the industry of employment, economic ideology, openness to outsiders, socialization, gender, or even character traits such as risk orientation (Kuo and Naoi 2015). Regarding the trade preferences of firms, researchers have noted that not only import-competing firms will lobby the government but that export-oriented firms that prefer reciprocal trade liberalization might also find ways

to overcome the collective action problem and exercise influence on decision-makers (Dür 2010; Betz 2017). Additionally, the globalization of production has made more and more firms reliant on foreign inputs, which might entice them to lobby for lower trade barriers (Gawande, Krishna and Olarreaga 2012; Madeira 2016; Zeng, Sebold and Lu 2020). In the following sections, I will outline the literature on the preference formation of individuals, firms, and politicians regarding trade policy.

1.2.2 Economic interest as driver of trade support

As outlined above, the classical international political economy has regarded trade policy as the outcome of a contest between the economic winners and losers of liberalizations. The main theoretical challenge for this argument has been identifying which individuals and firms would win and which would lose. In the twentieth century, the academic debate contrasted the Stolper-Samuelson theorem with the Ricardo-Viner model. The Stolper-Samuelson theorem builds upon the Heckscher-Ohlin model and argues that trade liberalization helps the owners of the relatively abundant factor of production and hurts the relatively scarce factor. Initially, scholars mainly focused on conflicts between land-owners, laborers, and capital-owners (Rogowski 1990). Later, researchers drew the distinction between skilled and unskilled labor as two different factors of production that helps explain differences in trade support among citizens. The Ricardo-Viner model differentiates between importing and exporting economic sectors and assumes that the interests of workers and firms within one sector align. This assumes that inter-industry mobility is very low and thus both workers and capital are mostly tied to their industry (Hiscox 2001), which prevents workers and capital from exploiting their scarcity by moving to other sectors as the Stolper-Samuelson theorem anticipates. Changes in inter-industry mobility cause shifts in political coalitions that then result in altered trade policy (Hiscox 2002). Scholars of public opinion mostly have followed the Stolper-Samuelson theorem and argued that low skilled workers should oppose trade more in high developed countries, whereas low skilled workers in developing countries should welcome trade liberal-

ization. They generally found support for this argument (O'Rourke and Sinnott 2001; Scheve and Slaughter 2001; Mayda and Rodrik 2005; Margalit 2012).

Influenced by realities of globalization, more recent studies have noted that the globalization of production has upended both the divisions between classes and those between industries. The model of heterogeneous firms developed by Melitz (2003), which is also known as new new trade theory, suggests that individuals working within the same industry might have different material interests in regards to trade policy depending on the competitiveness of their firm. More fine-grained data revealed that only very few, highly competitive firms within each industry are able to export to world markets (Bernard, Jensen and Schott 2009), import intermediate goods, and invest abroad (Helpman, Melitz and Yeaple 2004). These empirical insights imply that only the most productive firms should support trade liberalization regardless of their industry. Researchers have found support for these firm preferences and demonstrated that larger firms are more likely to engage in political activities in support of trade liberalization (Plouffe 2017; Osgood 2017; Kim and Osgood 2019). Jamal and Milner (2019) employ a survey experiment in Tunisia and test whether the implications of new new trade theory also hold for public opinion. They find that workers who are employed by firms that are engaged in global value chains are more supportive of free trade than others within their industry.

1.2.3 Ideology, socialization, gender, and character traits as drivers of trade support

While the central importance of economic factors in determining the preferences of firms for certain trade policies is basically unquestioned, a large branch of the literature has focused on non-economic or ideational explanations of attitudes towards trade liberalization by citizens. Empirical evidence suggests that citizens lack the information to assess the economic effects of trade liberalization for their material interests and thus their trade preferences cannot solely be explained by trade theories (Guisinger 2009; Rho and Tomz 2017). Consequently,

these economic self-interest explanations for trade preferences have been complemented by alternative factors, including ideology, socialization, gender, and character traits (Kuo and Naoi 2015).

Scholars have put forward various ideational factors that explain trade attitudes (Hafner-Burton et al. 2017). Kaltenthaler, Gelleny and Ceccoli (2004) argue that cosmopolitanism is a major driver of trade support because cosmopolitans should welcome new products and interactions with other countries. Mansfield and Mutz (2009) argue that citizens who fear immigrants or the influx of foreign culture are more likely to oppose trade liberalization. Margalit (2011) follows up on this insight and demonstrates that opposition to trade can be better explained by perceived cultural threats resulting from globalization than by economic threats. The influence of ideology on trade attitudes might even be stronger for legislators: right-wing parties generally hold favorable views of trade liberalization whereas left-wing parties often oppose liberalization because of its potentially negative effects on equality and social justice (Milner and Judkins 2004; Milner and Tingley 2011; Lü, Scheve and Slaughter 2012). Nevertheless, adherents of right-wing authoritarianism also tend to hold protectionist attitudes because international trade is often associated with cultural changes (Jedinger and Burger 2020).

Goldstein, Margalit and Rivers (2008) argue that socialization through marriage can impact trade preferences because married individuals will take the implications of trade policy on their spouses into concern, too. Group membership might also determine the trade preferences of its individual members. This might explain why workers who should benefit economically from trade but belong to antitrade unions are opposed to trade liberalization (Ahlquist, Clayton and Levi 2014). Hainmueller and Hiscox (2006) showed that higher education can be another vector of socialization that affects trade preferences of individuals. They claim that individuals attending tertiary education 'learn to love globalization' as part of their general education. Essentially, only the higher educated are exposed in one form or another to the teachings of neoclassical economic theories and Keynesian ideas, which are

overwhelmingly supportive of international trade.

Burgoon and Hiscox (2006) expand this argument to explain the consistent empirical finding that women are more protectionist than men. They argue that women are less likely to take economics classes and thus are less frequently exposed to theories that advertise free trade. Other authors argue that the gender gap in trade attitudes is caused by gender specific factors (Beaulieu, Yatawara and Wang 2005; Beaulieu and Napier 2008), such as women's greater discomfort with competition (Mansfield, Mutz and Silver 2015) or risk aversion (Ehrlich and Maestas 2010; Drope and Chowdhury 2014; Guisinger 2016; Tomiura et al. 2019).

1.2.4 The observational equivalence of rival explanations for trade support

One major obstacle in evaluating these competing explanations for trade support is that the empirical expectations of both strands of the literature are often identical. For example, the education gap in trade support could be caused by economic self-interest as highly-skilled people are more likely to benefit economically from trade liberalization (Mayda and Rodrik 2005) but it might also be explained by the fact that university-educated individuals tend to be more cosmopolitan and thus be more supportive of international cooperation (Mansfield and Mutz 2009). Similarly, the empirical observation that women tend to prefer protectionism whereas men favor liberalization might be a result of the fact that women are often hit hardest by the adverse effects of trade liberalization on wages and jobs (Dluhosch 2021) or this gender gap could be explained by gender specific factors such as character traits (Beaulieu and Napier 2008).

Any attempts to overcome these observational equivalences require a solid measure of the economic self-interest of voters in trade policy. In the next section, I will outline existing approaches at measuring economic interest and demonstrate why these approaches do not sufficiently capture the material effects of trade liberalization. Then, I will present one central

contribution of this dissertation: a new measure of subnational trade competitiveness.

1.3 Disentangling economic and non-economic drivers of trade support

1.3.1 Current attempts at measuring economic interest

Disentangling economic and non-economic explanations for the trade preferences of individuals, firms, or politicians has proven to be a difficult endeavor. One main obstacle - especially for comparative cross-country studies - has been the lack of a suitable measure of the economic interest of individuals, regions, or countries. Researchers used various indicators as proxies for the economic effects of trade policies to identify who is a winner and who is a loser of trade.

To identify the economic interest of individuals in trade policies, most early studies have used the duration of their formal education in years to determine whether they are highly skilled or less skilled workers (Scheve and Slaughter 2001; O'Rourke and Sinnott 2001; Mayda and Rodrik 2005; Hainmueller and Hiscox 2006; Fordham and Kleinberg 2012). According to the Stolper-Samuelson theorem, the relative scarcity or abundance of their factor profile within their country should be the main factor driving their economic interest. Other studies use the profession of individuals to determine their factor profile (Jamal and Milner 2019). In line with the expectation by the Ricardo-Viner model that export-oriented sectors of an economy should favor liberalization whereas import-competing sectors should prefer protectionism, other studies used the sector of the economy in which individuals are employed to derive their economic interests in trade policy. In some cases, these studies used rather broad categorizations of economic sectors such as primary, secondary, and tertiary sectors (Naoi and Urata 2013). Other studies use finer categorizations such as national industry classifications (Mansfield and Mutz 2009; Mansfield, Mutz and Silver 2015) or the Harmo-

nized System (HS) codes (Jamal and Milner 2019) to separate economic sectors and then calculate the net-export of each sector. Some of the more recent studies take into account the predictions by the new new trade theory, which predicts that only the most productive, export-oriented firms benefit from free trade. Therefore, scholars might use firm-level data about the degree to which their employers are exporting, importing from abroad, or investing abroad (Naoi and Urata 2013; Hummels et al. 2014). However, firm-level data is often impossible to obtain - especially for comparative cross-country research. Alternative measures of economic interest of individuals that are not directly connected to any of the standard trade theories are for example variables such as employment status (Hainmueller and Hiscox 2006), home-ownership (Scheve and Slaughter 2001), and income (Kaltenthaler, Gelleny and Ceccoli 2004).

There are also several potential indicators for the economic interest in trade policy of territorial units. Researchers who analyze legislative behavior are especially interested in the economic interests of constituencies. Most scholars use measures that differentiate between export-oriented and importing-competing electoral districts, either by constructing a binary measure (Murillo and Pinto 2021) or by calculating the share of employment in export-oriented or import-competing sectors (Baldwin and Magee 2000; Conconi, Facchini and Zanardi 2012; Autor, Dorn and Hanson 2013; Choi 2015; Kagitani and Harimaya 2020). Other indicators that are used to measure the economic interest of constituencies might be the import exposure per worker (Feigenbaum and Hall 2015), the trade shocks per voter (Campello and Urdinez 2021), the share of workers in offshorable occupations (Owen 2017), the unemployment rate (Baldwin and Magee 2000; Conconi, Facchini and Zanardi 2012; Kagitani and Harimaya 2020), the share of the population with higher education (Baldwin and Magee 2000; Owen 2017), or the GDP per capita of the district (Conconi, Facchini and Zanardi 2012; Kagitani and Harimaya 2020).

However, all of these approaches fall short of adequately capturing the material interests of individuals or geographical units in trade policy. The use of education as a proxy for skill

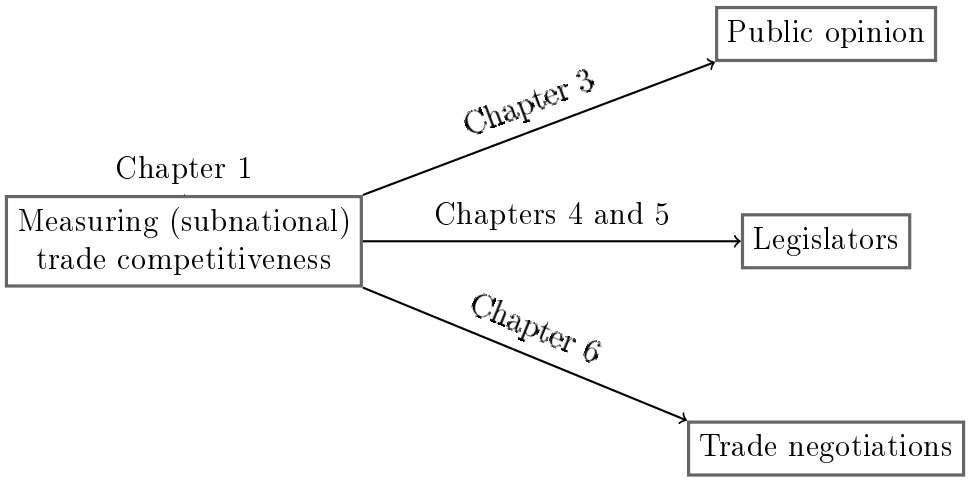
levels rests on the assumption that all graduates of one education level will receive the same material consequences from trade liberalization. Although higher educational specialization should be associated with higher productivity according to new new trade theory, this relationship certainly is not linear. For example, highly skilled electricians with only secondary schooling will benefit more from increased imports of solar cells than political scientists with a university degree. Moreover, given that education is closely correlated with cultural values, this approach risks conflating two separate drivers of preferences for trade policy as outlined in the previous section.

Economic indicators such as GDP per capita, unemployment rates, house ownership, or average income levels are affected by myriad factors that are often unrelated to trade policy. Some parts of the economy are not exposed to international trade but still factor into GDP calculations. Moreover, using GDP per capita neglects the fact that all countries regardless of wealth have a competitive advantage in producing some goods or services and that firms in certain regions in these countries will be more aligned with their country's competitive advantages than others.

1.3.2 Contributions of this dissertation

This dissertation contributes to the political economy literature in two ways: first, it introduces a novel measure of subnational trade competitiveness that allows for comparative research about the effect of economic interest of geographical units such as electoral constituencies or administrative regions. Different from existing approaches, this measure tries to directly capture the capability of firms to export to world markets and to compete with imports. This comprehensive data enables more fine-grained research about diverse topics such as the roots of the anti-globalization backlash, the effect of trade shocks on elections, determinants of the voting behavior of legislators, the attraction of foreign direct investment, the efficiency of supposedly competitiveness-enhancing policy measures, and the economic effects of trade liberalization for different regions.

Figure 1.1: Overview of the chapters in this dissertation



Second, this dissertation applies this measure of trade competitiveness to some of these important questions surrounding the modern politics of trade agreements. The four empirical chapters investigate the influence of trade competitiveness on public opinion about trade policy, on the support of legislators for trade liberalization, and on the bargaining outcome in trade negotiations. The application of a better measure of the material interests of the actors studied in these chapters goes beyond the existing literature, which relied on rather imprecise indicators as outlined above. Moreover, these questions are answered using empirical data with rich variation in countries, time, and trade agreements. This allows for broad generalizability and thus significantly enriches our understanding of the effect of economic interest on public opinion, attitudes and voting behavior of legislators, and trade negotiations. Thus, the papers in this dissertation contribute to the existing studies in these areas, which mostly are case studies focusing on a single country - oftentimes the unique case of the USA.

1.4 Overview of this dissertation

Figure 1.1 provides an overview of the structure of this dissertation, which first introduces the novel measure of subnational trade competitiveness in chapter two before applying this measure in chapters three through six.

1.4.1 Measuring (subnational) trade competitivenes

Chapter 2: *Measuring subnational trade competitiveness* (Co-authors: Andreas Dür and Robert Huber)

As described above, the efforts of scholars to isolate the effect of economic interest in trade policy has been hampered by a lack of a suitable measure of the trade competitiveness of territorial units. In the second chapter, we close this gap in the data availability by providing by providing four new measures of what we call subnational trade competitiveness. These four measures differ slightly in their calculation but all of them reflect the degree to which a region's economic structure is aligned with the comparative advantage of the country as a whole. Regions that specialize in the production of goods or services where the country has a competitive advantage compared to global competitors achieve high values in these measures. Regions that mainly produce goods or services where their country does not have any competitive advantages and thus are placed at the lower end of the scale of our measures.

These measures of subnational trade competitiveness thus capture the extent to which a region should benefit or lose economically from trade liberalization. Regions with high values already have an economic structure that is well geared towards global competition. Firms, voters, and legislators from these regions should thus favor trade liberalization to unlock the economic potential of their regions. However, regions with low values mainly rely on economic sectors that are not competitive on a global market and have probably only survived because of protectionist trade barriers. Therefore, the interests of their firms, voters, and legislators are reversed.

To calculate these measures of subnational trade competitiveness and make it available for as many countries as possible, we have gathered information on the economic structure of 6,475 regions in 63 countries over a period of 21 years. This constitutes the most comprehensive dataset on subnational trade competitiveness and is a valuable addition to more general indicators of the economic interests of regions such as subnational GNI. These measures will be especially useful for answering any trade-specific questions such as those tackled in the

four next chapters. All four chapters use a version of the measure for trade competitiveness discussed here to reevaluate important questions of the literature on the political economy of trade.

1.4.2 The effect of trade competitiveness on public opinion

Chapter 3: *Education and Trade Attitudes: Revisiting the Role of Economic Interest* (Co-authors: Andreas Dür and Robert Huber; Published in *World Trade Review*, DOI:10.1017/S1474745621000562)

In the third chapter, we employ this measure of subnational trade competitiveness to investigate the importance of economic interest in determining public opinion on trade policy. Public opinion matters for trade policy in the rare instances when citizens directly vote on specific trade agreements in referendums such as 2007 Costa Rican plebiscite about joining the Central American Free Trade Area (Urbatsch 2013) and to a certain degree Brexit – albeit it is debatable whether British voters based their decision for or against remaining in the European Union on its implications for trade policy (Hobolt 2016). More importantly, public opinion affects trade policy indirectly through its effect on the voting behavior of legislators who want to be re-elected.

One of the most consistent empirical results of opinion surveys on trade policy is the strong effect of education. More highly educated people, and especially people with university degrees, are more likely to support trade liberalization whereas people with non-tertiary degrees usually are more skeptical towards free trade. The academic literature has put forward two rival explanations for this phenomenon. On the one hand, this pattern of trade preferences fits well to established trade theories, which postulate that in the conditions of modern production only the highly educated benefit economically from globalization because their skills are thought after by the most competitive firms (Burstein and Vogel 2017; Helpman et al. 2017; Lee 2020). Scholars of public opinion have found various evidence that this economic interest actually drives the trade attitudes of individuals (O'Rourke and Sinnott

2001; Scheve and Slaughter 2001; Mayda and Rodrik 2005; Fordham and Kleinberg 2012). On the other hand, there might be non-economic reasons why the highly educated are more supportive of free trade. For example, education might have an ideational effect on trade attitudes because the highly educated tend to be more cosmopolitan, open to the influx of foreign influences, and supportive of international cooperation (Kaltenthaler, Gelleny and Ceccoli 2004; Mansfield and Mutz 2009). In this chapter, we contribute to this discussion by proposing several novel tests to overcome the observational equivalence between these two approaches.

We use data from 36 countries from the 2014 PEW Global Attitudes survey from various levels of economic development. In this survey, the respondents were asked to specify whether they believe that trade has a positive, a negative, or no effect on jobs and on wages. We used their responses as dependent variable to test four hypotheses. The reasoning behind each of these four hypotheses is that if the education gap is not based on economic self-interest, education should not interact with variables that proxy the economic interest of the respondents such as the employment status or the age of the respondents as well as the level of development or the trade competitiveness of the respondents' geographic region. In a series of regression analyses, we find that the perception of respondents towards the consequences of trade is conditional on their individual and regional economic context. This supports the notion that the education gap in trade support is at least partially driven by economic self-interest. This finding is significant because the majority of recent survey experimental studies has found only little support for economic self-interest as a driver of opposition to globalization and instead emphasized non-material factors (Naoi 2020).

1.4.3 The effect of trade competitiveness on legislators

Chapters four and five investigates the influence of trade competitiveness on legislators, who have the final say over the ratification of trade agreements in most democratic countries. There are several potential mechanisms through which the economic interests of their con-

stituencies as expressed with our measure of trade competitiveness should factor significantly in the decision-making process of politicians. First, as outlined in the description of chapter three, trade competitiveness has a significant impact on public opinion as people from more competitive regions expect trade liberalization to bring jobs and higher wages whereas people from non-competitive regions fear job losses and wage decreases. Reflecting the trade competitiveness of their constituency in policy making might thus increase the likelihood of reelection (Gilens and Page 2014). Second, the trade competitiveness of the electoral district will reveal the economic interests of the firms located there. These firms can be expected to attempt to influence the legislator by providing campaign contributions (Drope and Hansen 2004), technical expertise (Hall and Deardorff 2006), or political information (Wright 1996).

Chapter 4: *Why Do Legislators Rebel on Trade Agreements? The Effect of Economic Constituency Interests* (Single-authored)

In the fourth chapter, I investigate whether subnational trade competitiveness has an impact on the voting behavior of legislators. Measuring the effect of economic constituency interest on voting behavior has been more difficult than analyzing trade attitudes of politicians expressed in surveys because party discipline often prevents legislators from voting freely. One result of the strong force of party discipline is that most trade agreements are ratified with overwhelming support. One notable exception might be Kim Sun-dong who detonated a tear gas canister in the Korean National Assembly in 2011 to prevent the ratification of a trade agreement with the USA (Sang-Hun 2011). To investigate the determinants of legislators' voting behavior despite the obscuring effect of party discipline, I narrow down the analysis in this chapter on the decision of legislators to rebel against their party's position on trade agreements.

To analyze the voting behavior of legislators on trade agreements, I gathered voting records for 112 ratification processes from 20 countries in which at least one legislator rebelled against the party position. In total, this original dataset consists of 13,694 individual voting decisions of which 1,002 can be classified as rebellions. I further differentiate between "Pro

Rebels" and "Contra Rebels". "Pro Rebels" vote in favor of the trade agreement although the majority of their party is against. "Contra Rebels" are opposed to ratification despite their party supports the agreement. My argument about the influence of the economic constituency interest on the these voting decisions is twofold: first, I argue that rebellions in general should be more likely, when the agreements are anticipated to have a large economic impact. This is the case when the agreement is deep and its provisions affect nearly all sectors of the economy or when the agreement is with a large trading partner. Second, I expect the direction of rebellions to be determined by the relative gains or losses the constituency is expected to receive from the trade agreement. Legislators from competitive districts are likely to rebel in favor of the agreement whereas legislators from non-competitive districts should rebel against the agreement when their party's position does not align with the economic interests of their voters. These hypotheses are generally supported by the empirical evidence.

Chapter 5: *Trade Competitiveness, Constituency Interests, and Legislators' Attitudes Towards Trade Agreements* (Co-authors: Andreas Dür and Robert Huber)

Chapter five investigates the effect of subnational trade competitiveness on the trade attitudes of legislators. Several studies have already laid important groundwork for this chapter by demonstrating a causal link between the economic interests of voters and legislators' stances on trade. However, these existing studies have focused on empirical evidence from single countries, in most instances from the USA. Instead, this chapter uses survey data from 16 Latin American countries and 48 legislative periods to allow for more generalizability. Moreover, we introduce two important scope conditions for the effect of economic constituency interest on legislators' attitudes. First, we argue that legislators from large, multi-member districts are less likely to be swayed by the economic interest of their constituency as a whole whereas legislators from smaller districts that only elect a few representatives will be impacted more by their constituency's economic interest. Second, we hypothesize that differences in subnational trade competitiveness mostly matter for left-wing legislators whilst right-wing legislators are ideologically less flexible and generally supportive of free trade.

To test these hypotheses, we use 3,576 responses from legislators on the question how positive they rate a preferential trade agreement with either the USA, the EU, or the Pacific Alliance. A ordinal least square regression reveals that legislators from the most competitive districts are significantly more likely to voice support for preferential trade agreements than legislators from districts that are not competitive. As hypothesized, this effect is only significant for legislators from smaller districts where the relationship between the median economic interest in the constituency and the legislators remains clear. The findings also demonstrate that predominantly politicians on the left side of the ideological spectrum reflect the economic interest of their voters.

Combined, chapters four and five make important contributions to the political economy literature by confirming the causal link between the material interests of constituents and the attitudes and voting behavior of legislators with novel cross-country, cross-agreement, cross-time data. This allows for broader generealizability than previous studies, which were mostly focused on case studies from the USA. Additionally, these papers demonstrate the usefulness of the subnational trade competitiveness measure in comparative legislative studies. One fruitful avenue for further research would be to directly link the attitudes and behavior of legislators to public opinion data from their constituencies. This would close the gap in the argument that only theoretically assumes that voters are aware of their economic interests in trade policy and express their interests to legislators.

1.4.4 The effect of trade competitiveness on trade negotiations

Chapter 6: *Bargaining Power in a Globalized World: The Effect of Global Value Chains in Trade Negotiations* (Single-authored)

In the sixth chapter, I shift the focus from the domestic decision-making process to the international level and study the effect of economic interest on trade negotiations. The outcome of trade negotiations between two or more countries is generally assumed to be a result of the relative bargaining power of the parties (Frieden and Walter 2019). Usually,

bargaining power is equated with relative market size measured by the GDP of each country. In this chapter, I adapt this argument to the realities of modern trade, which is characterized by high interdependence and global value chains (GVCs). I argue that the reliance on foreign imports as inputs in domestic production will make countries less willing and able to coerce their negotiation partners into making concessions. One key reason for this is the existence of domestic firms that oppose high trade barriers because they need foreign inputs (Gawande, Krishna and Olarreaga 2012; Madeira 2016; Zeng, Sebold and Lu 2020) or because they rely on exports and want to achieve reciprocal liberalization (Dür 2010; Betz 2017).

I test these hypotheses with a dataset of liberalization commitments made by countries to reduce barriers to trade in services (Roy 2011). This dataset includes 67 trade agreements that were signed between 1994 and 2009 and involve 54 different countries. The data contains information on the level of liberalization each country committed itself to in these agreements in 153 different services sectors for two modes of services provision. I use this data as indicator for the relative bargaining success of each country based on the assumption that each government would prefer to make as few commitments as possible. I find that larger countries make fewer concessions than smaller countries as expected by the market power hypothesis. However, the degree to which a country is integrated in GVCs with the partner country partly counteracts this effect as countries that rely heavily on their partner are more likely to make concessions. Additionally, I demonstrate that the trade competitiveness of each services sector influences the likelihood of concessions in this sector: countries are more willing to make concessions in those services sectors where their firms are competitive whereas they are hesitant to liberalize sectors where their firms might struggle with foreign competition because they are not competitive on a global market.

2 | Measuring Subnational Trade Competitiveness

Authors: Robert A. Huber, Yannick Stiller, and Andreas Dür

Abstract: Much research has tried to measure the competitiveness of territorial units such as countries and subnational regions. We propose new measures of subnational trade competitiveness that reflect the economic focus of regions on their country's comparative advantage. Our approach starts with data on the revealed comparative advantage of countries at the industry level. We then combine these measures with data on the employment structure of regions to arrive at measures of subnational trade competitiveness. In total, we offer data for 6,475 regions across 63 countries and over a time period of 21 years. In this paper, we introduce our measures and provide descriptive evidence that shows the plausibility of these measures. We also discuss some of the many research questions that these data can be used to address.

2.1 Introduction

Ever since Michael Porter published a highly influential study on *The Competitive Advantage of Nations* in 1990 (Porter 1990), much research has analyzed the competitiveness of territorial units. This has led to various rankings of the competitiveness of countries (e.g. Schwab 2019), regions (Huggins et al. 2014; Kitson, Martin and Tyler 2004), and even cities (Huggins, Thompson and Prokop 2019). Over time, criticisms of the original efforts (most prominently by Krugman 1994) have led to various improvements in the conceptualization of territorial competitiveness (Berger and Bristow 2009; Budd and Hirmis 2004).

We contribute to this large literature by proposing new measures of what we call subnational trade competitiveness. Our measures capture the extent to which a region's economic structure is aligned with the comparative advantage of the country to which it belongs. To arrive at this score, we proceed in two steps. First, we calculate four different measures of revealed comparative advantage by industry at the national level using highly disaggregated trade data. In a second step, we combine these national-level measures with employment data in subnational regions to arrive at measures of subnational trade competitiveness. In total, we present data for 6,475 regions in 63 countries across all continents over a 21 year period. We offer each of the four measures at two different aggregation levels, once at the overall and once at the sector level (agriculture, mining, manufacturing, and services). These measures capture a region's level of trade competitiveness (either overall or in a specific sector) vis-à-vis the outside world.

Our approach differs from existing attempts at measuring the competitiveness of territorial units in several important ways. For one, we calculate (trade) competitiveness without recourse to potential drivers of competitiveness such as the number of people with tertiary education or the presence of certain infrastructure. Instead, we try to directly capture the ability of firms from a subnational region to sell on world markets and to compete with imports. Doing so allows for an analysis of the extent to which different factors contribute to

a region's trade competitiveness, which would be tautological when the drivers are part of the measure itself. In turn, since our measures heavily rely on trade data, we measure *trade* competitiveness rather than some overall economic competitiveness. Clearly, not all parts of an economy are exposed to international trade, even if indirectly trade matters for a larger part of the economy. Finally, we also measure trade competitiveness without concern for a region's wealth or income per capita. By definition, all countries – and not only highly developed countries – have a comparative advantage. As a result, in both more or less developed countries, regions can have an economic structure that is aligned with their country's comparative advantage. If trade competitiveness just captured income per capita, there would be no need for such a measure in the first place, as it would just duplicate measures such as Gross National Income.

Because our measures capture competitiveness at the subnational level, they reflect within-country variation in economic structure, which is substantial in many countries. In the United States, for example, the economic structure of California is substantially different from the economic structure of Louisiana, meaning that the two also likely score differently with respect to trade competitiveness. These differences across subnational regions tend to be even more pronounced in emerging economies. Capturing this within country variation is important because for individuals the trade competitiveness of the region in which they live may be more salient than the one of the country as a whole, as it may better reflect their economic reality. For example, a person living in a region with a high value on trade competitiveness may experience globalization very differently from one living in the same country but in a region with low trade competitiveness. This is illustrated by the fact that support for Brexit in the United Kingdom strongly varied across regions (Carreras, Irepoglu Carreras and Bowler 2019).

The resulting data on regions' trade competitiveness allows for research on questions as diverse as: is the anti-globalization backlash stronger in regions that see a decline in trade competitiveness? Does trade integration (for example via trade agreements) affect

regions differently depending on their trade competitiveness? Which policies increase or decrease a region's trade competitiveness? Does trade competitiveness attract foreign direct investments? Do trade shocks (for example, a sudden surge in imports, which likely affects different regions differently) have an impact on elections (Autor et al. 2020; Colantone and Stanig 2018*b*)? Do legislators consider the economic interests of their electoral districts when casting votes (Murillo and Pinto 2021)? And, does trade competitiveness increase a region's economic growth rate?

2.2 Measuring subnational trade competitiveness

Firm competitiveness refers to firms' ability to sell their goods and services on markets. That is, to be competitive, firms need to produce goods and services that meet consumer demand in the markets they target. Whether a firm is economically competitive matters strongly for its chances of survival in the market. If it is not competitive, it either goes bankrupt or requires government support to survive, for example in the form of subsidies or trade barriers that protect it from more competitive suppliers. Transferring this logic to territorial units is not straightforward (Krugman 1996; Aiginger 2006). Most fundamentally, territorial entities do not sell any goods or services on the market; only firms do. Moreover, the survival of a country or any other territorial entity does not depend on its ability to compete on markets. And whereas a firm generally needs to make a surplus, any definition that equates territorial competitiveness with the ability to achieve a balance of trade surplus is correctly criticized as mercantilist.

Building on an intense debate over these issue (e.g. Krugman 1996; Budd and Hirmis 2004; Berger 2008), we thus conceive of subnational trade competitiveness as the extent to which a subnational region's economic structure is aligned with the comparative advantage of the country to which it belongs. By definition, each country has a comparative advantage in the production of some goods or the provision of some services. Comparative

advantage results from differences in the opportunity costs of producing specific commodities across countries, which in turn are largely driven by different factor endowments. Countries that are capital-abundant generally have a comparative advantage in the production of capital-intensive goods and services; countries that are labour-abundant have a comparative advantage in the production of labour-intensive goods and services.

Rather than assuming countries' comparative advantage, we use trade data to establish their *revealed* comparative advantage. Starting with Balassa (1965), many authors have suggested alternative ways of calculating revealed comparative advantage (for an overview, see Liu and Gao 2019). We use the following four distinct approaches:

1. *RCA symmetric:* this is a transformation of Balassa's original measure suggested by Laursen (2015) with the aim of making it symmetric around zero. It reflects the ratio of two ratios: the exports of a country in a product as a share of the country's overall exports divided by world exports in a product as a share of overall world exports.

2. *RCA additive:* this measure was proposed by Hoen and Oosterhaven (2006) who suggested to calculate the difference between domestic and world shares instead of the ratio.

3. *RCA net:* Vollrath (1991) proposed subtracting a measure equivalent to the original Balassa measure but calculated for imports from the measure calculated for exports. We adapt this approach by first applying the transformation suggested by Laursen (2015).

4. *RCA trade balance:* UNIDO (1982: 23), finally, suggested to divide a country's trade balance in a product by its total trade in that product.

We calculate these four measures relying on data at the six-digit level from the United Nation's Comtrade database for trade in goods (United Nations 2020) and the OECD-WTO's BaTIS database for trade in services (OECD and Development 2021). Each of the resulting measures ranges from -1 (greatest comparative disadvantage) to +1 (greatest comparative

advantage); 0 acts as a neutral point in the middle. We present them and their strengths and weaknesses in detail in section A1.1 of the Online Appendix.

To establish to which extent a region's economy produces goods and services for which the country has a comparative advantage, we then weight our measures of a country's revealed comparative advantage in a specific industry with the number of workers who are employed in this industry in a specific region. The employment data stem from household or labour force surveys, or from census data. Finally, we sum up all the products between worker weights and respective RCA values to arrive at our measures of subnational trade competitiveness. In summing, we aggregate both to the sector-region level (distinguishing four sectors, namely agriculture, mining, manufacturing, and services) and to the overall region level. In form of an equation:

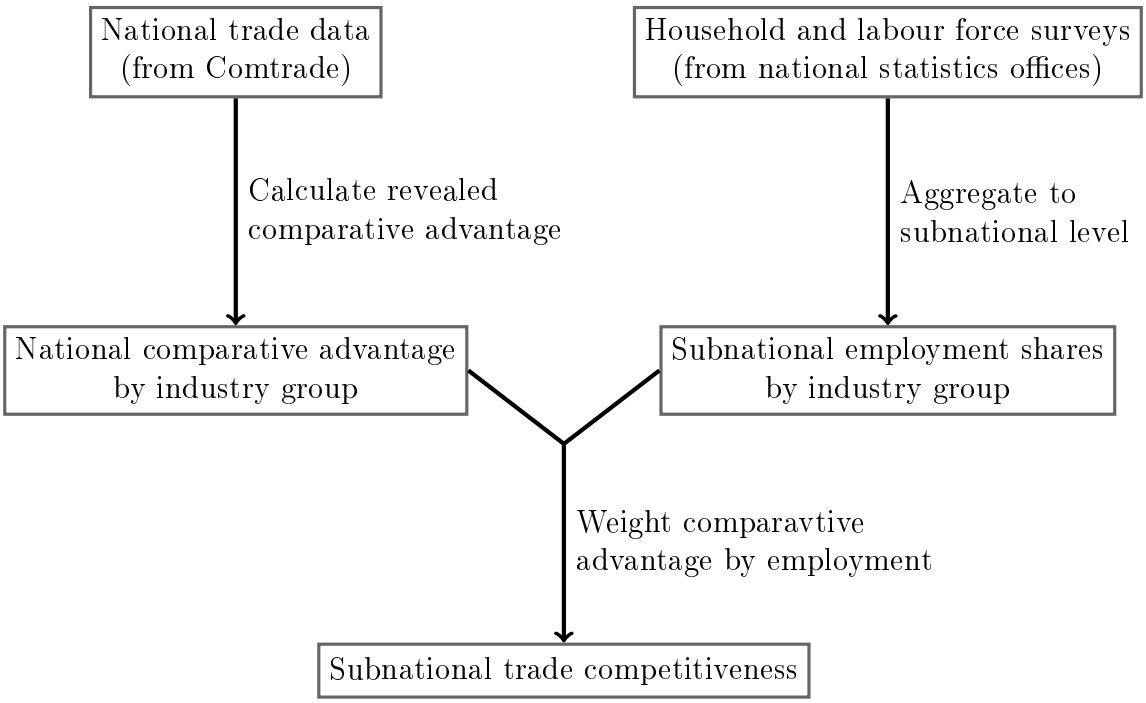
$$STC_{st} = \sum_{p=1}^{N} (RCA_{cpt} * ES_{pst}), \tag{2.1}$$

where STC_{st} is the subnational trade competitiveness value for subnational region s at time t (or a region-sector), p is the industry group, RCA_{cpt} is the value of the specific RCA index (symmetric, additive, net or trade balance) for industry group p in country c at time t, and ES_{pst} is the employment share in the industry group and region in year t. Figure 2.1 provides an illustration of our approach.[1]

Larger values on the resulting measure of subnational trade competitiveness mean that a region's economic structure is more aligned with the country's revealed comparative advantage; lower values that the region's economy is less well aligned with the country's revealed comparative advantage. What the values thus capture is the ability of a region's firms to exports the goods and services they produce on world markets relative to the ability of firms from other regions in the same country. Moreover, two of the four approaches that we introduce below also capture the ability of a region's firms to withstand international competition in domestic markets relative to firms in other regions.

[1] We discuss the approach in more detail in section A1.2 in the Online Appendix.

Figure 2.1: Calculation of subnational trade competitiveness



Given that we have four different ways of calculating RCA (symmetric, additive, net, and trade balance), and that we aggregate these measures to both the region as a whole and the region-sector level (agriculture, manufacturing, mining, and services), we end up with 20 different measures for each region and year. To make their interpretation more intuitive, we subtract the national mean of the respective overall subnational trade competitiveness measure from all measures. Positive values then indicate that a region is more oriented towards the country's comparative advantage than the average region in a country.

Compared to alternative weights that might be used to aggregate the industry-country RCA data to the subnational level, such as regional gross value added by industry, employment data has two crucial advantages. First, the necessary data can be obtained from household and labour force surveys, which are available for a large number of countries in a standardized way and at a highly disaggregated level. Second, weighting based on employment has conceptional benefits for many applications of this measure in the social sciences that might focus on voting behaviour, political attitudes, or any broader social developments

that account for the material situation of people. We still checked whether using data on gross value added instead of employment leads to starkly different results. Given that appropriate data on regional gross value added are not as readily available as employment data, we implemented this cross-check for one country from the Global North (United Kingdom) and one from the Global South (Ecuador). When calculated with gross value added data, the measures highly positively correlate with the measures based on employment data. For the United Kingdom, the correlations are between 0.92 and 0.96; and for Ecuador between 0.63 and 0.71. The lower values for Ecuador are explained by the oil industry (large value, few employees) and agriculture (low value, many employees). Overall, this cross-check adds confidence in our data.

We offer our data at two geographical levels. For 63 countries, which represent all areas of the world, we can provide them for the first-level administrative divisions of the country. These might be states (e.g. in Brazil, Germany, India, Mexico, and the USA), provinces (e.g. in Argentina, Belgium, Ecuador, and South Africa), or regions (e.g. in Ghana, Namibia, Peru, and Slovakia). In 26 countries, the data enabled us to calculate the measure at an additional, more fine-grained level. In Italy, for example, we make available data for the more than 100 Italian provinces in addition to the 20 regions. In India, our dataset not only includes the 35 states and union territories but also the more than 600 districts. In total, we calculate our measures for 6,475 different regions. Table A1 in the Appendix contains more information on the subnational levels provided for each country. In the following empirical illustration, we rely on the data for the first-level administrative divisions.

In some regions, some of the years in the 21 year period covered by the dataset have been extra- or interpolated by carrying the employment data backwards and forwards.[2] However, we always use the respective trade data for a year. In other words, even if we impute the distribution of employees in an industry in a year, we use the correct trade data for this year.

[2]We carried values forward and backwards because for the large majority of sector-specific time series (85%), the data do not show a time trend. We provide systematic tests in section A1.6 in the Appendix. The dataset that we release contains a variable that indicates whether employment data for a specific value were imputed, so that researchers can decide themselves whether they want to use these data points.

2.3 Illustrating the plausibility of the measures

We first show that the various measures of subnational trade competitiveness are highly positively correlated with each other and discuss to which extent subnational trade competitiveness varies within countries. We then provide some tests of the data's face validity. Finally, we provide two brief case studies of South Korea and Bolivia. Further analysis of the data for all measures, regions, years, and sectors is possible via the following Shiny app: https://subnationaltradecompetitiveness.shinyapps.io/Comp_Shiny/.

2.3.1 Descriptive evidence

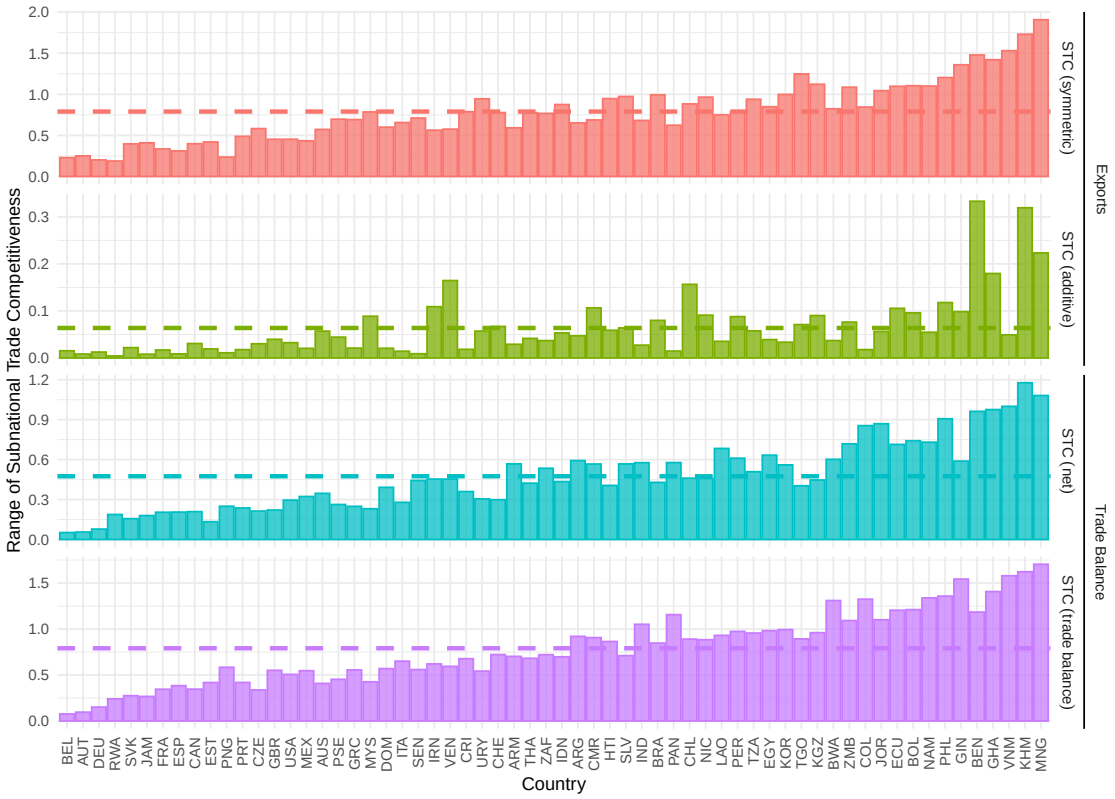
All four measures of subnational trade competitiveness (as calculated for the region as a whole), with the partial exception of $STC\ (additive)_{OV}$, are highly positively correlated. Particularly the measures based on the net and trade balance approaches behave very similarly. In fact, the correlations between $STC\ (symmetric)_{OV}$, $STC\ (net)_{OV}$, and $STC\ (trade\ balance)_{OV}$ are all above 0.82 (also see Figure A8 in the Appendix). $STC\ (additive)_{OV}$ might behave differently because given its calculation it assigns less weight to smaller sectors than the other measures. Nonetheless, the three correlations with $STC\ (additive)_{OV}$ are above 0.46, indicating that all measures capture the same latent concept.

Next we analyse to which extent subnational trade competitiveness varies *within* countries. For each country, Figure 2.2 shows the difference in subnational trade competitiveness between the region with the lowest and the region with the highest value on subnational trade competitiveness. The colours indicate the different measures. The horizontal, dashed lines indicate the average range across all countries in our sample. Keeping in mind that all variables theoretically range from $\pm$ 2, we find substantial within country variation.[3] For example, the mean range for the $STC\ (symmetric)_{OV}$ measure is around 0.8; and hence about 20 percent of the maximum possible range. We find similar variation for the $STC\ (net)_{OV}$ and

[3]The variables are standardised between $\pm$ 1. Since we subtract the country mean, theoretically they could take values in the range $\pm$ 2.

$STC\ (tradebalance)_{OV}$ measures. Only the $STC\ (additive)_{OV}$ operates on a more restricted part of the theoretical range.

Figure 2.2: Within-country range of subnational trade competitiveness



Note: Bars are sorted by the sum of ranges across all measures.

Zooming in to individual countries, across all measures we find that the countries with relatively little heterogeneity tend to be highly developed, whereas the lower income countries tend to exhibit more variation across regions. Austrian and German federal districts, for example, are similar in their employment structure, thus their level of within-country variation is rather small. On the other end of the extreme, we observe lower income countries that tend to have one political and economic center and several more rural regions. A country such as Argentina that has several highly industrialised (e.g. Buenos Aires) and other more rural regions (e.g. La Pampa and Tierra del Fuego) is placed somewhere in the middle of the distribution. Again, the additive measure ($STC\ (additive)_{OV}$) behaves slightly different from the other measures, as it produces some extreme outliers (Benin and Cambodia have

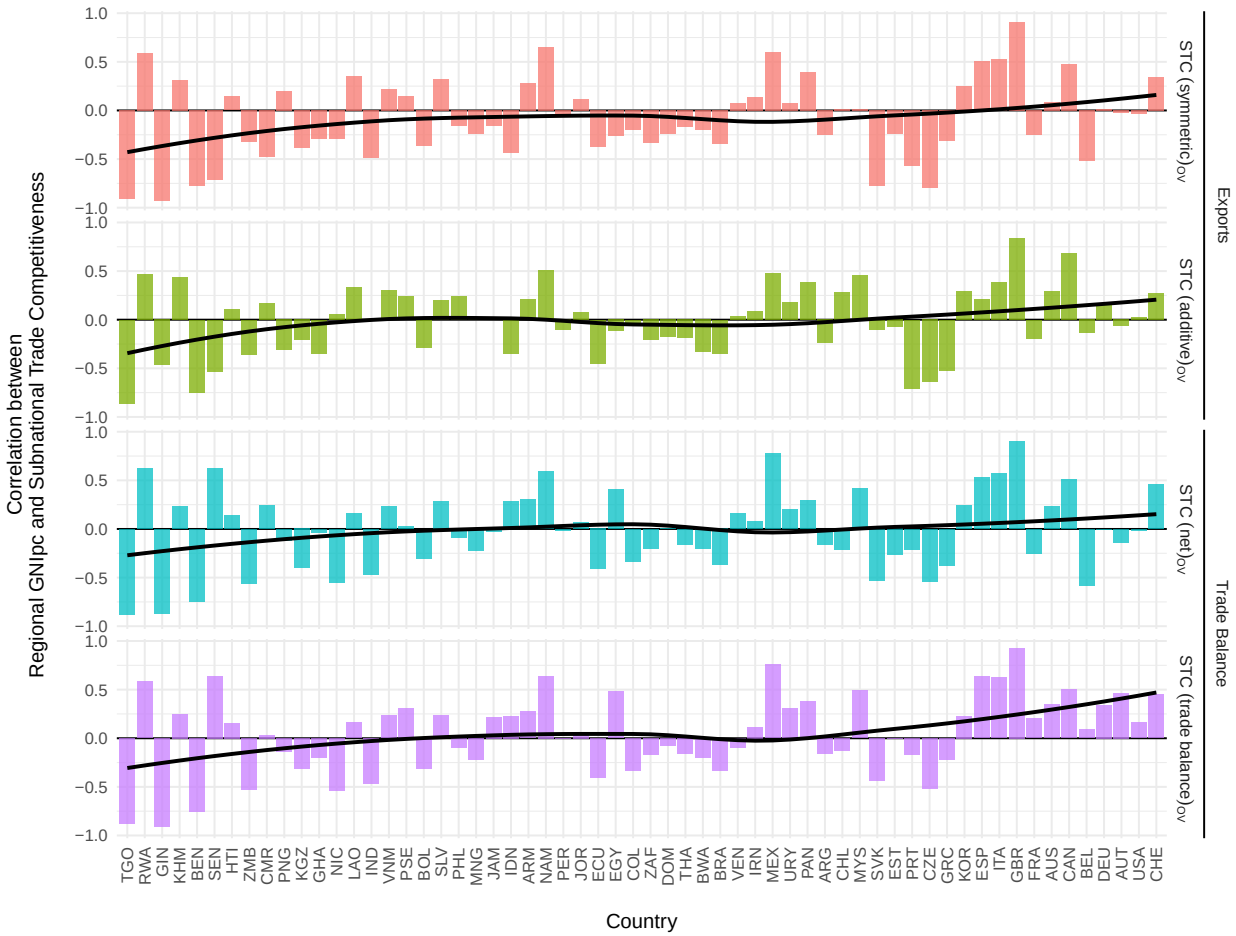
five times the average range). Nevertheless, even for this measure we find the difference between more and less highly developed countries discussed before.

2.3.2 Relationship between competitiveness and GNI

Since by definition all countries have a comparative advantage in the production of some goods or the provision of some services, we should see regions with relatively high and regions with relatively low values on subnational trade competitiveness in each country. As a result, our measures cannot simply reflect cross-country differences in levels of development. Nevertheless, at the subnational level, trade competitiveness and level of development may correlate. It could be that within countries, the regions with the highest level of development also receive the highest scores on subnational trade competitiveness. If so, our measures could simply be substituted with a measure of regional GDP per capita. While there are theoretical reasons to believe this is not the case, in this subsection we analyze this correlation empirically. Figure 2.3 shows that subnational trade competitiveness indeed is not just a proxy for regions' Gross National Income per capita. In fact, the correlations vary widely across countries, and in many they are strongly negative. In Guinea, for example, three of four measures have a negative correlation with GNI per capita of -0.85 or below.

We also find, however, that the correlation is on average positive for the more developed countries in the sample and negative for the less developed countries (see the black line that summarizes the correlations via a LOESS regression). This suggests that in less developed countries, poorer subnational entities are more focused on the comparative advantage of the country, which might be explained by lower production costs (mainly wages) in these regions. In more developed countries the relationship is reversed and richer regions are more in line with the comparative advantage of the country. This might be a result of the availability of high skilled workers in wealthy districts. Overall this pattern suggests that the underlying factors that determine whether a region is oriented towards a country's comparative advantage or not are different at different levels of development.

Figure 2.3: Correlation between regional GNI per capita and subnational trade competitiveness



Note: Bars are sorted by countries' average GNI per capita over the 21-year observational period.

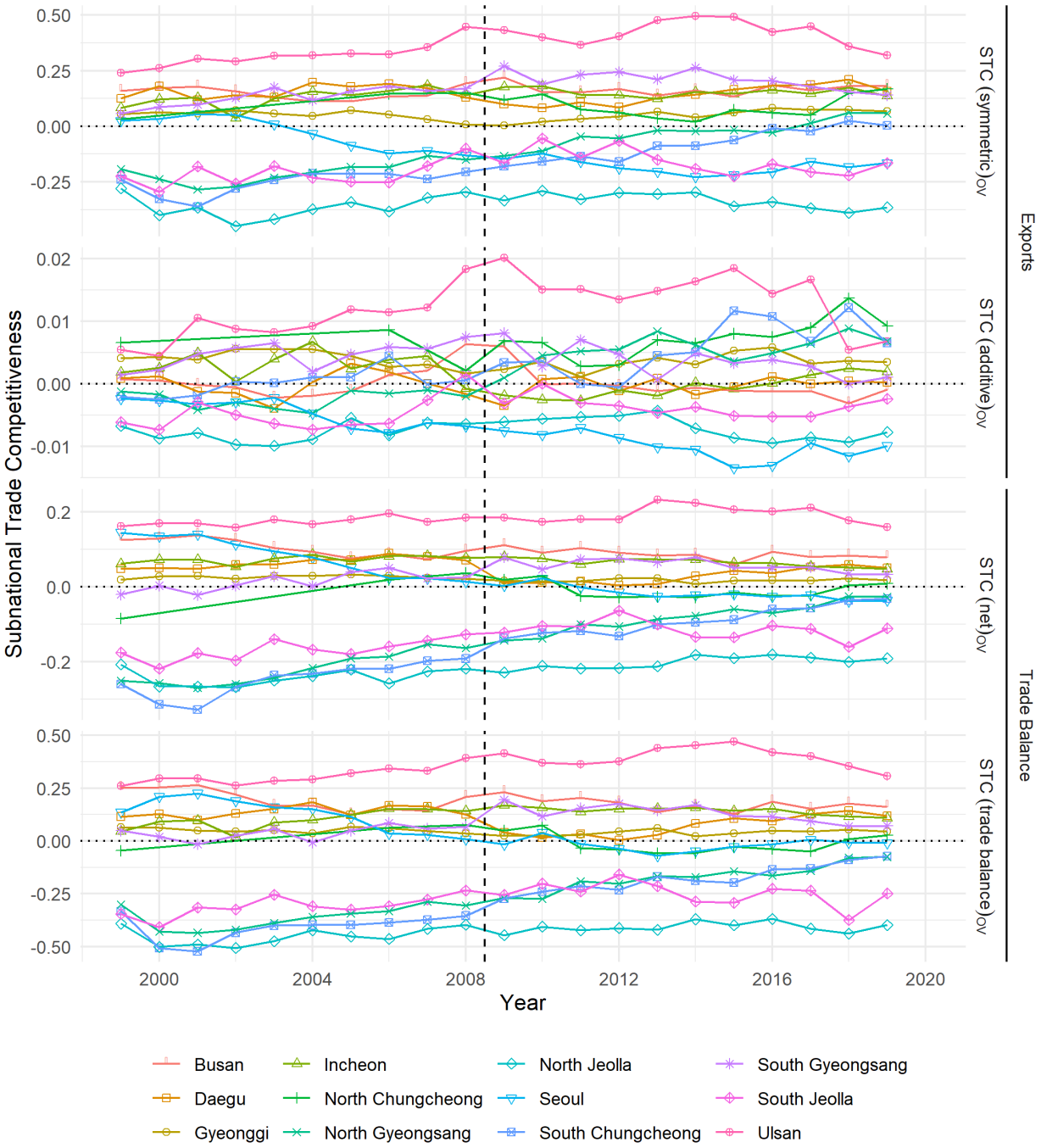
2.3.3 Case studies: South Korea and Bolivia

We conclude our empirical investigation by providing two brief case studies of South Korea and Bolivia. South Korea has a revealed comparative advantage in the electronics (Samsung and LG), automobile (Hyundai Kia Automotive Group), and shipbuilding (Hyundai Heavy Industries and Samsung Heavy Industries) industries. Regions hosting these industries should score highly on subnational trade competitiveness, as their economies are in line with South Korea's comparative advantage. Regions mainly characterized by agricultural production, by contrast, should get low values on our measures, as overall South Korea is not particularly

competitive in agriculture.

Indeed, in Figure 2.4 the city-province of Ulsan (circle with plus) consistently scores highest on trade competitiveness, across all four measures. Ulsan is home to one of the most important harbours in South Korea. It also hosts the Uslan industrial zone in which Hyundai has its headquarters and most of its production. Hence, it is clearly oriented towards South Korea's comparative advantage in manufacturing. Gyeongsangnam-do, another region that scores highly on subnational trade competitiveness, hosts much of South Korea's shipbuilding and chemical industries. The country's capital, Seoul, by contrast, does not score very high on subnational trade competitiveness. While large corporations continue to have their headquarters in the capital, much of their production has been relocated to other provinces. The region that consistently scores lowest (North Jeolla), finally, has a relatively large agricultural sector. Figure A10 in the Appendix provides more detailed evidence on these four regions.

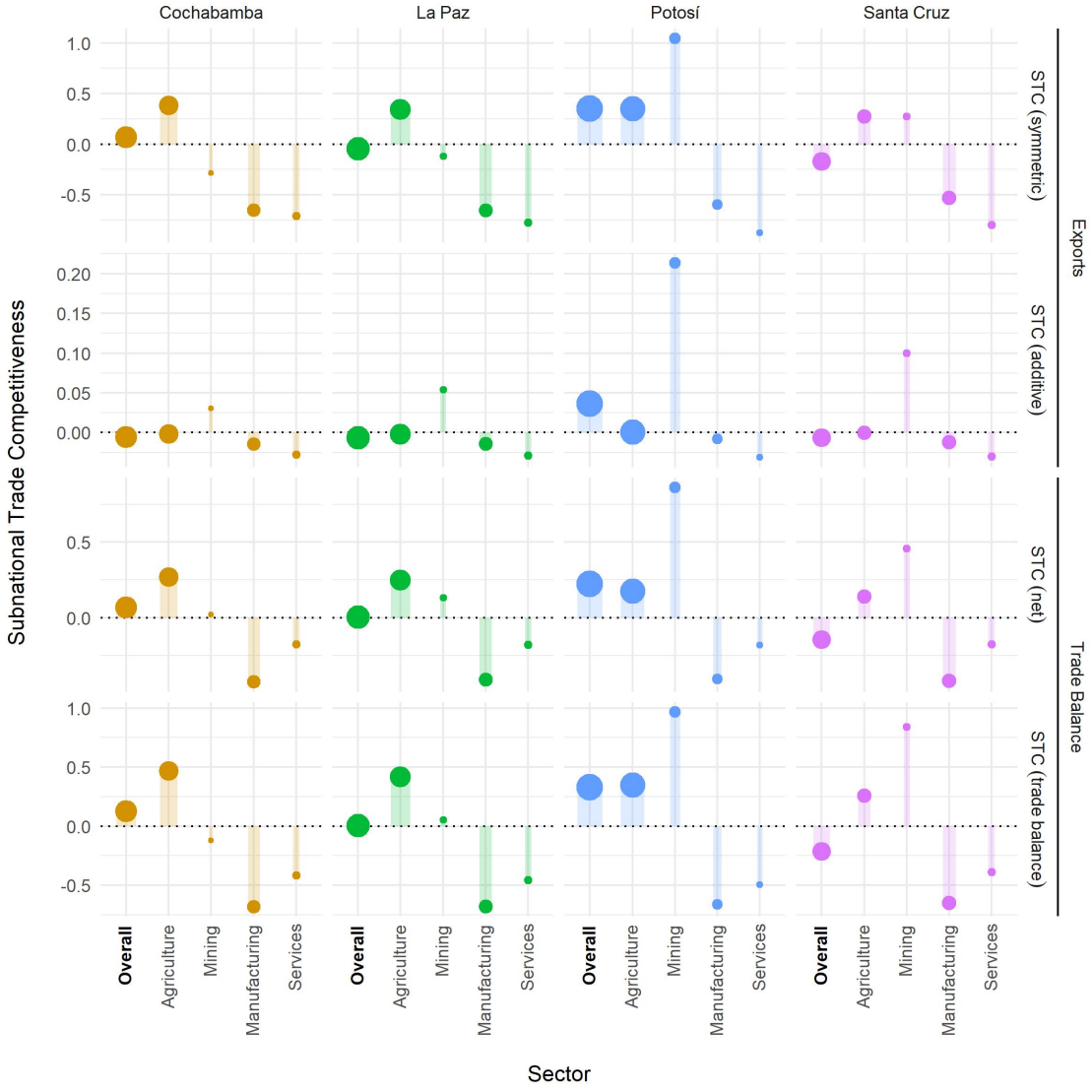
Figure 2.4: Subnational trade competitiveness of South Korean regions over time



Note: The dashed line between years 2008 and 2009 represents a change in ISIC coding scheme from ISIC rev 3 to ISIC rev 4.

Bolivia's comparative advantage lies in agriculture and the mining of silver. We thus expect regions with silver mines and strong agricultural production to score highly on subnational trade competitiveness. Regions with a strong manufacturing sector, by contrast, should receive low values on subnational trade competitiveness. In fact, this is what we find (see Figure 2.5). The region of Potosí is not only Bolivia's mining centre, as it contains the world's largest silver deposits. It also has a large agricultural sector. It is no wonder then that this region scores highly on subnational trade competitiveness across all four measures. In contrast, La Paz has a quite different economic structure. It also has a relatively large agricultural sector, but a substantial part of employment is engaged in manufacturing. Moreover, the mining sector in La Paz is not only smaller than the one in Potosí, but also does not focus on the mining of silver. Overall, therefore, we find that La Paz's subnational trade competitiveness is only average. The same applies to the region of Cochabamba, which is the industrial hub of Bolivia. Of the four regions shown in Figure 2.5, Santa Cruz scores lowest on subnational trade competitiveness, as it has the largest manufacturing sector, in combination with a small agricultural sector and only very limited mining activity.

Figure 2.5: Sectoral subnational trade competitiveness in Bolivia (2018)



2.4 Conclusion

We have presented new measures of subnational economic competitiveness. Having calculated these measures for 6,475 regions in 63 countries over a period of 21 years, we put forward the most comprehensive dataset on subnational trade competitiveness to date. Descriptive evidence on these measures suggests that they plausibly capture regions' orientation towards the country's comparative advantage. Moreover, this evidence has provided a rationale for our effort in that it reveals much variation in subnational trade competitiveness within countries,

which is largely independent of the region's level of development.

We expect that these data are useful for scholarly inquiries across various social science disciplines. For one, it would be interesting to investigate whether changes in subnational trade competitiveness matter for election outcomes. Do voters punish incumbents when the trade competitiveness of a region declines? Data on subnational trade competitiveness may also help better understand public opinion towards globalization. The economic effects of globalization should be quite different in regions that score high on trade competitiveness than in regions that score low on trade competitiveness. Moreover, using our measures as dependent variable, it would be interesting to study how (economic) policies affect subnational trade competitiveness. Our measures of subnational trade competitiveness could also allow new insights for research on foreign direct investments. Do multinational companies prefer to invest in regions with high trade competitiveness? Alternatively, does an inflow of foreign investments lead to an improvement in a region's trade competitiveness? Finally, for economic geographers, it might be interesting to investigate to which extent physical characteristics of regions correlate with trade competitiveness, especially also at the sectoral level. Overall, we are confident that our dataset will prove useful for a large number of researchers.

In future research, it would be interesting to further develop our dataset in various ways. For one, it would of course be good to have data beyond the 63 countries included in this first version of the dataset. Unfortunately, for many countries it is very difficult to find household or labour surveys of acceptable quality. Partly, this has to do with data protection laws that make it impossible for statistical offices to release the kind of disaggregated data we need here. Partly, it is also simply difficult to interact with statistical offices in some countries. In addition, it would be interesting to calculate our measures of subnational trade competitiveness not with employment data but with gross value added data. We have used such data to analyze the robustness of our measure, but this effort could be expanded to a larger number of countries. Moreover, for some countries it may be possible to calculate our measures at an even more fine-grained level than the industry groups used here relying on

firm-level data. In short, while already in their present format our data should be highly useful, future research could push this research agenda even further.

3 | Education and Trade Attitudes: Revisiting the Role of Economic Interest

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Abstract: Why are highly educated people more supportive of international trade? Two competing explanations exist for this empirical finding. On the one hand, the economic interest approach suggests that the highly educated realize that trade benefits them economically. On the other hand, the ideational perspective argues that this relationship arises because highly educated people are more cosmopolitan, and cosmopolitanism is positively related to support for trade. To contribute to this debate on the education-trade attitude nexus, we present and empirically test four hypotheses. Using data from the PEW Global Attitudes survey (2014) for 36 countries at various levels of development, we find that as expected by the economic interest approach, the effect of education on people's perceptions of the consequences of trade is conditional on respondents' individual and subnational economic context. The results thus show that economic interest at least partly explains education's effects on public opinion towards trade. Beyond adding to this specific debate, the research note makes several broader contributions to research on trade and public opinion.

3.1 Introduction

That education affects individuals' attitudes towards trade is among the most well-established findings in the literature on public opinion and trade attitudes (O'Rourke and Sinnott 2001; Scheve and Slaughter 2001; Kaltenthaler, Gelleny and Ceccoli 2004; Hainmueller and Hiscox 2006). More highly educated people, and especially people with university education, are more likely to view trade positively. Initially, studies argued that this is so because highly educated people can expect greater economic benefits from trade (O'Rourke and Sinnott 2001; Scheve and Slaughter 2001; Mayda and Rodrik 2005; Fordham and Kleinberg 2012). Following this argument, which we call the *economic interest* perspective, highly educated citizens' support for trade reflects their material interest. Increasingly, however, this view has been contested by scholars who argue that education has an influence on trade attitudes via people's ideas. According to this *ideational explanation*, education may make people more cosmopolitan and hence more supportive of international trade (Kaltenthaler, Gelleny and Ceccoli 2004; Mansfield and Mutz 2009).

This research note contributes to this debate on the education-trade attitude nexus both theoretically and empirically. With respect to theory, basically all cross-national studies of trade attitudes assume that in developing countries, trade should mainly benefit the less educated (e.g. O'Rourke and Sinnott 2001; Mayda and Rodrik 2005; Margalit 2012). However, recent economic research (i.e. the "new new trade theory") convincingly shows that even in less developed countries, the more educated are likely to gain more from international trade than the less educated (Burstein and Vogel 2017; Helpman et al. 2017; Lee 2020). For example, Burstein and Vogel (2017: 1400) conclude that "gains from trade are larger for skilled than for unskilled workers in most countries." According to this argument, a positive correlation between education and trade support in poorer countries does not cast doubt on the economic interest perspective any longer. To overcome the resulting observational equivalence between the two approaches, we propose several novel tests for the economic

interest perspective. These tests rely on the idea that to the extent economic interests are relevant, the effect of education on trade attitudes should be conditional on individual and subnational economic circumstances.

On the empirical side, we make two contributions. On the one hand, the existing literature finds it difficult to control for the economic context in which individuals make up their minds on whether to support trade. Some studies look at the level of development of a country to capture this context (e.g. Mayda and Rodrik 2005; Hainmueller and Hiscox 2006). By contrast, we start from the observation that the economic context may differ strongly across subnational regions within countries, meaning that also the effects of trade may differ across them (for an approach looking at "microregions", see Campello and Urdinez 2021). Illustratively, the difference between the most and the least developed region in Brazil in terms of human development index (HDI) is approximately equivalent to the difference between Norway (leading all countries in terms of HDI) and Bahrain (number 45 in terms of HDI in the world in 2019). We therefore utilize subnational rather than national data to capture the economic context of respondents. To do so, we use existing data on subnational region's level of development (Smits and Permanyer 2019) and collected original data on the trade competitiveness of regions across many countries in the world. On the other hand, so far research has given little consideration to people's views concerning the consequences of trade. By contrast, we start from the expectation that these views are important to answer the question why the highly educated are more supportive of trade (see also Rho and Tomz 2017: S103). We thus formulate expectations about how education should matter for beliefs concerning the effects of trade on jobs and wages rather than for trade support more generally.

We rely on data from the PEW Research Center's Spring 2014 Global Attitudes survey (Pew Research Center 2014), which was carried out across a large number of countries at different levels of development, in our empirical analysis. The findings of our analysis demonstrate that economic interest plays a role in linking education to perceptions of the consequences of trade. Concretely, the effect of education on perceptions of the consequences

of trade on jobs and wages is conditional on economic circumstances both at the individual and regional level, as expected by the economic interest perspective. This does not mean that the positive relationship between education and trade support is only a consequence of economic interest. Clearly, there are also aspects of public opinion towards trade that are best explained by the ideational perspective. Rather, we interpret the empirical evidence that we put forward in this research note as suggestive of the complementary role of economic interest. Moreover, the understanding of economic interest that we employ here allows for the possibility that people consider indirect benefits or losses from trade (which could lead to "sociotropic" attitudes, see Schaffer and Spilker 2019). For example, a person employed in the public health sector may not directly benefit from trade, but indirectly if trade increases the standard of living in the area in which she lives.

The relevance of our research note is not limited to speaking to the specific debate about the link between education and trade attitudes. It also contributes to an important, ongoing debate in the field of International Relations on the extent to which models that assume that actors hold preferences in line with their material interests can explain international relations (Lake 2009; Oatley 2011; Hafner-Burton et al. 2017). Revisiting the question of how education matters for trade attitudes also is of current interest because in many countries, trade policy is of high public salience as witnessed by the role it plays in elections (Autor et al. 2020). Moreover, public opinion towards trade policy does not exist in a vacuum; at least in democracies, it can influence decision makers in setting policy outcomes such as tariff levels (Kono 2008). For an understanding of contemporary politics, it is thus important to know to what extent the politicization of trade policy is driven by economic concerns on the one hand and ideas on the other.

3.2 State of the art

Nearly all scholars who have analyzed trade attitudes of citizens over the last few decades have found consistent evidence for the strong predictive power of education. Higher education goes hand-in-hand with greater support for trade. The literature offers two explanations for this link between education and trade attitudes. The first, and chronologically older, perspective – which we denominate economic interest argument – argues that more highly educated people are more supportive of trade because they can expect to materially benefit from trade (O'Rourke and Sinnott 2001; Scheve and Slaughter 2001; Mayda and Rodrik 2005; Fordham and Kleinberg 2012). In this view, which builds on the famous Stolper-Samuelson theorem, education is a key part of a person's skill set that determines whether an individual benefits or looses from trade liberalization. Since trade increases demand for highly educated workers, the highly educated can expect economic gains from trade. They hence have material reasons to support trade liberalization.

The second explanation comes in two variants: the cosmopolitan ideas variant and the learning-to-love-globalization variant. The former expects that education makes it more likely that an individual holds cosmopolitan world-views (Kaltenthaler, Gelleny and Ceccoli 2004; Strijbis, Teney and Helbling 2019). The high support of the educated for trade can thus be explained by their cosmopolitanism, which makes them welcome new products and interactions with other countries. The flip-side of this argument is that across countries, the less educated are more likely to hold nationalist sentiments (Coenders and Scheepers 2003) and that nationalist attitudes reduce support for trade liberalization (O'Rourke and Sinnott 2001; Mayda and Rodrik 2005). Following this line of reasoning, Mansfield and Mutz (2009) argue that the effect of education is a result of a person's anxiety about out-groups. Because less educated citizens are more likely to fear immigrants or the influx of foreign culture, they are more likely to oppose trade liberalization. In this vein, Margalit (2012) argues that opposition to trade can be better explained by perceived cultural threats resulting from

globalization than by economic threats. Again, the highly educated feel less threatened by cultural inflows or even welcome them, which in turn explains why they tend to support trade liberalization.

The second variant argues that people attending tertiary education 'learn to love globalization' through exposure to the teachings of economic theories that stipulate that free trade maximizes the wealth of a country under most circumstances (Hainmueller and Hiscox 2006). Even if not all university students attend economics courses, they might have social contacts with students of economics. They are thus more likely to be informed about the postulated efficiency gains of expanded trade, which explains their increased support for trade liberalization. Burgoon and Hiscox (2006) build on this argument and explain the persistent gender gap in trade support (women tend to be more protectionist than men) with the fact that women are less likely to attend economics classes, which reduces their exposure to economic theories about the benefits of trade.

Disentangling to what extent education affects trade attitudes via economic interest or ideas is difficult for several reasons. Most basically, both explanations expect the same positive effect of education on trade attitudes. The debate also cannot simply be resolved by adding controls for individuals' ideas – e.g. a measure of individuals' cosmopolitanism – in a regression model explaining trade attitudes. This is so because economic considerations can also influence people's broader values and beliefs (Carreras, Irepoglu Carreras and Bowler 2019). Neither do findings that individuals lack knowledge about the economic consequences of trade (Rho and Tomz 2017) per se invalidate the economic interest explanation. There can be many channels through which individuals develop attitudes that are in line with their economic interests, even if they themselves have little economic knowledge (Fordham and Kleinberg 2012).

Still, several studies have tried to disentangle the effects of education on trade attitudes, using a variety of tests and approaches (Hainmueller and Hiscox 2006; Margalit 2012; van der Waal and de Koster 2015). In general, this literature has concluded that education matters

mainly via the ideational channel. Hainmueller and Hiscox (2006) arrive at this finding by comparing the attitudes of people still active in the labor force and people already retired. They only find an effect for college-level education and not for other types of education regardless of the employment status – in essence supporting an ideational perspective. Margalit (2012) uses a survey experiment to show that as cultural concerns become more important, less-well educated people (but not better educated people) become more sceptical of trade. Finally, van der Waal and de Koster (2015) regress support for trade openness on education and several indicators of economic interest, showing that the economic variables can only explain a small share of the overall effect of education.

3.3 Education, context, and perceptions of the consequences of trade

Our approach at uncovering through which causal mechanism education matters for trade attitudes complements this existing research. We start from the basic point that, even based on new new trade theory, the economic effects of trade on the highly and less educated vary by economic context. As a result, the effect of education on trade attitudes should also depend on context, if the economic interest argument applies. In the following, we develop four hypotheses that relate education and economic context to perceptions concerning the consequences of trade for jobs and wages. To the extent that we find support for these expectations, we can conclude that the economic interest approach retains explanatory power for public opinion towards trade. If we find no or only scant support for these expectations, the conclusion is that the effect of education on trade attitudes mainly works via ideas.

We focus on perceptions of trade's consequences rather than trade support *per se* because doing so allows us better understand the drivers of public opinion towards trade. Most people tend to indicate that they broadly support trade and even free trade agreements. Illustratively, according to the PEW data we use in this research note, almost 85% of respondents

think that trade is good or very good for their country. In a survey for the British Department for International Trade (2019) only 3% of respondents indicated that they somewhat or strongly oppose free trade agreements (Department for International Trade 2019). We see these strong approval rates as an indication that these questions are too broad to elicit a reasoned response. In other words, rather than conclude that people do not have a more differentiated view of trade, it is plausible that these broad questions simply do not motivate people to express such a view. Questions about respondents' perceptions of the consequences of trade then help better capture public opinion towards trade. In fact, in the PEW survey we find much more variation for these questions: 56% of the respondents believe that trade creates jobs, whereas 25% believe that trade leads to job losses and 20% think that trade makes no difference in terms of jobs. Moving to perceptions of trade's effect on wages, 45% of the respondents believe that wages increase as a function of trade. 27% state that wages decrease due to trade and another 27% do not think that wages change because of trade. Disentangling these perceptions about the consequences of trade from the broader policy preferences hence is essential for a better understanding of trade attitudes (see also Rho and Tomz 2017: S103).

3.3.1 Individual-level context factors

Recent research has shown that across countries, international trade mainly benefits workers with higher education (Burstein and Vogel 2017; Helpman et al. 2017; Lee 2020). The higher educated hence should perceive greater benefits from trade for jobs and wages. The economic interest approach, however, also leads to the expectation that this effect is conditional on economic circumstances at the individual and the region level. At the individual-level, a person's employment status should moderate the effect of education on perceptions of the consequences of trade. Controlling for age, the difference between highly and less educated respondents should be larger among those respondents that currently are employed (see also Hainmueller and Hiscox 2006: 476). They can expect to benefit from rising wages first.

Those unemployed, by contrast, either do not look for a new job (e.g. because they are retired) or are unlikely to benefit from an increase in jobs and wages (such as the long-term unemployed), independent of their level of education. They are thus less likely to perceive any positive effects of trade on wages or jobs. In other words, if the economic interest approach is correct, employment status should moderate education's effect in shaping peoples' views on the consequences of trade.

H1: The positive effect of education on perceptions of the consequences of trade for jobs and wages is more pronounced for respondents that are currently employed.

The effect of education on perceptions of the consequences of trade should also vary by age. In the economic interest explanation, people do not simply derive their views on trade from their general ideological outlook. Neither do they take their attitudes entirely from what they learn at university. Instead, they derive them from trade's actual economic costs and benefits, either for them directly or for their communities. Doing so requires a certain amount of information and knowledge (Rho and Tomz 2017). Even controlling for education, not all people can be expected to fulfill this condition, with some being more economically ignorant than others. A variable that likely influences how much information people have about the consequences of trade is age. Older respondents are more likely to have experienced the consequences of increased or decreased trade. They also had more chances to interact with people that are more knowledgeable than themselves about the topic of trade. The expectation hence is for older respondents to have attitudes that are more in line with their economic interests – meaning that the highly educated have increasingly positive views on the consequences of trade and the less educated increasingly negative views.

H2: The positive effect of education on perceptions of the consequences of trade for jobs and wages is more pronounced for older respondents.

Age, of course, also has other potential effects on trade attitudes. To the extent that older people generally are less cosmopolitan, the positive effect of education on trade support should

decline with age. Moreover, with older people often no longer employed, their economic interests may be less dependent on trade's effects on jobs and wages. These alternative effects of age should partly offset the expectation formulated in H2. Any support that we find for H2 hence should be a conservative estimate.

3.3.2 Region-level context factors

According to the economic interest approach, the effect of education is also moderated by economic circumstances in the region in which a person lives. We focus on two such moderators: level of development and trade competitiveness. Starting with level of development, recent economic research indicates that the higher educated should gain most from trade at all levels of development (Burstein and Vogel 2017; Helpman et al. 2017; Lee 2020). This result emerges when allowing for firms to be more or less productive within the same sector.

Nevertheless, the effect size of education should be larger in highly developed regions, because firms from these regions mainly export capital-intensive goods and services, meaning that trade creates especially large demand for highly educated workers. Simultaneously, these regions tend to import labor-intensive goods and services, which leads to lower domestic demand for less educated workers. In less developed regions, this effect is less pronounced. The expectation hence is for trade to have a particularly large effect on the relative demand for highly and less-educated workers in highly developed regions. In these regions, the less educated can expect trade to result in fewer jobs and lower wages. Even after accounting for recent developments in the theory of international trade, this expectation is largely in line with the classic Stolper-Samuelson theorem, which anticipates that trade liberalization helps the owners of the relatively abundant factor of production and hurts the relatively scarce factor.

H3: The positive effect of education on perceptions of the consequences of trade for jobs and wages is more pronounced in highly developed regions.

Finally, recent trade theory predicts that only the most competitive firms can reap the benefits of trade liberalization (Melitz 2003; Bernard, Jensen and Schott 2009). These firms are also more likely to employ highly-educated workers (Ciuriak et al. 2015). Indeed, having a large share of highly skilled employees is likely to be an important reason for their high productivity. Education thus should positively correlate with perceptions of the consequences of trade. Competitive firms, moreover, are largely concentrated in regions that exhibit high trade competitiveness, where trade competitiveness means that the region's economic structure is aligned with the country's comparative advantage. In regions with higher trade competitiveness, therefore, the highly educated likely benefit even more from trade than in less competitive regions.[1] In turn, as a region's trade competitiveness increases, the views of the highly educated should become increasingly positive with respect to the consequences of trade. Less educated people's perceptions of the consequences of trade, by contrast, should be largely independent of the region's trade competitiveness. In less competitive regions, they suffer from import competition; but in more competitive regions, the gains from trade mainly go to the more highly educated.

H4: The positive effect of education on perceptions of the consequences of trade on jobs and wages is more pronounced in regions with higher trade competitiveness.

3.4 Research design

3.4.1 Case selection

We rely on data collected by the PEW Research Center's Spring 2014 Global Attitudes survey to test the expectations set out above (Pew Research Center 2014). This dataset has two major advantages compared to alternatives. First, it includes questions capturing perceptions

[1]Note that "trade competitiveness" is not a synonym for highly developed. Some regions are highly developed but little competitive in international trade; others are less developed but highly competitive on world markets. In fact, in our dataset the variables capturing regions' economic development and regions' international trade competitiveness are only weakly positively correlated with each other.

of the distributional consequences of trade, which help us better analyse individuals' motives to support and oppose trade. Second, the survey was conducted in 44 countries across the globe. We use 36 of these countries because we lack data of acceptable quality for one of our key predictors for eight countries (see Table A3). This sample includes countries across all levels of development. This reduces the chance of idiosyncratic findings and allows to generalize our analyses. It also ensures that we have ample variation with respect to economic context in the dataset, thus allowing us to test our expectations.

3.4.2 Measurement

We measure "perceptions of the consequences of trade for jobs and wages" relying on two question on whether respondents believe that trade a) leads to job creation, does not affect jobs, or leads to job losses and b) increases wages, does not affect wages, or decreases wages. We code both as ordinal variables with the positive levels (job creation and increases wages) as the highest categories. Section A2.2 in the Appendix provides the exact wording for all survey questions used in our study.

Following our theoretical argument, we focus on one core predictor (education) and four potential moderators (employment status, age, regional levels of development and trade competitiveness). Starting with education, we recode country-specific education questions into a variable with two categories: respondents with tertiary education and others. By doing so, we make our results comparable to those reported by Hainmueller and Hiscox (2006). The share of respondents with tertiary education massively varies by country. For example, in Tanzania only 2.5% attended a university or similar. On the other end of the scale, 45.3% of US American respondents received tertiary education.

We measure the individual level moderators – employment status (H1) and age (H2) – using standard questions which can be found in subsection A2.2 of the Appendix. Employment status takes the value '1' for those in paid work or apprenticeships. Others are coded as not employed ('0'). As regards age, we regroup the variable in three categories: young

($age \leq 40$), middle ($40 < age \leq 65$), and old ($65 < age$) respondents.

In order to test Hypothesis 3, we measure level of development using the gross national income per capita (in thousands of USD [2011 PPP]) of the respondents' home regions from Smits and Permanyer (2019). We apply the natural logarithm to this variable. The poorest region in our database is Kolda (Senegal) whereas the richest region is Hamburg (Germany). For the trade competitiveness of regions, which is the predictor in Hypothesis 4, we rely on an approach described in detail in Huber, Stiller and Dür (2021). This subnational trade competitiveness measure captures the extent to which a region aligns with the *country's* comparative advantage. To operationalize this variable, we use trade data at the national level and employment shares by industry at the regional level (from labour surveys). The trade data allows us to calculate a country's (revealed) comparative advantage based on an approach originally suggested by Vollrath (1991: 275; see RCA 9); and the employment shares allow us to estimate to which extent a region's economic structure aligns with the countries' comparative advantage (see Table A3 in the Appendix for all sources used for the calculation of this variable). This variable is distributed between ± 2, with competitive regions having positive values and non-competitive regions negative values. As this measure only compares regions within a country, below we use country-fixed effects.

3.4.3 Control variables and estimation strategy

We control for two characteristics of individual respondents. For one, we include gender in our models as this variable has received much attention in the literature. While the causal mechanism is still contested, numerous studies have found stark differences between men and women when it comes to trade attitudes (Burgoon and Hiscox 2006; Mansfield, Mutz and Silver 2015). Moreover, we control for individuals' economic left-right self-placement. Finally, we include country-fixed effects to control for country-level influences on trade attitudes. Section A2.3 in the Appendix provides descriptive statistics for all variables. Given the ordinal nature of our two dependent variables, we rely on ordinal regression. We cluster

standard errors at the regional level to account for the regional level predictors. We first estimate coefficients in an additive model before interacting all four moderators and education simultaneously to test Hypotheses 1 to 4.

3.5 Results

We start by showing that the earlier finding that education and trade attitudes are positively correlated also extends to the perceived consequences of trade on jobs and wages. Next, we test the four hypotheses set out above with the aim of seeing to which extent economic interest can explain these correlations. Finally, we link back our findings concerning perceptions of the consequences of trade to trade support.

3.5.1 Education and the perceived consequences of trade

Table 3.1 presents the regression results for the tests that scrutinise the main effect of education on the perception that trade creates jobs and increases wages. In line with existing research, we find that individuals with tertiary education systematically have a more positive view of trade. Tertiary education is positively correlated with the perceptions that trade creates jobs and leads to higher wages. In terms of the substantive effect size, ceteris paribus, highly educated individuals are 27% more likely to believe trade creates jobs than other respondents. For wages, this effect is smaller and approximately 8% in size.

Among the individual-level control variables, especially the respondents' economic left-right position is strongly associated with their perception of the consequences of trade. Women believe that trade has more negative consequences, which is in line with existing research (see, e.g. Burgoon and Hiscox 2006; Mansfield, Mutz and Silver 2015). In regards to contextual region-level control variables, the level of development is related with negative perceptions.

Table 3.1: Education and the perceived consequences of trade

	Jobs	Wages
Education (Tertiary)	$0.24\ (0.04)^{***}$	$0.07\ (0.04)^{**}$
Employment (Employed)	$0.06\ (0.03)^{**}$	$-0.02\ (0.03)$
Age (41-65)	$0.00\ (0.03)$	$-0.03\ (0.03)$
Age (66+)	$0.08\ (0.06)$	$0.04\ (0.05)$
Logged Regional GNIpc	$-0.20\ (0.10)^{*}$	$-0.29\ (0.08)^{***}$
Subnational Trade Competitiveness	$-0.01\ (0.03)$	$0.01\ (0.03)$
Economic Left-Right	$0.21\ (0.02)^{***}$	$0.21\ (0.02)^{***}$
Gender (Female)	$-0.13\ (0.03)^{***}$	$-0.12\ (0.02)^{***}$
AIC	59265.20	63105.55
Deviance	59175.20	63015.55
N	31957	31358

$^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$. Entries are unstandardized coefficients from an ordinal logistic regression. Standard errors (in parentheses) are clustered at the region level. Country-fixed effects are omitted from the table.

3.5.2 The conditional impact of education on perceptions of the consequences of trade

As outlined above, the economic interest approach leads to the expectation that economic context moderates the relationship between education and the perceived consequences of trade. In the following, we test the four hypotheses that we derive from this argument by adding interaction terms between education on the one hand, and employment status, age, the region's level of development, and the region's level of competitiveness on the other hand. We again run two models, one each for perceptions of trade on jobs and wages (see the results in Table 3.2). Starting with Hypothesis 1 and the moderating effect of employment status, the respective coefficient is positive and statistically significant in both models. Figure 3.1 shows the effect graphically and reveals that our finding is broadly in line with our expectation. In the left panel, which shows the predicted probability to believe trade has positive effects on jobs, we find that the difference between tertiary (turquoise triangles) and non-tertiary (red dots) educated respondents is larger among respondents who are in employment. Concretely, support for the statement that trade induces job creation is approximately three percentage

points higher for the tertiary educated among respondents not currently in employment. This increases to more than six percentage points for those currently employed.

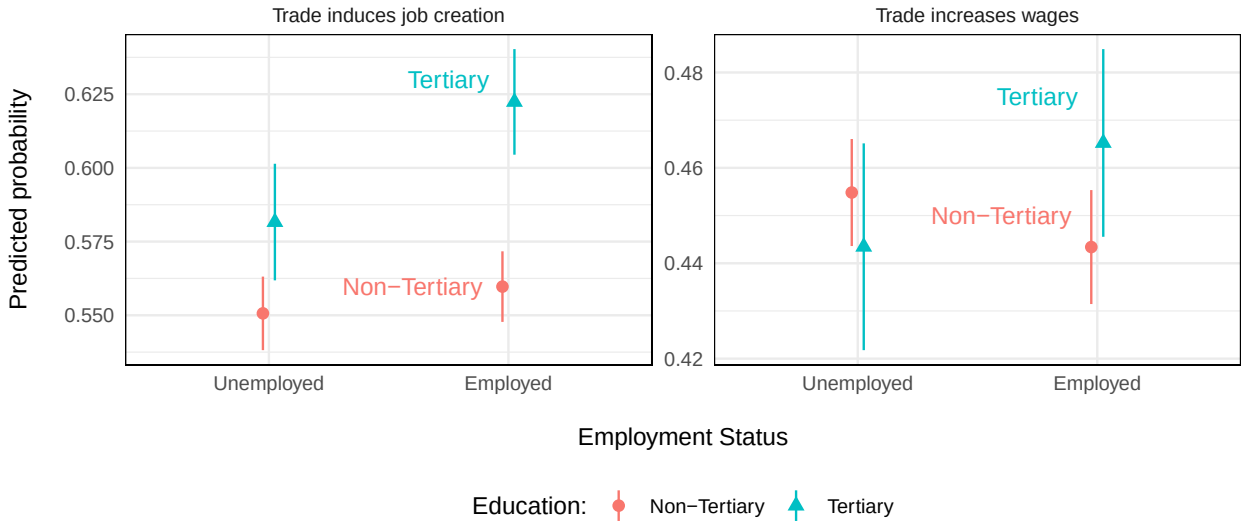
Table 3.2: Education, economic context, and perceptions of the consequences of trade

	Jobs	Wages
Education (Tertiary)	$-0.22\ (0.12)^{*}$	$-0.41\ (0.12)^{***}$
Employment (Employed)	$0.04\ (0.03)$	$-0.05\ (0.03)$
Edu. x Employment	$0.13\ (0.07)^{**}$	$0.13\ (0.06)^{**}$
Age (41-65)	$-0.05\ (0.03)$	$-0.07\ (0.03)^{**}$
Age (66+)	$0.02\ (0.06)$	$-0.00\ (0.05)$
Edu. x Age (41-65)	$0.25\ (0.06)^{***}$	$0.20\ (0.06)^{***}$
Edu. x Age (65+)	$0.37\ (0.11)^{***}$	$0.29\ (0.11)^{***}$
Logged Regional GNIpc	$-0.22\ (0.10)^{**}$	$-0.31\ (0.08)^{***}$
Edu. x Dst. GNIpc	$0.11\ (0.04)^{***}$	$0.12\ (0.04)^{***}$
Subnational Trade Competitiveness	$-0.02\ (0.03)$	$0.00\ (0.03)$
Edu. x Comp.	$0.13\ (0.03)^{***}$	$0.09\ (0.03)^{***}$
Economic Left-Right	$0.21\ (0.02)^{***}$	$0.20\ (0.02)^{***}$
Gender (Female)	$-0.13\ (0.03)^{***}$	$-0.12\ (0.02)^{***}$
AIC	59209.07	63066.31
Deviance	59109.07	62966.31
N	31957	31358

$^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$. Entries are unstandardized coefficients from an ordered logistic regression. Standard errors (in parentheses) are clustered at the region level. Country-fixed effects are omitted from the table.

The right panel shows the effect of education on perceptions for wages. Here, the differences between the tertiary and non-tertiary educated are smaller. The coefficient of the interaction effect is statistically significant. Hence, we see a trend in the direction expected in H1: While highly educated, unemployed respondents are approximately one percentage point less likely to believe that trade increases wages than the less educated, unemployed respondents, this pattern reverses for employed respondents where highly educated employed individuals are approximately two percentage points more likely to hold this positive view. Overall, this evidence provides partial support for *Hypothesis 1*.

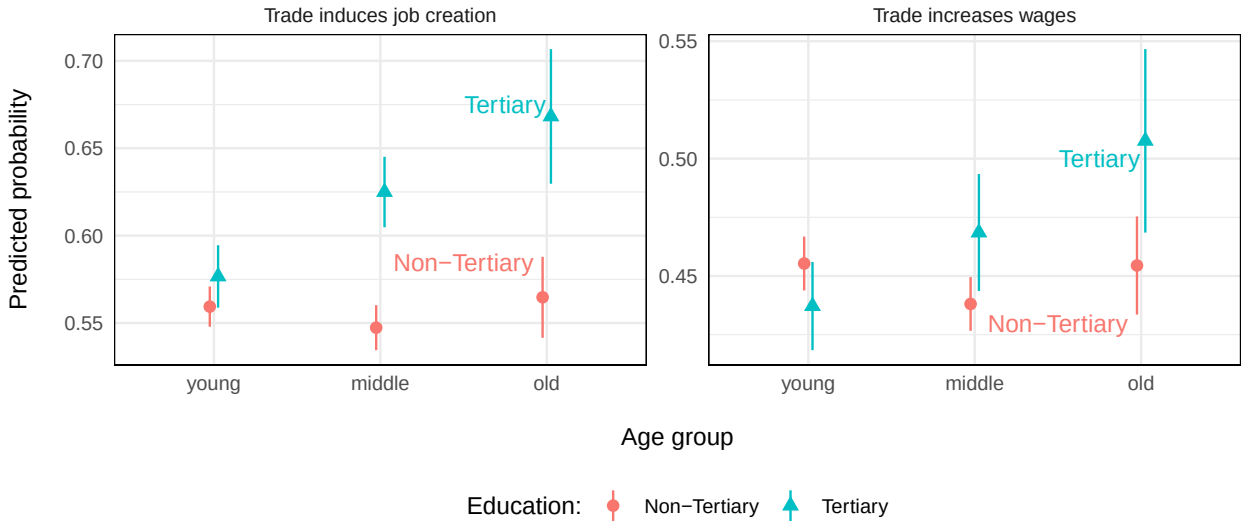
Figure 3.1: Education, employment status, and perceived consequences of trade



Note: Predicted values stem from the respective models shown in Table 3.2. Standard errors are clustered at the region level. Ranges show 90 % confidence intervals. Figures A17 and A18 in the Appendix show the predictions for all outcome categories.

Figure 3.2 follows Figure 3.1 in style and shows the predicted probability to hold positive beliefs about trade consequences by education and age. In line with the statistically significant coefficients for this interaction in Table 3.2, the slopes for the tertiary and non-tertiary educated differ, particularly for jobs. Among young individuals (below 40 years of age), tertiary and non-tertiary educated respondents largely coincide in their perceptions of the consequences of trade for jobs. In contrast, we observe a substantial gap of around 10 percentage points among the oldest respondents (above 65 years of age). For the perception that trade increases wages, the overall pattern is similar, but less pronounced. Among young respondents, the more educated tend to be more sceptical about the positive effect of trade on wages. While tertiary educated individuals are increasingly likely to perceive that trade increases wages as they get older, we see no such effect for the non-tertiary educated. These findings are particularly remarkable because, as discussed above, one could also expect the differences between the more and the less educated to decline for older people. Overall, these findings thus offer considerable support for the expectation outlined in *Hypothesis 2*.

Figure 3.2: Education, age groups, and perceived consequences of trade

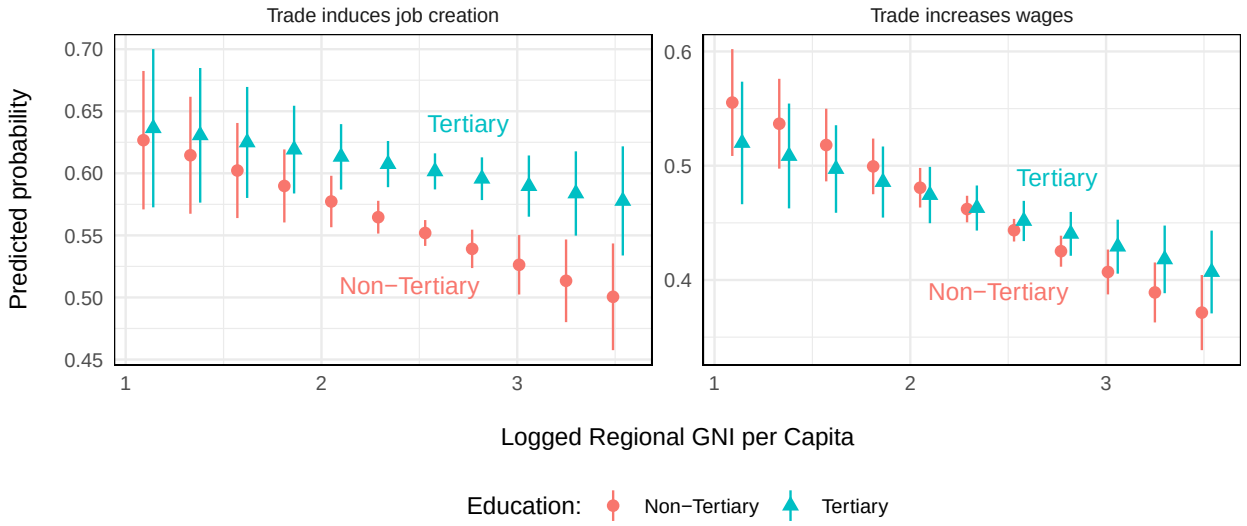


Note: Predicted values stem from the respective models shown in Table 3.2. Standard errors are clustered at the region level. Ranges show 90 % confidence intervals. Figures A19 and A20 in the Appendix show the predictions for all outcome categories.

The models in Table 3.2 include two more moderators at the level of the region in which respondents live. Looking first at the region's level of development, we expect the effect of education to be larger in highly developed regions (H3). The empirical evidence presented is largely consistent with this argument. In Table 3.2, the respective coefficients are positive and statistically significant. Indeed, in Figure 3.3, the marginal positive effect of education becomes larger as the region becomes more economically developed. We observe no difference in perceptions of job creation between tertiary and non-tertiary educated individuals in regions with lower levels of development. With increasing development, the differences between the two education groups increases. For wages, we observe that the perception that trade increases wages sharply declines with development. However, this is less pronounced among tertiary educated individuals, again leading to the expected effect of education having a stronger positive effect in higher developed regions. Overall, the evidence thus supports *Hypothesis 3*.

Interestingly, Figure 3.3 suggests that citizens become more sceptical of the consequences

Figure 3.3: Education, level of development, and perceived consequences of trade

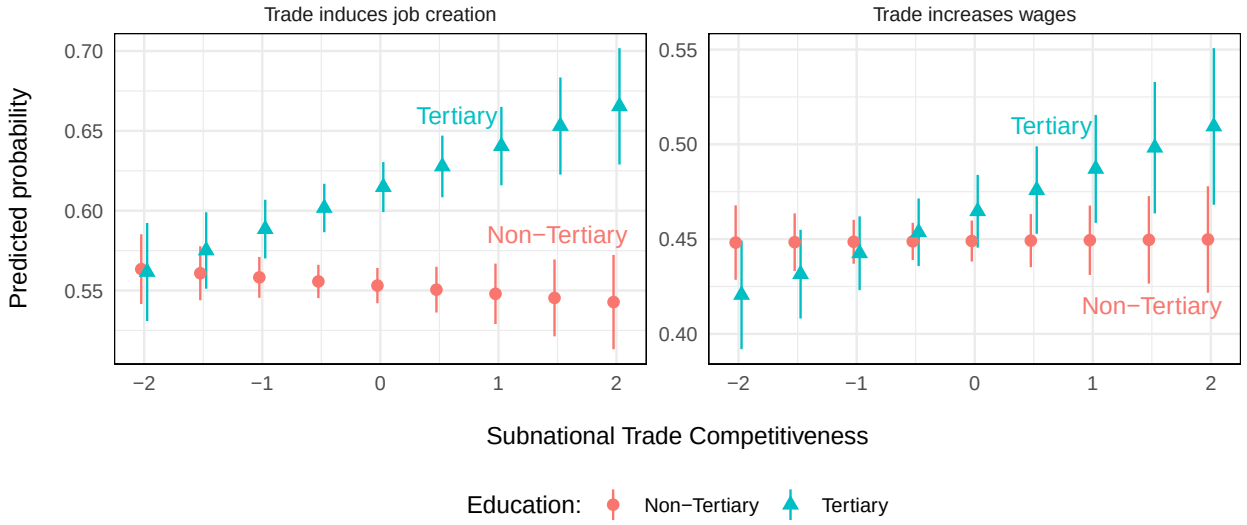


Note: Predicted values stem from the respective models shown in Table 3.2. Standard errors are clustered at the region level. Ranges show 90 % confidence intervals. Figures A21 and A22 in the Appendix show the predictions for all outcome categories.

of trade as the region's level of development increases. This patter is consistent with the Stolper-Samuelson theorem, but only in less developed countries. In these countries, the regions with the highest GNI often face import-competition from both higher (capital-intensive goods and services) and less developed areas (labour-intensive goods and services). People from the regions hence can be expected to be more sceptical of trade. To see whether this can account for the negative slope in Figure 3.3, we split our sample at the mean level of development among countries (which is close to 13,000 US$ GDP per capita). Figures A25 and A26 in the Appendix indeed show that the downwards trend in the belief that trade is beneficial for jobs and wages is only visible for countries at lower levels of economic development. For respondents in countries with higher levels of development, we find a modest upwards slope, meaning that in these countries respondents from more developed regions are slightly more positive about the consequences of trade. Beyond explaining the trends we see in Figure 3.3, this evidence is highly suggestive of the role of economic interests in public opinion towards trade.

Finally, we expect the effect of education to vary by a region's level of trade competitiveness because trade competitiveness affects the demand for highly and less educated workers. Again, the respective coefficients are positive and statistically significant in Table 3.2. Figure 3.4 shows the predictions that result from these coefficients. The findings are perfectly in line with our expectation. Individuals without tertiary education remain largely unaffected by the region's level of trade competitiveness. In other words, whether the region is highly competitive does not alter the perception that trade creates jobs and increases wages (red dotted ranges in Figure 3.4). In contrast, tertiary educated individuals are more likely to think trade is good in terms of jobs and wages, the more competitive the region is. These findings lend support for *Hypothesis 4*.[2]

Figure 3.4: Education, trade competitiveness, and perceived consequences of trade



Note: Predicted values stem from the respective models shown in Table 3.2. Standard errors are clustered at the region level. Ranges show 90 % confidence intervals. Figures A23 and A24 in the Appendix show the predictions for all outcome categories.

An alternative explanation for the interaction between education and the region-level

[2]To see how robust these and the other findings reported here are, we 1.) split the education profiles into three groups (primary, secondary, and tertiary education); 2.) replaced the age groups with age as a continuous variable; and 3.) tested three-way interaction effects between education, employment, and regional development/trade competitiveness. The results are largely in line with those reported here. For more details on these tests, see section A2.7 in the Appendix.

context factors is that higher education is associated with more factual knowledge about these factors. In this view, the attitudes of the less-well educated are less influenced by the levels of regional development and regional competitiveness simply because they have little to no information about how developed or competitive their regions are. It seems, however, probable that citizens across all education groups have at least a broad sense of these context factors Enns and Kellstedt (see, for example, 2008). While we cannot fully exclude this alternative explanation, we thus find it more plausible that our results are driven by citizens reflecting about how the context factors moderate trade's consequences on jobs and wages.

3.5.3 From perceptions of the consequences of trade to trade support

To a large extent, the previous analyses have offered support for the expectations set out above. What we have not yet looked at is whether these perceptions of the consequences of trade for jobs and wages matter for attitudes towards trade in general. Following the economic interest approach, we should indeed see that those that perceive trade to have positive consequences also view trade per se positively. To analyse this, we utilise a question in the survey that asked respondents to indicate on a four-point scale whether they think that "the growing trade and business ties" between their country and other countries are very bad (4.9%), somewhat bad (11.1%), somewhat good (49.0%), or very good (35.0%) for their country.

Utilising a similar modelling approach and ordinal regression with region-clustered standard errors and country-fixed effects as before, Table A4 in the Appendix shows that the perception of the consequences of trade for jobs and wages indeed matters for individual trade support. As expected, education is positively correlated with trade support in the first model. The controls, particularly economic left-right self-placement and gender, behave as shown in the main models. The second model additionally includes the variables capturing perceptions of trade's consequences. For illustrative purposes, we recoded these variables

so that 'does not make a difference' is the reference category. All four variables behave as expected. Individuals who believe trade leads to job loss and lower wages support trade substantially less. In contrast, believing that trade holds positive effects increases trade support substantially.

3.6 Conclusion

This research note has addressed the long-running debate about the empirical observation that the highly educated are more supportive of international trade. Some studies focus on how, at least in developed countries, the highly educated stand to benefit materially from trade liberalization, and hence have an economic reason to support trade (Mayda and Rodrik 2005). An even larger group of studies, however, argues that education is itself a factor in determining support for trade liberalization. This may be so because the highly educated are more cosmopolitan (Mansfield and Mutz 2009) or because university students are taught about the benefits of free trade and thus internalize a love for globalization (Hainmueller and Hiscox 2006).

With the aim of contributing to this debate, we have proposed four hypotheses derived from the economic interest approach and have exposed them to an empirical test. To the extent that this test supports the hypotheses, we can conclude that the economic interest perspective does retain at least some explanatory power. Indeed, this is what we find (see Table 3.3). Concretely, our findings suggest that the effect of education on perceptions of the consequences of trade for jobs and wages is larger for employed (H1) and older (H2) respondents, as well as for respondents living in more developed (H3) and economically competitive (H4) regions. We also showed that the perceptions of the consequences of trade matter for attitudes towards trade in general.

Clearly, these tests are not aimed at falsifying the ideational perspective. Existing research has shown that ideas are partly responsible for the positive relationship between education

Table 3.3: Summary of the findings

	Moderator	Hypothesis	Evidence
Conditional effect of	Employment status	1	Partly supported
	Age	2	Supported
	Regional development	3	Supported
	Trade competitiveness	4	Supported

and trade support. Our aim was more modest, namely to see whether there are some aspects of public opinion towards trade that after all are best explained by economic interest. The key take-away hence is that even if the ideational channel plays a role in creating the education-trade support link, it is important not to discard the role of economic interest.

We hope that these findings inspire additional research on trade attitudes. In particular, our findings beg the question why respondents' trade attitudes at least partly reflect their economic interests when most people lack concrete knowledge about trade and its distributional consequences (Rho and Tomz 2017). How does this effect come about? And to which extent does it reflect egoistic or sociotropic considerations on behalf of citizens? Addressing these questions even more thoroughly will require experimental research. Whereas education level itself cannot be manipulated in an experiment, a person's perceptions of how level of education and gains from trade are related most likely can be manipulated.

Moreover, it would be interesting to investigate which individual-level characteristics can explain whether a person's trade attitudes are in line with his or her economic interests. It seems clear that the aggregate results that we present mask much heterogeneity at the individual level about how education matters for trade attitudes. Future research could also scrutinise how education affects the perception of trade's consequences on other issues. For example, how does education influence citizens' perception of the relation between trade and environmental degradation (Nguyen, Huber and Bernauer 2021) or social rights (Bastiaens and Postnikov 2020)? Naturally, these dimensions and perceptions associated with them play a major role in public opposition to trade agreements, such as the EU-Mercosur trade

agreement.

Our research also has implications beyond the literature on public opinion towards trade. For one, our findings support the key assumption underlying the Open Economy Politics approach that economic interests matter for individuals' preferences (Lake 2009). Our findings also speak to the growing literature on the backlash to globalization in developed countries. While future research could investigate the ideational and economic motives to oppose globalization as a whole even more explicitly, our results are at least indicative of the role of economic interest in this backlash.

4 | Why Do Legislators Rebel on Trade Agreements? The Effect of Constituencies' Economic Interests

Author: Yannick Stiller

Abstract: Most trade agreements are ratified with overwhelming support by legislators throughout the world. This lack of opposition is surprising given the strong distributional consequences of trade and the expectation of conventional political economy theory that parliamentary votes on trade policy should be closely contested between winners and losers of globalization. To analyze the driving forces behind legislators' voting behavior whilst avoiding the obscuring effect of party discipline, I analyze under which circumstances legislators decide to rebel against their party's position when voting on the ratification of trade agreements. I put forward two hypotheses: First, rebellions are more likely when the trade agreement is with a larger trading partner and when the liberalization through the agreement is more comprehensive. Second, legislators will rebel when their party's position does not align with their constituency's economic interests. These hypotheses are supported by a series of multinomial regression analyses based on an original dataset comprising votes of several thousand legislators from multiple countries on the ratification of trade agreements.

4.1 Introduction

Trade policies – and specifically free trade agreements – have become a contentious issue in the public discussion. The (now shelfed) Transatlantic Trade and Investment Partnership (TTIP) agreement between the EU and the USA has sparked massive public demonstrations throughout Europe and the more recent agreement between the EU and the South American trading bloc Mercosur also provoked a heavy public backlash. Despite this rising public opposition against trade liberalization, governments around the world continue to initiate new trade negotiations. Between 2018 and 2020, 41 new trade agreements were signed (Dür, Baccini and Elsig 2014) and most of these free trade agreements are ratified without much opposition by legislators in parliaments. This lack of opposition is surprising given the strong distributional consequences of trade, which creates both economic winners and losers through job creation and job losses (Autor, Dorn and Hanson 2016). Because of these distributional consequences, conventional political economy theory would actually expect that votes on trade policy are much more contested because politicians in democratic societies should protect the interests of their voters or special interests from their constituency (Grossman and Helpman 1994). The usually overwhelming support of parliamentarians for trade policy appears to contradict this theoretical expectation. Thus, the question arises: do legislators really take the economic interests of their constituencies into account when they vote on the ratification of trade agreements?

Previous studies of this question have nearly exclusively analyzed voting patterns in the US Congress to demonstrate the effect of the economic interests of legislators' constituencies on their voting behavior. Support by US legislators for trade liberalization appears to depend on their constituency's unemployment rates and its export reliance (Gartzke and Wrighton 1998), financial contributions from labor or business groups (Baldwin and Magee 2000), changes in inter-industry factor mobility (Hiscox 2002), the cleavage between import-competing and export-oriented industries (Conconi, Facchini and Zanardi 2012; Choi 2015),

Chinese import competition and trade shocks (Feigenbaum and Hall 2015), and vulnerability to offshoring (Owen 2017). Moreover, they identified several important covariates such as ideology (measured by party membership) (Kahane 1996), the chamber of parliament (Karol 2007; Ehrlich 2009), whether legislators belong to the same party as the president (Magee 2010), and the foreign policy concerns of the US President (Milner and Tingley 2011). In addition to these US-centered investigations, there exists a small number of single-case studies in Great Britain (Schonhardt-Bailey 2003), Japan (Kagitani and Harimaya 2020), Argentina (Murillo and Pinto 2021), and Brazil (Campello and Urdinez 2021) that demonstrated the effect of constituencies' economic interest on legislators' voting behavior.

This extensive research has certainly furthered our understanding of the effect of constituency interests on legislative behavior – yet there are important restrictions to the generalizability of these findings. First, the low level of party discipline in the USA, the country's distinctive political and electoral system, and the strong influence of geopolitical concerns on voting behavior makes it hard to know to what degree these findings hold in other countries. Second, these studies focus on an overlapping and limited set of trade agreements that in most cases include the USA as dominating partner and thus are often very similar in their content (Allee and Elsig 2019). Consequently, the effect of important factors such as agreement characteristics or the distribution of bargaining power between agreement partners on legislators' behavior could not be evaluated. Third, the nexus between constituency interests and legislators' voting behavior on trade policy has not yet been analyzed on a comparative basis.

This paper aims to close these gaps by providing large-scale evidence on ratification of free trade agreements. Ratification is the final step before a trade agreement enters into force and it is arguably the biggest opportunity for legislators to have a say in their country's trade policy. Moreover, ratification processes are nearly identical in all countries (legislators can only vote in favor, against or abstain on ratification) are thus well suited for cross-country comparative research. I have gathered data that includes 13,694 recorded voting decisions

from 112 ratification processes in 20 different countries. These votes cover both superficial and deep trade agreements and they also vary substantially in terms of the GDP ratio of the countries involved. This wealth of empirical evidence makes it possible to draw conclusions that are more generalizable and allows testing for the effect of agreement characteristics.

When researchers analyze voting behavior of legislators, they face the problem of party discipline which often causes legislators to vote against their true preferences (Sieberer 2006; Carey 2007). In most democracies, party discipline is strong and legislators are both incentivized to vote with their party and sanctioned if they do not. Thus, we cannot differentiate whether a legislator votes in favor of a trade agreement because she wants to represent her district's interests or because she wants to follow the party line. To overcome this obstacle, I focus my argument on rebellious legislators who vote against the majority of their party. Hanretty, Lauderdale and Vivyan (2017) have used a similar approach in their work, which showed that rebellions of Conservative legislators in Great Britain on Brexit can be explained by the public opinion in their constituencies. One drawback of this approach is that it most likely underestimates the effect of constituency interests because many legislators who might vote against their party's position will decide against rebellion to avoid being sanctioned. Instead, they might try to protect the interests of their constituency in alternative ways through influencing the negotiations or by compensating their constituents with other policies (Proksch and Slapin 2015).

The research question of this paper is thus slightly different than in previous studies: Instead of analyzing determinants of support for or opposition to trade agreements, I investigate which factors increase the likelihood of rebellion on ratification of trade agreements. In my first hypothesis, I expect the anticipated economic impact of the agreement to determine voting behavior: The larger the partner county is and the more detailed the agreement is, the higher is the likelihood of a rebellion because the distributional consequences (positive or negative) of this trade agreement will be larger. In my second hypothesis, I argue that the direction of a rebellion depends on the economic situation of the constituency of a legislator.

The more a legislator's constituents stand to lose economically from an agreement, the more likely is this legislator to defect from her party if her party is in favor of the agreement and vice versa for legislators from districts that stand to benefit from trade liberalization.

The results of a multinomial regression analysis supports these hypotheses. Legislators from districts that stand to benefit from trade liberalization but whose party votes against ratification have a high likelihood to rebel and vote in favor of the agreement. The opposite is true for parliamentarians from districts that are expected to lose from increased foreign competition but whose party is in favor of the trade agreement. Moreover, the likelihood of a rebellion against the agreement depends on the potential economic impact of the agreement. Superficial agreements with a small trading partner will not affect many voters in any significant way and thus cause little pressure on a legislator to face sanctions from her party for a rebellion. However, deep and comprehensive agreements with a large trading partner will not only generate much higher scrutiny by the public but also a higher pressure on legislators to demonstrate that they have their constituents' interests at heart. These results indicate that legislators indeed take the interests of their voters into account when they make a decision on trade policy – but only when the stakes are high.

This paper makes three important contributions to the literature on the nexus between voting behavior of legislators and the material interests of their constituents. First, to the best of my knowledge, this is the largest and most comprehensive analysis of voting behavior and the first cross-country sample. Therefore, the conclusions drawn from this data are much more generalizable than those from the existing single country studies, which were predominantly focused on the USA. Second, by analyzing ratification votes on a large number of different trade agreements with different agreement depths and GDP ratios between the partner countries, I can test the influence of agreement characteristics on legislators' voting behavior. The third contribution of this paper is to focus on the factors that determine the likelihood of rebellions on trade policy. As outlined above, this innovation allows to test the presented hypotheses even in countries with strong party discipline.

4.2 What drives rebellions on trade policy?

Which factors increase the likelihood of rebellion on ratification of trade agreements? There are certainly many different determinants that are not related to trade policy but might still impact the decision of legislators to rebel against their party policy. The comparative politics literature has highlighted several institutional factors including the structure of the electoral system (Hix 2004; Carey 2007), the structure of the party (Shomer 2009) and the level of electoral competition in the party system (Sieberer 2006) as well as individual factors such as the reelection chances of the legislator (Sieberer and Ohmura 2021) or her political experience (Olivella and Tavits 2014).

Regarding trade policy specifically, two additional reasons might compel a legislator to rebel against the party line although this carries the risk of being sanctioned by her party: on the one hand, trade policy is a very ideological topic as the right generally supports free markets whereas the left stresses equality and social justice, which often results in a skepticism towards globalization (Milner and Judkins 2004). On the other hand, trade policy can have significant impacts on the job security and wage levels of citizens (Autor, Dorn and Hanson 2016). Both reasons might cause legislators to rebel, be it because of political conviction or to signal to their constituents that the legislator is fighting for their interests.

In this paper, I will focus on the second reason and argue that legislators will take their constituency's economic interest into account when considering the ratification of trade agreements. There are three potential channels through which the material interest of the constituency may translate into a rebellion by the region's representative. First, constituents and especially the firms in the constituency can form interest groups that may attempt to sway their legislator's opinion with the help of campaign contributions (Grossman and Helpman 1994; Drope and Hansen 2004), the provision of technical expertise (Potters and van Winden 1992; Hall and Deardorff 2006), or political information (Hansen 1991; Wright 1996). Second, protecting the region's material interests will increase the likelihood that the legislator gets

reelected (Gilens and Page 2014). Third, legislators might just be intrinsically convinced that it is their duty to represent their constituents' interests as best as possible.

Legislators can generally be expected to remain in party line regardless of their constituency's material interests. When they do rebel, it is because the legislator weighed the costs and benefits of rebelling and decided that the rebellion is worth it. The costs of this decision mainly involve all kinds of repercussions from the party but also possibly electoral disadvantages if the legislator is perceived as being disloyal. The benefits depend on which of the three causal mechanisms outlined in the previous paragraph is at play: rebellion might benefit interest groups that support the legislator or they might signal to constituents that the legislator is protecting their interests even against her own party.

I argue that rebellions in both directions (in favor or against the agreement) should be more likely a) when it includes a wide range of trade liberalizations and b) when the trade agreement is with a larger trading partner. The depth of an agreement does not only determine the potential economic impact but also its salience in the public. Far-reaching modern trade agreements that go beyond lowering tariffs and also liberalize investments, the services sector, and public procurement policy are much more likely to come under public scrutiny. Given that signaling diligent representation of constituency interests is probably a key motivator for rebellions, there are little incentives to rebel on an issue with low public salience. Potentially, the higher public salience of a deep trade agreement might also increase the likelihood that the party imposes sanctions against rebels. However, the increase in benefits of a rebellion should still outweigh this increase in costs of a rebellion with rising public salience because party sanctions are always a likely consequence of rebellion but public backlash will only occur in high-salience situations. Thus, the first part of this argument reads as follows:

H1a: The likelihood that legislators rebel against their party's position increases with the depth of the agreement.

The economic impact of a trade agreement and the potential risks and opportunities

arising from it also depends on the negotiation of the agreement and the bargaining power of the countries involved. A large economy such as the USA can often dictate terms in negotiations with smaller partners and thus reap more benefits whereas the partner has to accept more concessions. An agreement with a stronger negotiating partner will cause a significantly higher incentive to rebel. A common measure of bargaining power in trade agreements is the GDP ratio between the countries (Krasner 1976; Wagner 1988; Steinberg 2002). Additionally, reducing trade barriers to a larger economy will have a heavier impact on the local economy (positively or negatively) than liberalizing trade with a smaller economy, which will change trade flows only marginally.

H1b: The likelihood that legislators rebel against their party's position decreases with the GDP ratio between the country and the agreement partner.

Expressed differently: The depth of an agreement and the GDP ratio between the country and its trading partner determine the benefits of a rebellion - when the agreement is superficial and with a small country, there are no real advantages to a rebellion but the repercussions from the party leadership will remain high. Conversely, when the agreement is deep and with a large country that had a bargaining advantage in the negotiations, the benefits of a rebellion might outweigh the costs.

The second hypothesis focuses on the direction of a rebellion. Here, I argue that the direction of rebellion is dependent on whether the voters in a legislator's constituency stand to gain or lose materially from the trade agreement. When the majority of voters will benefit from a trade agreement, the legislator will be pressured to vote in favor of the agreement even when her party is against it. When her voters are threatened by job losses due to trade liberalization, the legislator should be likely to rebel against the agreement in case her party is in favor of ratification.

But what constitutes the economic interest of a voter in regards to trade policy? The political economy literature on this question has long contrasted the Stolper-Samuelson Theorem to the Ricardo-Viner Model. The Stolper-Samuelson Theorem anticipates that trade

liberalization helps the owners of the relatively abundant factor of production and hurts the relatively scarce factor. Initially, scholars mainly focused on conflicts between land-owners, laborers, and capital-owners (Rogowski 1987). Later, researchers drew the distinction between skilled and unskilled labor as two different factors of production that helps explain differences in trade support among citizens. The Ricardo-Viner Model differentiates between importing and exporting economic sectors and assumes that the interests of all workers (and employers) within one sector align. This assumes that inter-industry mobility is very low and thus workers are mostly tied to their industry (Hiscox 2001).

However, more recent studies have noted that the globalization of production has upended both the divisions between classes and those between industries. The model of heterogeneous firms developed by Melitz (2003), which is also known as New New Trade Theory, suggests that only very few, highly competitive firms within each industry are able to export to world markets (Bernard, Jensen and Schott 2009), import intermediate goods, and invest abroad (Helpman, Melitz and Yeaple 2004). These empirical insights imply that only the most productive firms should support trade liberalization regardless of their industry. Researchers have found support for these firm preferences and demonstrated that larger firms are more likely to engage in political activities in support of trade liberalization (Plouffe 2017; Osgood et al. 2017; Kim and Osgood 2019). Therefore, the ideal research design would assess the economic interest of a constituency at the firm level. Unfortunately, firm-level data is very difficult to obtain, especially for a cross-country study. Consequently, researcher often draw on proxies as indicators for the productivity of firms in a certain region. A key requirement for high productivity in modern production is having a large share of highly skilled workers (Ciuriak et al. 2015). Therefore, we can derive from New New Trade Theory that highly-skilled workers worldwide should benefit from trade liberalization whereas low skilled workers should be harmed by increasing foreign competition.Indeed, several studies have found support for this expectation (Burstein and Vogel 2017; Helpman et al. 2017; Lee 2020).

The important insight from this discussion for determining the economic interests of a constituency is that regions with a large share of highly-educated workers and high productivity should be beneficiaries from further trade liberalization whereas regions inhabited mostly by low-skilled workers and characterized by low productivity should fear trade liberalization. Therefore, the constituencies' economic interest, which I expect to determine whether a rebel is in favor or against the trade agreement, is constituted by its skill level, its productivity, and its economic competitiveness. This economic interest will cause rebellious legislators to break with their party if the party policy goes against the material interest of the legislator's constituency. Therefore, the observed direction of the rebellion - whether the rebel votes in favor or against the trade agreement - should also be driven by the economic interest of the legislator's constituency. In regions that stand to gain from trade liberalization, we should primarily observe rebels that vote in favor of ratification although their party is against and vice versa in regions that are expected to lose materially from the agreement.

Of course not all voters in a constituency have the same material interest and using aggregate measures to model their policy preferences is not ideal. However, there are several reasons why this approach should be valid. First, people's material interests are not only affected by their own income but often also depends on the income of their partner, their parents, their children or other family members. Goldstein, Margalit and Rivers (2008) showed that even beneficiaries of trade can have protectionist attitudes when they are married to somebody who stands to lose his or her job due to globalization. This is in line with research that shows that individuals consider the economic impact of trade on their community as a whole at least as much as its impact on their own economic situation (Mansfield and Mutz 2009). Second, trade liberalization has widespread effects that are geographically concentrated (Broz, Frieden and Weymouth 2021). Job losses in import-competing sectors will have ripple effects causing wage declines in sectors such as hospitality, leisure, and personal services, falling property values, and a shrinking local tax base. Highly productive and export-oriented firms also tend to cluster spatially and thus improving economic conditions

not just of their employees but of many more inhabitants of the region. Third, given that workers in most countries are rather immobile, it is reasonable to expect them to look for jobs within their region should they lose their previous employment. If there are enough competitive firms in a region to balance the loss of jobs in non-competitive firms, the net effect of trade liberalization for workers might still be positive. Forth, many voters might be ignorant of their own material self-interest in trade policy and instead base their opinion on sociotropic preferences (Rho and Tomz 2017; Jamal and Milner 2019).[1] Therefore, I argue that the material interest of the region as a whole should be the driving force behind legislators' voting behavior. Expressed as a hypothesis:

H2: The likelihood that legislators rebels against (in favor of) ratification increases with the material losses (gains) of trade liberalization for their constituency.

4.3 Research design

4.3.1 Case selection

As a basis for assessing the total universe of ratification votes on trade agreements, I used version 2.1 (2022) of the Design of Trade Agreements (DESTA) database (originally introduced by Dür, Baccini and Elsig (2014)) to construct a list of all trade agreements that entered into force or were signed between January 2010 and March 2021. I limited my analysis to this period because only few countries make voting records from earlier years digitally available. Because the voting behavior of legislators in autocracies cannot be expected to reflect the material interests of their constituencies, I excluded all countries with a score below 4 in the Polity V data series (Marshall and Gurr 2020). Furthermore, I have excluded any ratification votes by the European Parliament because nearly all its members are elected from national constituencies and thus do not represent the material interests of a specific

[1] For a critique of using sociotropic preferences as substitutes for individual preferences, see Schaffer and Spilker (2019).

electoral district. Moreover, the political groups comprise multiple national parties and have only very few tools to maintain party discipline (Bowler and McElroy 2015). However, I do include the ratification votes by national parliaments of EU Member States on CETA, which were held because CETA as a mixed agreement also required ratification by each individual Member State. I have attempted to gather the voting records on all trade agreements in the thus defined universe of cases by searching for them on parliamentary websites or contacting parliamentary officials. Because many countries lack parliamentary databases or do not keep voting records, I only found information on 232 ratification processes. In my estimation, this covers around one quarter of all ratification votes that took place between January 2010 and March 2021. Of these 232 ratification votes, 37 were approved by a voting mechanism such as hand-raising where no vote totals were recorded.

It is interesting to note that the ratification of trade agreements appears to be much less controversial than one might expect based on well-known cases such as CETA between Canada and the European Union, which nearly failed due to opposition in member state parliaments. Of the 195 ratification votes that recorded at least overall vote margins, 59 passed unanimously and another 87 were approved by at least 80% of legislators. Only two ratification votes had less than 50% votes in favor.[2] Of course, the rarity of failed ratification votes can be explained to a large degree by the fact that governments will only table the vote when they are reasonably sure that it will pass. Nevertheless, the overwhelming majorities in support of trade agreements that very often include large parts of the opposition are astonishing.

4.3.2 Trade Rebels

Of the 195 ratification processes for which detailed voting information was available, only 112 took place in the 20 countries that witnessed at least one rebellion and thus were relevant

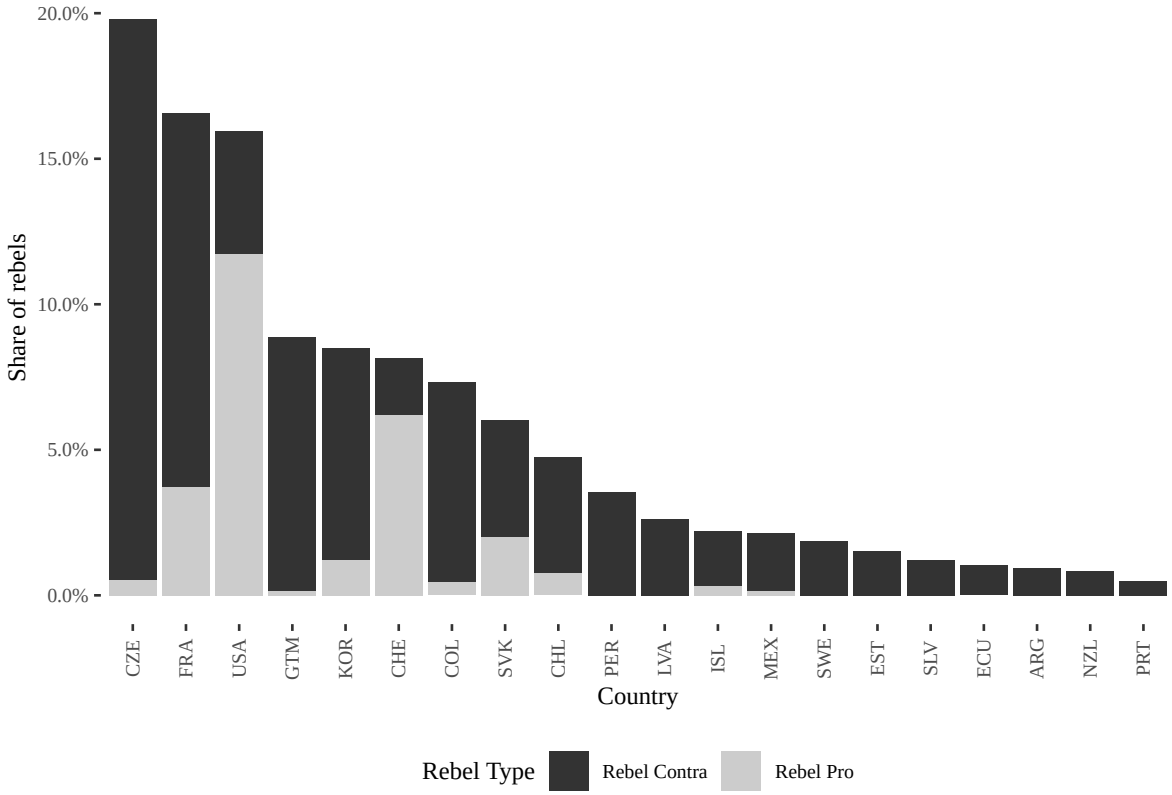
[2]These concern the ratification of CETA by Cyprus and France; the ratification of CETA in France succeeded due to a large number of abstentions. See Figure A41 in the Appendix for a histogram of approval shares.

for this analysis.[3] To identify rebels, I assess whether the vote of a legislator differs from the mode voting behavior of the party to which the legislator in question belongs. If a legislator votes differently than the majority of her party, I further assess the direction of the rebellion: if the party majority votes in favor of the trade agreement but a legislator either votes against or abstains, I code her as a "Contra Rebel". If the party majority votes against the trade agreement and a legislator either votes in favor or abstains, I code her as a "Pro Rebel". If the party decides to abstain from the vote, a rebel could be either "Contra" or "Pro", depending on the direction of her rebellion. In 15 instances, there is no clear party position because none of the three vote options (Yes, No, and Abstain) is chosen by more than 50% of the party's legislators (for example, the legislators of the Social Democratic Party of Switzerland voted as follows on the ratification of the Central America-EFTA Agreement: 20 Yes, 12 No, and 19 Abstain). I dropped the 416 legislators of these parties from the analysis to make sure that only "true" rebels who vote against a clearly defined party line are included.

Rebellions on trade agreements - as I define them - are not too frequent but also not extremely rare. Of the more than 13,000 votes in the sample, 1,002 (or 7.7%) are classified as rebellions. The frequency of rebellions also varies strongly between countries: In Czechia nearly 20% of legislators rebelled and in France and the USA, at least 15% of legislators casted rebellious votes. Figure 4.1 shows the share (and direction) of rebels for each country in the sample. There is also significant variation in the direction of rebellions: Whereas Switzerland and the USA have predominantly pro rebels, all other countries have mostly contra rebels and several countries did not witness any pro rebellions at all. This distribution is of course largely determined by the position of the parties in these countries: If all parties vote in favor of ratification - which happens often - pro rebellions are logically impossible.

[3] See Table A7 in the Appendix for a detailed overview.

Figure 4.1: The frequency and direction of rebellions by country



4.3.3 Explanatory variables

To test H1a, I use the depth index of trade agreements made available by the DESTA database (Dür, Baccini and Elsig 2014). Their index is based on the number of key provisions that can be included in trade agreements and ranges from 0 (indicating a very shallow agreement) to 7 (indicating a very deep agreement). Most of the coded agreements have high scores on the depth index, which reflects the fact that trade agreements overall have become ever deeper since the beginning of the millennium. To account for the causal mechanism expressed in H1b, I calculate the ratio between the Gross Domestic Product (GDP) of the country and its partner. I use the data on GDP in current US dollars from the World Economic Outlook 2019 published by the International Monetary Fund (IMF 2019). I apply the logarithm to reduce the effect of extreme outliers in the sample. Because the European Commission negotiates trade agreements on behalf of all Member States of the European Union, I assign all Member States the GDP of the whole European Union to reflect that smaller Member States of the European Union punch well above their weight in trade negotiations.

For H2, I use three different measures to capture the material interest of electoral districts. The first two originate from the Subnational Human Development Database (Smits and Permanyer 2019). First, I used the mean years of schooling of the population aged 25+ as an indicator of the skill level in this district. Second, I use the Gross National Income (GNI) per capita in thousands of US Dollars (2011 PPP) to capture the wealth of a district. GNI per capita is not the best measure of a district's productivity but it is the only one that is widely available. Both these measures are divided by the country average. The third indicator is a measure of a district's trade competitiveness described in detail by Huber, Stiller and Dür (2021). Broadly summarized, this approach uses trade data at the national level and employment shares by industry at the regional level (from labour force surveys) to calculate the export-to-import ratio at the regional level in a similar way how national trade competitiveness is often calculated (e.g. by Conconi, Facchini and Zanardi (2012)). The resulting trade competitiveness variable measures how closely aligned the district's economic structure

is with the comparative advantage of its country. Competitive regions have positive values and non-competitive regions negative values. Unfortunately, this measure is not available for all countries in the sample.[4] This measure is already centered to the country average. Thus all three indicators measure within-country differences in constituencies' economic interests (which is accounted for in the following regression analyses by the incorporation of country fixed effects). These three indicators are available for administrative divisions that coincide with the electoral districts in most countries that use proportional representation. Except for Senators in Mexico and the USA who are elected in states as a whole, legislators from countries with majoritarian systems are elected in single-member districts that are nested within the administrative divisions for which these measures are provided.[5] Legislators who are elected nationally are dropped from the main analysis because they do not represent the material interests of a specific electoral district within the country. Section A3.2 in the Appendix provides descriptive statistics and Section A3.3 details the data availability for each country.

4.3.4 Control variables

Furthermore, I include some additional variables in the analyses to control for alternative explanations of rebellions. First, there might be a gender gap in the likelihood to rebel: existing research suggests that women are more consensus-oriented and risk-averse than men, which might reduce their likelihood to rebel (Papavero and Zucchini 2018; Finke 2019; Dingler and Ramstetter 2021); gender is also known to be an important driver of individual-level trade preferences (Mayda and Rodrik 2005). I also control for the fact whether or not the legislator is part of the government coalition. On the one hand, legislators belonging to the government might have less incentives to deviate from the party policy because exclusion from their party would also result in losing access to the government and influence on policy making

[4] In the main model, this affects only Guatemala.

[5] It would be preferable to use district-level values in these countries but such information is not widely available.

(Carey 2007). On the other hand, in certain situations legislators belonging to the majority might be more prone to rebel as they want to differentiate themselves from within-party competition (Kirkland and Slapin 2019). To account for differences in the electoral system of a country, I include a categorical variable that measures whether a legislator is elected through proportional representation or a majoritarian electoral system (Election Guide 2022). The expectation here is that party unity is lower in majoritarian systems (Carey 2007). Majoritarian systems also tend to generate more protectionist trade policies than proportional systems (Grossman and Helpman 2005; Evans 2009; Hatfield and Hauk 2014).[6] To control for the timing of the electoral cycle during which the vote takes place, I include the time until the next scheduled election (in fractions of years). This accounts for the tendency of lawmakers to become more protectionist with increasing election proximity (Conconi, Facchini and Zanardi 2014; Kagitani and Harimaya 2020). Because right-wing parties are ideologically inclined to support trade liberalization whereas left-wing parties tend to oppose capitalist globalization (Milner and Judkins 2004), I also control for the economic left-right position of a legislator's party. The party's ideology might also determine the likelihood of rebellions in general, although there is debate whether left-wing parties are more likely to experience rebellions than right-wing parties or the other way round (Close 2018). I use variable V4 from the Global Party Survey (Norris 2020), which classifies the current stance of a party on economic issues such as privatization, taxes, regulation, government spending, and the welfare state (measured on a continuous scale from 0 for far-left to 10 for far-right). Because this expert survey was taken just once (so far) in 2019, there is no information available for some parties in my sample that ceased to exist by 2019. In instances where a clear successor party exists, I fill these gaps in the data manually. To control for any additional country-specific factors (such as institutional designs of the legislature, specific aspects of the electoral system, or general levels of trade support), I include country fixed effects. Figure A42 in the Appendix provides information on the average value of all independent variables based on whether the

[6] Other studies find that open-list proportional systems are as likely as majoritarian systems to produce rebels (Coman 2015; Sieberer and Ohmura 2021). I control for this in one alternative model.

legislator is loyal, a contra rebel, or a pro rebel.

4.3.5 Model specifications

In the main model, I calculate the likelihood of each of the three outcomes (loyal, rebellion contra, rebellion pro) in a multinomial logistic regression model with loyal legislators as the reference category. Because multinomial logistic regression models that lack one category would produce country fixed effects with standard errors valued 0, I limit the sample in the main model to those countries that have at least one contra rebel and one pro rebel. This leaves a sample size of 8,470 including legislators from Chile, Czechia, France, Guatemala, the Republic of Korea, Mexico, Switzerland, and the United States for the main model (One less conservative robustness check includes all countries with rebels and thus has a larger sample size of 12,885 from all 20 countries in the total sample). This estimation strategy is ideally suited to test the hypotheses because there are three categories that are not ordered in any meaningful way in the dependent variable. However, this method suffers from the problem of rare events because 90.7% of legislators in this restricted sample are loyal whereas only 5.3% are contra rebels and only 4.6% are pro rebels. Consequently, there might be a small-sample bias that causes the model to underestimate the probability of the two kinds of rebellions (King and Zeng 2001).

4.4 Results

4.4.1 Main model

Table 4.1 presents the results of four multinomial logistic regression models that estimate the likelihood that a legislator is loyal, a contra rebel, or a pro rebel. For each model, two sets of coefficients are displayed - one that shows the likelihood of a contra rebellion and one that shows the likelihood of a pro rebellion, both times calculated against the baseline of loyalists. The first model does not include any indicators of the material interest of the constituency;

Models 2 through 4 rotate the three different indicators. In all four models, the coefficients for the logged GDP ratio and the depth of the agreement are in the expected direction and statistically significant - but only for the likelihood of a contra rebellion. For a pro rebellion, these coefficients are not statistically significant. These results indicate that legislators are more likely to vote against an agreement even if that means defying their own party when an agreement is deep or with a larger trading partner, which is in line with H1a and H1b, respectively.

The indicators for the material interest of the constituency are negative and statistically significant for the likelihood of a contra rebellion. This means that the higher the skill level (measured with the mean years of schooling), the productivity (measured with the logged GNI per capita), or the trade competitiveness of a constituency is, the lower is the likelihood of a contra rebellion. However, when these indicators are low and the constituency might be impacted negatively by the trade liberalization, the likelihood of a rebellion against the agreement increases. However, the picture is less clearer for the likelihood of pro rebellion: In Models 2 and 3, which uses the mean years of schooling and the GNI per capita as indicators, respectively, do I find the expected positive and statistically significant effect. However, he coefficient for subnational trade competitiveness in Model 4 is positive but not statistically significant. Nevertheless, these results yield partial support for H2.

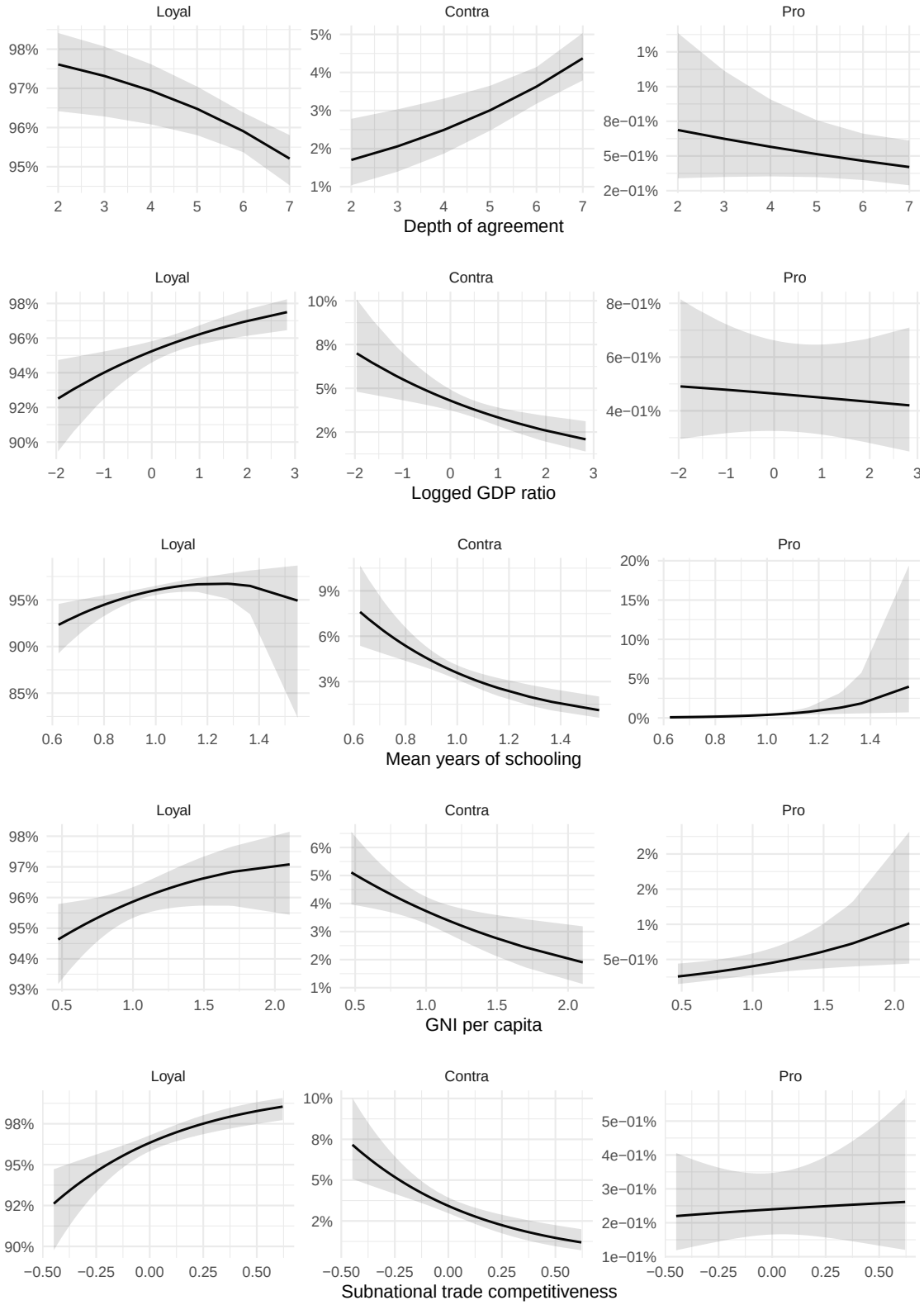
Turning to the control variables, we see that right-wing legislators are consistently less likely to rebel in either direction, which indicates stronger overall party cohesion of right-wing parties. Legislators from majoritarian electoral systems are also more likely to rebel generally. Female legislators have a higher likelihood of being contra rebels but there is no significant gender difference with pro rebels. Interestingly, the other two control variables point into different directions for the two types of rebellion. Legislators close to re-election and opposition legislators are all more likely to be contra rebels but legislators with long duration until the next election and legislators belonging to the government are more likely to be pro rebels.

Table 4.1: Rebel behavior on trade ratification, only countries with both types of rebel

	Model 1		Model 2		Model 3		Model 4	
	Contra	Pro	Contra	Pro	Contra	Pro	Contra	Pro
Explanatory variables								
Logged GDP ratio	−0.26***	−0.04	−0.27***	−0.05	−0.27***	−0.05	−0.33***	−0.06
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.09)	(0.08)
Agreement depth	0.19***	−0.09	0.20***	−0.09	0.19***	−0.09	0.25***	−0.07
	(0.06)	(0.08)	(0.06)	(0.08)	(0.06)	(0.08)	(0.07)	(0.08)
Mean school years			−2.11***	4.26**				
			(0.52)	(1.68)				
GNI per capita					−0.62***	0.82**		
					(0.23)	(0.36)		
Subn. trade comp.							−1.74***	0.10
							(0.40)	(0.56)
Control variables								
Female	0.38***	−0.16	0.40***	−0.18	0.40***	−0.20	0.36***	−0.19
	(0.12)	(0.14)	(0.12)	(0.14)	(0.12)	(0.14)	(0.13)	(0.14)
Party left-right	−0.14***	−0.85***	−0.15***	−0.88***	−0.14***	−0.89***	−0.15***	−0.91***
	(0.02)	(0.05)	(0.02)	(0.05)	(0.02)	(0.05)	(0.03)	(0.06)
Years to election	−0.22***	0.14**	−0.22***	0.13**	−0.22***	0.14**	−0.19***	0.14**
	(0.05)	(0.06)	(0.05)	(0.06)	(0.05)	(0.06)	(0.06)	(0.06)
Majoritarian	1.85***	2.27***	1.86***	2.32***	1.84***	2.33***	1.76***	2.33***
	(0.29)	(0.28)	(0.29)	(0.28)	(0.29)	(0.29)	(0.29)	(0.29)
Government	−0.76***	1.51***	−0.78***	1.60***	−0.76***	1.58***	−0.79***	1.60***
	(0.12)	(0.19)	(0.12)	(0.19)	(0.12)	(0.19)	(0.12)	(0.19)
(Intercept)	−3.81***	−0.76	−1.70**	−5.03***	−3.19***	−1.55**	−4.09***	−0.84
	(0.44)	(0.53)	(0.68)	(1.78)	(0.50)	(0.64)	(0.49)	(0.54)
AIC	5137.95		5071.41		5084.21		4697.87	
BIC	5349.28		5296.77		5309.56		4907.20	
Log Likelihood	-2538.98		-2503.71		-2510.10		-2318.94	
Deviance	5077.95		5007.41		5020.21		4637.87	
Num. obs.	8470		8453		8453		7922	
K	3		3		3		3	

***$p < 0.01$; **$p < 0.05$; *$p < 0.1$. Entries are unstandardised coefficients from a multinomial logistic regression model. Standard errors in brackets. Dependent variable is likelihood of rebellion either in favor or against the agreement compared to the baseline of loyal legislators. Country fixed effects omitted.

Figure 4.2: Predicted probability of rebellions depending on variation in key variables



Note: The ribbon represents 95% confidence intervals. Agreement depth and logged GDP ratio are based on Model 1, mean years of schooling on Model 2, logged GNI per capita on Model 3, and subnational trade competitiveness on Model 4 in Table 4.1.

Figure 4.2 illustrates the size of the effect of the key independent variables. These predicted probabilities of each possible outcome (the legislator remains loyal, she rebels and votes against the agreement, or she rebels and votes in favor of the agreement) are calculated with all other variables set to their average values. It is important to note that the predicted probabilities are very small for some independent variables because of the small sample selection bias and thus the probability of rebellions is probably underestimated.

Relevant for H1a is the first sets of charts. When legislators vote on rather superficial agreements, they have a likelihood of about 97.5% to remain loyal. However, this likelihood drops below 95.5% for the most far-reaching modern trade agreements. Conversely, the likelihood of a contra rebellion is around 1.5% for superficial agreements but around 4.5% for deep agreements. Meanwhile, the likelihood of a pro rebellion does not change significantly with different agreement depth. The second row of charts is relevant for H1b and shows the effect of the GDP ratio: When the economy of the country is ten times larger than the economy of the trading partner (i.e. the GDP ratio is +1), only 3% of legislators rebel against the agreement. However, when the country's GDP is ten times smaller than the partner's GDP (i.e. the GDP ratio is -1), the likelihood of a contra rebellion increases and reaches nearly 6%. These findings support H1a and H1b - at least regarding contra rebellions. When an agreement is superficial and thus unlikely to affect many people in a constituency, a legislator has little reason to face potential party sanctions and rebel. The same is true when the agreement opens the door to more imports from a much smaller economy, which will cause only very limited economic disruptions. However, when the trade agreement is far-reaching and might affect a large share of constituents or when the trade agreement is with a larger economy, legislators have significant incentives to rebel against their party when it supports the agreement.

The last three rows in Figure 4.2 demonstrate the effect of the material interest of the constituency for the different indicators. Legislators from a constituency with low mean years of schooling have a likelihood of close to 8% to rebel and vote against ratification

whereas legislators from regions with high skill levels have a likelihood of below 2% to do the same. The opposite effect is visible for the likelihood of a pro rebellion: Only legislators from constituencies that are expected to benefit from trade liberalization due to their high skill level have a noticeable likelihood to rebel in favor of ratification (due to the small sample selection bias, the absolute likelihoods are quite small). A similar picture emerges from the model that uses GNI per capita as indicator. In regards to subnational trade competitiveness, the figure shows that legislators from less competitive constituencies are significantly more likely to rebel against the agreement than those from competitive regions. However, there is no significant effect of subnational trade competitiveness on the likelihood of a pro rebellion. Overall, these predicted probabilities support H2 and demonstrate that legislators do take into account the material interests of their constituents.

4.4.2 Robustness checks

In the following sections, I perform a series of robustness tests. First, I employ eight alternative specifications of the main model. Second, I use jackknife resampling to ensure that the results are not driven by a single country or agreement. Third, I investigate potential interaction effects between the explanatory variables and the control variables.

Alternative model specifications

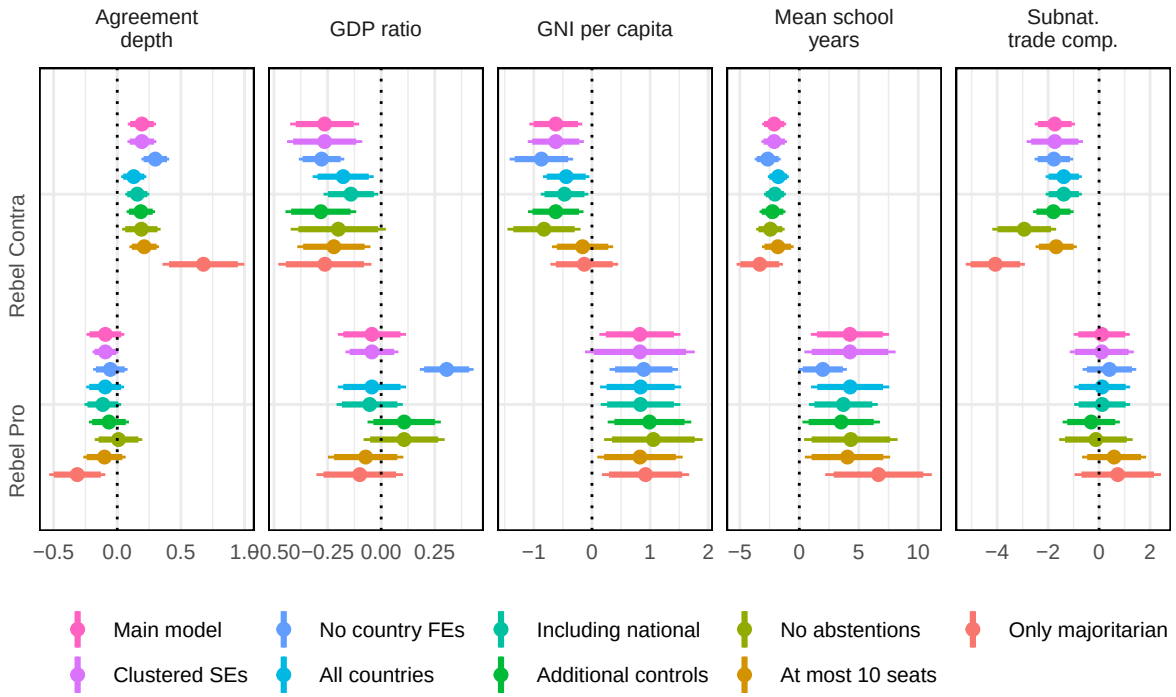
In the first alternative model specification, I address the concern that some legislators are included more than once in the sample because they voted on multiple agreements by including clustered standard errors. To address concerns that the country fixed effects correlate with the country-level control variables in the model, the second model does not include fixed effects. As outlined in the Section 4.3.5, the main model is limited to countries that have at least one contra rebel and one pro rebel. Therefore, I include all countries - even those with just one type of rebel - in the third additional test. It is important to note that this generates some country fixed effects with standard errors valued 0 in the columns where this country

lacks the respective rebel. Including more countries also allows me to differentiate between closed-list and open-list proportional systems. This is not possible in the main model because to many country-level control variables would lead to complete separation (Cook, Niehaus and Zuhlke 2018). To further expand the sample, the fourth check also includes legislators from national electoral districts.

In the fifth robustness check, I add several additional control variables to the main model. As older legislators might be less rebellious (either because they are more risk-averse than younger legislators or because they are more likely to belong to the party establishment), I control for the age of the legislator in years (Stratmann 2000). This model also includes the chamber of parliament (lower chamber, upper chamber, or unicameral). Lastly, legislators might be more willing to rebel when ratification is certain (and party leaders might be more lenient towards rebels in such cases). Therefore, I control for the eventual vote margin (share of affirmative votes) in parliament. The sixth test controls for the absolute gains or losses the constituency might expect from trade liberalization based on the predictions by the Stolper-Samuelson theorem (whereas the main explanatory variables measure relative gains and losses within the country). For this purpose, I include an additional dummy variable that takes the value 1 when the constituency has a beneficial factor endowment vis-à-vis the partner country (e.g. has a relative abundance of low-skilled workers when matched with a country with many high-skilled workers). In the seventh additional test, I exclude those legislators who abstained from voting to address possible concerns that these legislators are not "real" rebels.

The eighth and ninth tests shall ensure that the results remain reliable even when the analysis is limited to those cases where the median voter theorem applies (Black 1948). In the eighth test, I remove all legislators from the sample who were elected in constituencies with more than 10 seats. Arguably, the causal link between the economic interest of the constituency as a whole and the voting behavior of the legislators representing it decreases with the number of legislators that are elected in this constituency. This is because legislators

Figure 4.3: Coefficients of main variables from alternative model specifications



Note: Points are unstandardized estimates from a multinomial regression analysis. Ranges represent 90 and 95 percent confidence intervals. Based on models in Tables A8 to A16. Estimates for agreement depth and GDP ratio are based on the baseline models without indicators of constituencies' economic interest.

might be able to cater to ever smaller segments of the electorate. The ninth test pursues this argument even further and limits the sample to those legislators who elected through a majoritarian electoral system. Thus, the sample in these regression models is much smaller and it includes only legislators from Czechia, France, Mexico, the USA, and South Korea.

Figure 4.3 shows the coefficients of the five main variables from the these eight alternative model specifications as well as from the main model for comparison. In the case of contra rebellions, the coefficients are all in the expected direction and remain statistically significant in nearly all instances. The only exception to this are the model specifications with only legislators from majoritarian systems or only from constituencies with at most ten seats: here the coefficient for GNI per capita is not significant anymore. This likely is a result of the smaller sample size. Overall, these additional checks demonstrate the robustness of the

results of the main model in regards to contra rebellions.

Turning to pro rebellions, the coefficients for agreement depth and GDP ratio are not statistically significant in most models - just like in the main model. However, in the test with only majoritarian systems, the coefficient for agreement depth actually turns negative, which counters H1a but might be attributable to the highly selected set of countries included in this particular sample. In the model without country fixed effects, the coefficient for the GDP ratio is positive, which somewhat weakens the support for H1b as this would indicate that legislators are actually more likely to rebel in favor of an agreement with larger trading partners. Overall, these hypotheses concerning the agreement characteristics apparently apply very well to contra rebels but less so for pro rebels. However, the coefficients for the mean years of schooling and GNI per capita remain positive and statistically significant for pro rebels in all models, which supports H2. However, the coefficient for subnational trade competitiveness is not significant in any model for pro rebels.

Jackknife resampling

To test whether the results are driven by specific agreements or countries, I recalculated the main model reported in Table 4.1 where each time another agreement or country is dropped from the sample. Section A3.6 in the Appendix shows the results of these tests. For contra rebellions, the coefficients of all explanatory variables vary little when individual agreements are removed. When entire countries are dropped from the sample, the coefficients remain in the expected direction but are no longer significant in some instances (which is not surprising due to the reduction in observations). However, when removing the observations from South Korea, the coefficient of subnational trade competitiveness swings from negative to positive (albeit being not significant), which indicates that the support for H2 using this indicator for the material interests of a constituency might be driven by South Korea.

For pro rebellions, the coefficients for mean years of schooling and GNI per capita are no longer significant when the United States as a whole is removed from the sample. This

is not surprising given that it represents 63% of pro rebels. Interestingly, the coefficient for the depth of the agreement is now significantly positive and the coefficient for the GDP ratio significantly negative, which would support H1a and H1b, respectively. These hypotheses seem to hold for pro rebels, too - but only outside of the United States.

Interaction effects

To further investigate the causal mechanism underlying the hypotheses, Section A3.7 in the Appendix provides the results from variations of the main model including interaction effects between the explanatory variables and the control variables. These results are mostly in line with the theoretical expectations discussed in Section 4.3.4. For example, Figure A51 shows that women react more to changes in the depth of agreements than men, which is in line with findings that women only rebel on matters close to their heart (Dingler and Ramstetter 2021). Differences in agreement depth also matter more for legislators that were elected through majoritarian systems, which reflects the notion that they are less dependent on their party and can act more in line with their constituency's interests.

4.5 Conclusion

What determines the likelihood that legislators rebel and defect from their party's trade policy? To what degree are these rebellions a reflection of the economic interests of their constituency? This paper tested two hypotheses to answer these questions: First, it has argued that the likelihood of rebellion increases with the likely economic impact of the agreement measured by the depth of the agreement (H1a) and the GDP ratio (H1b) between the country and its trading partner. Second, the paper argued that the direction of a rebellion (i.e. whether a rebellious legislator votes in favor or against the agreement) is dependent on whether their constituents will gain or lose from the trade liberalization (H2). There are various reasons why legislators wish to take this step despite potential sanctions from their

party: these reasons include pressure from interest groups, an improved chance at re-election or an intrinsic conviction. Regardless of the exact causal mechanism, both hypotheses are (at least partially) supported by a series of multinomial analyses based on an original dataset comprising votes of several thousand legislators from several countries on the ratification of trade agreements. The empirical evidence is strongest for rebellions against the agreement: The likelihood of such a "contra" rebellion increases with the depth of the agreement and decreases when the GDP of the country of the legislator is higher than the GDP of the partner country whilst this effect is not found for "pro" rebels (except when the USA is removed from the sample). Furthermore, for all three indicators of constituencies' economic interest, the empirical evidence presented in this paper shows that if the residents in the legislator's electoral district stand to lose materially from a trade agreement but the legislator's party supports ratification, the legislator has an increased likelihood to rebel and vote against the agreement. The opposite is true for legislators from districts with high productivity and high skill-levels, which might gain from trade liberalization: these legislators are tempted to vote in favor of ratification even if the majority of their party is against it.

This paper makes important contributions to the political economy literature by confirming the causal link between the material interests of constituents and the voting behavior of legislators, which seems to be at odds with the empirical observation that most trade agreements are ratified with overwhelming parliamentary support. By analyzing ratification votes in many different countries and on various different trade agreements, this paper demonstrates that not all trade agreements cause the same pressure on legislators to rebel. Only those trade agreements that are far-reaching and will have big impacts generate a high likelihood of rebellions. Superficial trade agreements with small partner countries only rarely witness rebellions. The results in this study also allow for more generalizability than previous studies, which mostly focused on the USA. Although this paper has focused on the ratification of trade agreements, these results have implications for all aspects of the domestic politics of international trade: Decision-makers are indeed aware of the distributional consequences

of trade liberalization and take the economic interests of their constituencies into account - but only when the stakes are high enough.

This paper also speaks to the larger literature on party discipline and legislative behavior beyond trade policy. First, the mechanisms that can explain rebellions on trade agreements should also apply to other economic policy areas such taxation that have generated winners and losers in different regions of a country. Second, this research has underlined the fruitfulness of moving beyond analyzing the vote choice of legislators where the preferences of a legislator cannot be disentangled from party pressure. Future research should continue to focus more on rebellions and other types of legislative behavior that truly reveal legislators' policy preferences.

5 | Trade Competitiveness, Constituency Interests, and Legislators' Attitudes Towards Trade Agreements

Authors: Andreas Dür, Robert A. Huber, and Yannick Stiller

Abstract: Do legislators' trade attitudes reflect constituents' economic interests? We tackle this question by analyzing the link between the trade competitiveness of electoral districts and legislators' trade attitudes. Concretely, we expect legislators from districts that are highly competitive in international trade to be more supportive of trade agreements than legislators from non-competitive districts. The strength of this relationship should be lower in multi-member districts and for right-wing legislators. Data based on surveys with 3,576 legislators from 16 Latin American countries and 48 legislative periods between 2005 and 2019 allow us to test these two expectations. The surveys captured legislators' attitudes towards three different preferential trade agreements. We measure districts' trade competitiveness with an innovative combination of household survey and trade data. The evidence shows that subnational trade competitiveness indeed positively correlates with legislators' support for trade agreements, but this effect is smaller in districts with larger magnitude and for right-wing legislators.

5.1 Introduction

Do legislators' trade policy stances reflect constituents' economic interests? Answering this question is key for a better understanding of the link between societal interests and trade policy outcomes, which forms the basis of much trade policy research (Milner 1988; Grossman and Helpman 2002; Chase 2005; Dür 2010; Osgood 2017). As a result, several studies have been produced that provide answers to this question. Generally, they argue and demonstrate that the economic structure of legislators' electoral districts affects their stances on trade (Bailey, Goldstein and Weingast 1997; Gartzke and Wrighton 1998; Hiscox 2002; Schonhardt-Bailey 2003; Milner and Tingley 2011; Feigenbaum and Hall 2015; Owen 2017; Miler and Allee 2018; Campello and Urdinez 2021; Murillo and Pinto 2021).

So far, however, much of this literature has relied on evidence from just one country, namely the United States (with the notable exceptions of Campello and Urdinez 2021 and Murillo and Pinto 2021). This is problematic because the electoral system of the United States features single-member districts, which is the most likely setting to find a link between constituency interests and legislator attitudes or behavior. The question to what extent existing findings can be generalized to other countries and contexts hence remains open. In fact, we know little about the moderating effects of political institutions and legislators' own political orientation. Filling this gap is important to identify the scope conditions of existing arguments.

In arguing that legislators' trade policy stances indeed reflect constituents' economic interests we follow the main thrust of the literature. We go beyond existing research by investigating two important scope conditions. First, we argue that the relative importance of constituents' economic interests is higher for legislators from districts with smaller magnitude, that is, districts with a smaller number of seats available. This is so because multi-member districts allow candidates to cater to, for example, losers from trade even when the median voter is expected to benefit from trade. Second, we argue that constituents' economic interests

mainly matter for the trade policy stances of left-wing legislators, as right-wing legislators are anyhow ideologically committed to free trade.

Data on legislators from 16 Latin American countries over the period from 2005 to 2019 allow us to test our arguments. Concretely, we rely on surveys covering the positions of 3,576 legislators towards three (potential) trade agreements, namely PTAs with the United States of America, the European Union, and the Pacific Alliance consisting of Chile, Colombia, Mexico, and Peru. Across the countries included in the dataset, district magnitudes vary strongly, allowing us to test the argument concerning the moderating effect of this variable. Moreover, there is much variation in terms of political ideology across the legislators in the dataset, making it possible to analyze the moderating effect of ideology.

To measure constituents' economic interests, we rely on an innovative approach that combines trade and household survey data. This operationalization produces interval-level measures of trade competitiveness at the level of electoral districts. As we implement this approach for 16 countries and over time, we create unprecedented cross-country data on trade competitiveness at the subnational level. This is a substantial contribution to the existing literature, which has found it difficult to operationalize this concept. Illustratively, Baldwin and Magee (2000) rely on a binary measure of industry competitiveness and Murillo and Pinto (2021) distinguish between exporting and importing districts based on qualitative assessments.

The results strongly support our arguments. Constituency economic interest, operationalised through subnational trade competitiveness, indeed positively correlates with legislators' support for trade agreements, but this effect is smaller in districts with larger magnitude and for right-wing legislators. Several tests suggest that these findings are not the result of endogeneity, namely legislators' attitudes affecting the trade competitiveness of districts. The results are also robust to changes in the operationalization of the key predictor and the addition of further control variables.

Our findings cast doubt on some alternative explanations for legislators' trade attitudes.

For one, we should not find a positive relationship between subnational trade competitiveness and legislators' support for trade agreements if legislators mainly take into account the interests of a few, well-organized economic actors. For example, a small number of firms that face concentrated losses from trade agreements could cause a legislator to adopt a trade policy stance that runs counter to the average economic interest of the electoral district. Alternatively, we would not find support for our hypotheses if legislators' stances towards trade policy reflected broader, non-economic considerations, such as cosmopolitan ideals among their citizens or themselves. While support for our hypotheses does not allow us to fully discard these alternative explanations, we can conclude that they are not the only (and also not the main) factors influencing legislators' trade attitudes.

Going beyond these contributions to research on legislators and trade policy, the paper also speaks to several broader debates. For one, the paper contributes to research on public opinion towards trade (O'Rourke and Sinnott 2001; Scheve and Slaughter 2001; Baker 2003; Hainmueller and Hiscox 2006; Mansfield and Mutz 2009; Rho and Tomz 2017). Concretely, we find some similarities but also some differences with respect to the determinants of mass and legislator attitudes towards trade. For both legislators and ordinary citizens, right-wing ideology positively correlates with trade support. However, the effect of gender is different for legislators than the public at large. This suggests that the effect of this factor is conditional on characteristics specific to legislators, such as a high level of political sophistication.

The paper also relates to a large debate in the study of legislative behavior: how do legislators trade off ideology, partisanship, and their constituents' interest? Already Jackson and Kingdon (1992) emphasized the importance of disentangling these different factors. While we have seen an increase in research on this matter (see e.g. Gilens and Page 2014), there has been little focus on how political institutions and political ideology may moderate the effect of constituency interests. In addition, whereas most studies in this field of research focus on congruence between policy outcomes and public opinion, we concentrate on congruence between legislator attitudes and a policy's expected effects on constituents' economic

interests.

5.2 Argument

Do legislators' trade policy stances reflect the economic interests of their constituents? In answering this question, we operationalize legislators' trade policy stances via legislator attitudes towards trade agreements. This sets our study apart from most existing research, which tends to focus on parliamentary votes (the exceptions are Campello and Urdinez 2021; Murillo and Pinto 2021). Analysing attitudes has the advantage that our results are not distorted by party discipline that can have a large impact on votes cast in parliament. At the same time, it is possible that constituency interests matter for legislators' parliamentary votes but not for their attitudes. This is the case if legislators vote contrary to their convictions, for example because of strategic considerations. While legislators clearly sometimes act against their convictions, we generally expect attitudes to be consistent with behavior, because humans are driven to avoid cognitive dissonance (Festinger 1957; Harmon-Jones 2019).

In terms of constituents' economic interests with respect to trade agreements, we assume that they reflect what we call subnational trade competitiveness, namely the ability of firms from a district to sell goods and services on the world market (or to resist efforts by foreign companies to enter the domestic market). Subnational trade competitiveness, in turn, is a function of a country's comparative advantage and the economic structure of the subnational region. All countries have a comparative advantage in the production of some goods or the provision of some services. Labor-abundant countries, for example, tend to have a comparative advantage in the production of labor-intensive goods; and capital-abundant countries in the production of capital-intensive goods (Leamer 1984). Within countries, the economic structure of regions can be more or less aligned with the country's comparative advantage, leading to differences in trade competitiveness across subnational entities. A region's trade

competitiveness is high (low) if it mainly produces goods and services for which a country has a (lacks) comparative advantage.

An electoral district's trade competitiveness, in turn, matters for the economic interests of its firms and citizens. In regions that lack trade competitiveness, at least in the politically relevant short- to mid-term, trade liberalization tends to produce an increase in imports that can lead to the displacement of jobs, and hence to lower wages. Liberalization then creates losses for a significant subset of firms and workers (Autor, Dorn and Hanson 2013). For example, a region with a large share of agricultural workers that lacks competitiveness in that sector will be upset by a reduction of trade barriers that leads to an increase in agricultural imports. In the longer run, other economic effects start to dominate (e.g. lower import prices can foster consumption, leading to higher economic growth rates, and job creation), but these effects are often heavily discounted because the causal link between these outcomes and trade policy choices becomes more tenuous the further the outcomes are in the future.

In highly competitive regions, by contrast, trade liberalization should produce more winners and fewer losers. In fact, these regions can expect a cut in trade barriers to produce an increase in their exports to partner countries. Greater demand for their goods and services, in turn, creates employment and increases wages (assuming that at least in the short-run geographic mobility within a country is limited). Districts with high trade competitiveness should also see more lobbying by firms in support of trade agreements, as competitive firms expect trade agreements to facilitate their sales abroad, which increases their profits (Plouffe 2017; Kim and Osgood 2019). Research has also shown that competitive firms benefit from trade agreements because they allow them to import intermediate goods and services that they use in their production processes at lower prices (Bernard, Jensen and Schott 2009). Constituency interests hence should tilt more towards protectionism in districts with lower trade competitiveness than in districts with higher trade competitiveness.

These constituency interests can influence legislator attitudes via two distinct channels. For one, constituents can form interest groups that lobby legislators for specific policies

(Drope and Hansen 2004; Hall and Deardorff 2006; Wright 1996). Such lobbying can either actually persuade legislators or affect legislators' public stance towards trade agreements. If the former, interest group demands are directly reflected in legislators' trade attitudes. If the latter, legislators' public stance should affect their attitudes because, as argued above, whenever attitudes are inconsistent with behavior, humans tend to either adjust their attitudes or their behavior (Festinger 1957; Harmon-Jones 2019). Since in the face of lobbying it is difficult for legislators to change their behavior, we expect them to adjust their attitudes.

Because interest groups can also influence elections (e.g. via campaign contributions or political information), they can furthermore select legislators that hold trade attitudes that predispose them to pursue policies in line with constituents' economic interests (Schlozman and Tierney 1986: 200-220). As put by Fordham and McKeown (2003: 525), interest groups can be expected "to seek out candidates committed to a general perspective likely to be congenial to their interests." In short, lobbying can bring legislators' trade attitudes in line with constituent economic interests.

Alternatively, an electoral mechanism may make legislators react to constituent interests. In democracies, voters can select legislators that hold attitudes in line with their economic interests. Voters may also voice their interests outside of elections, for example by contacting their legislators or by participating in manifestations. Because most legislators either strive for re-election or at least need public support to pursue policies that are important to them, they have an incentive to listen to these constituent demands (which is evidenced, for example, in the findings by Gilens and Page 2014). Again, this can either persuade them or affect their attitudes via the cognitive dissonance mechanism outlined before. Importantly, this mechanism can be at play even if there is no evidence of voters ever mobilizing with respect to trade policy, as legislators can preempt mobilization by pursuing trade policies that reflect voter interests (Bailey 2001).

Independent of which of these two channels is at work, the expectation is that constituents' economic interests as captured by an electoral district's trade competitiveness should be

reflected in legislator attitudes towards trade. We hence derive the following hypothesis:

H1: The higher the trade competitiveness of a legislator's electoral district, the greater is his or her support for a trade agreement.

In addition to this main effect, we argue that the relationship between subnational trade competitiveness and legislators' trade policy stances is conditional on political institutions and legislators' political orientations. For one, the relationship between subnational trade competitiveness and legislators' attitudes towards trade agreements should depend on district magnitude. District magnitude refers to the number of seats available in a given electoral district. In a single-member district, in which only one legislator is elected, candidates' strategies should be fairly homogeneous. All of them have an incentive to focus on the median economic interest of the electoral district, independent of whether the link between constituency interests and legislators' stances works via interest groups or elections. If the interest group channel is at work, it makes sense for legislators to cater to those groups that reflect the median economic interest, as – on average – they are likely to be either the most numerous or the most prominent. For example, since Antofagasta (Chile) has a large mining industry, Compromiso Minero, the association representing Chile's mining industry, also plays a large role in that region. With respect to the electoral channel, in a single member district legislators have an incentive to reflect the interest of the median voter.

The more candidates are elected in an electoral district, the more diluted the relationship between median economic interest and legislators' trade policy stances should become (Portmann, Stadelmann and Eichenberger 2012). In such multi-member districts, some candidates have an incentive to cater to the interests of a minority of economic interests or voters. In essence, individual legislators may decide to be the candidate of either the winners or the losers of trade liberalization. As a result, the effect of trade competitiveness on legislators' trade attitudes should be stronger in electoral districts of small magnitude. Our second hypothesis hence reads:

H2: The effect stipulated in H1 decreases as district magnitude increases.

We also expect that legislators' ideology moderates the relationship between constituency economic interests and legislators' trade attitudes. Right-wing legislators can be expected to show more support for trade agreements, as trade liberalization is often seen to disproportionately benefit wealthier parts of society (Meschi and Vivarelli 2009). In fact, right-wing political parties have been found to be less protectionist than left-wing parties (Milner and Judkins 2004). Data from party manifestos, moreover, show that (at least in Latin America) right-wing parties are more strongly committed to free trade than left-wing parties to protectionism (Burst et al. 2020). This ideological commitment to free trade should make it difficult for right-wing legislators to oppose trade agreements even if their district is little competitive; whereas in highly competitive districts, ceiling effects mean that those already ideological presupposed towards welcoming a trade agreement cannot become even more supportive of it. By contrast, subnational trade competitiveness should be a major determinant of the trade policy stances of left-wing legislators, as ideologically they are less committed to supporting or opposing a trade agreement. In form of a hypothesis, we expect:

H3: The effect postulated in H1 is larger for left-wing legislators.

5.3 Research design

5.3.1 Outcome: Attitudes towards trade agreements

We rely on the Latin American Elites Database to test our hypotheses (Alcántara 2019). For each legislative period since 1994, this database includes data from a survey based on personal interviews with a representative sample of legislators in the lower chambers of a series of Latin American countries. Questions cover a wide range of topics, such as democratic representation, demographics of legislators, and policy positions on various issues, including attitudes towards trade agreements (Barragán 2015; Bohigues and Rivas 2019).[1] We use all

[1]More information on the database (in Spanish) is available at https://oir.org.es/pela/. Last accessed 23 August 2019. We conducted several quality checks which all confirm the high quality and representativeness of the data.

available waves of the survey that include at least one question on trade agreements. This covers a total of 3,576 interviews with legislators in 16 countries and 48 legislative periods starting between 2005 and 2019, for whom data for both trade attitudes and subnational trade competitiveness (see below) is available (for more information, see Table A17).[2]

Latin American countries are interesting cases for a variety of reasons. For one, they are very active in negotiating trade agreements and have signed a considerable number of both inter- and intraregional trade agreements (Dür, Baccini and Elsig 2014). This means that legislators in these countries have experience with trade agreements and thus can meaningfully respond to questions about their views towards them. Additionally, all countries that we include in our analysis are established democracies (see e.g Marshall, Gurr and Jaggers 2019). To some extent, our argument should also apply to non-democratic countries, but the mechanism is clearer in democracies.

Furthermore, all of these countries have an electoral system based on proportional representation with party lists at the regional level (Reynolds, Reilly and Ellis 2005).[3] These systems have three characteristics that are advantageous for our empirical design. First, because legislators generally are elected in a clearly defined electoral district, we can estimate their constituents' economic situation (and thus approximate the distributional consequences of trade liberalization). Second, list proportional representation systems are the most common electoral systems in the world (35% of electoral systems according to Reynolds, Reilly and Ellis 2005). This facilitates generalizing the findings beyond the cases studied. Finally, and most importantly for our purposes, district magnitude varies within and across countries, allowing us to test the moderating effect of district magnitude. Below, we account for the

[2]These countries are Argentina, Bolivia, Colombia, Chile, Costa Rica, the Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, and Uruguay. We lose 709 legislators because there is no information of acceptable quality available to calculate trade competitiveness (see the subsequent section – we lose one wave each in the Dominican Republic, El Salvador and Paraguay, three waves from Honduras, and all legislators from the only wave in Venezuela). The survey in Brazil only includes a yes/no question on support for trade agreements, which does not fit the rest of our analysis. Therefore we exclude Brazil from our analysis.

[3]Note that Bolivia and Mexico are considered mixed systems (Reynolds, Reilly and Ellis 2005). However, they have strong and substantial proportional representation systems as part of the mixed system.

minor differences in electoral systems across countries in our sample through country-year fixed effects.

To capture our outcome variable, we rely on the following question: *'On a scale from 1 to 10 where "1" means very negative and "10" means very positive, how do you evaluate a free trade agreement with [partner]'.*[4] Partners include the United States (for all 48 legislative periods and 3,473 legislators), the EU (for 27 legislative periods and 1,753 legislators), and the Pacific Alliance (for 20 legislative periods and 1,328 legislators).[5] That this question is formulated in a generic manner has the advantage that even legislators that lack specialist knowledge in the field of trade policy can respond to it. We pool the data across agreements and thus have a total of 6,554 complete observations of legislators responding to one of the agreements.[6] Agreement fixed effects allow us to account for the differences across agreements.

A trade agreement with the United States has been on the agenda of most Latin American countries at least since the negotiation of the North American Free Trade Agreement (NAFTA) in the early 1990s. In the meantime, several of these countries (among them Mexico, Chile, and Colombia) have concluded preferential trade agreements with the United States (Dür, Baccini and Elsig 2014). An agreement with the EU has also been on the agenda of many countries. Mexico and Chile were the first to sign an actual preferential trade agreement with the EU, and the Central American and Andean countries followed suit. The Pacific Alliance of Chile, Colombia, Mexico, and Peru, finally, was created in 2012 (Nolte 2016). Below, we utilize potential differences in attitudes towards existing and not (yet) existing agreements to address endogeneity concerns.

[4]The original spanish version reads: 'En una escala de 1 a 10 donde "1" significa muy negativo y "10" muy positivo ¿cómo valora Ud. el Tratado de Libre comercio con [Estados Unidos para América Latina/la Unión Europea/la Alianza del Pacífico]'.

[5]In some waves of the survey, the questionnaire included a question regarding the Bolivarian Alliance for the Peoples of Our America (ALBA), which was initiated by Venezuela and Cuba to provide a socialist alternative to other trading blocs in Latin America. However, given that ALBA has not led to (and did not envision) any trade liberalization, it should be regarded more as a geopolitical project than a free trade agreement and thus we exclude it from our research.

[6]Descriptive statistics for all variables are shown in Table A19 in the Appendix.

In short, our data show variation across countries and (potential) trading partners, and over time. This sets our study apart from the existing literature that mainly consists of single case studies, which are limited in terms of both geographic and temporal scope. Thus, moving beyond specific cases and years minimizes the chance of idiosyncratic results and allows us to test the moderating effect of political institutions.

5.3.2 Predictors: Subnational trade competitiveness, district magnitude and legislator ideology

By definition, each country has a comparative advantage in the production of some goods or the provision of some services. A country's economic structure, however, is unlikely to be fully homogenous across subnational regions. Some regions produce the goods and services for which a country has a comparative advantage; whereas other regions produce other goods and services. As a result, the former exhibit greater trade competitiveness than the latter.

To measure subnational trade competitiveness, following the approach outlined in detail in Huber, Stiller and Dür (2021) , we first calculate a country's comparative advantage at the industry group level. For this, we rely on two measures: a) revealed comparative advantage (RCA) and b) exports-over-imports (EX/IM) (for more detail, see section A4.4 in the Appendix). The RCA was introduced by Balassa (1965). The underlying idea is that a country has a comparative advantage with respect to a product if it exports relatively more of this product than the rest of the world. The measure is calculated by dividing the share of a product's exports in total exports of a country by the global share of a product's exports in total global exports. For our purpose, we use an adjusted RCA measure that assesses a country's comparative advantage in the markets of the partner countries in a PTA. We do so because for the decision on whether to enter a trade agreement, constituents should be concerned about their competitiveness in the future trade agreement and not in the world market. If a country exports the same share of a given product to the partner country as the world exports to the partner country, the RCA equals 1. If the RCA value is below 1, the

country has no comparative advantage in this product. Producers of that product in that country hence can be assumed to face import competition. By contrast, when the value is above 1, domestic producers are mainly export-oriented.

The second measure of comparative advantage assesses to which extent industries are net-importing or net-exporting (see e.g. Conconi, Facchini and Zanardi 2012). We compute this second measure (EX/IM) by dividing a country's exports of a certain product to the partner country by the respective imports from the partner country. A value below 1 implies that the country is net-importing and thus has no comparative advantage in a specific product, whereas a value above 1 means that the country is net-exporting in that product.

We log transform both RCA and EX/IM for two reasons: First, the value 0 becomes the tipping point between having and not having a comparative advantage. Second, doing so converts measures that represent ratios, where the values 0.5 and 2 have the same substantial meaning but a different distance to the value of 1, into linear measures, where the values -1 and +1 have the same distance to the value of 0.

The underlying trade data for goods stems from the UN's Comtrade database.[7] The data are at SITC rev.3 group (three digits) level. In total, we get data for 259 categories of goods. For services, we rely on the OECD and WTO's Balanced Trade in Services database (BaTIS).[8] This database contains data for 11 service categories, such as "Communication Services". Unfortunately, the BaTIS data ends in 2012 and thus we need to carry forward the 2012 data for the years 2013-2017. We convert this trade data to the International Standard Industrial Classification (ISIC) scheme, as this is the level of aggregation at which we can join the trade data with the data from household surveys. For example, ISIC rev.3 contains 292 classes, 159 groups, and 60 divisions. We use the most fine-grained data available throughout.

As both operationalizations of comparative advantage are at the country-industry group level, and we need to capture the trade competitiveness of districts, we combine them with

[7] https://comtrade.un.org/. Last accessed 04 October 2019.
[8] https://www.oecd.org/sdd/its/balanced-trade-in-services.htm. Last accessed 02 May 2020.

data on economic activities at the district level (for similar approaches, see Autor, Dorn and Hanson 2013; Colantone and Stanig 2018*b*).[9] The best available data on economic activity at the district level comes from household surveys (such as census, living condition, or labor surveys). These surveys use the International Standard Industrial Classification (ISIC) scheme. We use these data to calculate employment shares by industry group at the district level. The final step then is to sum up the products of all comparative advantage values with the respective employment shares. This way we arrive at two measures of district-level trade competitiveness, which is a measure of a district's alignment with the country's comparative advantage, one based on the RCA and one on EX/IM. We further standardize these measure within countries so that the district which is least aligned with the comparative advantage of the country receives the value 0, whereas the best aligned district receives the value 1.

To reduce endogeneity concerns, we use household surveys and trade data from two years prior to the election. At times, we have to violate this rule since some countries do not field yearly household surveys (or do not include all necessary variables). For example, we use the household survey data from the year 2004, rather than 2003 for the Argentine 2005 election, because no such survey was available for 2003. As mentioned above, we exclude legislator surveys for which no household survey within the period between four years prior to the election and the election itself was available. Table A17 in the Appendix summarizes these design decisions and deviations in detail.

Moving on to district magnitude (hypothesis 2), we hand-coded the number of seats elected within each district. To ease interpretation of the findings, we converted this variable into a dummy that captures whether district magnitude is large (more than 5 seats) or small

[9]This approach works because in most Latin American electoral systems, legislators are elected in specific electoral districts, which usually correspond directly to first-level administrative districts (comparable to NUTS-1 level). Chile uses smaller electoral districts that we aggregate to federal districts, in which they are perfectly nested. To test Hypothesis 2, however, we code district magnitude at the electoral district level (which is 2 for the available elections in Chile). Ecuador (15 of 137 legislators), Guatemala (31 of 158), and Nicaragua (20 of 92) elect some legislators in national constituencies, whereas Colombia (5 of 166) and Ecuador (6 of 137) have minority-reserved seats or seats representing emigrants. We drop these observations from our analyses since we cannot calculate our measures of trade competitiveness for them.

(5 or fewer seats). Finally, hypothesis 3 posits a conditional effect of subnational trade competitiveness on legislators' trade attitudes depending on legislators' political ideology. Our measure of ideology is self-reported by the legislators. It ranges from 0 (left) to 9 (right). The variable shows considerable variation across countries and political parties. Even within the same political parties, however, we often find legislators towards both the left and the right end of the political spectrum. The centre-left Democratic Revolutionary Party of Panama, for example, has legislators that identify as completely left (value of 0) and others that see themselves as completely right (value of 9).

5.3.3 Model specifications

Our dataset includes at least one and up to three continuous support ratings of trade agreements per legislator and survey. Given the continuous nature of our dependent variable, we use ordinary least square regression to regress trade agreement support on our set of predictors. In terms of control variables, we control for legislators' gender, given the strong evidence of a gender effect in the literature on public opinion towards trade (Mansfield, Mutz and Silver 2015). Moreover, we include country-year and agreement fixed effects. The country-year fixed effects capture factors such as the economic circumstances (e.g. whether a country experiences a growth period or a recession), institutional settings, and other political dynamics specific to a country at a specific time. Additionally, they allay concerns about potential violations of measurement invariance across countries and capture differences introduced by distinct ISIC coding schemes or conversion tables. The agreement fixed effects control for differences across the partners in trade agreements. Since legislators are nested in districts and our competitiveness measure is a district-year measure, we cluster standard errors at the district-year level.

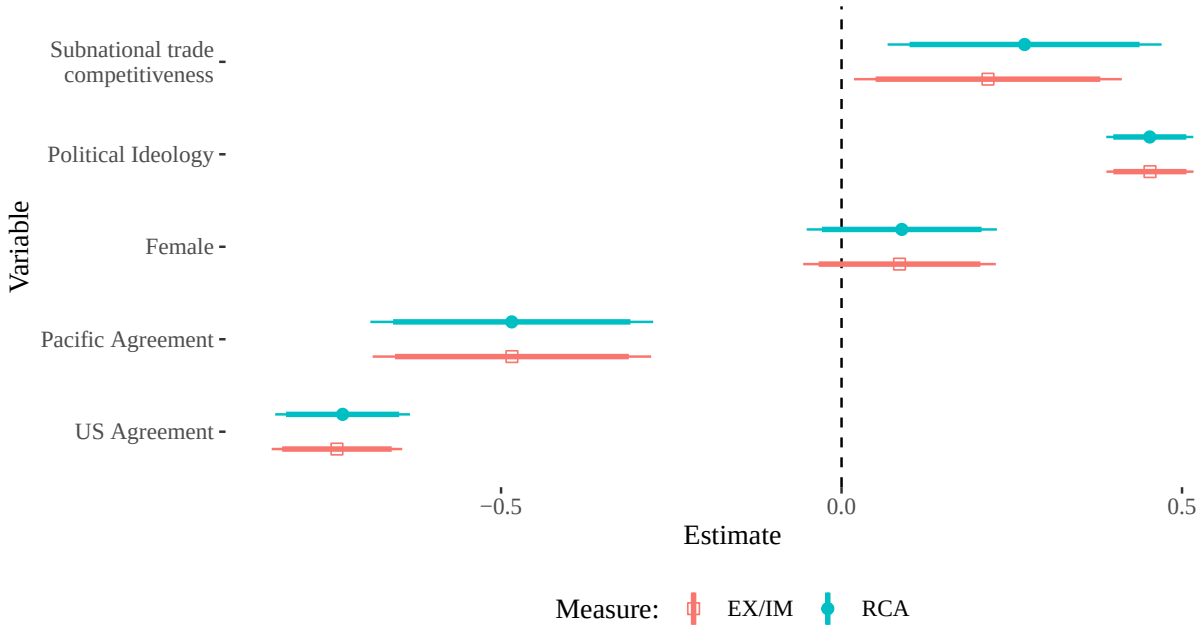
We report the results from a model with just main effects to test hypothesis 1. To test hypotheses 2 and 3, we interact the subnational trade competitiveness measure with district magnitude (H2) and political ideology (H3).

5.4 Results

5.4.1 Main effects

Do legislators consider their districts' trade competitiveness when forming policy preferences with regards to trade? Our baseline models (see Figure 5.1 and Table A20 in the Appendix for regression output) suggest that this is the case. The first pair of ranges for districts' trade competitiveness indicate a consistent and statistically significant positive correlation between district competitiveness and trade agreement support for both the RCA and EX/IM measure. In other words, legislators from more competitive districts are more supportive of trade agreements. This finding is in line with hypothesis 1.

Figure 5.1: Coefficient plot of the main analyses



Note: Points are unstandardized estimates from a linear regression. Ranges represent 90 and 95 percent confidence intervals using standard errors clustered at the district-year level. Table A20 provides the full regression output for Figure 5.1. Country fixed effects are omitted from the figure.

The estimated coefficients suggest that legislators in the districts with the highest trade

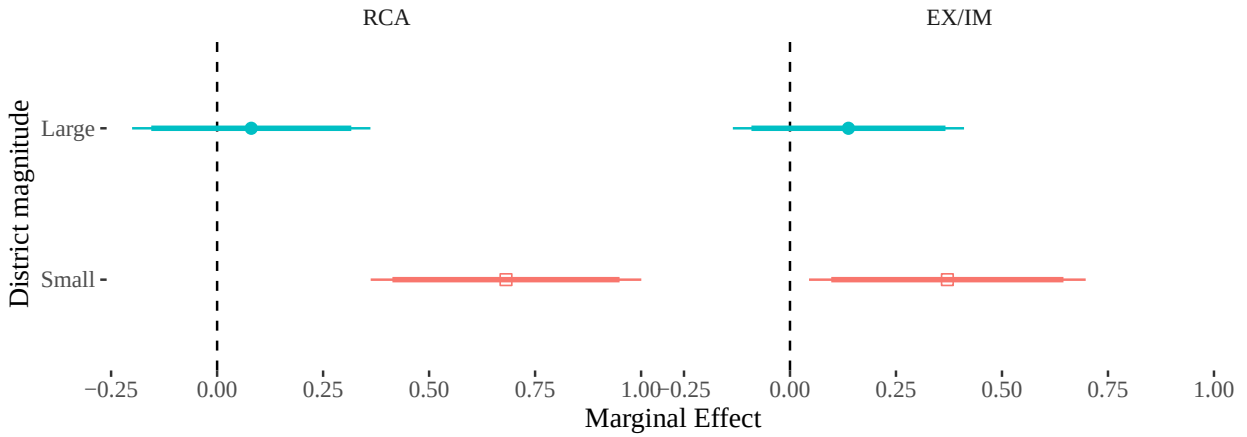
competitiveness rated the trade agreements by about 0.3 points higher on a scale from 1 to 10 compared to legislators in the least competitive districts. This may not seem like a large effect. Our results, however, are a lower bound estimate. For one, ideology likely captures part of the effect of trade competitiveness. In more competitive districts, it can be expected that candidates are elected whose ideology ensures that they will support trade agreements. Moreover, in multi-member districts, not all legislators need to align their position with the districts' average trade competitiveness. Even in a highly trade competitive district, representing the few losers from trade may be a vote-winning strategy (see more on this below). Finally, our measure of districts' trade competitiveness is likely to contain some noise, for example for districts with a large share of subsistence agriculture or public service employees that do not face international competition in the same way as other employees. Considering these factors, our results indicate that competitiveness is an important factor shaping legislators' trade agreement attitudes.

Moving to the control variables, the second set of ranges shows the results for political ideology (for both measures of competitiveness). Consistently, right-wing ideology is associated with more support for trade agreements. Substantively, the results mean that within a country and for a specific year, legislators, for each step on the 10-point left-right scale, increase support for trade agreements by approximately 0.45 points (on a scale from 1 to 10). Female legislators do not differ from male legislators. While there is evidence of a gender gap in terms of trade attitudes among the public, apparently, this does not hold for legislators. The agreement-fixed effects suggest that the average support is highest for the agreement vis-á-vis the European Union (reference category) and lowest for the agreement with the United States. Compared to the European Union, legislators support an agreement with the United States substantially less (by approximately 0.75 points). This likely reflects geopolitical dynamics associated with the United States in Latin America.

5.4.2 Scope conditions: district magnitude and political ideology

Going beyond these direct effects, we have argued that the effect of subnational trade competitiveness should be smaller in districts with larger district magnitude, that is, with more seats per district (Hypothesis 2). This is indeed what we find. In Figure 5.2 we plot the marginal effects of trade competitiveness in small districts (magnitude 5 or smaller; ranges with red dots) and large districts (more than 5 seats; turquoise rectangles). The results for trade competitiveness follow the expectation just set out. While competitiveness plays a subordinate role in districts with larger magnitude, it is a strong predictor of trade attitudes in districts with only few representatives. The difference between large and small districts is statistically significant for the RCA measure, but nor for the EX/IM measure. Still, the findings suggest that legislators follow different electoral strategies depending on district magnitude, with legislators in smaller districts focusing more on their districts' average economic interest. This is in line with Hypothesis 2.

Figure 5.2: The moderating effect of district magnitude

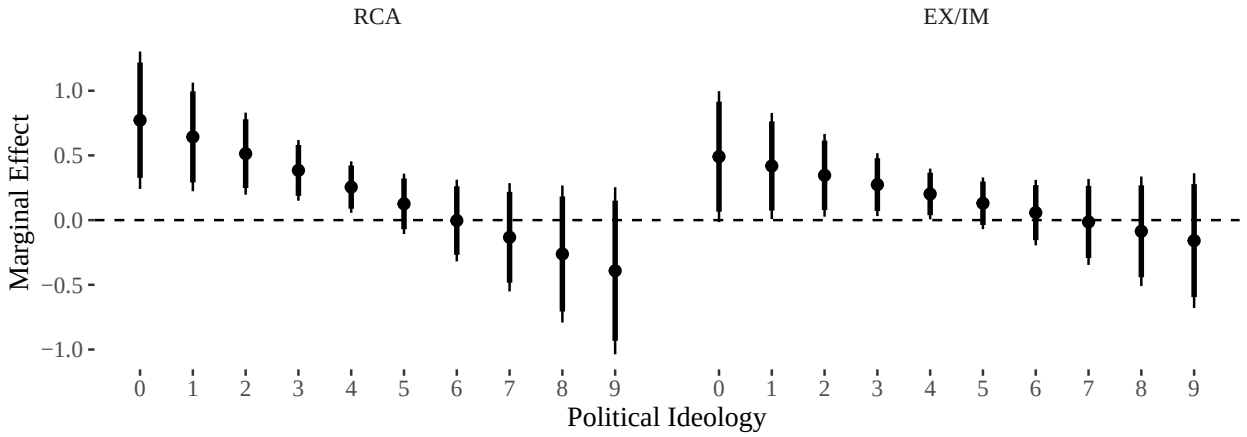


Note: Ranges represent 90 and 95 percent confidence intervals using standard errors clustered at the district-year level. Table A21 in the Appendix provides the full regression output.

Hypothesis 3 suggests that the effect of subnational trade competitiveness is also conditional on legislators' ideological leaning. Figure 5.3 provides the empirical evidence for this argument. Specifically, we show the marginal effect of subnational competitiveness (on the y-

axis) by different ideological leanings (on the x-axis). Higher values on the political ideology variable denote more right-wing legislators. The evidence is consistent with our expectation. While the effect is substantially stronger for our RCA measure, the EX/IM measure of subnational trade competitiveness also shows a negative slope. While a districts' subnational trade competitiveness does not help explain trade attitudes among right-wing legislators, left-wing legislators are more supportive of trade agreements in competitive districts. In other words, subnational trade competitiveness positively correlates with trade support especially among left-wing legislators, as expected in Hypothesis 3.

Figure 5.3: The moderating effect of political ideology



Note: Ranges represent 90 and 95 percent confidence intervals using standard errors clustered at the district-year level. Table A21 in the Appendix provides the full regression output.

5.4.3 Addressing potential endogeneity

As is the case with all observational studies, the results of this one may be affected by endogeneity. Concretely, via their support for trade agreements, legislators may make their districts more economically competitive. This could be because their support for trade agreements makes them also support policies that make a district more competitive; or because they actually manage to have trade agreements implemented that have a positive effect on the district's competitiveness. In either case, trade competitiveness would be a consequence

rather than a cause of legislators' trade attitudes. We use several distinct strategies to address this concern in this section.

First, if legislators are part of the parliament for the first time, it is unlikely for their trade attitudes to have affected district trade competitiveness, particularly as we capture competitiveness two years before the start of the legislative period. Our data offer the possibility to test this implication empirically. For this, we reran the main analyses only including first timers (who constitute 67.7% of legislators in our data) in the models. The results hold for the RCA-based measure of trade competitiveness, but the EX/IM measure of trade competitiveness is no longer statistically significant. Even this coefficient, however, is only slightly smaller than in the main model, meaning that this evidence alleviates concerns about endogeneity (see Table A23 in the Appendix).

Second, we regress districts' levels of competitiveness two years after a survey wave[10] on the districts' competitiveness before the survey wave as well as trade attitudes. We lose some observations for survey waves that were conducted recently (that is 2016 or later), as trade data and household surveys are not yet available. A positive coefficient for trade attitudes could mean that legislators' support for trade agreements causes an increase in their districts' competitiveness, posing an endogeneity problem. Our findings, however, indicate that trade competitiveness is rather sticky. In our models, trade attitudes have no significant effect on the future trade competitiveness of the legislators' districts (see Table A24 in the Appendix).

Finally, some agreements that legislators were asked about are hypothetical (that is, they have not materialized in any form) while others have actually been signed and implemented (for example a trade agreement between Mexico and the US – NAFTA – was signed before our observational period). If legislators would give different answers for hypothetical agreements compared to existing ones, this could be an indication of endogeneity, namely that support for a trade agreement could affect competitiveness via the provisions included in a trade agreement. To assess this possibility, we use information from the DESTA dataset on

[10]Due to data availability, at times we need to use data between one and five years after a survey wave. The mean lag is 2.1 years.

whether agreements were signed prior to the surveys being carried out (Dür, Baccini and Elsig 2014). However, the interaction term in Table A22 in the Appendix suggests that there is no systematic difference between the two groups of agreements. In sum, these tests suggest that endogeneity is not a major problem for this study.

5.4.4 Further robustness checks

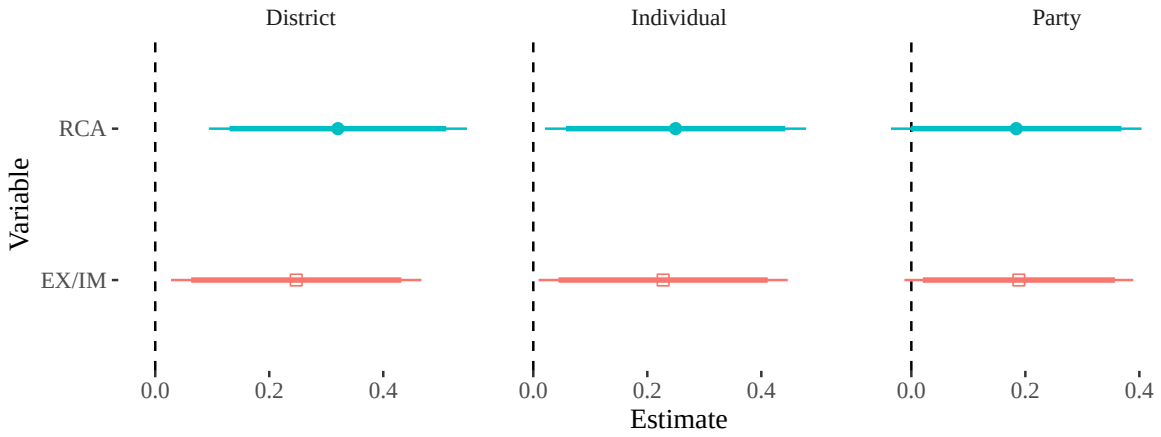
In the following, we present a series of tests that examine the robustness of our findings. First, we discuss whether our results are sensitive to the operationalization of subnational trade competitiveness. Figure 5.1 already presented results for two different measures. Both of them suggest a relationship of similar magnitude and both reach conventional levels of statistical significance. As these measures are based on quite distinct approaches (although they try to capture the same concept), chances are low that our results are driven by some idiosyncratic aspect of our measurement. Nevertheless, we implemented a further check with variables that do not capture competitiveness vis-á-vis the respective agreement's partner(s) but vis-á-vis the world. The measures are calculated as above, but instead of using trade flows with the partner country or countries, we rely on trade flows with the world. The findings, which we present in Table A25 in the Appendix, provide further evidence of the robustness of our findings. The coefficients are similar to those reported in Figure 5.1 in both size and levels of statistical significance.[11]

Second, we add three sets of additional control variables. The first of these models includes additional controls at the district level, namely district Gross National Income per capita and logged population density. The former variable captures variation in levels of development across legislative districts, which plausibly could affect legislators' trade attitudes. Urban and rural districts systematically differ in their economic activity, which logged population density captures. The second model adds two variables at the level of individ-

[11] The measures are highly correlated ($r(6,552) = 0.754, p = 0.000$), but they differ sufficiently for them to capture slightly different aspects of subnational trade competitiveness. Section A4.4 in the Appendix provides more detail.

ual legislators, specifically legislators' education and income. Given the strong prevalence of arguments regarding education and public opinion towards trade (Hainmueller and Hiscox 2006), we might expect that also legislators with higher education view trade agreements more favorably. The last model includes party fixed effects. These fixed effects capture party specific dynamics, in terms of party discipline and the party's role in the party system, among others, which plausibly affect which position legislators take.

Figure 5.4: Additional controls



Note: Points are unstandardized estimates from a linear regression. Ranges represent 90 and 95 per cent confidence intervals using standard errors clustered at the district-year level. Tables A26, A27, and A28 in the Appendix provide the full regression outputs for Figure 5.4. Control variables as well as country and agreement fixed effects are omitted from the figure.

In all but one of these models (see Figure 5.4), the coefficients for subnational trade competitiveness remain positive and statistically significant. Only in the model in which we control for party membership, the RCA-based measure of competitiveness narrowly misses statistical significance ($p = 0.13$). The additional controls also largely work as expected. Legislators representing more developed districts support trade more. Similarly, legislators with higher education and income support trade substantially more. The party fixed effects indicate large variation in terms of support for trade agreements across political parties.

Third, we split the analyses by trade agreement since it would undermine our argument if only one agreement drove the overall effect. By-and-large, we find similar results across

the three agreements (see Tables A29 to A31 in the Appendix). In two of the six models, however, the EX/IM measure of trade competitiveness fails to reach statistical significance. The RCA measure, by contrast, is highly robust.

Finally, we assess the robustness of the two interactions by changing the operationalisation of the moderators. First, Figure A56 demonstrates that the interaction of subnational trade competitiveness and district size is robust to choosing different cut-off points to differentiate between small and large districts. While the interaction effect decreases as the cut-off point for small districts increases, the finding that subnational trade competitiveness has a larger positive effect on trade support in small districts is robust. Second, Figure A57 splits the interval-scaled moderator of political ideology in five groups from left to right. In line with H3 we find that left-wing and centre-left legislators react to district competitiveness, whereas centrist and right-leaning legislators do not. Taken together, these alternative specifications suggest that our findings are robust.

5.5 Conclusion

Several studies have argued that at least under some circumstances legislators' stances on trade policy should reflect constituents' economic interests. This paper not only contributes a novel empirical test of this expectation to this literature, but also investigates the scope conditions of this argument. Concretely, we have argued that the relationship between constituency interests and legislators' trade attitudes should be stronger in electoral districts with smaller district magnitude and among left-wing legislators. Relying on a survey with 3,576 legislators from 16 countries and covering 48 legislative periods since 2005, we have found support for our expectations. Several tests show that our findings are robust and not driven by endogeneity. They holds for different operationalizations of subnational trade competitiveness, and three distinct trade agreements, namely agreements with the US and the EU, and the Pacific Alliance.

Our empirical test of the link between constituency interests and legislators in the field of trade policy is innovative in several ways. For one, we add cross-national, cross-agreement, and over-time evidence to the respective literature. This is an important contribution given that existing research has mostly studied the United States. The broader empirical basis from which we can derive our findings has allowed us to test for scope conditions of the argument. Moreover, we add a novel operationalization of constituent interests via the concept of subnational trade competitiveness to this literature. For this, using an original approach, we had to link national level trade data with district level employment data from labor and household surveys.

Our research also contributes to a broad literature on legislators' behavior and attitudes beyond the field of trade. Scholars have long debated whether legislators follow their ideology or constituent preferences when taking a stance on a specific issue (Jackson and Kingdon 1992). We find that legislators consider both ideology and the economic interests of their electoral districts. What is more, our results indicate that the effect of constituents' economic interests is conditional on legislators' ideology. Because it is probable that ideology partly reflects economic interests, however, we likely underestimate the role of constituent interests in this paper. This issue, and also the question to which extent our findings apply to policy areas other than trade, can be the starting point for future research.

Moreover, future research could add data on public opinion to this analysis to better investigate the causal chain from subnational trade competitiveness to legislators' attitudes. Are voters in highly competitive districts also more pro-free trade than in other districts? Finally, data on lobbying, as has been collected in studies assessing trade policy in the European Union or the United States (see, e.g. Ehrlich 2008), would help better identify the causal mechanism between economic conditions and legislators' trade policy stances. In short, this paper is only a first step toward a broader research agenda on legislators as intermediaries between constituencies and policy outcomes.

6 | Bargaining Power in a Globalized World: The Effect of Global Value Chains in Trade Negotiations

Author: Yannick Stiller

Abstract: What determines bargaining power of states in international trade negotiations? Current accounts predominantly focus on economic strength as the determinant of bargaining power. However, this explanation neglects the reality of modern trade, which is characterized by high levels of interdependence. In this paper, I argue that interdependence between countries induced by globalization of production counteracts and undermines the effect of economic strength on bargaining power. Specifically, I hypothesize that the effect of economic strength declines when a country's companies rely on inputs for their production from their negotiation partner because they are integrated in global value chains (GVCs). The more a country's firms are dependent on a partner country, the lower is the country's ability to coerce concessions from this partner country by bringing to bear its economic strength. To test this hypothesis, I use a dataset covering concessions on liberalizing the services sector made by 54 countries in 61 preferential trade agreements (PTAs). By calculating the relative concessions of each partner, I construct a quantitative measure of bargaining power. This paper contributes to the literature by combining an explanation for determinants of bargaining power in a globalized world with an innovative method to calculate bargaining power.

6.1 Introduction

Bargaining power is a concept that most people will find highly intuitive. Politicians, too, often refer to the notion of bargaining power when talking about international negotiations in general and even more frequently when talking about trade negotiations. Some famous examples from recent years include claims by British politicians that the United Kingdom would "hold all the cards" (Henley and Roberts 2018) in the negotiations about its Exit from the European Union (EU) as well as claims by US President Donald Trump that the US would be in a "very strong bargaining position" vis-a-vis China in any trade war between the two countries (Partington and Rushe 2018). How did these politicians come to the conclusion that their country has more bargaining power than their opponent? Which factors did they take into account to calculate the bargaining power of their country?

Political scientists have developed many different theories about determinants of bargaining power in trade negotiations. The most frequent explanation is based on market power: the larger the market of a country is, the more bargaining power does this country hold in negotiations because gaining access to its market is a highly valuable export opportunity of any partner country's firms. Additionally, a country with a large economy may threaten to disrupt the existing trade with a smaller partner and thus coerce this partner into making concessions in negotiations. Beyond this market power hypothesis, various other explanations of bargaining power have been put forward in the literature. The institutional rules of the negotiation like voting power will impact the outcomes of formalized negotiation (McKibben 2013; Tallberg 2010). This applies especially to multilateral institutions such as the GATT (Gowa and Kim 2005; Kim 2010), the WTO (Davis 2006), or the EU (Meunier 2000). Constraints imposed by domestic political institutions are another possible determinant of bargaining power as they can tie the hands of the government and thus reduce its flexibility in negotiations. However, this can also be used as a strategy to limit its concessions (Meunier 2005; Allee and Peinhardt 2014). Domestic institutional constraints in trade negotiations

are often measured by counting the number of veto players (Lechner and Wüthrich 2018). Bargaining strategies such as negotiating as a group (Narlikar 2004; Konrad and Cusack 2014), coalition building, threat of disruption (Oh 2018), forum shopping (Pekkanen, Solís and Katada 2007), issue linkage (Davis 2004), or harassment (Habeeb 1988) are also factors that might determine negotiating outcomes. Indirectly, the knowledge and skills of negotiators can influence bargaining power because they are more able to use effective bargaining strategies (Odell 2010).

In this paper, I will focus on the market power hypothesis and analyze to which degree this traditional argument still holds in a globalized world. The rising amount of foreign direct investment (FDI) (Malesky 2008; Liao and McDowell 2015) and the increasing integration in global value chains (GVCs) (Mahutga 2014) have significantly increased the incentives of countries to open up to free trade and lower their trade barriers. Companies that have invested abroad or depend on foreign inputs for their production can be powerful lobbying actors that try to persuade their home governments to liberalize their trade policies. Therefore, I will argue that the globalization of production has at least partially undercut the effect of market size on bargaining power in trade negotiations. Additionally, I test one of the fundamental hypotheses of the literature on the political economy of trade: that the competitiveness of a country's firms determines the preferences of a government for protectionism or liberalization.

In order to measure bargaining power and thus be able to test these hypotheses, I will use a dataset of commitments made by countries to liberalize trade in services in preferential trade agreements (PTAs) gathered by Roy (2011) to generate an indicator of bargaining power. Since the last successful trade negotiation in the framework of the World Trade Organization (WTO) in the early 1990s, PTAs have become the primary vehicle for countries to liberalize trade. According to Version 2.1 (2021) of the DESTA dataset, there are currently over 800 PTAs in existence and over 600 of them were signed since 1990 (Dür, Baccini and Elsig 2014). PTAs usually include provisions on a wide array of issues, ranging from tariffs on goods to

non-trade issues such as environmental protections and labor rights. Most PTAs do include a chapter on trade in services. This is not surprising given that services account for about 20% of global trade in a narrow measure and about 50% of global trade if trade is measured in value added (Francois and Hoekman 2010; Miroudot and Cadestin 2017). Although it would be ideal to have a measure of the total concessions of each country in a PTA and not just its concessions in the services chapter, the relevance of services to global trade makes this approach to measure bargaining power a useful first step.

My findings clearly demonstrate that the size of the economy is a strong predictor of bargaining power. The larger the market of a country is, the less commitments it makes to liberalize its services sector. However, the results of my analysis also lend support for the hypothesis, that the globalization of production has diminished the role that market power plays in determining bargaining power in trade negotiations. The economic dependence arising from having large GVC links with the negotiating partner does partially offset the effect of having a larger market. This might give smaller countries an opportunity to persist in trade negotiations with larger partners. If the larger partner country heavily depends on intermediate products from the smaller country, the partner will find it much harder to use its market size to coerce concessions from the smaller country. The results presented in this paper also support the hypothesis that the trade competitiveness of an industry sector impacts the degree to which a country is prepared to make concessions. The more competitive firms are in the sector under negotiation, the less necessary it is for a government to bring its bargaining power to bear in this issue area.

This paper adds insights to the long-running discussion on determinants of bargaining power in trade negotiations and shows the need to adapt some longstanding theories to the realities of modern trade. Beyond providing quantitative evidence for the impact of market power in trade negotiation and the limitations of the predictive power of market power in the face of growing globalization of production, this paper makes one contribution that is relevant to a wider literature: The presented method of measuring bargaining power is a

fruitful approach to tackle one of the perpetual problems of the literature on the international political economy and opens various avenues for future research.

6.2 Argument

6.2.1 Bargaining power as a concept

The jury in political science is still out on the question whether it is possible to measure bargaining power and whether the factors that determine bargaining power can be identified. There are some scholars who argue that bargaining power is a case of "I know it when I see it": A concept that lacks clearly defined parameters? O'Neill (2018: 7) clearly is of the latter opinion and writes: "It is not clear that the concept of (bargaining) power adds to (the analysis of international negotiation). (...) If power means no more than holding certain resources, it is superfluous."

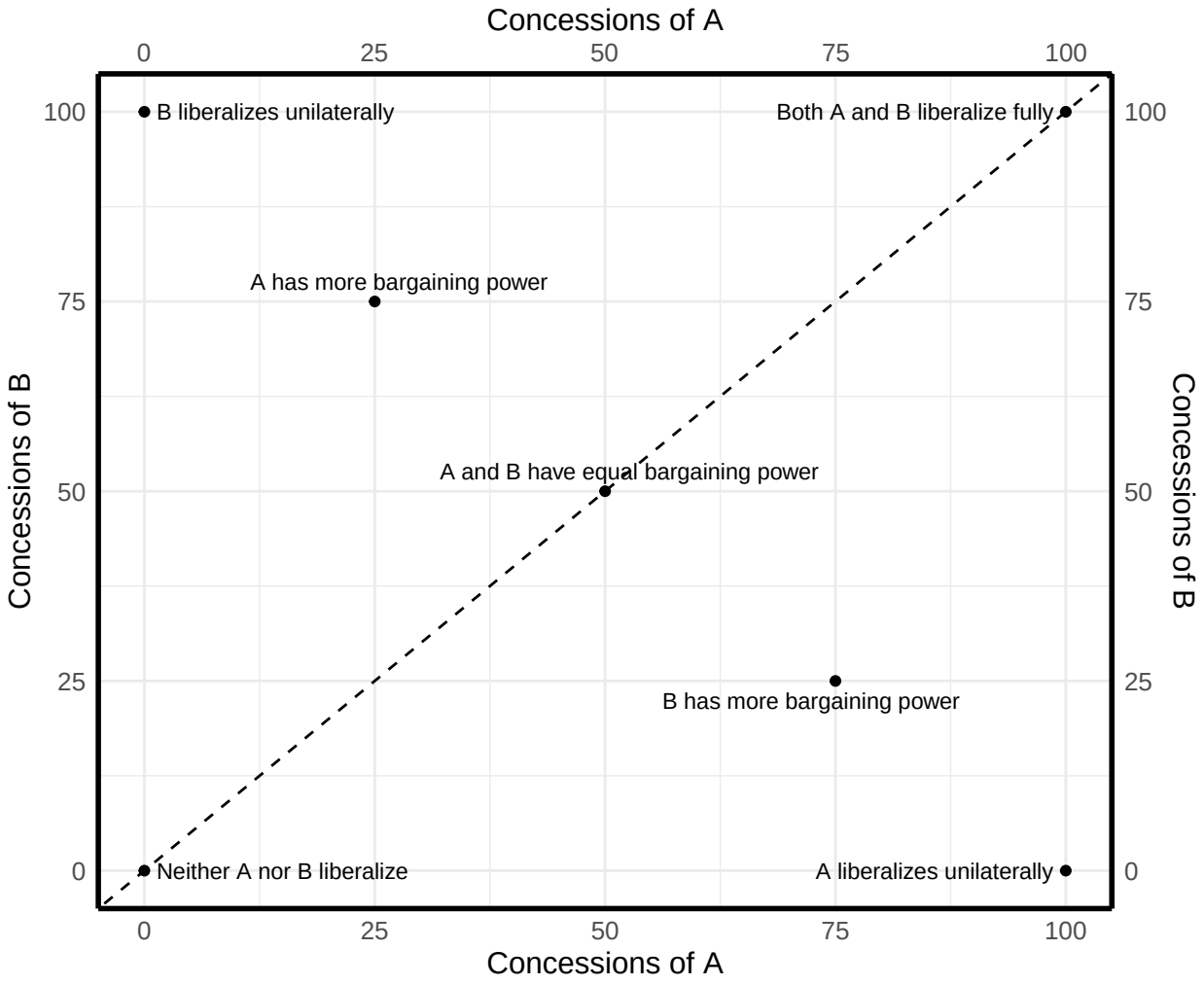
However, most political scientists agree that bargaining power is a useful concept. Many scholars have come up with definitions of bargaining power and analyzed its determining factors. One of the first and still influential definitions of power is provided by Dahl (1957: 202): "A causing (or having the ability to cause) B to do something that B otherwise would not do." This definition is straightforward and intuitive, yet it is difficult to operationalize. Frieden and Walter (2019: 7) use a more elaborate definition that I will use for my argument, too: "Bargaining power (is) the ability to draw the outcome closer to one's ideal point. Bargaining power can thus be measured as the distance between the outcome of a negotiation and the respective initial ideal points of the parties involved." In the following, I will detail how it is possible to measure bargaining power in trade negotiations by comparing the preferences of governments to the outcome of the negotiations.

6.2.2 Government preferences in trade negotiations

According to the definition of bargaining power outlined above, the "initial ideal point" of a government in the negotiations for a new trade agreement is one of the two data points necessary for calculating the bargaining power of a country. The political economy literature widely regards trade policy as a result of competing demands by export-oriented and import-competing sectors (Grossman and Helpman 2002; Goldberg and Maggi 1999; Dür 2010). The expectation is that export-oriented companies will pressure their governments to negotiate trade agreements that allow them easier access to the markets of other countries (Kim 2017). Import-competing companies will lobby their government to protect them against foreign competition through trade barriers. Firms have various ways to influence the decision making process of their government: they can form interest groups and finance the parties in government through campaign contributions (Grossman and Helpman 1994; Drope and Hansen 2004), they are able to provide technical expertise that the government lacks (Potters and van Winden 1992; Hall and Deardorff 2006), or they might offer political information that helps decision-makers to get re-elected (Hansen 1991; Wright 1996).

In trade negotiations, the demands from export-oriented firms on the one side and import-competing firms on the other side are most often at odds with each other because governments will need to make concessions to their negotiating partners in order to gain concessions from them. Consequently, every government would prefer to conclude an agreement in which the partner country fully opens its market but the country itself does not reduce its trade barriers at all. This will only be achievable if the country is very powerful and negotiates with a partner that is not powerful at all. Therefore, it appears reasonable to assume that all negotiating parties try to maximize the concessions made by their partner whilst minimizing their own concessions. Every own concession is a step away from one's ideal point whereas every concession of the partner is a step towards one's ideal point. Therefore, the difference in concessions (or their net-concessions) made by the partners in an agreement can be regarded as an expression of the difference in their bargaining power (see Figure 6.1).

Figure 6.1: Calculation of bargaining power



Note: The dashed line represents outcomes with equal bargaining power.

6.2.3 Determinants of bargaining power

Which factors explain the variation in bargaining power in trade negotiations? Most frequently, scholars equate bargaining power with relative market size (Waltz 1970; Krasner 1976; Wagner 1988; Steinberg 2002; Shaffer 2005; Barton 2008). There are two reasons to expect that the size of a country's economy matters in trade negotiations. Firstly, the size of an economy determines the value of access to this market for foreign companies. Consequently, governments should be willing to make more concessions to gain access to a large

and wealthy economy than to a small and poor economy. A country should thus be more willing to make concessions to get access to the large market of the US than to the small market of Central American countries (Shadlen 2008). McLaren (1997) argues that investors in the small country start investing in exporting industries when their country enters into trade negotiations and thus reduce their country's bargaining power by making it dependent on the larger country's market.

Secondly, countries with large economies can coerce smaller economies into making concessions by threatening impose economic sanctions (Drezner 2008). Hirschman (1945: 17) formulates that a large government can threaten to interrupt its trade with a smaller government and thus turn trade into "an effective weapon in the struggle for power". A good example for such coercion is the threat by the US to apply tariffs on steel imports from South Korea in 2018, which resulted in South Korea making additional concessions in the re-negotiations of its trade agreement with the US (Kong, Brody and Lee 2018). Given that both the market access and the coercion mechanisms have the same expected effect on bargaining power, it does not matter for my argument which of them is more important. From this follows the first hypothesis:

H1: The higher the market power of a country is compared to its partner, the smaller are the concessions the country makes.

To this point, this discussion has neglected one of the most important developments in the nature of global trade of the last decades: the increasing globalization of production in the form of global value chains (GVCs). Value chain is a term used to describe the "full range of activities that firms and workers perform to bring a product from its conception to end use and beyond" (Gereffi and Fernandez-Stark 2016: p. 4). In the past decades, value chains have been increasingly globalized with products often passing multiple borders before reaching their final destination and being sold to consumers. Nowadays, GVCs are the basis for the production of many goods and services (Amador and di Mauro 2015). The global expansion of GVCs has fundamentally altered the structure of the global economy

and increased the prominence of emerging economies as key economic and political actors (Kowalski et al. 2015; Gereffi 2019).

GVCs also have implications for the domestic decision-making process of governments regarding trade policy. Firms that engage in GVCs reliant became more reliant on stable trade links because any disruption to their GVCs would threaten their entire production. Thus, the globalization of production through GVCs has major implications for trade negotiations because these firms will lobby their governments to protect their interests - instead of advocating for more protectionism, these firms will actually want lower trade barriers so that they can further integrate their supply chain (Gawande, Krishna and Olarreaga 2012; Madeira 2016; Zeng, Sebold and Lu 2020). As firms have become increasingly reliant on imports of intermediate goods for their production from foreign countries, the harder it is for the home country of these firms to use their market power as bargaining chip in trade negotiations (Mahutga 2014; Baccini and Dür 2018; Anderer, Dür and Lechner 2020). Additionally, there will be firms who rely on exports to the partner country and might lobby their government for reciprocal liberalization (Dür 2010; Betz 2017).

H2: The more a country relies on intermediate goods from the partner country due to existing GVC links, the larger are the concessions the country makes.

In addition to this direct effect of GVCs on the amount of bargaining power, there might be an interaction between GVCs and the effect of market power on outcomes of trade negotiations. If market power stems from having a large and valuable market that smaller countries want to export to, GVCs counteract this effect because they increase the value of the exports of the smaller country. The larger country then has an interest in being exported to because its firms rely on the intermediate products from the smaller country. If market power is exercised through coercion, with the larger country threatening to disrupt trade and thus harm the smaller country, high GVC links from the larger country to the smaller country make this threat self-defeating. If the larger country were to disrupt trade, it would not only harm the smaller country but also itself because it would cut of the GVCs of its

firms. If this hypothesis holds, we should see a mediating impact of GVC links between the country and its negotiating partner on the effect of market power:

H3: The more a country relies on intermediate goods from the partner country due to existing GVC links, the lower is the effect of the relative market power on the amount of concessions this country makes.

6.3 Research design

6.3.1 Case selection

For my analysis, I use the dataset on liberalization commitments in services chapters of preferential trade agreements (PTAs) compiled by Roy (2011). Services constitute not just two thirds of all economic activity and up to 50% of world exports (Miroudot and Cadestin 2017), the liberalization of services trade has been a major source of economic growth (Francois and Hoekman 2010; Gervais and Jensen 2019). Trade in services matter profoundly in GVCs, too. GVCs start with services (for example when activities such as research and development, design, or engineering are outsourced), GVCs are maintained by services (such as transport, communication, logistics, and finance), and they often end with services (including marketing and distribution) (Low 2013).

The dataset used in this analysis contains 67 PTAs that were concluded in the period between 1994 and 2009. I had to drop six agreements from the analysis because only one of the negotiating partners had been coded, which makes it impossible to calculate the relative bargaining power.[1] The remaining 61 PTAs with full information include 50 bilateral agreements and 11 plurilateral agreements. They involve 54 different countries and range in economic size from the PTA between Panama and El Salvador (combined GDP: USD 26 bn) to the PTA between the United States of America and South Korea (combined GDP: USD

[1]These six excluded PTAs are: Chile-China, Chile-Colombia, China-Hong Kong, China-Macau, EU-Mexico, and Nicaragua-Taiwan.

15,624 bn).

Obviously, this dataset does not cover all PTAs that were concluded between 1994 and 2009. According to the DESTA database, 446 PTAs were signed in this period but only about 62% of these do include provisions that liberalize the services industry (Dür, Baccini and Elsig 2014). Thus, the sample of PTAs included in the subsequent analysis represents 26% of the universe of PTAs that were signed in the 1994 and 2009 period and include a chapter on service. The sample is representative of different development levels of negotiating countries. 52% of the negotiating partners are high-income countries according to the World Bank classification compared to 51% in the whole universe of services PTAs in this period (The World Bank 2019). See Table A32 in the Appendix for an overview of the PTAs that are included in the analysis.[2]

This case selection has one obvious drawback: the dataset only includes the liberalization commitments in the services chapters of PTAs, which generally are just one of many chapters. Thus, only the negotiating outcome in this issue area can be assessed. Bargaining wins and losses in other chapters (such as those involving areas such as tariffs on goods, sanitary and phytosanitary regulation, investment protection, and intellectual property rights) remain unobserved in this research design. However, the negotiation outcomes in different chapters of PTAs are most likely correlated. For example, Dür and Mödlhamer (2022) find that GDP differences explain the design of intellectual property rights (IPR) provisions in PTAs. Thus, we can assume that the relative gains or losses of a country in negotiations on services chapters and IPR chapters are based on the same factors.

Still, scholars of international negotiations are well aware that states conduct issue linkage in negotiations and thereby trade concessions in one issue area for concessions of the partner in another issue area (Maggi 2016). Therefore, it is possible that a country makes more concessions in the negotiations on the services chapter of a PTA than it had to do if this chapter would not be negotiated as a comprehensive PTA but as a standalone treaty because

[2]The European Union (EU) forms a customs union and thus negotiates PTAs as a block. Therefore, it is treated as a single negotiating partner.

this country places a higher emphasis on negotiation wins in another issue area. Despite this important limitation, the empirical approach described in this paper should be valid because there is no reason to suspect that the issue linkage between the services chapter and other chapters introduces a systematic bias into the analysis. This would be the case if issue linkages correlate with one of the explanatory variables, for example if countries with large economies always prefer concessions in the services chapters in turn for liberalization commitments by their smaller negotiation partner in other areas. This is unlikely: Instead, it is reasonable to assume that larger economies sometimes prioritize the services chapter and sometimes are willing to give ground in this area - independent from the size of their economy and their integration into global value chains. Therefore, the relationship between potential issue linkages and the explanatory variables should be random and allows me to treat the omitted variable of issue linkages as part of the error term. Nevertheless, I will include some control variables that should proxy the likelihood of issue linkages, which I will describe below.

6.3.2 Measurement

The key variable in the dataset is the level of commitments to liberalize its services industry made by each country in a PTA. Roy (2011) coded the level of commitments for 153 different sub-sectors. This list of sub-sectors is based on the Sectoral Classification List (W/120), which was compiled by the WTO in July 1991 (WTO 1991), but it includes a few additional categories. These sub-sectors are grouped in eleven distinct sectors.[3] They cover all tradeable services and range from financial services such as "Non-life insurance services" to educational services such as "Adult education" (see Table A33 in the Appendix for the list of these eleven services sectors and the number of sub-sectors in each sector). To avoid inflating the number of observations artificially, I aggregate the concessions of the sub-sectors to the sector level before the analysis. Trade in services is usually classified into four different modes of

[3]Several economic variables such as the trade competitiveness or the export share are only available for these eleven sectors and not for each sub-sector.

supply but only mode 1 (Cross-border trade) and mode 3 (Commercial presence) are typically covered in trade agreements. Both modes are coded separately for each sub-sector. [4]

The level of commitments for each sub-sector in the two different modes of supply was coded on a scale from 0 to 100 (Hoekman 1996; Roy and Marchetti 2008; Roy, Marchetti and Lim 2008). A sub-sector - mode of supply combination was given a score of 0 if no commitment to liberalize was made, a score of 50 if a commitment to partially liberalize was made, and a score of 100 if a commitment to fully liberalize was made. In case that this mode of supply for this sub-sector was already partially liberalized in an earlier agreement and then further (but still not fully) liberalized in the present PTA, a score of 75 was given. This scoring model is well-established and has been used in various other quantitative papers (Haftel 2007).

Crucially, the dataset does not only provide information about the level of commitments by each country in a PTA but it also provides the level of commitments this country had already made in the negotiations for the General Agreement on Trade in Services (GATS), which was negotiated under the auspices of the WTO in 1995. This makes it possible to evaluate the concession of each partner country in an agreement by comparing its commitments in a PTA to the status-quo level of liberalization, which the country committed to in the GATS. The commitments each country made in the GATS apply to all countries worldwide and can be seen as a baseline of liberalization of the services sector. By comparing the commitments in PTAs to the commitments in the GATS, I can control for the level of liberalization each country has already implemented and refine my variable to measure only additional liberalization that was granted to the partner(s) in the PTA.

To measure the relative bargaining power of a country in a given PTA, the model needs to account for the concessions made by the negotiation partner(s). Therefore, I also include the amount of commitments made by the partner(s) and the status-quo liberalization of the

[4]Not every sub-sector is available for both modes. For example, construction services cannot be traded across borders and thus are only available for mode 3. In total, 142 sub-sectors are coded for mode 1 and 152 sub-sectors are coded for mode 3.

partner(s) measured by their GATS commitments as independent variables. In the case of multilateral negotiations, I calculate the commitment and the status-quo of the partner by taking a weighted mean of the values of all partners, using GDP as weight. This is based on the assumption that concessions of larger partner economies are regarded as being more valuable than concessions of smaller partner economies because they open up more opportunities for expanded trade. In the case of the PTA between South Korea and the Association of Southeast Asian Nations (ASEAN), it seems reasonable to expect that South Korea was more interested in receiving concessions from Indonesia than from Brunei Darussalam.

This approach to measure bargaining power clearly has several shortcomings that need to be mentioned. First, Roy does not measure absolute levels of commitments but commitments relative to the status quo of each country. Therefore, it is possible for a country with a high absolute level of liberalization, which has liberalized in one big step, to have a lower score than a country with a small absolute level of liberalization, which has liberalized in many small steps. Second, countries tend to use the level of commitments they made in a PTA as a baseline for further negotiations. Therefore, the level of commitments made are time-dependent.

6.3.3 Explanatory variables

Scholars of international relations have employed many methods of measuring power but most often, power is attributed to resource endowments. In regards to international economic negotiations, the difference in or the ratio of GDP is the most frequent measure, but alternative indicators such as export or import shares, net-exports, or trade dependence (Smith 2000) are also used. In some instances, even military power might increase bargaining power in trade negotiations (Carnegie 2014). In this paper, I use the ratio of GDP (in current US Dollar) between the country and its partner in the year when the PTA was signed to measure the economic power relationship. Due to the immense variation of this variable between PTAs, I apply a logarithm with base 10 to this ratio. Consequently, a value of 0 means that both

countries have equal GDP. Positive values mean that the observed country has a larger GDP than its partner, whereas negative values mean that the country's GDP is smaller. I apply the logarithm to reduce the effect of extreme outliers in the dataset such as the negotiations between the USA and Jordan in which the GDP of the USA was more then 1,000 times as large as the GDP of Jordan. Based on H1, we should see a negative effect of the ratio of GDP on a country's commitments in a PTA because economic dominance of a country will increase its bargaining power. I use the data on GDP in current US dollars from the World Economic Outlook 2019 published by the International Monetary Fund (IMF) (IMF 2019).[5] The logged GDP ratio ranges from -4.6 in the relationship between Dominica and the EU to 3.1 in the aforementioned negotiation between the USA and Jordan.

To measure the degree to which the country's firms depend on production inputs from the negotiating partner, I include a variable to capture global value chains (GVCs), which originates from the UNCTAD-Eora Global Value Chains Database (Casella et al. 2019). This dataset provides for each country the value added by all other countries in the world (including the country itself).[6] This measure captures the value of inputs from the partner country embodied in the exports of the reporting country, which is also known as the backward GVC linkage. To measure the degree to which a country's firms are dependent on the partner country for inputs to their production by calculating the share of this partner's value-added in the reporting country's total exports. This GVC share is the key independent variable to test H2. It is important to note that in most instances, the country itself will be the most important source of inputs for its exports. For example, in 2008, the USA accounted for 85.0% of the value-added in its exports, meaning that only 15.0% of inputs were sourced from all partner countries combined. The largest GVCs share of the USA in that year were with the EU (3.4%) and Canada (2.9%). Consequently, the variable GVC shares has a rather low mean of 1.9% and ranges from 0.001% in the case of the GVC links from the USA to Jordan

[5]The World Economic Outlook does not include data on Liechtenstein. I use data from the World Bank instead (https://data.worldbank.org/?locations=LI).

[6]There is no GVC data available for the following countries: Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines. This affects only the EU-CARIFORUM agreement.

to 15.2% in the case of Singapore's GVC links with the rest of ASEAN. This distribution makes it a good measure of dependency on the partner country: It seems quite reasonable that the US economy depends only to a negligible degree on production inputs from Jordan but that Singaporean firms rely heavily on inputs from its neighbours. Although this measure of GVC links also includes trade in goods, research has shown that services account for a up to half of GVCs (Miroudot and Cadestin 2017). Thus, the GVC share of a partner country should be good measure to evaluate H2.

6.3.4 Control variables

In addition to these two explanatory variables, I include some control variables. First, I control for the trade competitiveness of a given services sector. It is important to take the competitiveness of a sector into account because otherwise it is impossible to isolate the effect of bargaining power on the outcome of trade negotiations. As outlined above, the basic assumption of the political economy literature is that the main opposition towards trade liberalization comes from import-competing firms. Meanwhile, export-oriented companies will lobby their government to make all concessions necessary in order to receive reciprocal liberalization and gain more access to the partner economy (Grossman and Helpman 2002). It follows that the negotiating outcome would be for a country to maintain its own trade barriers while convincing the partner country to fully opens its borders. But given that this ideal outcome is unobtainable, which of these two competing goals will the country prioritize in negotiations? I argue that this depends on the trade competitiveness of the firms in a given industry sector. When a country's firms are not competitive compared to world markets, the import-competing firms will exercise much pressure for continued protection and there will be only few export-oriented companies hoping to expand their global presence. However, when an industry sector is highly competitive, there will be only limited opposition to lifting trade barriers in this sector but there will be many firms pressuring the government to pursue high reciprocal liberalization.

To account for the role of the competitiveness of a services sector in the preference formation of a government, I rely on a measure of competitiveness known as the revealed comparative advantage (RCA) and introduced by Balassa (1965). The idea behind this measure, which is broadly used in economics, is that a services product from a certain country is competitive if the country exports relatively more of this services product than the rest of the world. The measure is calculated by dividing the share of a product's exports in the total exports of a country by the global share of this product's exports in the total global exports. If a country exports the same share of a given product as the world's average, the competitiveness measure equals 1. If the RCA value is below 1, the country is not competitive in this product. Producers of that product in this country are hence assumed to face import competition. Conversely, when the RCA is above 1, the country is competitive and its firms should be mainly export-oriented. I standardized this score by applying the natural logarithm to the value; thus 0 means a country exports as much of a given services product as is usual on the world market. To calculate the RCA, I used the OECD and WTO's Balanced Trade in Services database (BaTIS) (Fortanier et al. 2017).[7] This database provides annual export data for eleven services categories such as "Insurance services" or "Transportation services" that broadly match the eleven services sectors defined in the Sectoral Classification List (W/120) used by Roy (2011) to code the liberalization commitments in trade agreements. I used a correspondence table provided by UNSTATS to match these two slightly different sets of categorizations.

As a second control variable, I include the share of the respective services sector in the total exports of the country as a control variable. This serves the purpose to proxy the likelihood of an issue linkage in this area. The expectation behind this assumption is that countries will put more emphasis on the negotiations regarding industry sectors that are important for their economy whereas they will more willing to give up ground when the provisions affect only very small shares of their exports. The export share is calculated using

[7] https://www.oecd.org/sdd/its/balanced-trade-statistics.htm. Last accessed 11 May 2020.

the same data used to obtain the sector trade competitiveness measure and is expressed in percentage of the total exports of a country. This variable ranges from close to zero for example in the case of educational services from Vietnam to 59% for the tourism industry in Barbados. In this situation, I would expect that Barbados will spend its bargaining power nearly exclusively on negotiations regarding the tourism sector whereas Vietnam will consider to trade concessions in the education sector for negotiation wins in other issue areas.

Additionally, I include sector and agreement fixed effects. The sector fixed effects capture all differences between services sectors including disparities in the degree to which the different sectors were already liberalized in the GATS. The agreement fixed effects serve as another control variable for the fact that the negotiations on one services sector might depend on the concessions each country makes in other services sectors or in other parts of the agreement. They should also account for any special relationships between the negotiating partner such as military alliances or historic ties that governments might consider in trade negotiations (Allee and Peinhardt 2010).

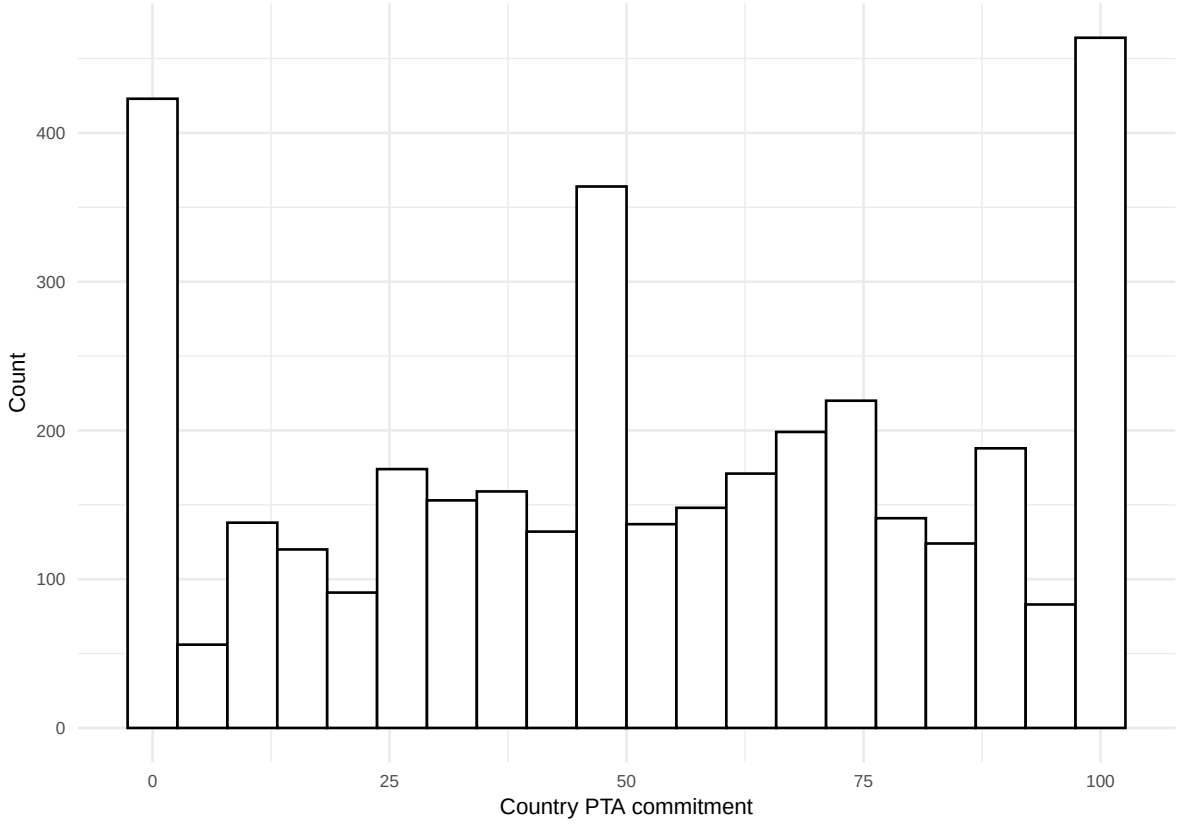
In alternative models, I include additional control variables. First, I include the mode of service provision as a dummy variable that can either be M1 (Cross-border trade) or M3 (Commercial presence). Second, to ensure that the GDP ratio really catches the economic power relationship between the negotiating countries and not differences in wealth or development status, I control for both the GDP per capita of the country and the GDP per capita of its partner(s) in the analysis. Both variables are expressed in thousand current US dollars per capita. PTAs are sometimes regarded as a tool on the global development agenda and it is possible that the trade-for-development argumentation can increase the bargaining power of otherwise weak countries (Sell and Prakash 2004). Third, I use the depth index from version 2.1 (2022) of the Design of Trade Agreements (DESTA) database (originally introduced by Dür, Baccini and Elsig (2014)) as a measure of the overall comprehensiveness of the agreement. Their index is based on the number of key provisions that can be included in trade agreements and ranges from 0 (indicating a very swallow agreement) to 7 (indicating

a very broad agreement). Fourth, I include a variable measuring the share of the respective services sector in the total employment of the country. This variable is an alternative indicator for the importance that a country will place on the negotiating outcome in one specific issue area and is based on data from the International Monetary Fund (IMF).[8] Lastly, I use share of the entire services industry in the GDP of a country to control for the overall size of the tertiary sector. This variable serves as yet another check for potential correlations between the explanatory variables and the error term that might occur due to issue linkages; the data is obtained from the World Bank.[9]

6.3.5 Model specifications

There are 3,738 observations in the dataset, with each observation being the liberalization commitment of one country in one agreement in one sector and one of the two modes of service provision. Figure 6.2 shows the distribution of this dependent variable. The variable ranges from 0, which means that the country made no commitments to liberalize this sector, to 100, which means that the country agreed to fully liberalize this sector. It is important to keep in mind that a high value in the commitment variable indicates that this country has "lost" the negotiations because it moved further towards full liberalization. Some observations have to be dropped because independent variables such as the GVC share are not available. 3,444 observations remain for the main analysis. Given the metric nature of the dependent variable, I conduct the main analysis with a linear regression model but I will test the robustness of these results using a liner mixed effects model, too.

Figure 6.2: Country commitments in services sectors of PTAs



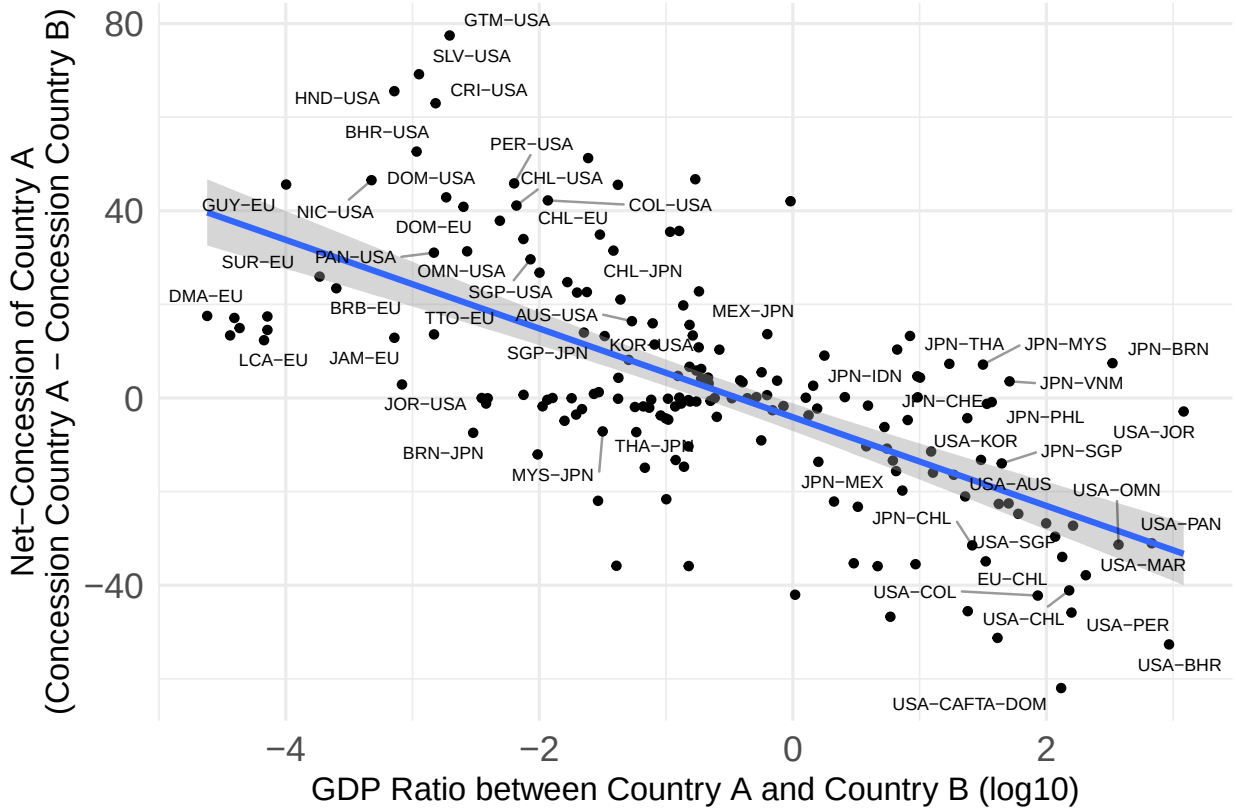
6.4 Results

6.4.1 Main analysis

What role does bargaining power play in explaining the outcomes of trade negotiations? To visualize the overall correlation between these variables, Figure 6.3 shows the aggregated net-concessions for each negotiating partner and the GDP ratio between them. Net-concessions can range from -100 (i.e. the partner liberalizes fully whilst the country does not liberalize at all) to +100 (i.e. the country liberalizes fully whilst the partner does not liberalize at all). This figure demonstrates that the net-concessions made by countries in the services chapters in trade agreements correlate negatively with the ratio between their GDP and the GDP of

[8]https://www.ilo.org/shinyapps/bulkexplorer50/?lang=en. Last accessed 11 May 2020.
[9]https://data.worldbank.org/indicator/NV.SRV.TOTL.ZS. Last accessed 11 May 2020.

Figure 6.3: Relationship between net-concessions and GDP ratio



Note: Each dot represents one negotiating partner. The country mentioned first in the labels of the dots is "Country A", the country mentioned second is "Country B". To ensure readability, only the dots representing agreements that involve the EU, Japan, or the USA are labeled. The blue line is a linear fit describing the relationship between the GDP ratio and the net-concessions of Country A. The grey area represents a 95% confidence interval.

their partner. This means that the larger the GDP of country A is compared to the GDP of country B, the lower are the concessions made by country A compared to the concessions made by country B. The difference is also quite substantial. In negotiations such as the one between the USA and South Korea were the log GDP ratio is about 1 (i.e. the country's GDP is ten times as large as the GDP of its negotiating partner), the country is expected to make 9.46 points less net-concessions than if the log GDP ratio were 0 (i.e. both negotiating partners have equally large GDPs). In more lopsided agreements, where the larger economy is 100 times as large as the smaller economy (such as the EU-Chile PTA), the net-concessions of the larger partner are predicted to be 18.91 points lower.

This figure shows a remarkably clear correlation on an aggregate level but of course more nuanced analysis is necessary. Table 6.1 presents the results of the main model. Model 1 is the baseline model and Model 2 is the model including an interaction effect between the GDP ratio and the GVC share. These results support the market power hypothesis (H1) and demonstrate that the GDP ratio has a significant negative effect on the level of commitments a country is forced to make to conclude the agreement. The higher the GDP of the observed country is compared to the GDP of its partner, the fewer commitments this country makes in the negotiations. An increase in the logged GDP ratio by 1 (for example moving from a situation where both countries have equal GDP to a situation where the observed country's GDP is 10 times larger than the GDP of its partner) results in a decrease of 2.89 points in the country's commitments.[10] The coefficient of the GVC exposure is not significant in this baseline model, which therefore does not support H2.

Model 2 shows the results of the regression analysis including the interaction between the share of global value chains the country has with this partner. Including this interaction effect, the main coefficient of the GVC share becomes positive and statistically significant. Because of the interaction term in the model, the interpretation of this coefficient hinges on the GDP ratio. An intuitive interpretation is possible when we assume the GDP ratio to equal 0, which means that both countries have economies of the same size. In this case, an increase in the GVC share by 1 percentage point leads to an increase of 0.59 in the country's commitments. This is in line with the expectations formulated in H2.

Furthermore, the interaction effect between the GDP ratio and the GVC share is positive and statistically significant, which supports H3. Figure 6.4, which plots the marginal effect of the GDP ratio dependent on the GVC share, demonstrates that this finding does support the economic dependency hypothesis (H2). The negative effect of the GDP ratio on the country's commitments is only statistically significant as long as the GVC share is low. If the GVC share is larger than about 5%, the coefficient of the GDP ratio is not statistically significant

[10]The logged GDP ratio in the sample ranges from -4.62 to 3.08. The country commitments are measured on a scale from 0 to 100.

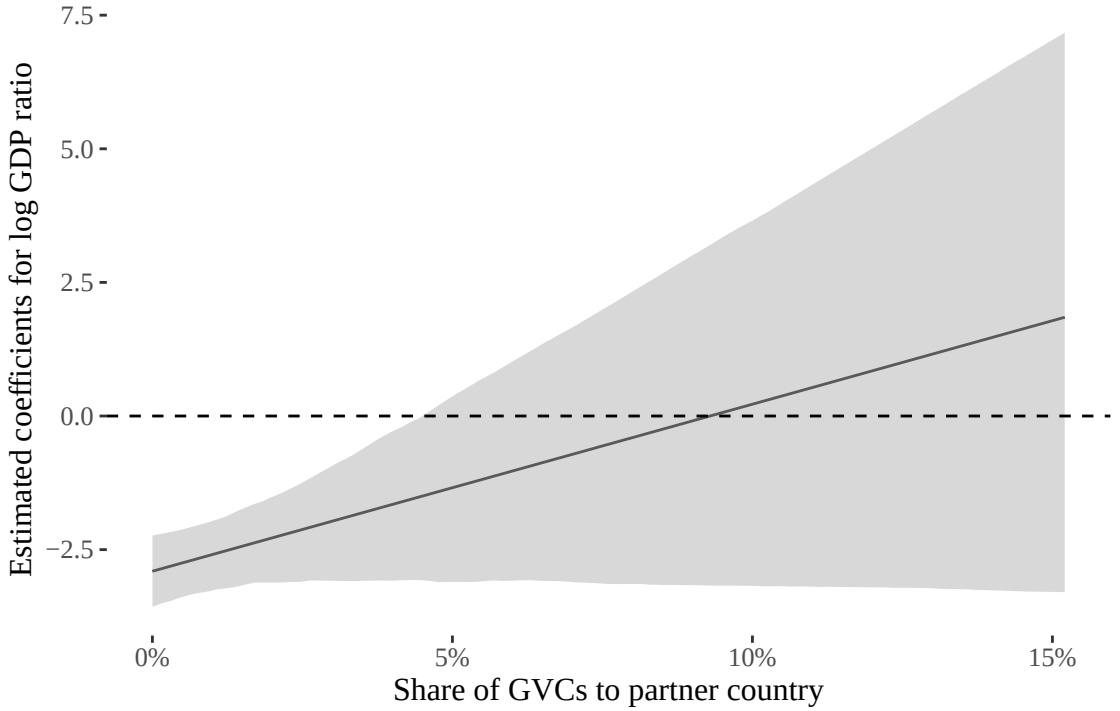
Table 6.1: Commitments in trade negotiations

	Model 1	Model 2
GDP ratio (log10)	-2.69^{***}	-2.89^{***}
	(0.33)	(0.35)
GVC share	0.08	0.59^{*}
	(0.20)	(0.36)
Interaction GDP ratio x GVC share		0.30^{*}
		(0.17)
Country GATS	0.71^{***}	0.70^{***}
	(0.01)	(0.01)
Partner commitment	-0.06^{***}	-0.06^{***}
	(0.02)	(0.02)
Partner GATS	0.12^{***}	0.12^{***}
	(0.02)	(0.02)
Sector trade competitivness	0.03	0.05
	(0.39)	(0.39)
Sector share in exports	-0.45^{***}	-0.43^{***}
	(0.12)	(0.12)
(Intercept)	13.00^{***}	12.60^{***}
	(2.06)	(2.07)
R^2	0.69	0.69
Adj. R^2	0.68	0.68
Num. obs.	3444	3444

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Entries are unstandardised coefficients from a linear regression model. Standard errors in parentheses. Dependent variables range from 0 to 100 with higher values representing higher country commitments. Sector fixed effects not shown.

anymore on the 95% confidence level. The effect of the GDP ratio even turns positive with a rising GVC share but this positive effect never becomes statistically significant and there are only few instances where the GVC share exceeds 10% (see Figure A63 in the Appendix).

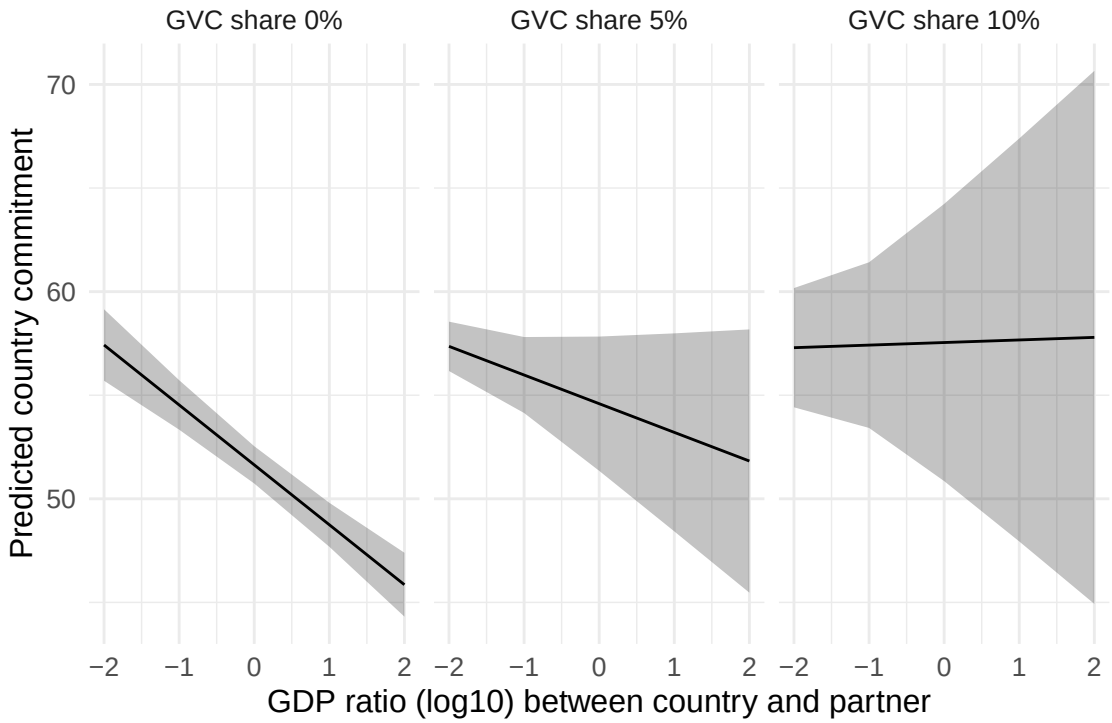
Figure 6.4: Marginal effect of log GDP ratio by GVC share



Note: The dashed line marks a coefficient of zero. The ribbon represents a 95% confidence intervals. Based on Model 2 in Table 6.1.

The importance of the dependence of a country's economy on inputs from its negotiating partner is also highlighted by Figure 6.5, which shows the predicted level of commitments a country makes in a PTA based on the GDP ratio and the GVC share. When the GVC share is close to zero, there is a strong negative effect of the economic power relationship between the two negotiating parties. However, if the partner accounts for 5% of the country's backward GVC links, the GDP ratio is much flatter and not statistically significant any more (An example for a country that has a 5% GVC share with its negotiation partners is Paraguay in the Mercosur Services PTA). If the GVC share is at 10%, the power disparity between the two negotiating partners does not impact their commitments (This is the case for example

Figure 6.5: Predicted country commitment by GDP ratio and GVC share



Note: The ribbons represent 95% confidence intervals. Based on Model 2 in Table 6.1.

in Singapore's negotiations with Japan).

The most important control variable is the export share of the services sector. The coefficient of this variable is negative and statistically significant. This is in line with the expectations outlined in Section 6.3.4 and shows that countries indeed are more hesitant to liberalize sectors that constitute an important part of their economy. Conversely, countries are more willing to make concessions in issue areas where they export little to none anyways. As argued above, this variable should catch at least some of the issue linkage that countries pursue in trade negotiations and this plausible finding supports the assumption that bargaining dynamics in the negotiation of services chapters can be representative for the negotiation process on the PTA as a whole.

Turning to the other control variables, the coefficient of the trade competitiveness of a sector is positive but not statically significant at all. Furthermore, we can see that the status-

quo of liberalization of the country (measured by the commitments this country already made in GATS) has the expected positive effect on the amount of commitments the country makes in the PTA. The more a country already liberalized in GATS, the less additional concessions it can possibly make in a PTA and thus the commitments in the PTA have a high floor. Higher commitments by the partner are associated with higher commitments by the country, which likely is a result of reciprocal liberalization.

6.4.2 Robustness checks

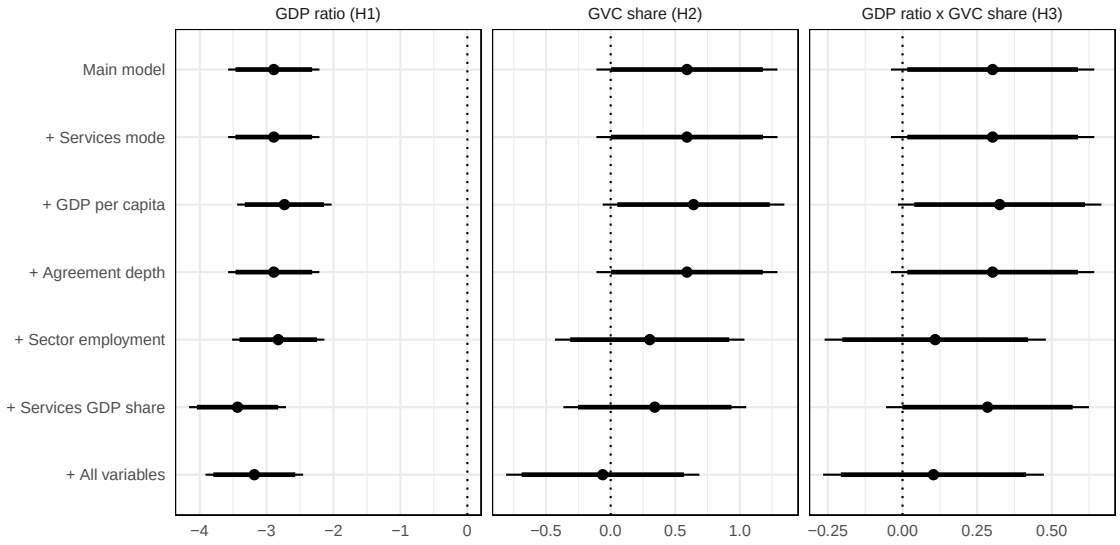
In the following sections, I perform a series of robustness tests. First, I include additional control variables in the main model to rule out omitted variable biases. Second, I use jackknife resampling to ensure that the results are not driven by a single country. Third, I employ three alternative specification of the main model.

Additional control variables

Figure 6.6 plots the coefficients of the three explanatory variables from a series of variations of the main model that each include one of the five additional control variables that were discussed in Section 6.3.4. The first row of coefficients stems from Model 2 reported in Table 6.1 as comparison. The last row of coefficients is based on a model where all five additional control variables are included. Overall, the results are reasonably robust to the inclusion of additional variables. The coefficient for the GDP ratio does change very little and remains statistically significant in all models. The direct effect of the GVC share and the interaction effect between the GDP ratio and the GVC share of a country are virtually unchanged in the first four models but are not statistically significant in the models that include the sector share in employment or the total services share as a percentage of GDP.

Turning to the effects of these additional control variables themselves, we can see in Model 2 of Table A35 in the Appendix that the mode of the services sector does have no effect on the concessions made. Model 3 shows that the prosperity of a country measured

Figure 6.6: Coefficients of main variables from regression analyses with additional control variables



Note: Points are unstandardized estimates from a linear regression model. Ranges represent 90 and 95 percent confidence intervals. Based on Table A35 in the Appendix.

by its GDP per capita has a negative effect on the amount of commitments this country makes in a PTA. It appears that in addition to the economic power relationship, wealthy countries make less commitments than poorer countries. Conversely, the GDP per capita of the negotiating partner does not have a statistically significant effect. If countries would indeed provide preferential treatment to developing countries in trade negotiations to further their development, we would expect a strong negative of the partner's prosperity on the amount of commitments a country makes in a PTA. The overall depth of an agreement is associated with more liberalization commitments, which is not very surprising given that the degree to which services are liberalized factors into the calculation of the depth index. The sector employment share yields a positive but not significant coefficient. The positive direction of this coefficient is somewhat surprising given the expectations that countries should hesitate to liberalize parts of their economy that are important sources of employment. However, this result can probably be explained by the fact that the employment data does not only encompass jobs that are exposed to global trade but also jobs that might be in the

respective sector but that are highly unlikely to be impacted by trade liberalization. For example, the largest sector by employment in most countries is distribution services - and PTAs will probably not cause a replacement of cashiers or store managers who constitute the majority of the employees in this sector. The last additional variable measures the total share of the services industry in a country's GDP and this variable also a positive and significant impact on liberalization commitments.

Jackknifing of countries

In the second series of robustness checks, I drop one country at a time from the sample and re-run the main model with this jackknifed sample. Again, the coefficients of the GDP ratio remains remarkably robust as demonstrated by Figure 6.7. The most interesting effect happens when the USA is dropped from the sample, which reduces the coefficient from about -3.0 to about -2.2. This is not massively surprising given that the USA is arguable the strongest negotiating partner in the world. However, this demonstrates that the effect of the GDP ratio on bargaining power is not solely explained by the dominance of the USA. The direct effect of the GVC share and the interaction effect between the GDP ratio and the GVC share are less robust and their statistical significance hinges on the inclusion of some countries. Again, removing the USA from the sample yields a stronger interaction effect, as does a removal of Japan.

Alternative model specifications

To test the robustness of these results, I run three sets of additional regression analyses. In the first set, I combine the PTA commitments and GATS commitments of both sides of the negotiation to measure of the net-concessions of the country. The net-concessions are calculated by subtracting the partner's concessions (its commitments in the PTA minus its status-quo liberalization made in GATS) from the country's concessions. In the second set of robustness checks, I run linear mixed effects where I replace the fixed effects for the services

sector and the agreement by random effects. This accounts for the fact that the observations might not be independent but be clustered in sectors or agreements.

Table A36 reports the results for the model using net-concessions as dependent variable, Table A37 for the linear mixed effects model. The coefficients for the GDP ratio are in the expected direction and statistically significant in both additional models. The main effect of the GVC share and interaction effect between the GDP ratio and the GVC share are positive in all models but not statistically significant. Overall, these various robustness tests provide strong support for H1 but only weak support for H2 and H3, which apply only under specific conditions.

6.5 Conclusion

Scholars of international political economy have found it notoriously hard to quantify bargaining power despite the fact that the concept itself appears to be straightforward and clearly defined. In this paper, I have employed a method to solve this perpetual problem by comparing commitments in services chapters of preferential trade agreements (PTAs) to the commitments the respective countries made in the General Agreement on Trade in Services (GATS). Assuming that every country wants to minimize the own commitments whilst maximizing the commitments of its partner(s) in the negotiations, I calculated the level of concessions a country is forced to make to conclude the agreement as the difference between the levels of commitments of this country in the PTA and the GATS. Comparing the concessions of the two parties to a PTA yielded a plausible measure of their relative success in the trade negotiations although this approach has the important shortcoming that only the negotiation outcome in one of many chapters of these PTAs is assessed.

I then used this measure to investigate how much differences in economic strength (measured with GDP) still matter in determining the outcome of negotiations in a globalized world where modern production is to a large degree characterized by global value chains

(GVCs). I argued that the effect of economic power declines with rising reliance on inputs from the negotiating partner. The more a country's firms are dependent on inputs from firms in the negotiating partner, the lesser is the country able to utilize its economic strength in the negotiations as a means of coercion.

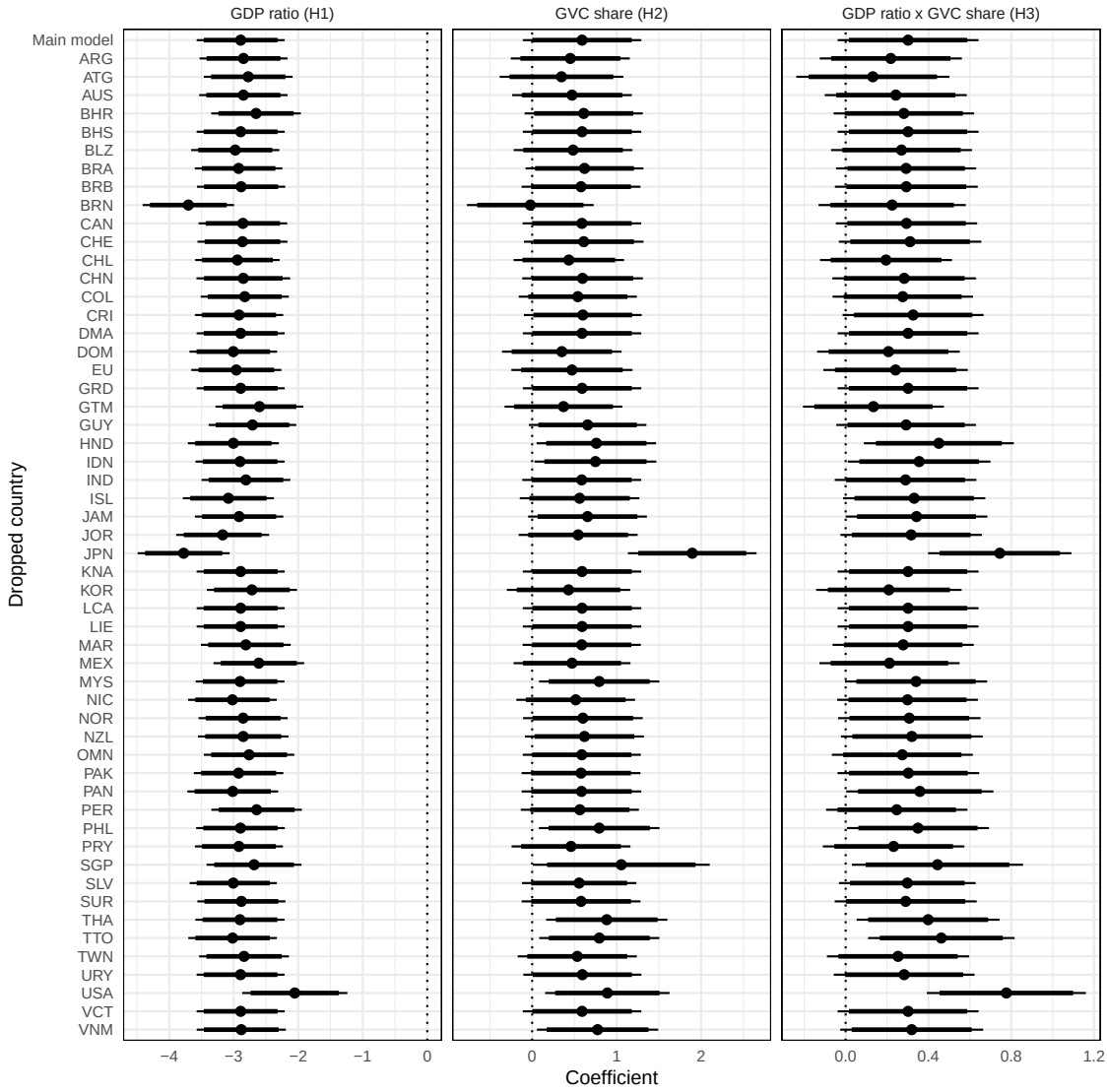
In my regression analysis, I found strong support for the market power hypothesis and weak support for the effect of GVCs. Ignoring the dependency on production inputs from the negotiating partner, I found that the GDP ratio between the country and its negotiating partner has a strongly negative impact on the level of commitments the country makes in the negotiations. However, once I controlled for the amount of GVC links between this country and its partner, we saw that the negative effect of the GDP ratio holds only for small levels of GVC links. Once a certain threshold is crossed (in the main model of my analysis, this threshold lies at about 5%), the effect of the GDP ratio became statistically indistinguishable from zero. This supports the hypothesis that the globalization of production indeed undermines the effect of economic strength in trade negotiations. However, a series of additional tests showed that the robustness of these results is rather low and that these hypotheses can be confirmed only in some situations.

It is important to note that this finding does not mean that smaller countries are nowadays generally more powerful than in the time before the globalization of production. Smaller countries tend to be those who are highly dependent on intermediate goods from larger countries and thus the interaction between market power and economic dependency can easily work against smaller countries, too. However, when smaller countries start negotiations with larger countries, they have a better chance to achieve a balanced outcome if the larger country depends to a certain degree on their exports. The worst position for a small country is thus to negotiate with a large country that does not have significant GVC links with the small country.

This paper made two important contributions. Firstly, it addressed the question about determinants of bargaining power in trade negotiations and demonstrates that the importance

of economic strength is conditional on economic interdependence. Only in situations where there is little interdependence between a country and its negotiating partner, this country can bring to bear its economic strength in trade negotiations. Secondly, this paper is relevant to the wider literature of international relations because it demonstrated that quantifying bargaining power and testing theories pertaining to determinants of bargaining power with statistical models is possible and can be an important addition to the existing case studies on this question. Further research should expand on this approach and analyze determinants of bargaining power by quantifying negotiation outcomes in different issue areas.

Figure 6.7: Coefficients of main variables from regression analyses with jackknifed samples



Note: Points are unstandardized estimates from a linear regression model. Ranges represent 90 and 95 percent confidence intervals.

7 | Conclusion

7.1 Summary

This dissertation started with a summary of the various external and internal challenges that the liberal international order is currently facing. These challenges have sparked a renewed discussion about the virtues of the globalization of production, which is one central aspect of the liberal international order. Internally, the electoral success of right-wing populist parties - who oppose globalization due to the cosmopolitan values that accompany it - erodes societal support for the liberal international order in many Western countries. Externally, the rise of China as a new superpower challenges the hegemony of the USA and promotes an alternative, state-capitalist economic system. Additionally, both the Russian invasion of Ukraine and the Covid-19 Pandemic have demonstrated the geopolitical and economic disadvantages of an over-reliance on global supply chains. Given these disruptions, public support for liberalization seems to wane. This dissertation then set out to answer the question of which factors determine societal support for trade liberalization on the one hand and deglobalization and protectionism on the other hand.

To answer this question, this dissertation first addressed the necessity of an adequate measure of the economic self-interest of individuals, regions, and countries in trade policy. Existing studies relied on indicators such as formal education or GDP per capita to identify likely winners and losers of trade liberalization. The usage of these indicators is derived from trade theories but are either too unspecific or closely correlated with alternative explanations of trade attitudes. Chapter 2 introduced a novel measure of (subnational) trade competitive-

ness, which links national level trade data with district level employment data from census, labor, and household surveys. This measure is better suited for comparative research into questions about the modern politics of trade because it attempts to directly capture the ability of firms to sell their products on global markets and compete with imports. Chapter 2 also demonstrated the plausibility of this measure with case studies from South Korea and Bolivia.

Seizing the advantage of this newly developed measure, the four empirical chapters of this dissertation applied this measure to several important topics in the literature of the political economy of trade to demonstrate that economic factors possess immense explanatory power in the realm of trade politics in the era of globalization. Using this novel measure to discuss research questions that have been previously discussed with sub-optimal measures helps overcoming many of the empirical obstacles that existing studies faced. Moreover, all four chapters approached the respective research questions by analyzing comparative cross-country, cross-agreement, cross-time data that allows for broad generalizability of the findings. This significantly contributes to the existing literature, which was mostly focused on case studies - predominantly using the unique case of the USA.

Chapter 3 analyzed public opinion towards trade policy and specifically investigated the empirical observation that the highly educated are more likely to express positive attitudes towards international trade. The existing literature had put forward two rival explanations for this phenomenon. On the one hand, the economic interest argument posits that the higher support of the highly educated is a reflection of the material benefits that they receive from trade liberalization because their scarce skills are sought after by export-oriented firms (Mayda and Rodrik 2005). On the other hand, the ideational argument emphasizes that education itself determines support for trade liberalization either because it correlates with cosmopolitanism (Mansfield and Mutz 2009) or because university students are taught economic theories about the benefits of trade and thus internalize a love for globalization (Hainmueller and Hiscox 2006). In this chapter, we tested the economic interest argument,

according to which the effect of education on trade support should depend on economic circumstances of a respondent such as her region's trade competitiveness. The results of a regression analysis based on survey data from 36 countries showed that the effect of education is larger for employed and older respondents, as well as for respondents from more developed and more competitive regions. Therefore, Chapter 3 supported the notion that public opinion on trade policy is still at least partially driven by economic self-interest.

Chapters 4 and 5 turned the attention from public opinion to legislators, who in nearly all democratic countries have significant power in setting the trade policy of their country either through legislation or by ratifying trade agreements. Similarly to the debate on determinants of public opinion on trade policy, there are two key factors that should drive the attitudes and voting behavior of legislators in this policy area. On the one hand, trade policy is a very ideological topic where the right generally supports free markets and the left opposes globalization because of its adverse effects on equality and social justice (Milner and Judkins 2004). On the other hand, the economic self-interest of voters - which as demonstrated in Chapter 3 has a substantial effect on their opinion - and the lobbying efforts of firms should translate into pressure on legislators to behave according to their constituency's interests (Grossman and Helpman 1994).

To test these explanations, Chapter 4 studied the voting behavior of legislators to test whether politicians actually vote according to their publicly stated convictions. For this purpose, I gathered data that includes 13,694 votes by legislators from 20 different countries on the ratification of trade agreements and investigated what factors drive legislators to rebel against their party position. This study demonstrated that legislators are more likely to rebel when the agreement can be expected to have a major economic impact because it is either very deep or with a very large partner economy. Furthermore, the direction of rebellion is dependent on the material interests of their constituency: legislators from constituencies that stand to lose from trade liberalization are more likely to rebel against ratification. Conversely, legislators from constituencies that can expect material gains will vote in favor

of the agreement even if their party is opposed to it. Chapter 5 followed up on the insights gained in Chapter 4 and made use of a survey with 3,576 legislators from 16 countries in Latin America. The results of this analysis showed that the trade competitiveness of the constituencies of legislators has a significant impact on their likelihood to ahve positive attitudes towards trade agreements. Both Chapter 4 and Chapter 5 thus underlined the importance of the economic interest of constituencies as drivers of legislators' attitudes and voting behavior.

Chapter 6 shifted the level of analysis from the domestic decision-making process to the international stage and analyzed the outcome of trade negotiations. The main focus of this chapter was to investigate the effect of increased economic interdependence through global value chains on bargaining power. I argued that countries will be less willing and able to coerce their negotiation partners into making concessions because domestic firms oppose high trade barriers due to their reliance on foreign inputs (Gawande, Krishna and Olarreaga 2012; Madeira 2016; Zeng, Sebold and Lu 2020) or because they profit by exporting abroad and want to achieve reciprocal liberalization (Dür 2010; Betz 2017). To test this hypothesis, I used a dataset that provides very disaggregated information about the degree to which countries liberalized specific sectors of the services industry in trade negotiations. This dataset includes 67 trade agreements that were signed between 1994 and 2009 and involve 54 different countries. To account for the economic interests of specific services sectors in these negotiations, I used a sectoral trade competitiveness measure that was calculated similarly to the subnational trade competitiveness measure introduced in Chapter 2. The results of this analysis demonstrated that countries with a large dependency on inputs from their partner countries are indeed more likely to make concessions in trade negotiations. Moreover, the larger the global value chain exposure to the other country is, the less influence does relative market size play in determining negotiation outcomes. This indicates that even large economies cannot dictate terms in negotiations with smaller partners if they rely on production inputs from these partners.

Taken together, these four empirical chapters of this dissertation demonstrated the wide applicability of the (subnational) trade competitiveness measure that was introduced in Chapter 2. Using this measure, the economic interest of individuals, regions, constituencies, and industry sectors in trade policy can be measured more directly than with proxy indicators such as education or GDP per capita. Moreover, these chapters have shown that economic interests still hold significant explanatory power in analyzing the modern politics of trade. In the following two sections, I will note some limitations of this approach and then describe the implications of my findings for the political economy literature and beyond.

7.2 Limitations and avenues for further research

One of the key strengths of the measure of subnational trade competitiveness - the fact that it reflects the specific economic structure of a region by using detailed disaggregated employment data for weighting - is also one of its major limitations. The data necessary for the calculation of the measure is for many countries not available. Sometimes this is due to strict data protection laws that prevent public usage of the data. In other countries, communication with the statistical offices that are responsible for collecting and maintaining this data is difficult due to language or technology barriers. Therefore, the measure currently is available for only a third of the countries worldwide and lacks coverage especially for least developed countries. This often limits the usefulness of this measure in cross-country research designs such as those employed in Chapters 3, 4, and 5 where some countries had to be dropped because this measure was not available. Future efforts could solve this problem by endeavouring a new attempt at collecting the required data. This might be achieved through international cooperation of scholars in all regions of the world. For example, the data protection laws of the Scandinavian countries and Japan allow only domestic institutions to use the disaggregated data and language barriers in Asia might be overcome with local help, too. Another possibility would be increased cooperation with international organizations.

The United Nations are currently collecting similar data in order to measure the share of manufacturing employment, which is one of the indicators of Target 9.2 of the Sustainable Development Goals (United Nations 2017).

The results of the empirical chapters were drawn from regression analyses based on large datasets with great variations in countries, agreements, and points in time. However, the aggregate results of these research designs necessarily mask much of the heterogeneity at the individual level and often cannot identify the exact causal mechanism that causes individuals, legislators, or governments to let their attitudes and behavior be determined by economic interests. For example, Chapter 3 cannot differentiate between egoistic or sociotropic concerns as reasons for the fact that respondents' trade attitudes reflect the trade competitiveness of their region. Chapters 4 and 5 presented several potential channels through which the economic interests of a constituency might impact the attitudes and voting behavior of legislators, including lobbying by firms, the wish to ensure reelection, or intrinsic conviction of legislators to represent their constituents as good as possible. Addressing these questions more thoroughly will require experimental research. For example, this would enable scholars to manipulate the pressure from voters on the one hand and the lobbing effort of firms on the other hand to tease out the substantial effect of these different channels on legislators. Combining studies of public opinion and legislative attitudes would allow researchers to take this thought even one step further and investigate the causal chain in even more detail. Campello and Urdinez (2021) successfully implemented this combination of public opinion and legislative behavior in a case study in Brazil.

Another limitation in some of the chapters in this dissertation has been the nature of the data measuring the dependent variables. In Chapter 3, we were to account for individual-level variation in education and age but not for individual-level variation in trade competitiveness (instead, we used the trade competitiveness of respondents' regions as proxy). One fruitful approach to overcome this limitation would be to ask respondents in surveys about their industry sector so that they can be attributed with the trade competitiveness of this sector.

Chapter 5 relied on a survey of politicians that measured their attitudes. This approach has benefits (for example, attitudes cannot be distorted through party discipline) but rests on the assumption that legislators are honest when answering such surveys and that they vote in line with their attitudes, which might not always be the case (Miler and Allee 2018). Chapter 4 provided one option how these concerns could be addressed by analyzing rebellions of legislators in ratification votes to circumvent the problem of party discipline. Lastly, Chapter 6 relied only on evaluations of the concessions of countries in the services chapters of trade agreements. The degree to which the findings based on this data can be generalized to other aspects of trade agreements is unclear. Thus, future research might expand on this research design but use more comprehensive measures of the concessions made by governments in trade negotiations.

7.3 Implications for the literature - and beyond

This dissertation holds some implications to the wider scholarly debate beyond the contributions to the literature on the political economy of trade that were outlined above. One of the main themes of this dissertation was to highlight the need for and the utility of specific and detailed measures of complex concepts such as trade competitiveness. Although using proxy indicators often can be expedient, identifying winners and losers of trade liberalization accurately is key for more thorough evaluations of the politics of modern trade policy and especially for contrasting the explanatory power of alternative causal mechanisms. For example, the spatial effects of taxation, which might also generate winners and losers in different regions of a country, could be investigated in a similar way. Clearly, a more fine-grained strategy to identify winners and losers of economic policy is not just relevant for academic research but also for developing more targeted policy tools and thus has benefits beyond science itself.

In addition to these implications for social sciences, this dissertation speaks to the debate

about the backlash against globalization that is taking place in the wider society. The overarching empirical observation of all the chapters in this dissertation is that economic self-interest of citizens and regions plays a significant part in shaping modern politics of trade. Chapter 3 has demonstrated that economic self-interest determines the attitude of voters towards trade liberalization and globalization and Chapters 4 and 5 have shown that this economic self-interest of voters and regions translates into legislative behavior. These results underline the call from academics that the supporters of the liberal international order should prioritize generous compensation policies for citizens and regions that have not benefited from the prosperity gained by globalization (Walter 2010; Ehrlich and Hearn 2014; Schaffer and Spilker 2016; Colantone and Stanig 2018*a*; Frieden 2019; Kim and Pelc 2021).

Therefore, policy measures such as more generous unemployment benefits, trade adjustment assistance, and public investments that bolster struggling domestic companies hold the potential to spread the economic benefits of globalization more evenly and thus turn the losers of trade liberalization into winners. To be certain, compensation alone might not suffice to the liberal international order from the onslaught of populist adversaries because of the cultural element of anti-globalization sentiment (Norris and Inglehart 2019). However, as recent research has shown, globalization-induced economic shocks are one major trigger of cultural values that correlate with anti-globalization sentiment (Ballard-Rosa et al. 2021; Rodrik 2021). Thus, mitigating adverse economic effects of globalization more effectively should be regarded as cornerstone of any policy response to rising societal polarization, popular skepticism towards multilateralism, and the electoral success of populists. The survival of the liberal international order might depend on it.

8 | Bibliography

ABS, Australian Bureau of Statistics. 2021. "Census 2006, 2011, and 2016.".
URL: *https://www.abs.gov.au/websitedbs/D3310114.nsf/home/About+TableBuilder*

Ahlquist, John S., Amanda B. Clayton and Margaret Levi. 2014. "Provoking Preferences: Unionization, Trade Policy, and the ILWU Puzzle." *International Organization* 68(1):33–75.

Aiginger, Karl. 2006. "Competitiveness: From a Dangerous Obsession to a Welfare Creating Ability with Positive Externalities." *Journal of Industry, Competition and Trade* 6(2):161–177.

Alcántara, Manuel. 2019. *Proyecto Élites Latinoamericanas (PELA-USAL). Universidad de Salamanca (1994-2018).*

Allee, Todd and Clint Peinhardt. 2010. "Delegating Differences: Bilateral Investment Treaties and Bargaining Over Dispute Resolution Provisions." *International Studies Quarterly* 54(1):1–26.

Allee, Todd and Clint Peinhardt. 2014. "Evaluating Three Explanations for the Design of Bilateral Investment Treaties." *World Politics* 66(1):47–87.

Allee, Todd and Manfred Elsig. 2019. "Are the Contents of International Treaties Copied and Pasted? Evidence from Preferential Trade Agreements." *International Studies Quarterly* 63(3):603–613.

Amador, João and Filippo di Mauro. 2015. *The Age of Global Value Chains: Maps and Policy Issues*. London: CEPR Press.

Anderer, Christina, Andreas Dür and Lisa Lechner. 2020. "Trade Policy in a "GVC World": Multinational Corporations and Trade Liberalization." *Business and Politics* pp. 1–28.

ANSD, Agence nationale de la Statistique et de la Démographie (Senegal). 2011. "Enquête de Suivi de La Pauvreté Au Sénégal (2010-2011).".
URL: *http://anads.ansd.sn/index.php/catalog/17*

ANSD, Agence nationale de la Statistique et de la Démographie (Senegal). 2013. "Grand Census 2013 of Population, Housing, Agruculture, Livestock, and Farming.".
URL: *https://international.ipums.org/international/index.shtml*

Arel-Bundock, Vincent, Nils Enevoldsen and CJ Yetman. 2018. "Countrycode: An R Package to Convert Country Names and Country Codes." *Journal of Open Source Software* 3(28):848.

Arnold, Jeffrey B. 2019. *Ggthemes: Extra Themes, Scales and Geoms for 'Ggplot2'.*

Autor, David, David Dorn, Gordon Hanson and Kaveh Majlesi. 2020. "Importing Political Polarization? The Electoral Consequences of Rising Trade Exposure." *American Economic Review* 110(10):3139–3183.

Autor, David H., David Dorn and Gordon H. Hanson. 2013. "The China Syndrome: Local Labor Market Effects of Import Competition in the United States." *American Economic Review* 103(6):2121–2168.

Autor, David H., David Dorn and Gordon H. Hanson. 2016. "The China Shock: Learning from Labor-Market Adjustment to Large Changes in Trade." *Annual Review of Economics* 8(1):205–240.

Baccini, Leonardo and Andreas Dür. 2018. "Global Value Chains and Product Differentiation: Changing the Politics of Trade." *Global Policy* 9:49–57.

Baier, Scott L. and Jeffrey H. Bergstrand. 2007. "Do Free Trade Agreements Actually Increase Members' International Trade?" *Journal of International Economics* 71(1):72–95.

Bailey, Michael. 2001. "Quiet Influence: The Representation of Diffuse Interests on Trade Policy, 1983-94." *Legislative Studies Quarterly* 26(1):45–80.

Bailey, Michael A., Judith Goldstein and Barry R. Weingast. 1997. "The Institutional Roots of American Trade Policy: Politics, Coalitions, and International Trade." *World Politics* 49(3):309–38.

Baker, Andy. 2003. "Why Is Trade Reform So Popular in Latin America?: A Consumption-Based Theory of Trade Policy Preferences." *World Politics* 55(3):423–455.

Balassa, Bela. 1965. "Trade Liberalisation and "Revealed" Comparative Advantage." *The Manchester School* 33(2):99–123.

Baldwin, Robert E. and Christopher S. Magee. 2000. "Is Trade Policy for Sale? Congressional Voting on Recent Trade Bills." *Public Choice* 105(1/2):79–101.

Ballard-Rosa, Cameron, Mashail A. Malik, Stephanie J. Rickard and Kenneth Scheve. 2021. "The Economic Origins of Authoritarian Values: Evidence From Local Trade Shocks in the United Kingdom." *Comparative Political Studies* 54(13):2321–2353.

Barnier, Julien, François Briatte and Joseph Larmarange. 2018. *Questionr: Functions to Make Surveys Processing Easier.*

Barragán, Mélany. 2015. "El Estudio de Las Élites Parlamentarias En América Latina: Pasado, Presente y Futuro." Revista Andina de Estudios Políticos(5):4–30.

Barton, John H., ed. 2008. *The Evolution of the Trade Regime: Politics, Law, and Economics of the GATT and the WTO*. 4. printing, 1. paperback printing ed. Princeton, N.J.: Princeton Univ. Press.

Bastiaens, Ida and Evgeny Postnikov. 2020. "Social Standards in Trade Agreements and Free Trade Preferences: An Empirical Investigation." *The Review of International Organizations* 15(4):793–816.

Beaulieu, Eugene and Michael Napier. 2008. "Why Are Women More Protectionist Than Men?".

Beaulieu, Eugene, Ravindra A. Yatawara and Wei Guo Wang. 2005. "Who Supports Free Trade in Latin America?" *The World Economy* 28(7):941–958.

Berger, Eva, Sylwia Bialek, Niklas Garnadt, Veronika Grimm, Lars Other, Leonard Salzmann, Monika Schnitzer, Achim Truger and Volker Wieland. 2022. "A Potential Sudden Stop of Energy Imports from Russia: Effects on Energy Security and Economic Output in Germany and the EU." *Institute for Monetary and Financial Stability Working Paper* 166.

Berger, Thomas. 2008. "Concepts of National Competitiveness." *Journal of international Business and Economy* 9(1):91–111.

Berger, Thomas and Gillian Bristow. 2009. "Competitiveness and the Benchmarking of Nations—A Critical Reflection." *International Advances in Economic Research* 15(4):378–392.

Bernard, Andrew B., J. Bradford Jensen and Peter K. Schott. 2009. Importers, Exporters and Multinationals: A Portrait of Firms in the US That Trade Goods. In *Producer Dynamics: New Evidence from Micro Data*, ed. Timothy Dunne, J. Bradford Jensen and Mark J. Roberts. University of Chicago Press pp. 513–552.

Betz, Timm. 2017. "Trading Interests: Domestic Institutions, International Negotiations, and the Politics of Trade." *The Journal of Politics* 79(4):1237–1252.

BfS, Bundesamt für Statistik (Switzerland). 2020. "Die Schweizerische Arbeitskräfteerhebung (SAKE) 2001-2018.".
URL: *https://www.bfs.admin.ch/bfs/de/home/dienstleistungen/forschung/zugang-anonymisierte-einzeldaten.html*

Bhagwati, Jagdish N. 2008. *Termites in the Trading System: How Preferential Agreements Undermine Free Trade*. Oxford ; New York: Oxford University Press.

Black, Duncan. 1948. "On the Rationale of Group Decision-Making." *Journal of Political Economy* 56(1):23–34.

Bohigues, Asbel and José Manuel Rivas. 2019. "Free Trade Agreements and Regional Alliances: Support from Latin American Legislators." *Revista Brasileira de Política Internacional* 62(1).

Bonadio, Barthélémy, Zhen Huo, Andrei A. Levchenko and Nitya Pandalai-Nayar. 2021. "Global Supply Chains in the Pandemic." *Journal of International Economics* 133:103534.

Börzel, Tanja A. and Michael Zürn. 2021. "Contestations of the Liberal International Order: From Liberal Multilateralism to Postnational Liberalism." *International Organization* 75(2):282–305.

Bowler, Shaun and Gail McElroy. 2015. "Political Group Cohesion and 'Hurrah' Voting in the European Parliament." *Journal of European Public Policy* 22(9):1355–1365.

BPS, Badan Pusat Statistik (Indonesia). 2020. "National Labor Force Survey 2000-2015.".
URL: *https://silastik.bps.go.id/v3/index.php/site/login/*

Broz, J. Lawrence, Jeffry Frieden and Stephen Weymouth. 2021. "Populism in Place: The Economic Geography of the Globalization Backlash." *International Organization* 75(2):464–494.

BUCREP, Bureau Central des Recensements et des Études de Population (Cameroon). 2005. "Third General Census of Population and Housing.".
URL: *https://international.ipums.org/international/index.shtml*

Budd, Leslie and Amer Hirmis. 2004. "Conceptual Framework for Regional Competitiveness." *Regional Studies* 38(9):1015–1028.

Burgoon, Brian and Michael J. Hiscox. 2006. "The Mysterious Case of Female Protectionism: Gender Bias in Attitudes Toward International Trade.".

Burst, Tobias, Werner Krause, Pola Lehmann, Theres Matthieß, Nicolas Merz, Sven Regel, Weßels Bernhard and Lisa Zehnter. 2020. "Manifesto Project Dataset: South America.".

Burstein, Ariel and Jonathan Vogel. 2017. "International Trade, Technology, and the Skill Premium." *Journal of Political Economy* 125(5):1356–1412.

Campello, Daniela and Francisco Urdinez. 2021. "Voter and Legislator Responses to Localized Trade Shocks from China in Brazil." *Comparative Political Studies* 54(7):1131–1162.

CAPMAS, Central Agency for Public Mobilization and Statistics (Egypt). 2017. "Labor Force Survey (LFS) 2006-2017.".
URL: *http://www.erfdataportal.com/index.php/catalog*

Carey, John M. 2007. "Competing Principals, Political Institutions, and Party Unity in Legislative Voting." *American Journal of Political Science* 51(1):92–107.

Carnegie, Allison. 2014. "States Held Hostage: Political Hold-Up Problems and the Effects of International Institutions." *American Political Science Review* 108(1):54–70.

Carreras, Miguel, Yasemin Irepoglu Carreras and Shaun Bowler. 2019. "Long-Term Economic Distress, Cultural Backlash, and Support for Brexit." *Comparative Political Studies* 52(9):1396–1424.

Casella, Bruno, Richard Bolwijn, Daniel Moran and Keiichiro Kanemoto. 2019. "Improving the Analysis of Global Value Chains: The UNCTAD-Eora Database." *Transnational Corporations* 26(3):115–142.

CBS, Israel Central Bureau of Statistics. 2012. "Labour Force Survey 2012.".

Chase, Kerry. 2005. *Trading Blocs: States, Firms, and Regions in the World Economy.* Ann Arbor, MI: University of Michigan Press.

Choi, Youngmi. 2015. "Constituency, Ideology, and Economic Interests in U.S. Congressional Voting: The Case of the U.S.–Korea Free Trade Agreement." *Political Research Quarterly* 68(2):266–279.

Ciuriak, Dan, Beverly Lapham, Robert Wolfe, Terry Collins-Williams and John Curtis. 2015. "Firms in International Trade: Trade Policy Implications of the *New* New Trade Theory." *Global Policy* 6(2):130–140.

Close, Caroline. 2018. "Parliamentary Party Loyalty and Party Family: The Missing Link?" *Party Politics* 24(2):209–219.

Coenders, Marcel and Peer Scheepers. 2003. "The Effect of Education on Nationalism and Ethnic Exclusionism: An International Comparison." *Political Psychology* 24(2):313–343.

Colantone, Italo and Piero Stanig. 2018*a*. "Global Competition and Brexit." *American Political Science Review* 112(2):201–218.

Colantone, Italo and Piero Stanig. 2018*b*. "The Trade Origins of Economic Nationalism: Import Competition and Voting Behavior in Western Europe." *American Journal of Political Science* 62(4):936–953.

Coman, Emanuel Emil. 2015. "Institutions and Vote Unity in Parliaments: Evidence from 33 National Chambers." *The Journal of Legislative Studies* 21(3):360–389.

Conconi, Paola, Giovanni Facchini and Maurizio Zanardi. 2012. "Fast-Track Authority and International Trade Negotiations." *American Economic Journal: Economic Policy* 4(3):146–189.

Conconi, Paola, Giovanni Facchini and Maurizio Zanardi. 2014. "Policymakers' Horizon and Trade Reforms: The Protectionist Effect of Elections." *Journal of International Economics* 94(1):102–118.

Cook, Scott J., John Niehaus and Samantha Zuhlke. 2018. "A Warning on Separation in Multinomial Logistic Models." *Research & Politics* 5(2).

Coveri, Andrea, Claudio Cozza, Leopoldo Nascia and Antonello Zanfei. 2020. "Supply Chain Contagion and the Role of Industrial Policy." *Journal of Industrial and Business Economics* 47(3):467–482.

Croissant, Yves and Giovanni Millo. 2008. "Panel Data Econometrics in R : The **Plm** Package." *Journal of Statistical Software* 27(2).

CSO, Czech Statistical Office. 2021. "Czech Labour Survey 2000-2019.".
URL: *https://www.czso.cz/csu/czso/4-contacts*

Dahl, Robert A. 1957. "The Concept of Power." *Behavioral Science* 2(3):201–215.

DANE, Departamento Administrativo Nacional de Estadística de Colombia. 2021. "Gran Encuesta Integrada de Hogares (GEIH) 2007-2019.".
URL: *http://microdatos.dane.gov.co/index.php/catalog*

Davis, Christina L. 2004. "International Institutions and Issue Linkage: Building Support for Agricultural Trade Liberalization." *American Political Science Review* 98(1):153–169.

Davis, Christina L. 2006. Do WTO Rules Create a Level Playing Field? Lessons from the Experience of Peru and Vietnam. In *Negotiating Trade*, ed. John S. Odell. Cambridge: Cambridge University Press pp. 219–256.

Department for International Trade. 2019. *Public Attitudes to Trade Tracker Wave One Report*.

DESTATIS, Statitisches Bundesamt (Germany). 2020. "Mikrozensus 2000-2018.".
URL: *https://www.forschungsdatenzentrum.de/de/haushalte/mikrozensus*

Deudney, Daniel and G. John Ikenberry. 1999. "The Nature and Sources of Liberal International Order." *Review of International Studies* 25(2):179–196.

DGEEC, Encuestas y Censos de Paraguay, Dirección General de Estadística. 2016. "Encuesta Permanente de Hogares (EPH) 2007.".
URL: *https://www.dgeec.gov.py/datos/encuestas/eph/Poblacion/*

DIGESTYC, Dirección General de Estadística y Censos de El Salvador. 2021. "Encuesta de Hogares de Propósitos Múltiples 2008-2016.".
URL: *http://digestyc.microdatahub.com/index.php/catalog*

Dingler, Sarah C. and Lena Ramstetter. 2021. "When Does She Rebel? How Gender Affects Deviating Legislative Behaviour." *Government and Opposition* pp. 1–19.

Dluhosch, Barbara. 2021. "The Gender Gap in Globalization and Well-Being." *Applied Research in Quality of Life* 16(1):351–378.

DOS, The Hashemite Kingdom of Jordan, Department of Statistics (DOS). 2016. "Employment and Unemployment Survey (EUS) 2004-2016.".
URL: *http://www.erfdataportal.com/index.php/catalog*

DOSM, Department of Statistics Malaysia. 2000. "2000 Population and Housing Census.".
URL: *https://international.ipums.org/international/index.shtml*

Dowle, Matt and Arun Srinivasan. 2019. *Data.Table: Extension of 'data.Frame'*.

Drezner, Daniel W. 2008. *All Politics Is Global: Explaining International Regulatory Regimes*. 1. paperback print ed. Princeton: Princeton Univ. Press.

Drope, Jeffrey and Abdur Chowdhury. 2014. "The Puzzle of Heterogeneity in Support for Free Trade." *Business and Politics* 16(3):453–479.

Drope, Jeffrey M. and Wendy L. Hansen. 2004. "Purchasing Protection? The Effect of Political Spending on U.S. Trade Policy." *Political Research Quarterly* 57(1):27–37.

Dür, Andreas. 2010. *Protection for Exporters: Power and Discrimination in Transatlantic Trade Relations, 1930-2010*. Ithaca: Cornell University Press.

Dür, Andreas and Christoph Mödlhamer. 2022. "Power and Innovative Capacity: Explaining Variation in Intellectual Property Rights Regulation across Trade Agreements." *International Interactions* 48(1):23–48.

Dür, Andreas, Leonardo Baccini and Manfred Elsig. 2014. "The Design of International Trade Agreements: Introducing a New Dataset." *The Review of International Organizations* 9(3):353–375.

Economic Research Forum. 2020. "ERF Micro Data Catalogue (NADA).".
URL: *http://erf.org.eg/data-portal/*

Ehrlich, Sean and Cherie Maestas. 2010. "Risk Orientation, Risk Exposure, and Policy Opinions: The Case of Free Trade: Risk Orientation and Policy Opinions: The Case of Free Trade." *Political Psychology* 31(5):657–684.

Ehrlich, Sean D. 2008. "The Tariff and the Lobbyist: Political Institutions, Interest Group Politics, and U.S. Trade Policy." *International Studies Quarterly* 52(2):427–445.

Ehrlich, Sean D. 2009. "Constituency Size and Support for Trade Liberalization: An Analysis of Foreign Economic Policy Preferences in Congress." *Foreign Policy Analysis* 5(3):215–232.

Ehrlich, Sean D. and Eddie Hearn. 2014. "Does Compensating the Losers Increase Support for Trade? An Experimental Test of the Embedded Liberalism Thesis." *Foreign Policy Analysis* 10(2):149–164.

Election Guide. 2022. "Election Guide Database.".
URL: *https://www.electionguide.org/*

Ellis, Greg Freedman and Derek Burk. 2020. *Ipumsr: Read 'IPUMS' Extract Files.*

ELSTAT, Hellenic Statistical Authority. 2011. "2011 Population and Housing Census.".
URL: *https://international.ipums.org/international/index.shtml*

ELSTAT, Hellenic Statistical Authority. 2021. "Labour Force Survey 2006-2019.".
URL: *https://www.statistics.gr/en/public-use-files*

Enns, Peter K. and Paul M. Kellstedt. 2008. "Policy Mood and Political Sophistication: Why Everybody Moves Mood." *British Journal of Political Science* 38(03):433–454.

Evans, Carolyn L. 2009. "A Protectionist Bias in Majoritarian Politics: An Empirical Investigation." *Economics & Politics* 21(2):278–307.

Ewing, Mark. 2019. *Mgsub: Safe, Multiple, Simultaneous String Substitution.*

Feigenbaum, James J. and Andrew B. Hall. 2015. "How Legislators Respond to Localized Economic Shocks: Evidence from Chinese Import Competition." *The Journal of Politics* 77(4):1012–1030.

Festinger, Leon. 1957. *A Theory of Cognitive Dissonance*. Stanford: Stanford University Press.

Finke, Daniel. 2019. "Collateral Damage: Do Gender Quotas Undermine Party Discipline?" *The Journal of Legislative Studies* 25(1):66–87.

Firke, Sam. 2020. *Janitor: Simple Tools for Examining and Cleaning Dirty Data*.

Fordham, Benjamin O. and Katja B. Kleinberg. 2012. "How Can Economic Interests Influence Support for Free Trade?" *International Organization* 66(2):311–328.

Fordham, Benjamin O. and Timothy J. McKeown. 2003. "Selection and Influence: Interest Groups and Congressional Voting on Trade Policy." *International Organization* 57(3):519–49.

Fortanier, Fabienne, Antonella Liberatore, Andreas Maurer, Graham Pilgrim and Laura Thomson. 2017. "The OECD-WTO Balanced Trade in Services Database.".

Fox, John and Sanford Weisberg. 2019. *An R Companion to Applied Regression*. Third edition ed. Los Angeles: SAGE.

Francois, Joseph and Bernard Hoekman. 2010. "Services Trade and Policy." *Journal of Economic Literature* 48(3):642–692.

Frieden, Jeffry. 2019. The Political Economy of the Globalization Backlash: Sources and Implications. In *Meeting Globalization's Challenges: Policies to Make Trade Work for All*, ed. Luís A. V. Catão and Maurice Obstfeld. Princeton University Press.

Frieden, Jeffry and Stefanie Walter. 2019. "Analyzing Inter-State Negotiations in the Eurozone Crisis and Beyond." *European Union Politics* 20(1):134–151.

Garbuszus, Jan Marvin and Sebastian Jeworutzki. 2018. *Readstata13: Import 'Stata' Data Files*.

Garnier, Simon. 2018. *Viridis: Default Color Maps from 'Matplotlib'*.

Gartzke, Erik and J. Mark Wrighton. 1998. "Thinking Globally or Acting Locally? Determinants of the GATT Vote in Congress." *Legislative Studies Quarterly* 23(1):33.

Gawande, By Kishore, Pravin Krishna and Marcelo Olarreaga. 2012. "Lobbying Competition over Trade Policy: Counterlobbying over Trade Policy." *International Economic Review* 53(1):115–132.

Gelles, David. 2022. "This Year at Davos: A Referendum on Davos Itself." *New York Times* .

URL: *https://www.nytimes.com/2022/05/21/business/dealbook/world-economic-forum-davos.html*

Gereffi, Gary. 2019. Global Value Chains, Development, and Emerging Economies. In *Business and Development Studies*, ed. Peter Lund-Thomsen, Michael Wendelboe Hansen and Adam Lindgreen. First ed. Abingdon, Oxon ; New York, NY : Routledge, 2020. | Series: Routledge studies in innovation, organisations and technology: Routledge.

Gereffi, Gary. 2020. "What Does the COVID-19 Pandemic Teach Us about Global Value Chains? The Case of Medical Supplies." *Journal of International Business Policy* 3(3):287–301.

Gereffi, Gary and Karina Fernandez-Stark. 2016. *Global Value Chain Analysis: A Primer*. Duke University: Center on Globalization, Governance & Competitiveness.

Gervais, Antoine and J. Bradford Jensen. 2019. "The Tradability of Services: Geographic Concentration and Trade Costs." *Journal of International Economics* 118:331–350.

Gilens, Martin and Benjamin I. Page. 2014. "Testing Theories of American Politics: Elites, Interest Groups, and Average Citizens." *Perspectives on Politics* 12(3):564–581.

Glauben, Thomas, Miranda Svanidze, Linde Johanna Götz, Sören Prehn, Tinoush Jamali Jaghdani, Ivan Djuric and Lena Kuhn. 2022. "The war in Ukraine exposes supply tensions on global agricultural markets: openness to global trade is needed to cope with the crisis." *IAMO Policy Brief* 44e.

Goldberg, Pinelopi Koujianou and Giovanni Maggi. 1999. "Protection for Sale: An Empirical Investigation." *American Economic Review* 89(5):1135–1155.

Goldstein, Judith, Yotam Margalit and Dougalas Rivers. 2008. Producer, Consumer, Family Member: The Relationship between Trade Attitudes and Family Status. Conference on Domestic Preferences and Foreign Economic Policy, Stanford University: .

Gowa, Joanne and Soo Yeon Kim. 2005. "An Exclusive Country Club: The Effects of the GATT on Trade, 1950–94." *World Politics* 57(4):453–478.

Grossman, Gene and Elhanan Helpman. 1994. "Protection for Sale." *American Economic Review* 84(4):833–850.

Grossman, Gene and Elhanan Helpman. 2005. "A Protectionist Bias in Majoritarian Politics." *The Quarterly Journal of Economics* 120(4):1239–1282.

Grossman, Gene M. and Elhanan Helpman. 2002. *Interest Groups and Trade Policy*. Princeton, N.J: Princeton University Press.

GSO, General Statistics Office of Vietnam. 2009. "Population and Housing Census 1999 & 2009.".
URL: *https://international.ipums.org/international/index.shtml*

GSS, Ghana Statistical Service. 2021. "Ghana Living Standards Survey 2005, 2012, and 2017.".
URL: *https://www2.statsghana.gov.gh/nada/index.php/catalog*

Guisinger, Alexandra. 2009. "Determining Trade Policy: Do Voters Hold Politicians Accountable?" *International Organization* 63(3):533–557.

Guisinger, Alexandra. 2016. "Information, Gender, and Differences in Individual Preferences for Trade." *Journal of Women, Politics & Policy* 37(4):538–561.

GUS, Central Statistical Office of Poland. 2002. "National Census of Population and Housing in 2002.".
URL: *https://international.ipums.org/international/index.shtml*

Habeeb, William Mark. 1988. *Power and Tactics in International Negotiation: How Weak Nations Bargain with Strong Nations*. Baltimore: Johns Hopkins University Press.

Hafner-Burton, Emilie M., Stephan Haggard, David A. Lake and David G. Victor. 2017. "The Behavioral Revolution and International Relations." *International Organization* 71(S1):S1–S31.

Haftel, Yoram Z. 2007. "Designing for Peace: Regional Integration Arrangements, Institutional Variation, and Militarized Interstate Disputes." *International Organization* 61(01).

Hainmueller, Jens and Michael J. Hiscox. 2006. "Learning to Love Globalization: Education and Individual Attitudes Toward International Trade." *International Organization* 60(2):469–498.

Hall, Richard L. and Alan V. Deardorff. 2006. "Lobbying as Legislative Subsidy." *American Political Science Review* 100(1):69–84.

Hanretty, Chris, Benjamin E. Lauderdale and Nick Vivyan. 2017. "Dyadic Representation in a Westminster System." *Legislative Studies Quarterly* 42(2):235–267.

Hansen, John Mark. 1991. *Gaining Access: Congress and the Farm Lobby, 1919-1981*. American Politics and Political Economy Series Chicago: University of Chicago Press.

Harmon-Jones, Eddie, ed. 2019. *Cognitive Dissonance: Reexamining a Pivotal Theory in Psychology*. Second ed. Washington: American Psychological Association.

Hatfield, John William and William R. Hauk. 2014. "Electoral Regime and Trade Policy." *Journal of Comparative Economics* 42(3):518–534.

Helpman, Elhanan, Marc J Melitz and Stephen R Yeaple. 2004. "Export Versus FDI with Heterogeneous Firms." *American Economic Review* 94(1):300–316.

Helpman, Elhanan, Oleg Itskhoki, Marc-Andreas Muendler and Stephen J. Redding. 2017. "Trade and Inequality: From Theory to Estimation." *The Review of Economic Studies* 84(1):357–405.

Henley, Jon and Dan Roberts. 2018. "11 Brexit Promises the Government Quietly Dropped." *The Guardian* .

Hirschman, Albert. 1945. *National Power and the Structure of Foreign Trade.* Berkeley: University of California Press.

Hiscox, Michael J. 2001. "Class Versus Industry Cleavages: Inter-Industry Factor Mobility and the Politics of Trade." *International Organization* 55(1):1–46.

Hiscox, Michael J. 2002. "Commerce, Coalitions, and Factor Mobility: Evidence from Congressional Votes on Trade Legislation." *American Political Science Review* 96(3):593–608.

Hix, Simon. 2004. "Electoral Institutions and Legislative Behavior: Explaining Voting Defection in the European Parliament." *World Politics* 56(2):194–223.

Hobolt, Sara B. 2016. "The Brexit Vote: A Divided Nation, a Divided Continent." *Journal of European Public Policy* 23(9):1259–1277.

Hoekman, Bernard. 1996. Assessing the General Agreement on Trade in Services. In *The Uruguay Round and the Developing Countries*, ed. Will Martin and L. Alan Winters. Cambridge ; New York: Cambridge University Press pp. 88–124.

Hoen, Alex R. and Jan Oosterhaven. 2006. "On the Measurement of Comparative Advantage." *The Annals of Regional Science* 40(3):677–691.

Huber, Robert A., Yannick Stiller and Andreas Dür. 2021. Measuring Subnational Trade Competitiveness. Preprint Open Science Framework.

Huggins, Robert, Hiro Izushi, Daniel Prokop and Piers Thompson. 2014. *The Global Competitiveness of Regions.* Abingdon: Routledge.

Huggins, Robert, Piers Thompson and Daniel Prokop. 2019. *UK Competitiveness Index 2019.*

Hummels, David, Rasmus Jørgensen, Jakob Munch and Chong Xiang. 2014. "The Wage Effects of Offshoring: Evidence from Danish Matched Worker-Firm Data." *American Economic Review* 104(6):1597–1629.

IBGE, Instituto Brasileiro de Geografia e Estatística. 2010. "XII Recenseamento Geral Do Brasil. Censo Demográfico 2010.".
URL: *https://international.ipums.org/international/index.shtml*

IBGE, Instituto Brasileiro de Geografia e Estatística. 2021. "Pesquisa Nacional Por Amostra de Domicílios (PNAD) 2002-2015.".
URL: *https://www.ibge.gov.br/estatisticas/sociais/educacao/9127-pesquisa-nacional-por-amostra-de-domicilios.html?=&t=microdados*

IHSI, Institute Haïtien de Statistique et d'Informatique. 2003. "Recensement General de La Population et de l'Habitat 2003.".
URL: *https://international.ipums.org/international/index.shtml*

Ikenberry, G. John. 2018. "The End of Liberal International Order?" *International Affairs* 94(1):7–23.

ILO, International Labour Organization. 2020. "Employment by Sex and Economic Activity – ILO Modelled Estimates, Nov. 2020 (Thousands) - Annual.".
URL: *https://www.ilo.org/shinyapps/bulkexplorer11/?lang=en*

IMF, International Monetary Fund. 2019. "World Economic Outlook 2019 Database.".
URL: *https://www.imf.org/external/pubs/ft/weo/2019/02/weodata/download.aspx*

IMF, International Monetary Fund. 2022. World Economic Outlook April 2022. Technical report.
URL: *https://www.imf.org/en/Publications/WEO/Issues/2022/04/19/world-economic-outlook-april-2022*

INDEC, Instituto Nacional de Estadística y Censos de la República Argentina. 2021. "Encuesta Permanente de Hogares.".
URL: *https://www.indec.gob.ar/indec/web/Institucional-Indec-BasesDeDatos*

INDEC, Instituto Nacional de Estadística y Censos de la República Argentina. 2012. "Encuesta Permanente de Hogares 2012.".
URL: *https://www.indec.gob.ar/indec/web/Institucional-Indec-BasesDeDatos*

INE-GTM, Instituto Nacional de Estadística de Guatemala. 2006. "Encuesta Nacional de Condiciones de Vida 2006.".
URL: *http://www.ine.gob.gt/index.php/encuestas-de-hogares-y-personas/condiciones-de-vida*

INE-GTM, Instituto Nacional de Estadística de Guatemala. 2011. "Encuesta Nacional de Condiciones de Vida 2011.".
URL: *http://www.ine.gob.gt/index.php/encuestas-de-hogares-y-personas/condiciones-de-vida*

INE-GTM, Instituto Nacional de Estadística de Guatemala. 2014. "Encuesta Nacional de Condiciones de Vida 2014.".
URL: *http://www.ine.gob.gt/index.php/encuestas-de-hogares-y-personas/condiciones-de-vida*

INE-HND, Instituto Nacional de Estadística de Honduras. 2013. "XVII Censo de Población y VI de Vivienda.".
URL: *https://ine.gob.hn/V3/*

INE, Instituto Nacional de Estadística (Bolivia). 2021*a*. "Encuesta de Hogares 2004-2019.".
URL: *https://www.ine.gob.bo/index.php/censos-y-banco-de-datos/censos/bases-de-datos-encuestas-sociales/*

INE, Instituto Nacional de Estadística (Spain). 2011*a*. "Censos de Población y Viviendas 2011.".
URL: *https://international.ipums.org/international/index.shtml*

INE, Instituto Nacional de Estadística (Spain). 2020. "Encuesta de Población Activa 2006-2019.".
URL: *https://www.ine.es/en/prodyser/microdatos_en.htm*

INE, Instituto Nacional de Estadística (Uruguay). 2021*b*. "Encuesta Continua de Hogares 2006-2019.".
URL: *http://www.ine.gub.uy/web/guest/encuesta-continua-de-hogares1*

INE, Instituto Nacional de Estadística (Venezuela). 2001. "XIII Censo General de Población y Vivienda.".
URL: *https://international.ipums.org/international/index.shtml*

INE, Instituto Nacional de Estatística (Portugal). 2011*b*. "Receseamento Geral Da População 2001 & 2011.".
URL: *https://international.ipums.org/international/index.shtml*

INEC, Instituto Nacional de Estadística y Censos (Costa Rica). 2021*a*. "Encuesta Continua de Empleo 2010-2019.".

INEC, Instituto Nacional de Estadística y Censos (Ecuador). 2021*b*. "Encuesta Nacional de Empleo, Desempleo y Subempleo 2007-2019.".

INEC, Instituto Nacional de Estadística y Censos (Panama). 2021*c*. "Encuesta de Mercado Laboral 2012-2017.".
URL: *http://www.inec.gob.pa/dbnew/pass/indice.html*

INEGI, Geografía e Informática (Mexico), Instituto Nacional de Estadística. 2010. "2010 Population and Housing Census.".
URL: *https://international.ipums.org/*

INEGI, Geografía e Informática (Mexico), Instituto Nacional de Estadística. 2021. "Encuesta Nacional de Ocupación y Empleo (ENOE), 2005-2019.".
URL: *https://www.inegi.org.mx/programas/enoe/15ymas/?ps=Microdatos*

INEI, Instituto Nacional de Estadística e Informática de Perú. 2021. "Encuesta Nacional de Hogares 2004-2019.".
URL: *http://iinei.inei.gob.pe/microdatos/Consulta_por_Encuesta.asp*

INIDE, Instituto Nacional de Información de Desarrollo de Nicaragua. 2021. "Encuesta Nacional de Hogares Sobre Medición de Nivel de Vida 2005, 2012, and 2014.".
URL: *http://www.inide.gob.ni/bibliovirtual/basesdatos.htm*

INS, Institut National de la Statistique (Guinea). 2014*a*. "Third General Census of the Population and Inhabitants.".
URL: *https://international.ipums.org/international/index.shtml*

INS, National Institute of Statistics (Tunisia). 2014*b*. "Labor Market Panel Survey (TLMPS) 2014.".
URL: *http://erf.org.eg/data-portal/*

INSAE, L'Institut National de la Statistique et de l'Analyse Economique (Benin). 2013. "Fourth Population and Habitation Census.".
URL: *https://international.ipums.org/international/index.shtml*

INSEE, Institut National de la Statisque et des Etudes Economiques (France). 2011. "Population Census 2011 (Cycle 2009-2013).".
URL: *https://international.ipums.org/international/index.shtml*

INSEE, Institut National de la Statistique et des Etudes Economiques (France). 2020. "Enquête Emploi En Continu 2000-2019.".
URL: *https://commande.progedo.fr/fr/utilisateur/connexion*

INSEED, Institut National de la Statistique et des Etudes Economiques et Démographiques. 2010. "General Census of the Population and Habitat 2010.".
URL: *https://international.ipums.org/international/index.shtml*

ISTAT, National Institute of Statistics (Italy). 2014. "Labour Force Survey 2014.".
URL: *https://international.ipums.org/international-action/sample_details/country/it*

ISTAT, National Institute of Statistics (Italy). 2019. "Labour Force Survey 2014-2019.".
URL: *https://international.ipums.org/international-action/sample_details/country/it*

Jackson, John E. and John W. Kingdon. 1992. "Ideology, Interest Group Scores, and Legislative Votes." *American Journal of Political Science* 36(3):805.

Jamal, Amaney and Helen V. Milner. 2019. "Economic Self-Interest, Information, and Trade Policy Preferences: Evidence from an Experiment in Tunisia." *Review of International Political Economy* 26(4):545–572.

Jedinger, Alexander and Axel M. Burger. 2020. "The Ideological Foundations of Economic Protectionism: Authoritarianism, Social Dominance Orientation, and the Moderating Role of Political Involvement." *Political Psychology* 41(2):403–424.

Johns, Leslie and Lauren Peritz. 2015. The Design of Trade Agreements. In *The Oxford Handbook of the Political Economy of International Trade*, ed. Lisa L. Martin. Oxford University Press.

Kagitani, Koichi and Kozo Harimaya. 2020. "Constituency Systems, Election Proximity, Special Interests and a Free Trade Agreement: The Case of the Trans-Pacific Partnership in Japan." *International Economics and Economic Policy* 17(4):897–922.

Kahane, Leo H. 1996. "Congressional Voting Patterns on NAFTA.: An Empirical Analysis." *American Journal of Economics and Sociology* 55(4):395–409.

Kaltenthaler, Karl C., Ronald D. Gelleny and Stephen J. Ceccoli. 2004. "Explaining Citizen Support for Trade Liberalization." *International Studies Quarterly* 48(4):829–852.

Karol, David. 2007. "Does Constituency Size Affect Elected Officials' Trade Policy Preferences?" *The Journal of Politics* 69(2):483–494.

Kim, In Song. 2017. "Political Cleavages within Industry: Firm-Level Lobbying for Trade Liberalization." *American Political Science Review* 111(1):1–20.

Kim, In Song and Iain Osgood. 2019. "Firms in Trade and Trade Politics." *Annual Review of Political Science* 22(1):399–417.

Kim, Soo Yeon. 2010. *Power and the Governance of Global Trade: From the GATT to the WTO*. Ithaca, NY: Cornell University Press.

Kim, Sung Eun and Krzysztof J. Pelc. 2021. "The Politics of Trade Adjustment Versus Trade Protection." *Comparative Political Studies* 54(13):2354–2381.

King, Gary and Langche Zeng. 2001. "Logistic Regression in Rare Events Data." *Political Analysis* 9(2):137–163.

Kirkland, Justin H. and Jonathan B. Slapin. 2019. *Roll Call Rebels: Strategic Dissent in the United States and United Kingdom*. Cambridge Elements. Elements in American Politics Cambridge: Cambridge University Press.

Kitson, Michael, Ron Martin and Peter Tyler. 2004. "Regional Competitiveness: An Elusive yet Key Concept?" *Regional Studies* 38(9):991–999.

KLI, Korea Labor Institute. 2019. "Korean Labor & Income Panel Study 2000-2018.".
URL: *https://www.kli.re.kr/klips_ eng/index.do*

KNBS, Kenya National Bureau of Statistics. 2006. "Kenya Integrated Household Budget Survey 2005-2006.".
URL: *http://statistics.knbs.or.ke/nada/index.php/catalog/8/datafile/F48*

Kong, Kanga, Ben Brody and Jiyeun Lee. 2018. "U.S. Settles South Korea Trade Dispute Before Summit With North." *Bloomberg* .
URL: *https://www.bloomberg.com/news/articles/2018-03-25/south-korea-says-agreement-made-with-u-s-on-trade-deal-tariffs*

Kono, Daniel Y. 2008. "Does Public Opinion Affect Trade Policy?" *Business and Politics* 10(2):1–19.

Konrad, Kai A. and Thomas R. Cusack. 2014. "Hanging Together or Hanged Separately: The Strategic Power of Coalitions Where Bargaining Occurs with Incomplete Information." *Journal of Conflict Resolution* 58(5):920–940.

Kowalski, Przemyslaw, Javier Lopez Gonzalez, Alexandros Ragoussis and Cristian Ugarte. 2015. Participation of Developing Countries in Global Value Chains: Implications for Trade and Trade-Related Policies. OECD Trade Policy Papers 179.

Krasner, Stephen D. 1976. "State Power and the Structure of International Trade." *World Politics* 28(3):317–347.

Kriesi, Hanspeter, Edgar Grande, Romain Lachat, Martin Dolezal, Simon Bornschier and Timotheos Frey. 2008. *West European Politics in the Age of Globalization.* First ed. Cambridge University Press.

Krueger, Anne O. 1997. "Free Trade Agreements versus Customs Unions." *Journal of Development Economics* 54(1):169–187.

Krugman, Paul. 1994. "Competitiveness: A Dangerous Obsession." *Foreign Affairs* 73(2):28–44.

Krugman, Paul R. 1996. "Making Sense of the Competitiveness Debate." *Oxford review of economic policy* 12(3):17–25.

Kuo, Jason and Megumi Naoi. 2015. Individual Attitudes. In *The Oxford Handbook of the Political Economy of International Trade*, ed. Lisa L. Martin. Oxford University Press.

Lake, David A. 2009. "Open Economy Politics: A Critical Review." *Review of International Organizations* 4(3):219–244.

Lake, David A., Lisa L. Martin and Thomas Risse. 2021. "Challenges to the Liberal Order: Reflections on *International Organization*." *International Organization* 75(2):225–257.

Laursen, Keld. 2015. "Revealed Comparative Advantage and the Alternatives as Measures of International Specialization." *Eurasian Business Review* 5(1):99–115.

Leamer, Edward E. 1984. *Sources of International Comparative Advantage: Theory and Evidence*. Boston: MIT Press.

Lechner, Lisa and Simon Wüthrich. 2018. "Seal the Deal: Bargaining Positions, Institutional Design, and the Duration of Preferential Trade Negotiations." *International Interactions* 44(5):833–861.

Lee, Eunhee. 2020. "Trade, Inequality, and the Endogenous Sorting of Heterogeneous Workers." *Journal of International Economics* 125.

Leeper, Thomas J. 2018. *Margins: Marginal Effects for Model Objects.*

Leeper, Thomas J. 2019. *Prediction: Tidy, Type-Safe 'prediction()' Methods.*

Leifeld, Philip. 2013. "Texreg: Conversion of Statistical Model Output in R to LaTeX and HTML Tables." *Journal of Statistical Software* 55(8):1–24.

Liadze, Iana, Corrado Macchiarelli, Paul Mortimer-Lee and Patrica Sanchez Juanino. 2022. "The Economic Costs of the Russia-Ukraine Conflict." *NIESR Policy Paper* 32.

Liao, Steven and Daniel McDowell. 2015. "Redback Rising: China's Bilateral Swap Agreements and Renminbi Internationalization." *International Studies Quarterly* 59(3):401–422.

Liu, Bin and Jianbo Gao. 2019. "Understanding the Non-Gaussian Distribution of Revealed Comparative Advantage Index and Its Alternatives." *International Economics* 158:1–11.

Low, Patrick. 2013. The Role of Services in Global Value Chains. In *Global Value Chains in a Changing World*. WTO pp. 61–81.

LSB, Lao Statistics Bureau. 2005. "2005 Population and Housing Census.".
URL: *https://international.ipums.org/international/index.shtml*

Lü, Xiaobo, Kenneth Scheve and Matthew J. Slaughter. 2012. "Inequity Aversion and the International Distribution of Trade Protection: INEQUITY AVERSION." *American Journal of Political Science* 56(3):638–654.

Lyubchich, Vyacheslav and Yulia R. Gel. 2021. *Funtimes: Functions for Time Series Analysis*.

Lüdecke, Daniel. 2018. *sjPlot: Data Visualization for Statistics in Social Science*. R package version 2.4.1.9000.
URL: *https://CRAN.R-project.org/package=sjPlot*

Madeira, Mary Anne. 2016. "New Trade, New Politics: Intra-Industry Trade and Domestic Political Coalitions." *Review of International Political Economy* 23(4):677–711.

Magee, Christopher Sean Patrick. 2010. "Would NAFTA Have Been Approved by the House of Representatives under President Bush? Presidents, Parties, and Trade Policy." *Review of International Economics* 18(2):382–395.

Maggi, G. 2016. Issue Linkage. In *Handbook of Commercial Policy*. Vol. 1 Elsevier pp. 513–564.

Mahutga, Matthew C. 2014. "Global Models of Networked Organization, the Positional Power of Nations and Economic Development." *Review of International Political Economy* 21(1):157–194.

Malesky, Edmund J. 2008. "Straight Ahead on Red: How Foreign Direct Investment Empowers Subnational Leaders." *The Journal of Politics* 70(1):97–119.

Mallet, Victor and Roula Khalaf. 2020. "FT Interview: Emmanuel Macron Says It Is Time to Think the Unthinkable." *Financial Times* .
URL: *https://www.ft.com/content/3ea8d790-7fd1-11ea-8fdb-7ec06edeef84*

Mansfield, Edward D. and Diana C. Mutz. 2009. "Support for Free Trade: Self-Interest, Sociotropic Politics, and Out-Group Anxiety." *International Organization* 63(3):425–457.

Mansfield, Edward D., Diana C. Mutz and Laura R. Silver. 2015. "Men, Women, Trade, and Free Markets." *International Studies Quarterly* 59(2):303–315.

Mansfield, Edward D. and Helen V. Milner. 1999. "The New Wave of Regionalism." *International Organization* 53(3):589–627.

Mansfield, Edward D. and Helen V. Milner. 2012. *Votes, Vetoes, and the Political Economy of International Trade Agreements*. Princeton [N.J.]: Princeton University Press.

Margalit, Yotam. 2011. "Costly Jobs: Trade-Related Layoffs, Government Compensation, and Voting in U.S. Elections." *American Political Science Review* 105(1):166–188.

Margalit, Yotam. 2012. "Lost in Globalization: International Economic Integration and the Sources of Popular Discontent." *International Studies Quarterly* 56(3):484–500.

Marshall, Monty G. and Ted Robert Gurr. 2020. "Polity5: Political Regime Characteristics and Transitions, 1800-2018: Dataset Users' Manual.".

Marshall, Monty G., Ted Robert Gurr and Keith Jaggers. 2019. "Polity IV Project: Political Regime Characteristics and Transitions, 1800-2018: Dataset Users' Manual.".

Martin, Lisa L. 2015. Introduction. In *The Oxford Handbook of the Political Economy of International Trade*, ed. Lisa L. Martin. Oxford University Press.

Mayda, Anna Maria and Dani Rodrik. 2005. "Why Are Some People (and Countries) More Protectionist than Others?" *European Economic Review* 49(6):1393–1430.

McKibben, Heather Elko. 2013. "The Effects of Structures and Power on State Bargaining Strategies." *American Journal of Political Science* 57(2):411–427.

McLaren, John. 1997. "Size, Sunk Costs, and Judge Bowker's Objection to Free Trade." *The American Economic Review* 87(3):400–420.

MDSF, Ministerio de Desarrollo Social y Familia de Chile. 2021. "Encuesta de Caracterizacion Socioeconomica Nacional (CASEN) 2000-2017.".
URL: *http://observatorio.ministeriodesarrollosocial.gob.cl/casen-multidimensional/casen/basedatos.php*

Mearsheimer, John J. 2019. "Bound to Fail: The Rise and Fall of the Liberal International Order." *International Security* 43(4):7–50.

Melitz, Marc J. 2003. "The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity." *Econometrica* 71(6):1695–1725.

Meschi, Elena and Marco Vivarelli. 2009. "Trade and Income Inequality in Developing Countries." *World Development* 37(2):287–302.

Meunier, Sophie. 2000. "What Single Voice? European Institutions and EU–U.S. Trade Negotiations." *International Organization* 54(1):103–135.

Meunier, Sophie. 2005. *Trading Voices: The European Union in International Commercial Negotiations*. Princeton, NJ: Princeton University Press.

Miler, Kristina and Todd Allee. 2018. "When Free Traders Become Protectionists: Constituent Advocacy at the International Trade Commission: When Free Traders Become Protectionists." *Legislative Studies Quarterly* 43(3):377–407.

Milner, Helen V. 1988. *Resisting Protectionism: Global Industries and the Politics of International Trade*. Princeton, N.J: Princeton University Press.

Milner, Helen V. and Benjamin Judkins. 2004. "Partisanship, Trade Policy, and Globalization: Is There a Left-Right Divide on Trade Policy?" *International Studies Quarterly* 48(1):95–120.

Milner, Helen V. and Dustin H. Tingley. 2011. "Who Supports Global Economic Engagement? The Sources of Preferences in American Foreign Economic Policy." *International Organization* 65(1):37–68.

Minnesota Population Center. 2019. "Integrated Public Use Microdata Series, International: Version 7.2.". Version Number: 7.2 type: dataset.
URL: *https://www.ipums.org/projects/ipums-international/d020.V7.2*

Miroudot, Sébastien. 2020. "Reshaping the Policy Debate on the Implications of COVID-19 for Global Supply Chains." *Journal of International Business Policy* 3(4):430–442.

Miroudot, Sébastien and Charles Cadestin. 2017. Services In Global Value Chains: From Inputs to Value-Creating Activities. OECD Trade Policy Papers 197.

Morrison, James Ashley. 2012. "Before Hegemony: Adam Smith, American Independence, and the Origins of the First Era of Globalization." *International Organization* 66(3):395–428.

MoSPI, Ministry of Statistics & Programme Implementation (India). 2021. "Employment and Unemployment Survey, 2000, 2004, 2005, 2006, 2008, 2010, and 2012.".
URL: *http://microdata.gov.in/nada43/index.php/catalog/127/related_materials*

Murillo, María Victoria and Pablo M. Pinto. 2021. "Heeding to the Losers: Legislators' Trade-Policy Preferences and Legislative Behavior." *Legislative Studies Quarterly* p. lsq.12337.

Naoi, Megumi. 2020. "Survey Experiments in International Political Economy: What We (Don't) Know About the Backlash Against Globalization." *Annual Review of Political Science* 23(1):333–356.

Naoi, Megumi and Shujiro Urata. 2013. "Free Trade Agreements and Domestic Politics: The Case of the Trans-Pacific Partnership Agreement: Domestic Politics in Japan." *Asian Economic Policy Review* 8(2):326–349.

Narlikar, Amrita. 2004. *International Trade and Developing Countries: Bargaining Coalitions in GATT and WTO*. London: Routledge.

NBS, National Bureau of Statistics (Nigeria). 2009. "General Household Survey, 2008-09.".
URL: *https://international.ipums.org/international/index.shtml*

NBS, Tanzania National Bureau of Statistics. 2021. "Intergrated Labour Force Survey 2006 & 2014.".
URL: *https://nbs.go.tz/tnada/index.php/catalog*

Nguyen, Quynh, Robert A. Huber and Thomas Bernauer. 2021. "Environmental Impacts and Public Opinion About International Trade: Experimental Evidence from Six OECD Countries." *Global Environmental Politics* pp. 1–28.

NIS, National Institute of Statistics (Cambodia). 2020. "Socio-Economic Survey 1999-2017.".
URL: *"https://www.nis.gov.kh/index.php/en/*

NISR, National Institute of Statistics of Rwanda. 2012. "Population and Housing Census 2002 & 2012.".
URL: *https://international.ipums.org/international/index.shtml*

Nolte, Detlef. 2016. "The Pacific Alliance: Nation-Branding through Regional Organisations." *GIGA Focus Latin America* 2016(4):1–13.

Norris, Pippa. 2020. "Global Party Survey, 2019.".
URL: *https://www.globalpartysurvey.org/*

Norris, Pippa and Ronald Inglehart. 2019. *Cultural Backlash: Trump, Brexit, and Authoritarian Populism*. First ed. Cambridge University Press.

NSA, Namibia Statistics Agency. 2021. "Labour Force Survey 2013 & 2016.".
URL: *https://nsa.org.na/microdata1/index.php/catalog*

NSC, National Statistical Committee of the Kyrgyz Republic. 2009. "Census of Population and Housing of the Kyrgyz Republic, 1999 & 2009.".
URL: *https://international.ipums.org/international/index.shtml*

NSO, National Statistical Office of Mongolia. 2021. "Labour Force Survey 20003-2018.".
URL: *http://web.nso.mn/nada/index.php/catalog/LFS*

NSO, National Statistical Office of Thailand. 2000*a*. "The 2000 Population and Housing Census of Thailand.".
URL: *https://international.ipums.org/international/index.shtml*

NSO, National Statistics Office of Papua New Guinea. 2000*b*. "National Census 2000.".
URL: *https://international.ipums.org/international/index.shtml*

NSS, National Statistical Service of the Republic of Armenia. 2011. "The 2011 Population and Housing Census of the Republic of Armenia.".
URL: *https://international.ipums.org/international/index.shtml*

Oatley, Thomas. 2011. "The Reductionist Gamble: Open Economy Politics in the Global Economy." *International Organization* 65(2):311–41.

Odell, John S. 2010. "Negotiating from Weakness in International Trade Relations." *Journal of World Trade* 44(3):545–566.

OECD, Organisation for Economic Co-operation and Development. 2021. "OECD Balanced Trade Statistics.".
URL: *https://www.oecd.org/sdd/its/balanced-trade-statistics.htm*

Oh, Yoon Ah. 2018. "Power Asymmetry and Threat Points: Negotiating China's Infrastructure Development in Southeast Asia." *Review of International Political Economy* 25(4):530–552.

Olivella, Santiago and Margit Tavits. 2014. "Legislative Effects of Electoral Mandates." *British Journal of Political Science* 44(2):301–321.

Olson, Mancur. 1965. *The Logic of Collective Action*. Cambridge: Harvard University Press.

ONE, Oficina Nacional de Estadística de la República Dominicana. 2021. "Encuesta de Hogares de Propositos Multiples 2009, 2013, and 2015.".
URL: *https://www.one.gob.do/*

O'Neill, Barry. 2018. "International Negotiation: Some Conceptual Developments." *Annual Review of Political Science* 21(1):515–533.

ONS, Office for National Statistics (United Kingdom). 2021. "Quarterly Labour Force Survey 2000-2019.".

O'Rourke, Kevin H. and Richard Sinnott. 2001. The Determinants of Individual Trade Policy Preferences: International Survey Evidence. In *Brookings Trade Forum*, ed. Susan M. Collins and Dani Rodrik. Washington, DC: Brookings Institution Press pp. 157–186.

Osgood, Iain. 2017. "The Breakdown of Industrial Opposition to Trade: Firms, Product Variety and Reciprocal Liberalization." *World Politics* 69(1):184–231.

Osgood, Iain, Dustin Tingley, Thomas Bernauer, In Song Kim, Helen V. Milner and Gabriele Spilker. 2017. "The Charmed Life of Superstar Exporters: Survey Evidence on Firms and Trade Policy." *The Journal of Politics* 79(1):133–152.

Owen, Erica. 2017. "Exposure to Offshoring and the Politics of Trade Liberalization: Debate and Votes on Free Trade Agreements in the US House of Representatives, 2001–2006." *International Studies Quarterly* 61(2):297–311.

Panagariya, Arvind. 1999. *Regionalism in Trade Policy: Essays on Preferential Trading*. WORLD SCIENTIFIC.

Papavero, Licia C. and Francesco Zucchini. 2018. "Gender and Party Cohesion in the Italian Parliament: A Spatial Analysis." *Italian Political Science Review/Rivista Italiana di Scienza Politica* 48(2):243–264.

Partington, Richard and Dominic Rushe. 2018. "Trump Hits China with $200bn of New Tariffs as Trade War Escalates." *The Guardian* .
URL: *https://www.theguardian.com/us-news/2018/sep/17/donald-trump-united-states-threatens-to-impose-200bn-import-tariffs-on-china-in-trade-war*

PCBS, Palestinian Central Bureau of Statistics. 2008. "Labor Force Survey (LFS) 2008.".
URL: *http://www.erfdataportal.com/index.php/catalog*

PCBS, Palestinian Central Bureau of Statistics. 2012. "Labor Force Survey (LFS) 2008 & 2012.".
URL: *http://www.erfdataportal.com/index.php/catalog*

Pekkanen, Saadia M., Mireya Solís and Saori N. Katada. 2007. "Trading Gains for Control: International Trade Forums and Japanese Economic Diplomacy." *International Studies Quarterly* 51(4):945–970.

Pew Research Center. 2014. *Global Attitudes & Trends. Spring 2014 44-Nation Survey.*

Plouffe, Michael. 2017. "Firm Heterogeneity and Trade-Policy Stances *Evidence from a Survey of Japanese Producers*." *Business and Politics* 19(1):1–40.

Porter, M. E. 1990. *The Competitive Advantage of Nations.* New York: Macmillan.

Portmann, Marco, David Stadelmann and Reiner Eichenberger. 2012. "District Magnitude and Representation of the Majority's Preferences: Evidence from Popular and Parliamentary Votes." *Public Choice* 151(3-4):585–610.

Potters, Jan and Frans van Winden. 1992. "Lobbying and Asymmetric Information." *Public Choice* 74(3):269–292.

Proksch, Sven-Oliver and Jonathan B. Slapin. 2015. *The Politics of Parliamentary Debate: Parties, Rebels, and Representation.* Cambridge: Cambridge University Press.

PSA, Philippine Statistics Authority. 2010. "2010 Census of Population and Housing.". **URL:** *https://international.ipums.org/international/index.shtml*

R Core Team. 2020*a*. *Foreign: Read Data Stored by 'Minitab', 'S', 'SAS', 'SPSS', 'Stata', 'Systat', 'Weka', 'dBase', ...*

R Core Team. 2020*b*. *R: A Language and Environment for Statistical Computing.* Vienna, Austria: .

Reynolds, Andrew, Ben Reilly and Andrew Ellis. 2005. *Electoral System Design: The New International IDEA Handbook.* Handbook Series Stockholm, Sweden: International Institute for Democracy and Electoral Assistance.

Rho, Sungmin and Michael Tomz. 2017. "Why Don't Trade Preferences Reflect Economic Self-Interest?" *International Organization* 71(S1):85–108.

Rodrik, Dani. 2018. "Populism and the Economics of Globalization." *Journal of International Business Policy* 1(1-2):12–33.

Rodrik, Dani. 2021. "Why Does Globalization Fuel Populism? Economics, Culture, and the Rise of Right-Wing Populism." *Annual Review of Economics* 13(1):133–170.

Rogowski, Ronald. 1987. "Political Cleavages and Changing Exposure to Trade." *American Political Science Review* 81(4):1121–1137.

Rogowski, Ronald. 1990. *Commerce and Coalitions: How Trade Affects Domestic Political Alignments.* 1. princeton paperback print ed. Princeton, NJ: Princeton Univ. Press.

Rosendorff, B. Peter and Helen V. Milner. 2001. "The Optimal Design of International Trade Institutions: Uncertainty and Escape." *International Organization* 55(4):829–857.

Roy, Martin. 2011. "Services Commitments in Preferential Trade Agreements: An Expanded Dataset." *SSRN Electronic Journal* .

Roy, Martin and Juan A. Marchetti. 2008. Services Liberalization in the WTO and in PTAs. In *Opening Markets for Trade in Services: Countries and Sectors in Bilateral and WTO Negotiations*, ed. Juan A. Marchetti and Martin Roy. Cambridge, UK ; New York: Cambridge University Press pp. 61–112.

Roy, Martin, Juan A. Marchetti and Aik Hoe Lim. 2008. The Race towards Preferential Trade Agreements in Services: How Much Market Access Is Really Achieved? In *GATS and the Regulation of International Trade in Services*, ed. Marion Panizzon, Nicole Pohl and Pierre Sauvé. Cambridge: Cambridge University Press pp. 77–110.

Sang-Hun, Choe. 2011. "South Korea Approves Free Trade Pact With U.S." *New York Times* .
URL: *https://www.nytimes.com/2011/11/23/business/global/seoul-votes-a-chaotic-yes-to-free-trade-with-us.html*

Schaffer, Lena Maria and Gabriele Spilker. 2016. "Adding Another Level Individual Responses to Globalization and Government Welfare Policies." *Political Science Research and Methods* 4(2):399–426.

Schaffer, Lena Maria and Gabriele Spilker. 2019. "Self-Interest versus Sociotropic Considerations: An Information-Based Perspective to Understanding Individuals' Trade Preferences." *Review of International Political Economy* 26(6):1266–1292.

Scheve, Kenneth F. and Matthew J. Slaughter. 2001. "What Determines Individual Trade-Policy Preferences?" *Journal of International Economics* 54(2):267–292.

Schlozman, Kay Lehman and John T. Tierney. 1986. *Organized Interests and American Democracy*. New York: Harper & Row.

Schonhardt-Bailey, Cheryl. 2003. "Ideology, Party and Interests in the British Parliament of 1841–47." *British Journal of Political Science* 33(4):581–605.

Schwab, Klaus. 2019. *The Global Competitiveness Report 2019*. Geneva: World Economic Forum.

SCI, Statistical Center of Iran. 2011. "National Population and Housing Census 2006 & 2011.".
URL: *https://international.ipums.org/international/index.shtml*

Sell, Susan K. and Aseem Prakash. 2004. "Using Ideas Strategically: The Contest Between Business and NGO Networks in Intellectual Property Rights." *International Studies Quarterly* 48(1):143–175.

Sforza, Alessandro and Marina Steininger. 2020. "Globalization in the Time of COVID-19." *SSRN Electronic Journal* .

Shadlen, Ken. 2008. "Globalisation, Power and Integration: The Political Economy of Regional and Bilateral Trade Agreements in the Americas." *The Journal of Development Studies* 44(1):1–20.

Shaffer, Gregory C. 2005. Power, Governance and the WTO: A Comparative Institutional Approach. In *Power in Global Governance*, ed. Michael Barnett and Raymond Duvall. Cambridge: Cambridge University Press pp. 130–160.

Shomer, Yael. 2009. "Candidate Selection Procedures, Seniority, and Vote-Seeking Behavior." *Comparative Political Studies* 42(7):945–970.

Sieberer, Ulrich. 2006. "Party Unity in Parliamentary Democracies: A Comparative Analysis." *The Journal of Legislative Studies* 12(2):150–178.

Sieberer, Ulrich and Tamaki Ohmura. 2021. "Mandate Type, Electoral Safety, and Defections from the Party Line: The Conditional Mandate Divide in the German Bundestag, 1949–2013." *Party Politics* 27(4):704–715.

Slowikowski, Kamil. 2020. *Ggrepel: Automatically Position Non-Overlapping Text Labels with 'Ggplot2'*.

Smith, Adam. 1776. *An Inquiry into the Nature and Causes of the Wealth of Nations*. McMaster University Archive for the History of Economic Thought.
URL: *https://EconPapers.repec.org/RePEc:hay:hetboo:smith1776*

Smith, James McCall. 2000. "The Politics of Dispute Settlement Design: Explaining Legalism in Regional Trade Pacts." *International Organization* 54(1):137–180.

Smits, Jeroen and Iñaki Permanyer. 2019. "The Subnational Human Development Database." *Scientific Data* 6:190038.

St. John, Taylor. 2018. *The Rise of Investor-State Arbitration: Politics, Law, and Unintended Consequences*. First edition ed. Oxford, United Kingdom: Oxford University Press.

StatAustria, Statistik Austria. 2020. "Mikrozensus 2003-2019.".
URL: *https://data.aussda.at/dataverse/statistikaustria*

StatBel, Belgian Statistical Office. 2020. "Labour Force Survey 2013-2019.".
URL: *https://statbel.fgov.be/en/about-statbel/what-we-do/microdata-research*

StatEst, Statistikaamet (Estonia). 2020. "Labour Force Survey 2000-2019.".
URL: *https://www.stat.ee/en/find-statistics/request-statistics/request-microdata-research*

STATIN, Statistical Institute of Jamaica. 2001. "Population Census 2001.".
URL: *https://international.ipums.org/international/index.shtml*

Stats SA, Statistics South Africa. 2021. "Quarterly Labour Force Survey 2000-2019.".
URL: *https://www.datafirst.uct.ac.za/dataportal/index.php/catalog/499/get_microdata*

StatsBots, Statistics Botswana. 2011. "Population and Housing Census 2001 & 2011.".
URL: *https://international.ipums.org/international/index.shtml*

StatsCAN, Statistics Canada. 2021. "Labour Force Survey 2000-2019.".
URL: *https://www.statcan.gc.ca/eng/help/microdata*

StatSVK, Statistical Office of the Slovak Republic. 2020. "Slovakian Labour Force Survey 2003-2019.".
URL: *https://slovak.statistics.sk/wps/portal/ext/home/!ut/p/z1/*

Steger, Manfred B. and Erin K. Wilson. 2012. "Anti-Globalization or Alter-Globalization? Mapping the Political Ideology of the Global Justice Movement1: Anti-Globalization or Alter-Globalization?" *International Studies Quarterly* 56(3):439–454.

Steinberg, Richard H. 2002. "In the Shadow of Law or Power? Consensus-Based Bargaining and Outcomes in the GATT/WTO." *International Organization* 56(2):339–374.

Stratmann, Thomas. 2000. "Congressional Voting over Legislative Careers: Shifting Positions and Changing Constraints." *American Political Science Review* 94(3):665–676.

Strijbis, Oliver, Céline Teney and Marc Helbling. 2019. Why Are Elites More Cosmopolitan than Masses? In *The Struggle Over Borders: Cosmopolitanism and Communitarianism*, ed. Michael Zürn, Oliver Strijbis, Pieter de Wilde, Ruud Koopmans and Wolfgang Merkel. Cambridge: Cambridge University Press pp. 37–64.

Tallberg, Jonas. 2010. "The Power of the Chair: Formal Leadership in International Cooperation." *International Studies Quarterly* 54(1):241–265.

The World Bank. 2019. "World Development Indicators.".
URL: *https://databank.worldbank.org/source/world-development-indicators*

Tomiura, Eiichi, Banri Ito, Hiroshi Mukunoki and Ryuhei Wakasugi. 2019. "Individual Characteristics, Behavioral Biases, and Attitudes toward Foreign Workers: Evidence from a Survey in Japan." *Japan and the World Economy* 50:1–13.

TÜİK, Turkish Statistical Institute. 2012. "2012 Household Labour Force Survey.".
URL: *http://www.tuik.gov.tr/MicroVeri/Hia_2014/english/instructions.html*

UNCTAD, United Nations Conference on Trade and Development, ed. 2020. *International Production beyond the Pandemic*. Number 2020 *in* "World Investment Report" 30th anniversary edition ed. Geneva New York: United Nations.

UNIDO, United Nations Industrial Development Organization. 1982. *Changing Patterns of Trade in World Industry: An Empirical Study on Revealed Comparative Advantage*. New York: UNIDO.

United Nations. 2020. "UN Comtrade Database.".
URL: *https://comtrade.un.org/*

United Nations, General Assembly. 2017. "Work of the Statistical Commission pertaining to the 2030 Agenda for Sustainable Development (A/RES/71/313).".
URL: *https://undocs.org/a/res/71/313*

UNSD, United Nations Statistics Division. 2008. "International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4.".
URL: *https://unstats.un.org/unsd/classifications/Econ/*

Urbatsch, Robert. 2013. "A Referendum on Trade Theory: Voting on Free Trade in Costa Rica." *International Organization* 67(1):197–214.

USCB, U.S. Census Bureau. 2018. "American Community Survey 2000-2018.".
URL: *hhttps://usa.ipums.org/usa/index.shtml*

Vaggi, Gianni and Peter Groenewegen. 2003. *A Concise History of Economic Thought From Mercantilism to Monetarism.*

van der Waal, Jeroen and Willem de Koster. 2015. "Why Do the Less Educated Oppose Trade Openness? A Test of Three Explanations in the Netherlands." *European Journal of Cultural and Political Sociology* 2(3-4):313–344.

Venables, William N. and Brian D. Ripley. 2002. *Modern Applied Statistics with S.* Fourth ed. New York: Springer.

Vollrath, Thomas L. 1991. "A Theoretical Evaluation of Alternative Trade Intensity Measures of Revealed Comparative Advantage." *Weltwirtschaftliches Archiv* 127(2):265–280.

Wagner, R. Harrison. 1988. "Economic Interdependence, Bargaining Power, and Political Influence." *International Organization* 42(3):461–483.

Walter, Stefanie. 2010. "Globalization and the Welfare State: Testing the Microfoundations of the Compensation Hypothesis: Globalization and the Welfare State." *International Studies Quarterly* 54(2):403–426.

Walter, Stefanie. 2021. "The Backlash Against Globalization." *Annual Review of Political Science* 24(1):421–442.

Waltz, Kenneth N. 1970. The Myth of National Interdependence. In *The International Corporation*, ed. Charles Kindleberger. Cambridge: MIT Press pp. 205–223.

Weiss, Jessica Chen and Jeremy L. Wallace. 2021. "Domestic Politics, China's Rise, and the Future of the Liberal International Order." *International Organization* 75(2):635–664.

Wickham, Hadley and Jennifer Bryan. 2019. *Readxl: Read Excel Files.*

Wickham, Hadley, Mara Averick, Jennifer Bryan, Winston Chang, Lucy McGowan, Romain François, Garrett Grolemund, Alex Hayes, Lionel Henry, Jim Hester, Max Kuhn, Thomas Pedersen, Evan Miller, Stephan Bache, Kirill Müller, Jeroen Ooms, David Robinson, Dana Seidel, Vitalie Spinu, Kohske Takahashi, Davis Vaughan, Claus Wilke, Kara Woo and Hiroaki Yutani. 2019. "Welcome to the Tidyverse." *Journal of Open Source Software* 4(43):1686.

Wright, John R. 1996. *Interest Groups and Congress: Lobbying, Contributions, and Influence.* New Topics in Politics Boston: Allyn and Bacon.

WTO, World Trade Organization. 1991. "Services Sectoral Classification List (W/120).". **URL:** *https://www.wto.org/english/tratop_e/serv_e/mtn_gns_w_120_e.doc*

WTO, World Trade Organization. 2011. "World Trade Report 2011—The WTO and Preferential Trade Agreements: From Coexistence to Coherence.".

WTO, World Trade Organization. 2022. "Regional Trade Agreements Database.". **URL:** *http://rtais.wto.org/UI/PublicMaintainRTAHome.aspx*

ZamStats, Zambia Statistics Agency. 2010. "2010 Census of Population and Housing.". **URL:** *https://international.ipums.org/international/index.shtml*

Zeileis, Achim. 2004. "Econometric Computing with HC and HAC Covariance Matrix Estimators." *Journal of Statistical Software* 11(10).

Zeileis, Achim. 2006. "Object-Oriented Computation of Sandwich Estimators." *Journal of Statistical Software* 16(9).

Zeileis, Achim and Gabor Grothendieck. 2005. "Zoo: S3 Infrastructure for Regular and Irregular Time Series." *Journal of Statistical Software* 14(6):1–27.

Zeileis, Achim and Torsten Hothorn. 2002. "Diagnostic Checking in Regression Relationships." *R News* 2(3):7–10.

Zeng, Ka, Karen Sebold and Yue Lu. 2020. "Global Value Chains and Corporate Lobbying for Trade Liberalization." *The Review of International Organizations* 15(2):409–443.

9 | Appendix

A1 Appendix for Chapter 2

A1.1 Measuring a country's (revealed) comparative advantage

In this subsection, we provide a more detailed discussion of how we measure countries' revealed comparative advantage. Specifically, we embed the four measures outlined in the main-text in the larger literature and discuss their strengths and weaknesses.

Establishing the industry-level comparative advantage of a large number of countries over time is no easy feat. Illustratively, there are simply no data available on the costs of production of different goods (and the provision of different services) for many countries at different times. As a result, Balassa (1965) proposed to use trade data to measure a country's "revealed comparative advantage" (RCA). Countries' trade data have the advantage that they are widely available and are harmonized in terms of product classifications. Concretely, Balassa suggested standardizing the share of a specific good in total exports of a country by the given product's share in world exports. In form of an equation:

$$RCA_{cpt} = \frac{\frac{X_{cpt}}{X_{ct}}}{\frac{X_{rpt}}{X_{rt}}}, \tag{9.1}$$

where X refers to exports, c to the country, p to the product, t to the year, and r to the reference countries (e.g. the rest of the world minus country c, which we use in this study). Values of RCA_{cpt} above 1 indicate that a country has a comparative advantage in a given product, whereas values below 1 indicate that a country has a comparative disadvantage. This is a measure of *revealed* comparative advantage, as it takes actual trade data (which may be affected by government policies such as tariffs or subsidies) to infer comparative advantage.

Since the publication of Balassa's paper, many authors have suggested alternative ways of calculating revealed comparative advantage (for an overview, see Liu and Gao 2019). Among the many measures that have been proposed in this debate, we choose four, all of which have

the advantage that they have explicit upper and lower bounds. In fact, all four measures below have a theoretical range from -1 (greatest comparative disadvantage) to +1 (greatest comparative advantage), with a value of 0 indicating that a country has neither a comparative advantage nor a comparative disadvantage in producing a certain good or service. The other measures that have been proposed are either very similar to at least one of the measures considered here or have been shown to have serious problems.

RCA Symmetric

The first RCA measure that we use is a transformation of Balassa's original measure with the aim of making it symmetric around the neutral state of 0. Concretely, Laursen (2015) proposed the following symmetric RCA (*RCA (symmetric)*):

$$RCA\ (symmetric)_{cpt} = \frac{RCA_{cpt} - 1}{RCA_{cpt} + 1}, \tag{9.2}$$

where the letters have the same meaning as in equation 9.1 above. While the fact that this measure is symmetric around 0 is a nice property of *RCA (symmetric)*, many of the criticisms raised against Balassa's original RCA also apply to this variant. In particular, this measure generally assigns higher than expected values for countries and products that only account for a small share of world exports.

RCA Additive

The second RCA measure that we rely on is an additive version of Balassa's original measure that was proposed by Hoen and Oosterhaven (2006). This additive RCA (*RCA (additive)*) is calculated as follows:

$$RCA\ (additive)_{cpt} = \frac{X_{cpt}}{X_{ct}} - \frac{X_{rpt}}{X_{rt}}, \tag{9.3}$$

again with the same notation as used before. According to Hoen and Oosterhaven (2006), this RCA measure has the advantage that it has a more stable distribution than the original RCA. Moreover, they criticize the original measure for having a mean above 1, although 1 should indicate the neutral point on the Balassa index. Just as *RCA (symmetric)*, *RCA (additive)* is symmetric around the neutral value of 0. A weakness of this measure, however, is that it is biased against products that only account for a small share of exports. Larger sectors receive larger values, everything else equal. This makes this measure sensitive to the level of aggregation at which it is calculated.

RCA Net

Because a country's comparative advantage should be visible in both exports and imports, we also consider two RCA measures that take imports into account. Concretely, our third measure is a slight adaptation of an approach originally suggested by Vollrath (1991). Vollrath proposed subtracting a measure equivalent to the original RCA but calculated for imports (so simply substituting imports for exports in equation 9.1) from the original RCA. We adapt this approach by first applying the RCA transformation suggested by Laursen (2015) and shown in equation 9.2. In form of an equation, the resulting *RCA (net)* is calculated as:

$$RCA\ (net)_{cpt} = (\frac{RXA_{cpt} - 1}{RXA_{cpt} + 1} - \frac{RMA_{cpt} - 1}{RMA_{cpt} + 1})/2, \tag{9.4}$$

where RXA refers to the RCA calculated in equation 9.1 and RMA to the equivalent measure calculated for imports. We divide this measure by 2 to give it the same theoretical range as the other three measures have. While taking into account imports can be seen as a strength of this measure, it is at the same time also a weakness. A country may appear to have a comparative advantage for a product only because it imposes high trade barriers that strongly limit imports.

RCA trade balance

Finally, UNIDO (1982: 23) proposed to use trade balance (which is the difference between domestic production and consumption) as a share of total trade as a measure of a country's RCA. This *RCA (trade balance)* is calculated as follows:

$$RCA\ (tradebalance)_{cpt} = \frac{X_{cpt} - M_{cpt}}{X_{cpt} + M_{cpt}}, \tag{9.5}$$

where X are exports and M imports, with the subscripts denoting the same as above. Values larger than 0 and up to 1 on this measure indicate net exports; negative values (with the lowest possible value being -1) net imports. This intuitive interpretation is a key advantage of this measure. Moreover, Leamer (1984) provides a theoretical rationale for its use as a measure of comparative advantage, as trade balance directly reflects the relative factor endowment of a country. Just as *RCA (net)*, however, this measure may be strongly affected by trade barriers.

Data

We calculate these four measures relying on data from the United Nation's Comtrade database for trade in goods (United Nations 2020) and the OECD-WTO's BaTIS database for trade

in services (OECD and Development 2021). The goods trade data are disaggregated at the six digit level of the Harmonised System (HS) in its 2012 version, which contains approximately 5,000 commodity groups. The employment data that we need to calculate subnational trade competitiveness, however, are generally available at the three-digit level of the International Standard Industrial Classification of All Economic Activities (ISIC) maintained by the United Nations (UNSD 2008). This level of detail is called 'industry groups' in ISIC jargon. Depending on the revision of ISIC (there have been three different revisions in the past decades), ISIC distinguishes between 159 and 238 distinct industry groups (e.g. beverages manufacturing). We use official correspondence tables between ISIC and HS to aggregate the goods trade data to this industry group level before calculating the four measures of revealed comparative advantage. The services trade data contains ten categories. However, we entirely focus on tradeable services, that is financial services, insurance services, and information services, thus reducing this number to three categories.

For example, according to the correspondence table between ISIC revision 4 and the HS 6-digit coding system, the industry group 'Manufacture of beverages' produces 23 different products, ranging from '220110: Waters; mineral and aerated, including natural or artificial, (not containing added sugar or other sweetening matter nor flavoured)' to '220890: Spirits, liqueurs and other spirituous beverages'. By adding the trade data of these 23 product groups, we can calculate how competitive the beverages industry in a country is.

All of the four measures aim at capturing the same phenomenon, namely revealed comparative advantage. In fact, the correlation between them for the trade data we use is relatively high, with the partial exception of the RCA (additive)(see Figure A9 in the Appendix for more detail). Their high correlation and the distinct strengths and weaknesses of the measures mean that we cannot say that one consistently outperforms the others. Rather, which measure works best likely depends on the question they are used to address.

A1.2 Calculating subnational trade competitiveness

To move from the industry-country level measures on revealed comparative advantage to a measure of subnational trade competitiveness, we combine these data with employment data in subnational regions that allow us to understand where certain industries are located. Concretely, we weight a country's revealed comparative advantage in a specific industry with the number of workers who are employed in this industry in a specific region.

Nearly all countries regularly (quarterly, annually or multi-annually) conduct representative household or labour force surveys that include a question about the main job of the respondent. In countries where these surveys are not available, we used regular census surveys, which are conducted in five- or ten-year intervals and include the same question. As

mentioned above, this employment information is generally coded according to the ISIC scheme. In those countries that use their own adaptations of ISIC or have developed unique coding schemes, we use official correspondence tables to transfer this data into an applicable ISIC revision. Additionally, the level of detail varies between surveys: some countries report very specific industries (coded with four or more digits) whilst others only report very broad industry sectors (coded with only two digits). To ensure both comparability and validity, we toss out all surveys that use only two digits and reduce all other data to three digits.[1]

We then multiply each workers' survey weight with the revealed comparative advantage data for the industry in which the worker is employed. Finally, we sum up all the products between worker weights and respective RCA values to arrive at our measures of subnational trade competitiveness. In summing, we aggregate both to the sector-region level (distinguishing four sectors, namely agriculture, mining, manufacturing, and services) and to the overall region level. In form of an equation:

$$STC_{st} = \sum_{p=1}^{N} (RCA_{cpt} * ES_{pst}), \tag{9.6}$$

where STC_{st} is the subnational trade competitiveness value for subnational region s at time t (or a region-sector), p is the industry group, RCA_{cpt} is the value of the specific RCA index (one of equations 9.2-9.5) for industry group p in country c at time t, and ES_{pst} is the employment share in the industry group and region in year t.

To determine regions to which we aggregate, we by and large follow the ISO 3166-2 standard. In most countries, the ISO 3166-2 standard reflects the first-level administrative divisions of the country. These might be states (e.g. in Brazil, Germany, India, Mexico, and the USA), provinces (e.g. in Argentina, Belgium, Ecuador, and South Africa), or regions (e.g. in Ghana, Namibia, Peru, and Slovakia). However, in some countries, the ISO 3166-2 standard is too detailed for our purposes, which would reduce the number of survey respondents per regions to an unreliably low number. For example, this applies to the counties of Estonia, the departments of France, and the municipalities of the United Kingdom. In these cases, we aggregate to larger statistical regions based on the European Nomenclature of Territorial Units for Statistics (NUTS). Our approach is very flexible in this regard: we could easily calculate the trade competitiveness of larger subdivisions or groupings of regions (such as the nine Census Divisions in the USA instead of the 50 states plus Washington, DC) or that of smaller subdivisions (such as the 107 provinces of Italy instead of its 21 NUTS 2

[1] We also exclude regions with fewer than 50 respondents across all tradable sectors because estimates are increasingly unreliable and unstable in smaller samples. In such cases, individual respondents are too influential and changes in competitiveness may simply reflect a marginally different composition of the sample.

regions).

The number of first administrative divisions per country varies from six in Estonia and Rwanda to 81 in the Philippines. The median country has 16 regions (See Table A1 in the Appendix for more information). In terms of population, the smallest region is Embera Wounaan in Panama with about 12,000 inhabitants, whereas the largest region is Uttar Pradesh in India with nearly 200 million inhabitants. The median region in the sample has about 2 million inhabitants.

As mentioned in the main-text, we have data for 63 countries over a 21 year period (1999-2019). Some of these years have been extra- or interpolated by carrying the employment data backwards and forwards. However, we always use the respective trade data for a year. In other words, even if we impute the distribution of employees in an industry in a year, we use the correct trade data for this year. Figure A1 shows for which country-years we needed to extra- or interpolate data. Our dataset contains labour surveys for dark purple fields. The brighter the field, the larger the distance to the last labour survey. Belgium (BEL) illustrates this neatly. The Belgian Statistical Office only provides labour surveys in sufficient quality since 2013. Thus, the competitiveness estimate for 2010 uses the 2010 trade data and merges it with the first observation carried backwards, that is the 2013 employment data. For countries like Germany (DEU), we obtained data every three years. The 2016 employment data is thus a linear approximation from 2015 to 2018. Again, we use the 2016 trade data.

A1.3 Available countries and years

Country	Years	Regions	Coding scheme	Survey type	Source
Argentina	17	24 provinces	CAES	Household	INDEC (2021)
Armenia	1	11 provinces	ISIC adapted	Census	NSS (2011)
Australia	3	8 states	ANZSIC	Census	ABS (2021)
Austria	17	9 states	NACE adapted	Household	StatAustria (2020)
Belgium	7	11 provinces	NACE	Labor	StatBel (2020)
Benin	1	12 departments	ISIC adapted	Census	INSAE (2013)
Benin	1	77 communes	ISIC adapted	Census	INSAE (2013)
Bolivia	15	9 departments	ISIC	Household	INE (2021*a*)
Botswana	2	10 districts	ISIC adapted	Census	StatsBots (2011)
Brazil	13	27 states	CNAE	Household	IBGE (2021)
Cambodia	10	25 provinces	ISIC	Household	NIS (2020)
Cameroon	1	10 regions	national	Census	BUCREP (2005)
Cameroon	1	58 departments	national	Census	BUCREP (2005)
Canada	20	10 provinces	NAICS	Labor	StatsCAN (2021)
Chile	8	16 regions	ISIC	Household	MDSF (2021)
Chile	8	56 provinces	ISIC	Household	MDSF (2021)

Colombia	13	24 departments	ISIC adapted	Household	DANE (2021)
Costa Rica	11	6 regions	ISIC	Labor	INEC (2021*a*)
Czechia	20	14 regions	NACE	Labor	CSO (2021)
Czechia	20	77 districts	NACE	Labor	CSO (2021)
Dominican Republic	3	10 regions	ISIC	Household	ONE (2021)
Dominican Republic	2	32 provinces	ISIC	Household	ONE (2021)
Ecuador	13	24 provinces	ISIC	Labor	INEC (2021*b*)
Egypt	12	29 governorates	ISIC	Labor	CAPMAS (2017)
Egypt	10	325 districts	ISIC	Labor	CAPMAS (2017)
El Salvador	9	14 departments	ISIC	Household	DIGESTYC (2021)
Estonia	20	5 NUTS-3 regions	NACE	Labor	StatEst (2020)
France	20	14 NUTS-1 regions	NACE	Labor	INSEE (2020)
France	20	26 NUTS-2 regions	NACE	Labor	INSEE (2020)
France	20	100 departments	NACE	Labor	INSEE (2020)
Germany	7	16 states	NACE	Household	DESTATIS (2020)
Ghana	3	10 regions	ISIC	Household	GSS (2021)
Greece	14	13 regions	NACE	Labor	ELSTAT (2021)
Guinea	1	8 regions	ISIC adapted	Census	INS (2014*a*)
Guinea	1	34 prefectures	ISIC adapted	Census	INS (2014*a*)
Haiti	1	10 departments	ISIC	Census	IHSI (2003)
Haiti	1	42 arrondissements	ISIC	Census	IHSI (2003)
Honduras	1	18 departments	ISIC adapted	Census	INE (2001)
Honduras	1	111 municipalities	ISIC adapted	Census	INE (2001)
India	7	35 states	ISIC	Labor	MoSPI (2021)
India	6	625 districts	ISIC	Labor	MoSPI (2021)
Indonesia	14	33 provinces	KBLI	Labor	BPS (2020)
Iran	2	31 provinces	ISIC adapted	Census	SCI (2011)
Iran	2	394 counties	ISIC adapted	Census	SCI (2011)
Italy	6	20 regions	NACE	Labor	ISTAT (2019)
Italy	6	105 provinces	NACE	Labor	ISTAT (2019)
Jamaica	1	14 parishes	ISIC adapted	Census	STATIN (2001)
Jordan	12	12 governorates	ISIC	Labor	DOS (2016)
Kyrgyzstan	2	9 regions	ISIC adapted	Census	NSC (2009)
Laos	1	18 provinces	ISIC adapted	Census	LSB (2005)
Malaysia	1	15 states	ISIC	Census	DOSM (2000)
Malaysia	1	133 districts	ISIC	Census	DOSM (2000)
Mexico	15	32 states	SCIAN	Labor	INEGI (2021)
Mongolia	13	5 regions	ISIC	Labor	NSO (2021)
Mongolia	13	22 provinces	ISIC	Labor	NSO (2021)
Namibia	2	15 regions	ISIC	Labor	NSA (2021)
Nicaragua	3	17 departments	ISIC	Household	INIDE (2021)
Palestinian Territories	1	16 governorates	ISIC	Labor	PCBS (2008)
Panama	2	13 provinces	ISIC adapted	Labor	INEC (2021*c*)
Papua New Guinea	1	20 provinces	ISIC adapted	Census	NSO (2000*b*)

Papua New Guinea	1	87 districts	ISIC adapted	Census	NSO (2000*b*)
Peru	16	26 regions	ISIC	Household	INEI (2021)
Peru	16	195 provinces	ISIC	Household	INEI (2021)
Philippines	1	17 regions	ISIC adapted	Census	PSA (2010)
Philippines	1	80 provinces	ISIC adapted	Census	PSA (2010)
Portugal	2	7 NUTS-2 regions	NACE	Census	INE (2011*b*)
Rwanda	2	5 provinces	ISIC	Census	NISR (2012)
Senegal	1	14 regions	ISIC adapted	Census	ANSD (2013)
Senegal	1	45 departments	ISIC adapted	Census	ANSD (2013)
Slovakia	17	8 regions	NACE	Labor	StatSVK (2020)
South Africa	20	9 provinces	SIC	Labor	Stats SA (2021)
South Korea	19	17 provinces	KSIC	Labor	KLI (2019)
Spain	7	19 communities	NACE	Labor	INE (2020)
Switzerland	15	7 regions	NACE	Labor	BfS (2020)
Switzerland	15	26 cantons	NACE	Labor	BfS (2020)
Tanzania	2	25 regions	ISIC	Labor	NBS (2021)
Thailand	1	5 regions	ISIC	Census	NSO (2000*a*)
Thailand	1	76 provinces	ISIC	Census	NSO (2000*a*)
Togo	1	6 regions	ISIC adapted	Census	INSEED (2010)
Togo	1	37 prefectures	ISIC adapted	Census	INSEED (2010)
United Kingdom	20	12 NUTS-1 regions	NACE	Labor	ONS (2021)
United States	20	51 states	US Census	Household	USCB (2018)
United States	8	2351 PUMAs	US Census	Household	USCB (2018)
Uruguay	14	19 departments	ISIC	Household	INE (2021*b*)
Venezuela	1	24 states	ISIC	Census	INE (2001)
Venezuela	1	237 municipalities	ISIC	Census	INE (2001)
Vietnam	2	8 regions	ISIC adapted	Census	GSO (2009)
Vietnam	2	64 provinces	ISIC adapted	Census	GSO (2009)
Zambia	1	10 provinces	ISIC adapted	Census	ZamStats (2010)
Zambia	1	74 districts	ISIC adapted	Census	ZamStats (2010)

Table A1: Summary of available countries

The surveys for Armenia, Benin, Botswana, Cameroon, Guinea, Haiti, Iran, Italy, Kyrgyzstan, Laos, Malaysia, Papua New Guinea, the Philippines, Portugal, Rwanda, Senegal, Thailand, Togo, the USA, Venezuela, Vietnam, and Zambia were provided by the Minnesota Population Center (2019). The surveys for Egypt, Jordan, and the Palestinian Territories were provided by the Economic Research Forum (2020).

A1.4 Data quality checks

This sections provides some quality checks of the labour and household surveys that we use to assess the regional distribution of industries within a country. These checks demonstrate

Figure A1: Data availability

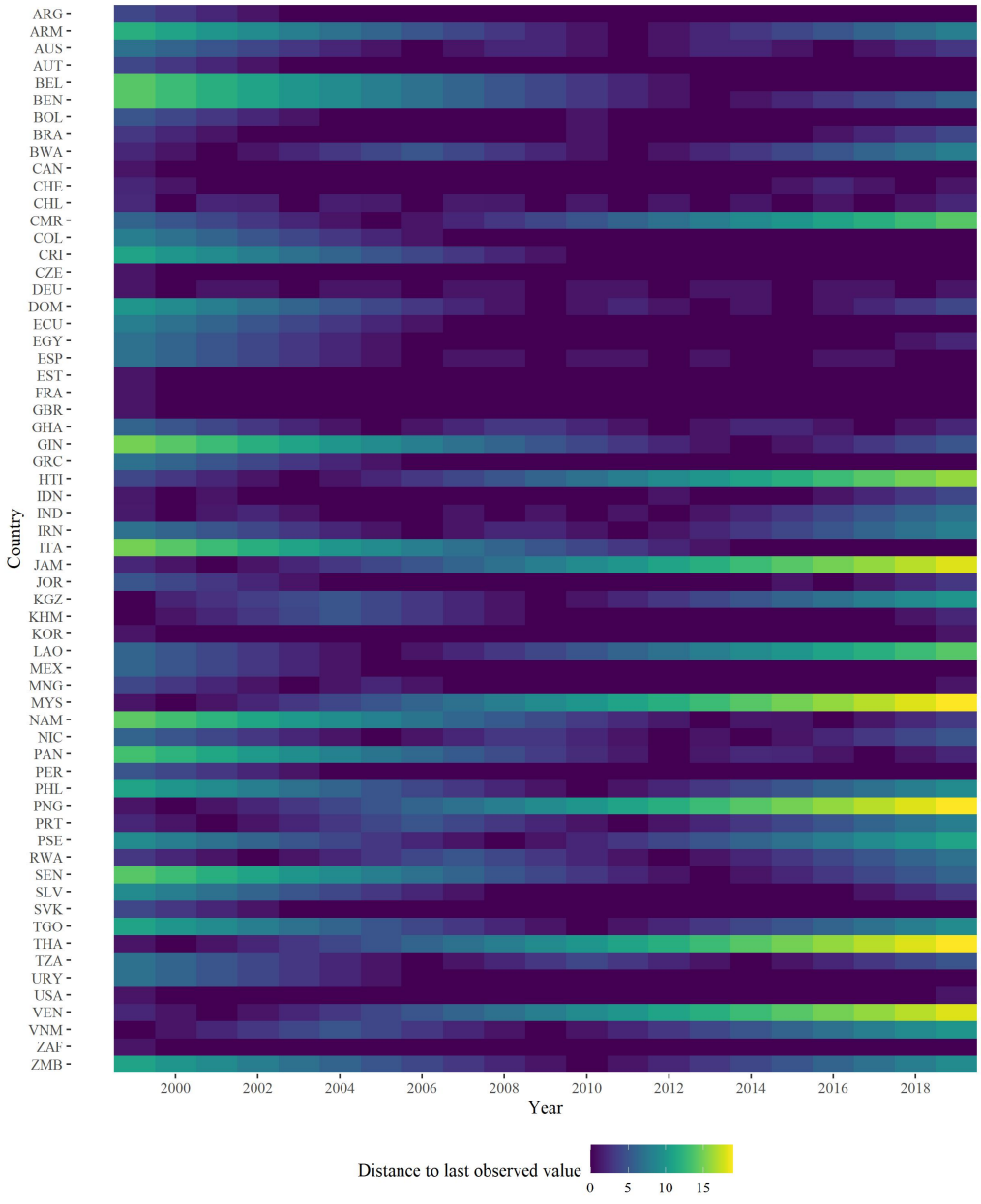
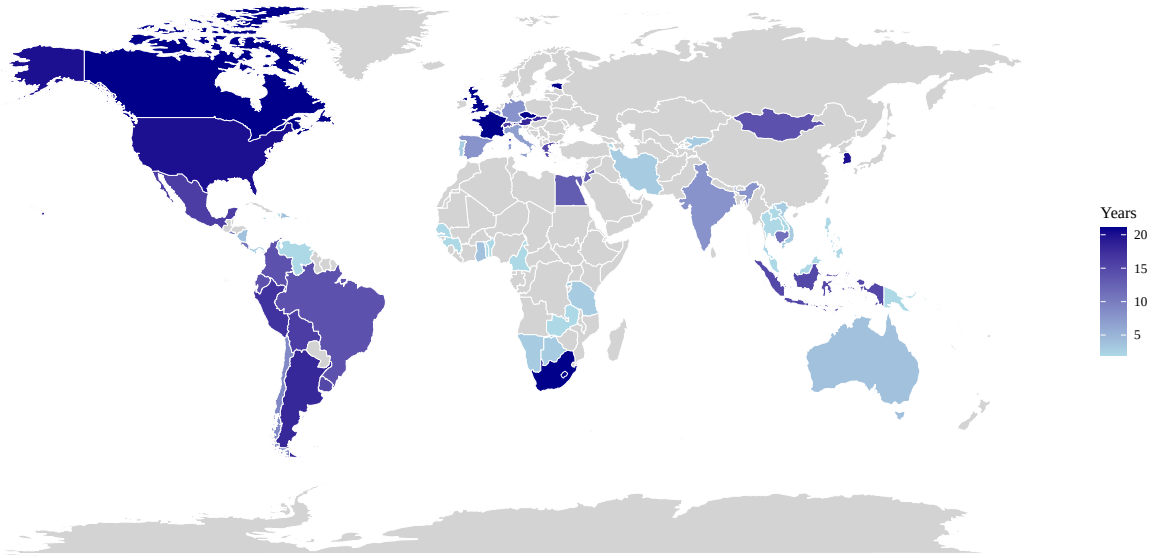


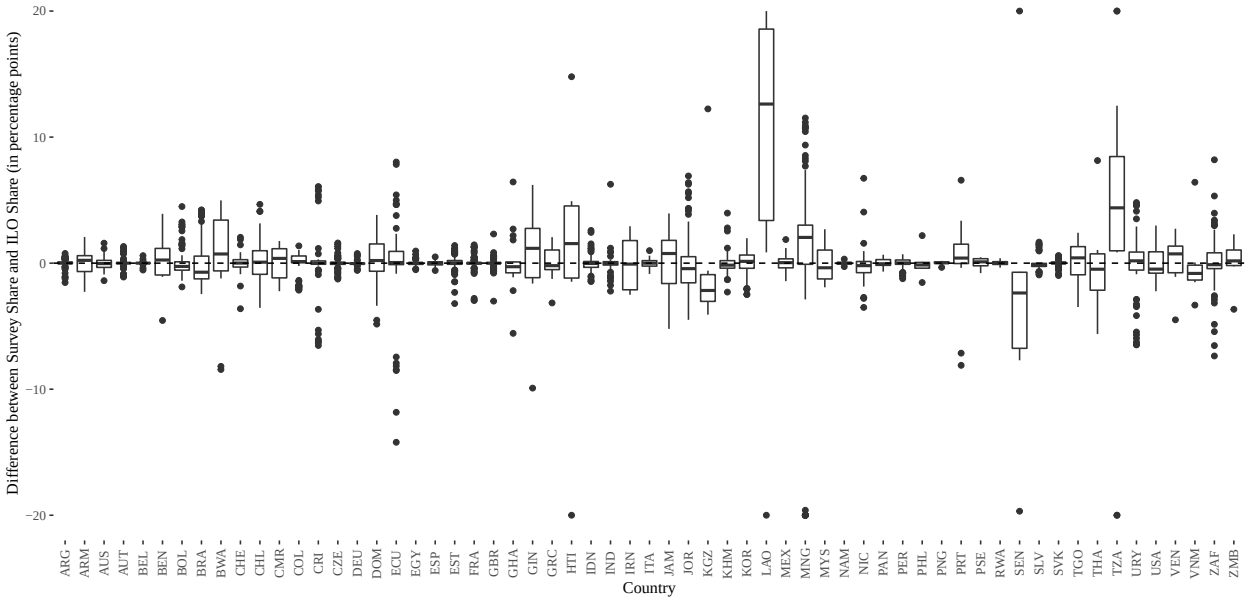
Figure A2: Available countries



that overall the data quality of the labor and household surveys is very good and suited for our purposes. We perform the following five tests:

- Figure A3: Does the aggregated data yield the correct industry sector shares of employment on the national level? This ensures that no industry sector is over- or underrepresented. We compare our data to the estimates of sector employment of the International Labour Organization (ILO) (ILO 2020).
- Figure A4: Does the aggregated data yield the correct population shares for each region within the country? This ensures that no region is over- or underrepresented. We compare our data to population data of the Subnational Human Development Index (SHDI) (Smits and Permanyer 2019).
- Figure A5: Is the original data coded correctly? This ensures that we do not use incorrectly coded data or data that uses a different coding scheme than assumed. We compare our data to the coding schemes of the International Standard Industrial Classification (ISIC) (UNSD 2008).
- Figure A6: Is transferring the original coding scheme into the corresponding ISIC scheme causing too much duplication? When the original coding scheme is not as detailed as the ISIC scheme, some respondents are attributed to more than one ISIC category. This duplication should be kept to a minimum.

Figure A3: Employment shares by national industry sector

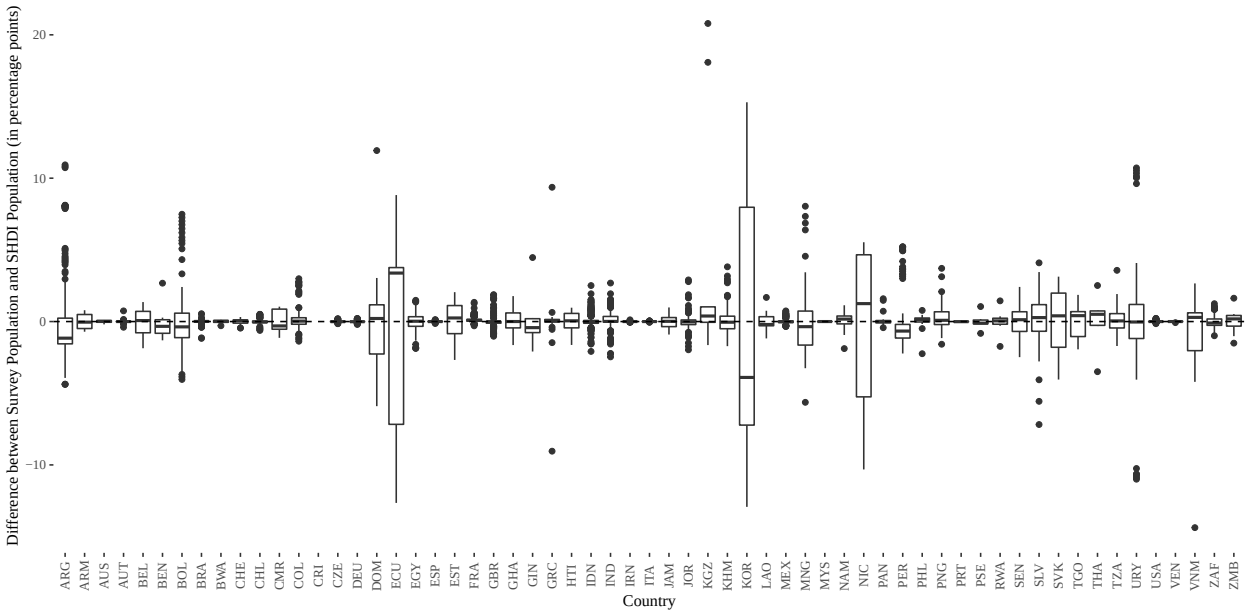


Ideally, the shares should match exactly. In some countries such as Laos and Tanzania, subsistence pastoral farmers are not included in the labour surveys, which explains the large difference to the ILO data.

- Figure A7: Is the aggregated data based on enough respondents? This ensures that our data is robust.

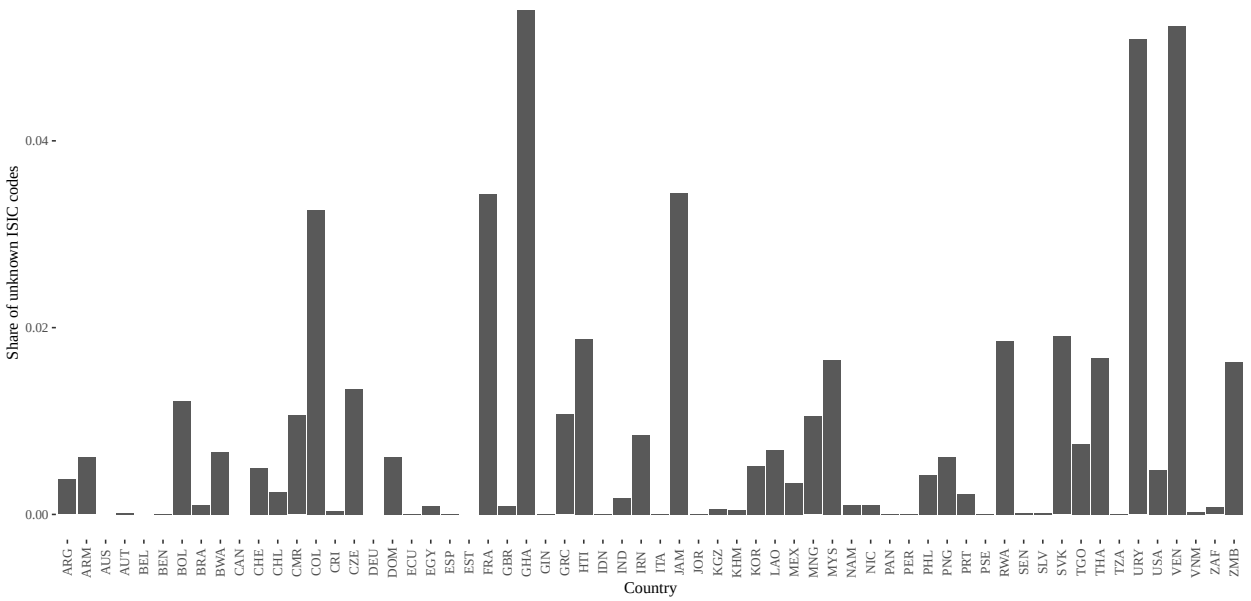
A1.5 Additional Evidence

Figure A4: Population shares by region



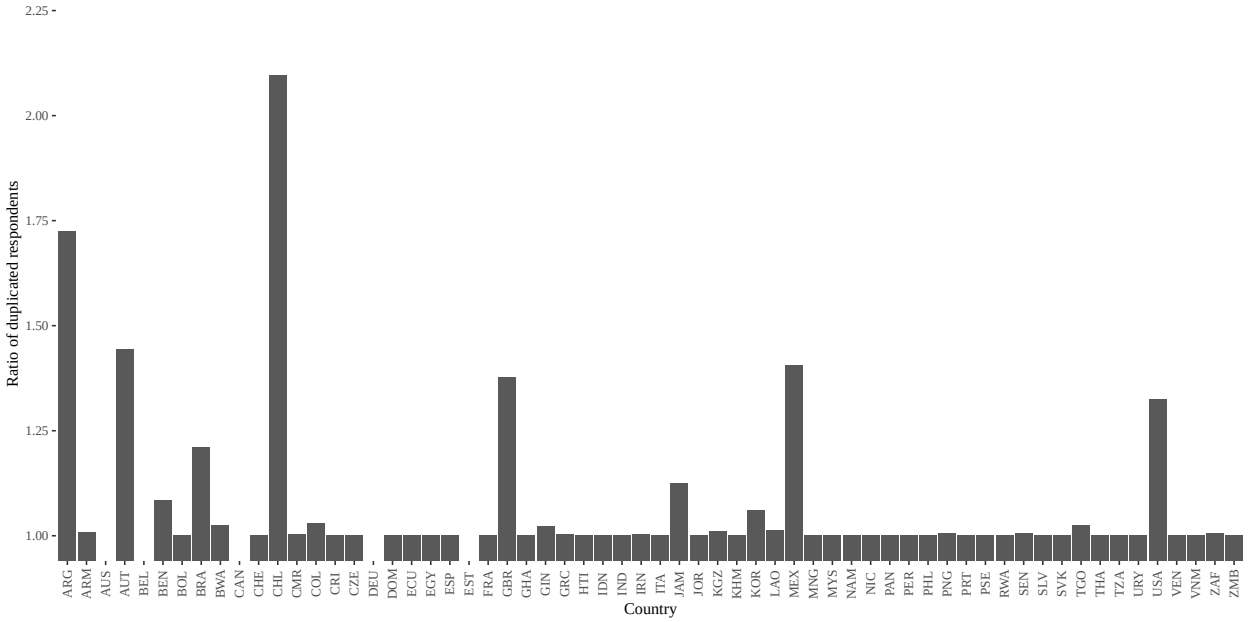
Ideally, the shares should match exactly. For most regions, the shares we have closely resemble the population shares calculated from the SHDI dataset.

Figure A5: Share of incorrect industry codes



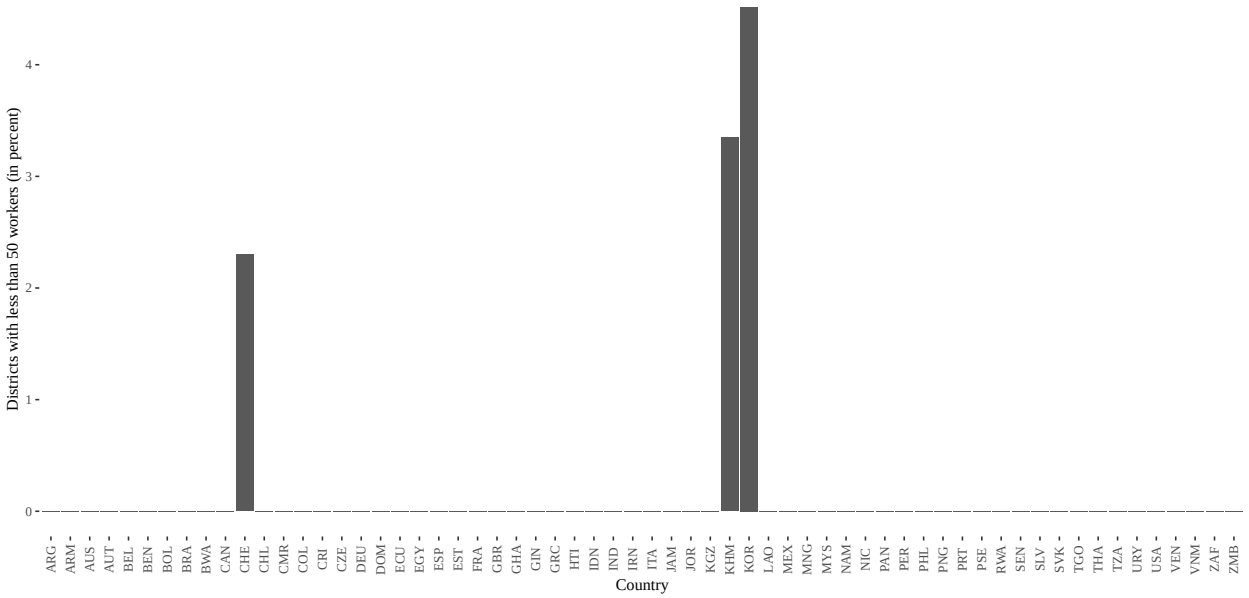
Ideally, there should be no incorrect ISIC codes. However, some countries use special categories that cannot be transferred into standard ISIC schemes. An example is Bolivia, which has a unique code for professional football players. Other countries suppress the codes of certain respondents. We treat these codes as NAs.

Figure A6: Ratio of duplicated respondents



When the original coding scheme is different than the standard ISIC schemes, we use official correspondence tables. Sometimes, these original coding schemes are not as detailed as the corresponding ISIC scheme, which causes the duplication of respondents (who will be attributed more than one ISIC category). The ratio should ideally be 1, which means that there are no duplicates. In Australia, Belgium, Canada, Germany, and Estonia, the calculation of duplicates is not possible due to technical reasons. However, the ratio of duplicates is close to 1 in these countries.

Figure A7: Share of regions with few workers



Ideally, the survey would include a large number of workers for each region. However, this is not the case in countries with many first level administrative divisions relative to their population such as Switzerland or Cambodia. In Korea, the labor survey is a panel survey with a low number of respondents. We drop regions if we have fewer than 50 workers to calculate the competitiveness measures.

Figure A8: Correlation between the four measures

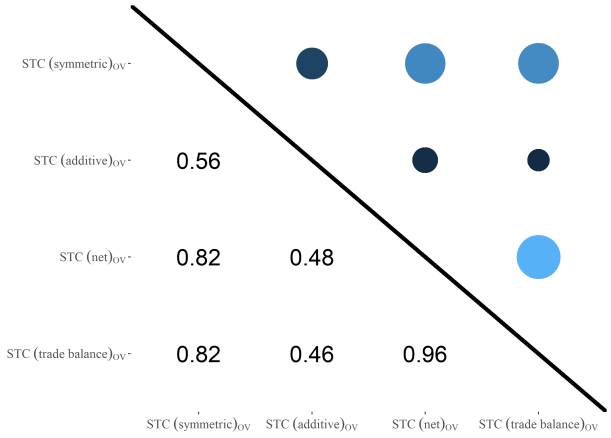


Figure A9: Correlation between the four RCA measures

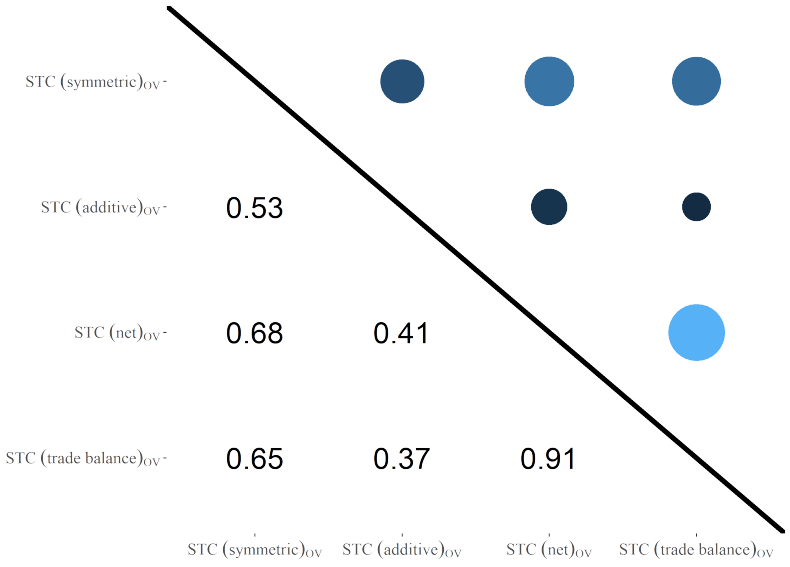
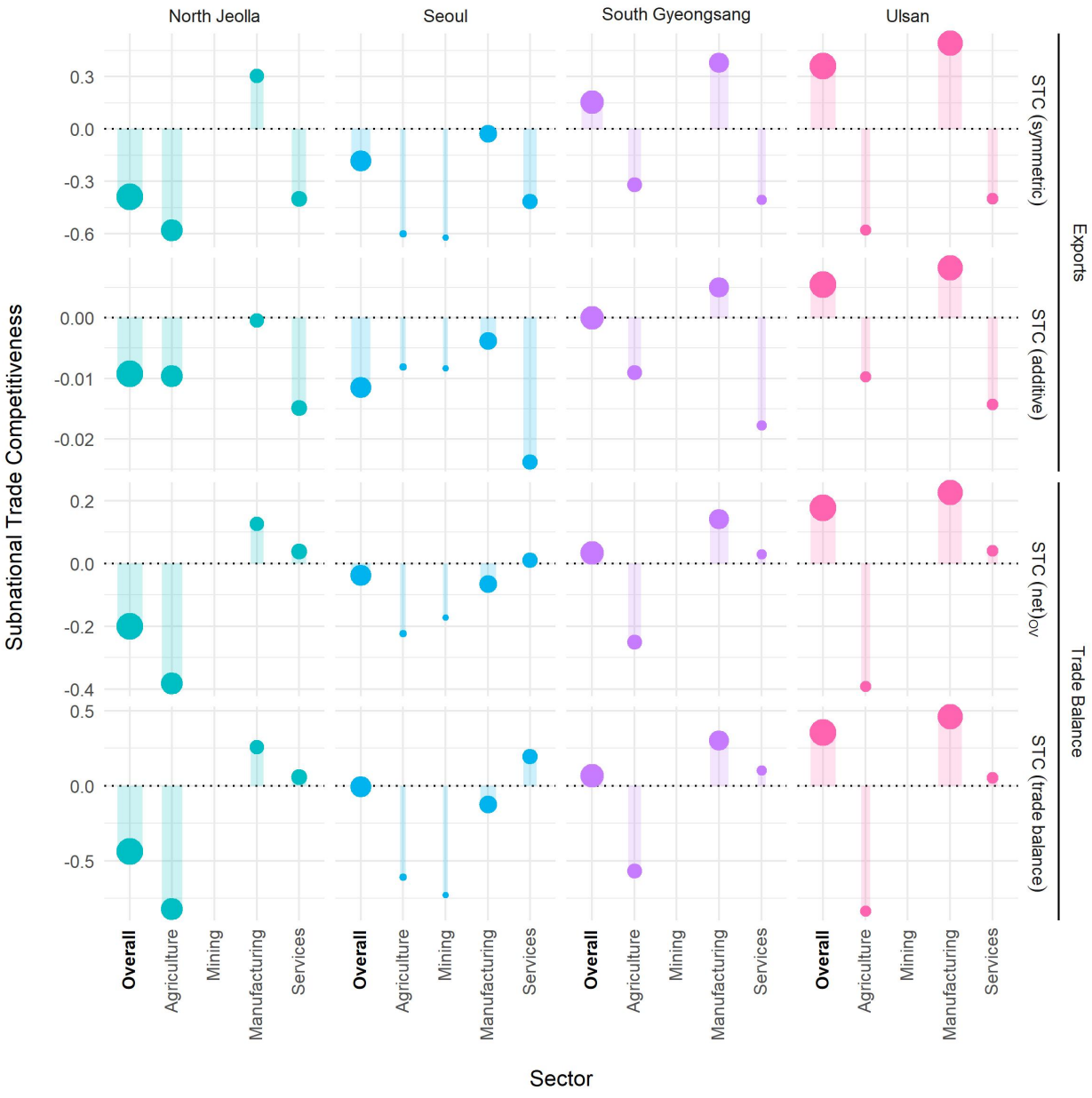


Figure A10: Sectoral competitiveness by region in South Korea

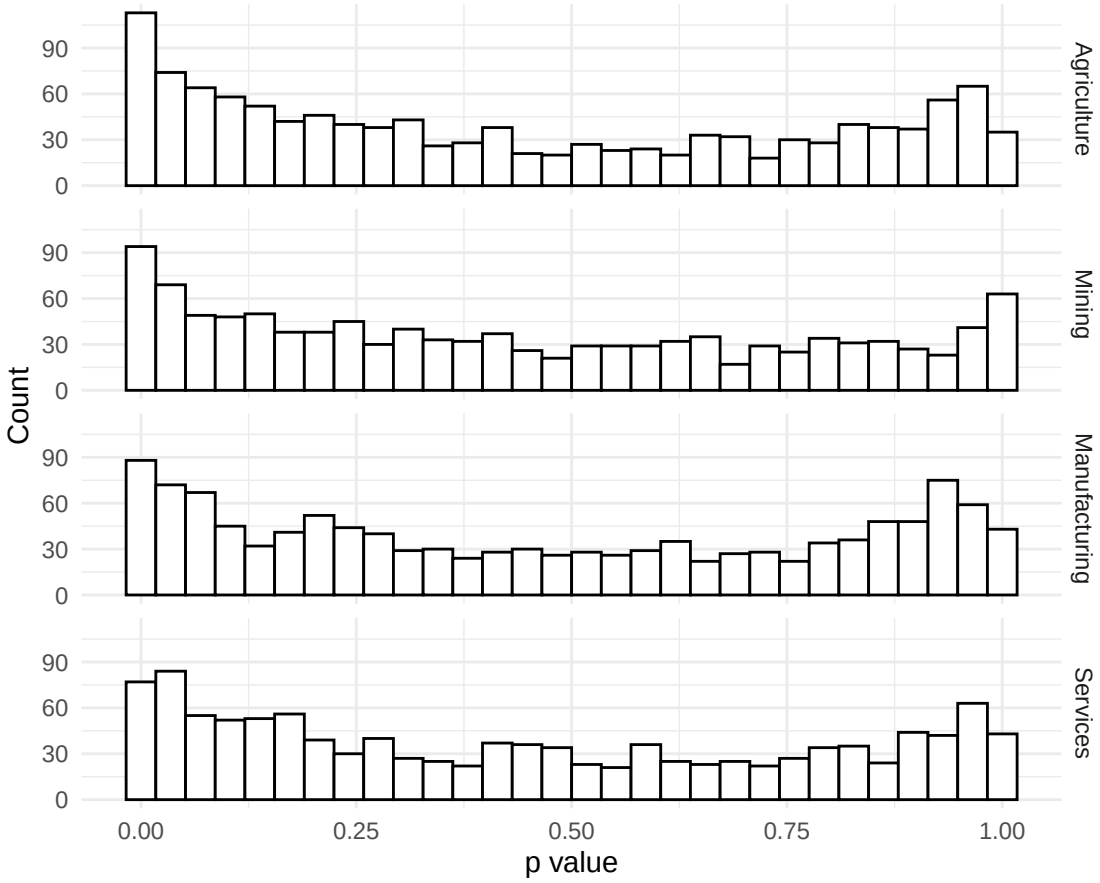


Note: Data for the year 2018.

A1.6 Time Trends

We systematically investigate time trends in the employment data by subnational entity, as strong and systematic trends would undermine our assumption to carry first observations backwards and last observations forwards. Thus, we scrutinise the subnational entity-sector changes in sector size; that is, for example, the size of the tradable service sector in the subnational region of London. To this end, we use the *funtimes* package in R (Lyubchich and Gel 2021). For each district-sector combination, we investigate whether a significant monotonic trend occurs in the sector. We plot the p-values of these tests in Figure A11. We observe that only a relatively small fraction of subnational entity-sector observations show a statistically significant trend in sector size. Specifically, 14 per cent of all observations hold a p-value below 0.05, and there are no large differences between the sectors. Agriculture has the largest share of observations with a trend (15.2 %) whereas the manufacturing sector has the lowest share (13.1 %). All in all, this evidence justifies carrying observations forward and backwards. Still, in the end it is up to the users of the data to decide whether they want to use imputed data or restrict their analyses to complete data.

Figure A11: Distribution of time trends across sectors



A2 Appendix for Chapter 3

A2.1 Used statistical software

We use the statistical software *R* (R Core Team 2020*b*) for all analyses. We use the following packages to process and analyze the data: *car* (Fox and Weisberg 2019), *countrycode* (Arel-Bundock, Enevoldsen and Yetman 2018), *data.table* (Dowle and Srinivasan 2019), *effects* (Fox and Weisberg 2019), *foreign* (R Core Team 2020*a*), *ggthemes* (Arnold 2019), *ipumsr* (Ellis and Burk 2020), *MASS* (Venables and Ripley 2002), *mgsub* (Ewing 2019), *questionr* (Barnier, Briatte and Larmarange 2018), *readxl* (Wickham and Bryan 2019), *sandwich* (Zeileis 2004; 2006), *texreg* (Leifeld 2013), and *tidyverse* (Wickham et al. 2019).

A2.2 Survey questions used

Perceived Consequences of Trade for Wages

Q28 Does trade with other countries lead to an increase in the wages of (survey nationality) workers, a decrease in wages, or does it not make a difference?

- Increase
- Decrease
- Does not make a difference
- DK/Refused

Perceived Consequences of Trade for Jobs
Q29 Does trade with other countries lead to job creation in (survey country), job losses, or does it not make a difference?

- Job creation
- Job losses
- Does not make a difference
- DK/Refused

Trade Support
Q27 What do you think about the growing trade and business ties between (survey country) and other countries – do you think it is a very good thing, somewhat good, somewhat bad or a very bad thing for our country?

- Very good
- Somewhat good
- Somewhat bad
- Very bad
- DK/Refused

Education
Q138US What is the highest level of school you have attended? (Question wording and response categories vary by country, here we show the question asked in the USA)

- No formal schooling (Preschool or Kindergarten)
- Less than high school (grades 1 thru 8)
- High school incomplete (Grades 9-11 or Grade 12 with NO diploma)

- High school graduate (GED or High school diploma)
- Vocational Certificate (Occupationally specific vocational certificate)
- Vocational Associate's Degree Program
- Some college, no degree (includes community college)
- Two year associate degree from a college or university
- Four year college or university degree/Bachelor's degree (e.g., BS, BA, AB)
- Postgraduate or professional degree, including master's degree (e.g., MA, MS, PhD, MD, JD, graduate school)
- Still in education (Volunteered)
- Don't know
- Refused

Age

Q133 How old were you at your last birthday?

Employment Status

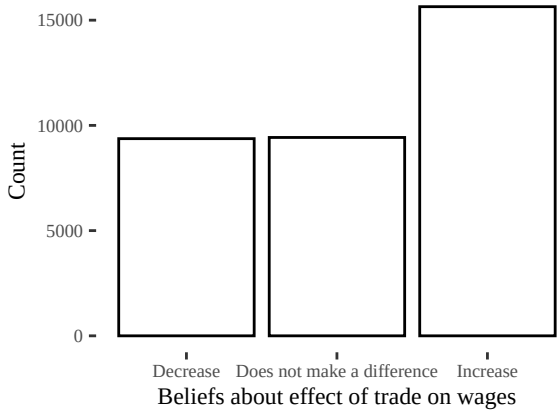
Q140 Which of the following employment situations best describes your current status?

- In paid work
- Unemployed and looking for a job
- In education (not paid for by employer), in school, student even if on vacation
- Apprentice or trainee
- Permanently sick or disabled
- Retired
- Doing housework, looking after the home, children or other persons (not paid)
- DK/Refused

Economic left-right self-placement

Q13a Please tell me whether you completely agree, mostly agree, mostly disagree or completely disagree with the following statement: Most people are better off in a free market economy, even though some people are rich and some are poor.

- Completely agree
- Mostly agree

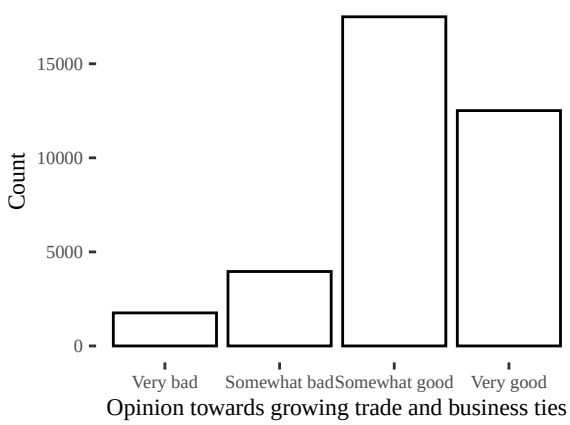


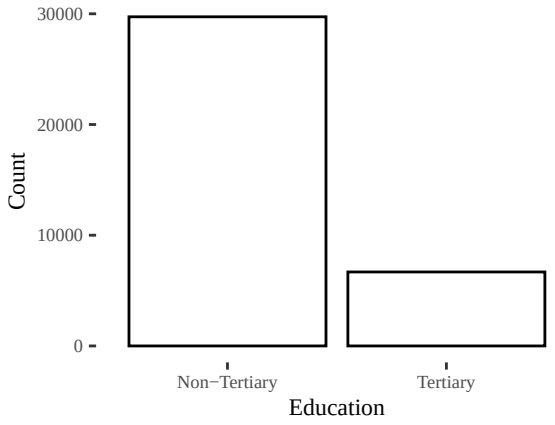
- Mostly disagree
- Completely disagree
- DK/Refused

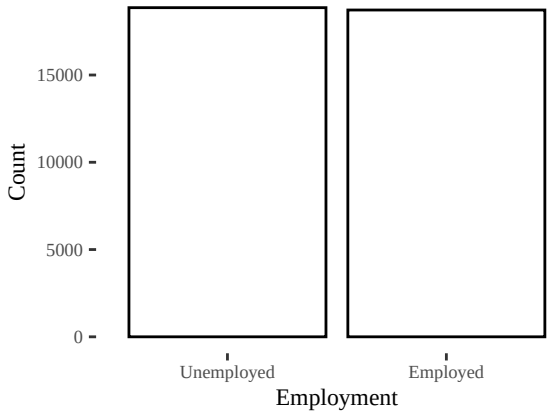
A2.3 Descriptive statistics

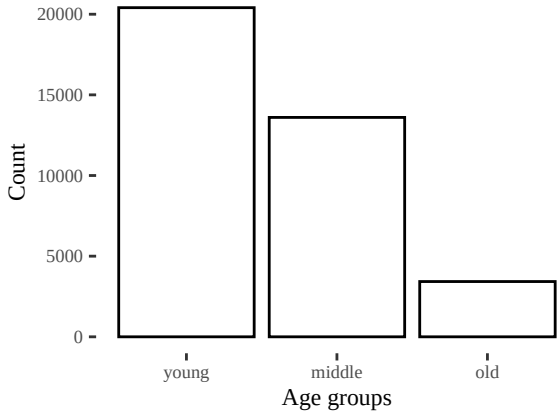
Variable	N	Mean	SD	Min	Max	Share missing
Consequences for jobs (3-point scale)	35160	2.31	0.84	1.00	3.00	0.06
Consequences for wages (3-point scale)	34439	2.18	0.83	1.00	3.00	0.08
Support for trade (4-point scale)	35725	3.14	0.80	1.00	4.00	0.05
Education (tertiary)	36413	0.18	0.39	0.00	1.00	0.03
Employment (employed)	37584	0.50	0.50	0.00	1.00	0.00
Age (young)	37437	0.55	0.50	0.00	1.00	0.00
Age (middle)	37437	0.36	0.48	0.00	1.00	0.00
Age (old)	37437	0.09	0.29	0.00	1.00	0.00
Gender (female)	37584	0.51	0.50	0.00	1.00	0.00
Economic left-right placement (4-point scale)	34833	2.85	0.92	1.00	4.00	0.07
Logged Regional GNI per capita	37552	2.47	0.88	0.28	4.30	0.00
Subnational trade competitiveness	37552	-0.43	1.12	-5.43	2.91	0.00

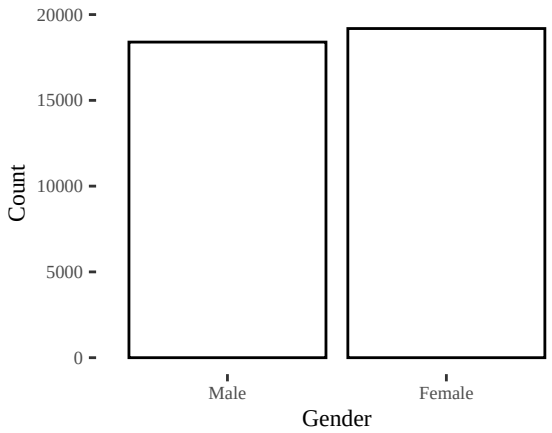
Table A2: Descriptive statistics of variables

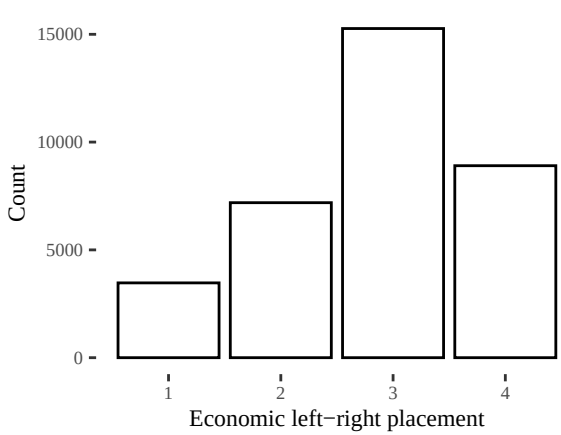

Count
15000
10000
5000
0
Very bad
Somewhat bad
Somewhat good
Very good
Opinion towards growing trade and business ties

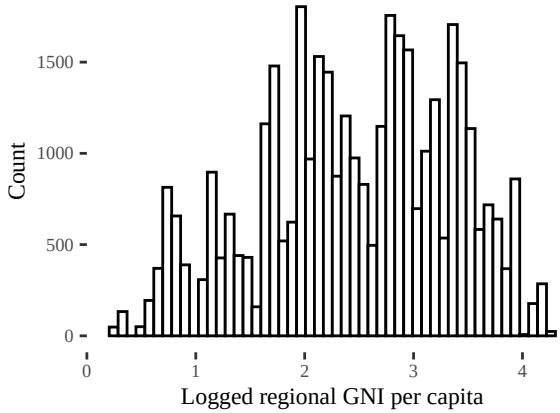

Count
30000
20000
10000
0
Non−Tertiary
Tertiary
Education

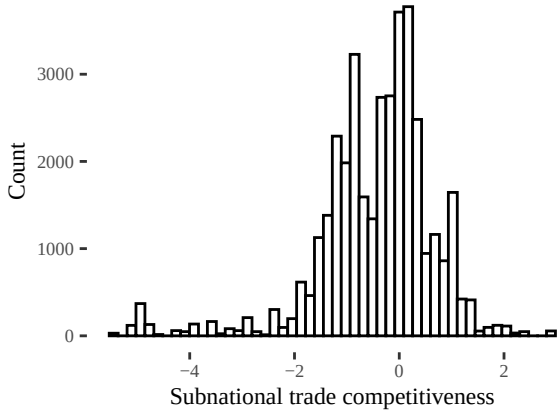

Count
15000
10000
5000
0
Unemployed
Employed
Employment


Count
20000
15000
10000
5000
0
young
middle
old
Age groups


Count
20000
15000
10000
5000
0
Male
Female
Gender


Count
15000
10000
5000
0
1
2
3
4
Economic left−right placement





A2.4 Sample information

Country overview

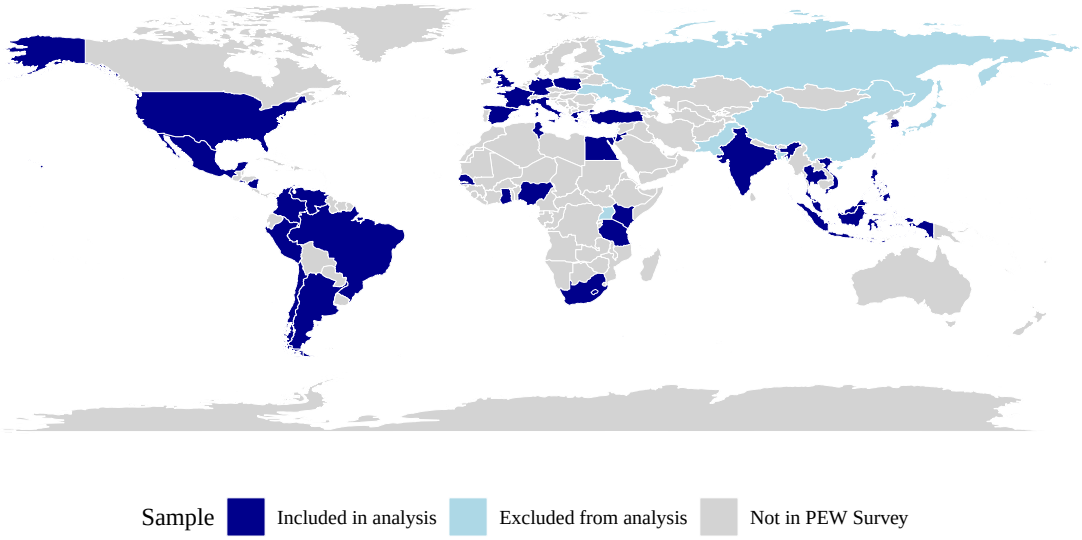


Table A3: Samples Included in Analyses and Sources for Trade Competitiveness Data

Country	Survey year	Coding scheme	Coding level	Source
ARG	2012	CAES 1.0	Group	INDEC (2012)
BRA	2010	CNAE 2	Class	IBGE (2010)
CHL	2011	ISIC 3	Class	MDSF (2021)
COL	2012	ISIC COL	Class	DANE (2021)
DEU	2012	NACE 2	Class	DESTATIS (2020)
EGY	2013	ISIC 4	Class	CAPMAS (2017)
ESP	2011	ISIC 4	Division	INE (2011*a*)
FRA	2011	NACE 2	Class	INSEE (2011)
GBR	2012	NACE 2	Class	ONS (2021)
GHA	2013	ISIC 4	Class	GSS (2021)
GRC	2011	NACE 2	Class	ELSTAT (2011)
IDN	2010	ISIC 3	Class	BPS (2020)
IND	2011	ISIC 4	Class	MoSPI (2021)
ISR	2012	ISIC 4	Division	CBS (2012)
ITA	2014	NACE 2	Class	ISTAT (2014)
JOR	2012	ISIC 4	Group	DOS (2016)
KEN	2006	ISIC KEN	Class	KNBS (2006)
KOR	2012	KSIC 07	Group	KLI (2019)
MEX	2010	SCIAN	Group	INEGI (2010)
MYS	2000	ISIC 3	Group	DOSM (2000)
NGA	2009	ISIC 4	Division	NBS (2009)
NIC	2012	ISIC 3.1	Class	INIDE (2021)
PER	2012	ISIC 3	Class	INEI (2021)
PHL	2010	ISIC PHL	Group	PSA (2010)
POL	2002	ISIC POL	Division	GUS (2002)
PSE	2012	ISIC 4	Division	PCBS (2012)
SEN	2011	ISIC 3	Division	ANSD (2011)
SLV	2013	ISIC 4	Class	DIGESTYC (2021)
THA	2000	ISIC 3	Group	NSO (2000*a*)
TUN	2014	NAT 2009	Class	INS (2014*b*)
TUR	2012	NACE 2	Division	TÜİK (2012)
TZA	2014	ISIC 4	Class	NBS (2021)
USA	2010	Census 07	Class	USCB (2018)
VEN	2001	ISIC 3	Group	INE (2001)
VNM	2009	ISIC VNM	Group	GSO (2009)
ZAF	2012	SIC	Group	Stats SA (2021)

Notes: If the original coding scheme was not a version of ISIC, we used official correspondence tables to transform the data into the appropriate ISIC coding scheme. We highly appreciate the data provided by the Minnesota Population Center (2019) and the Economic Research Forum (2020)

A2.5 Regression table

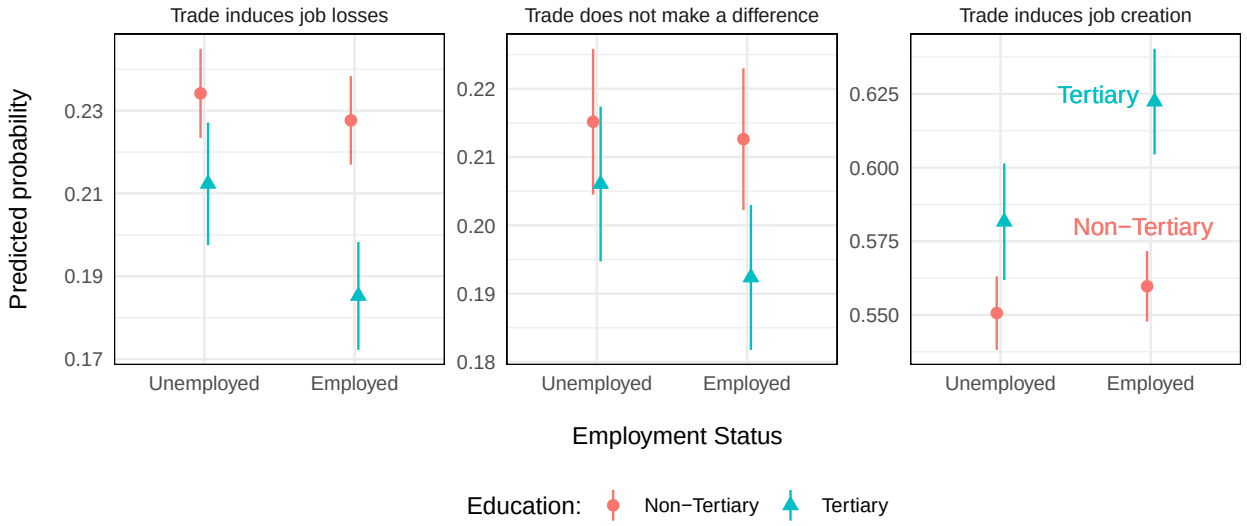
Table A4: Education, Distributional Consequences of Trade, and Trade Support

	Trade Support	Trade Support
Education (Tertiary)	0.27 (0.04)***	0.22 (0.04)***
Trade induces job losses		−0.35 (0.05)***
Trade induces job creation		0.73 (0.04)***
Trade decreases wages		−0.43 (0.04)***
Trade increases wages		0.48 (0.04)***
Age (41-65)	0.02 (0.03)	0.02 (0.03)
Age (66+)	−0.05 (0.05)	−0.07 (0.05)
Employment (Employed)	0.02 (0.03)	0.02 (0.03)
Logged Regional GNIpc	−0.10 (0.10)	−0.00 (0.10)
Subnational Trade Competitiveness	0.03 (0.04)	0.03 (0.04)
Economic Left-Right	0.27 (0.02)***	0.20 (0.02)***
Gender (Female)	−0.17 (0.02)***	−0.15 (0.02)***
AIC	67720.45	59752.60
Deviance	67628.45	59652.60
N	32412	30206

***$p < 0.01$, **$p < 0.05$, *$p < 0.1$. Entries are unstandardized coefficients from a logistic regression. Standard errors (in brackets) are clustered on a regional level. Country-fixed effects omitted from the table.

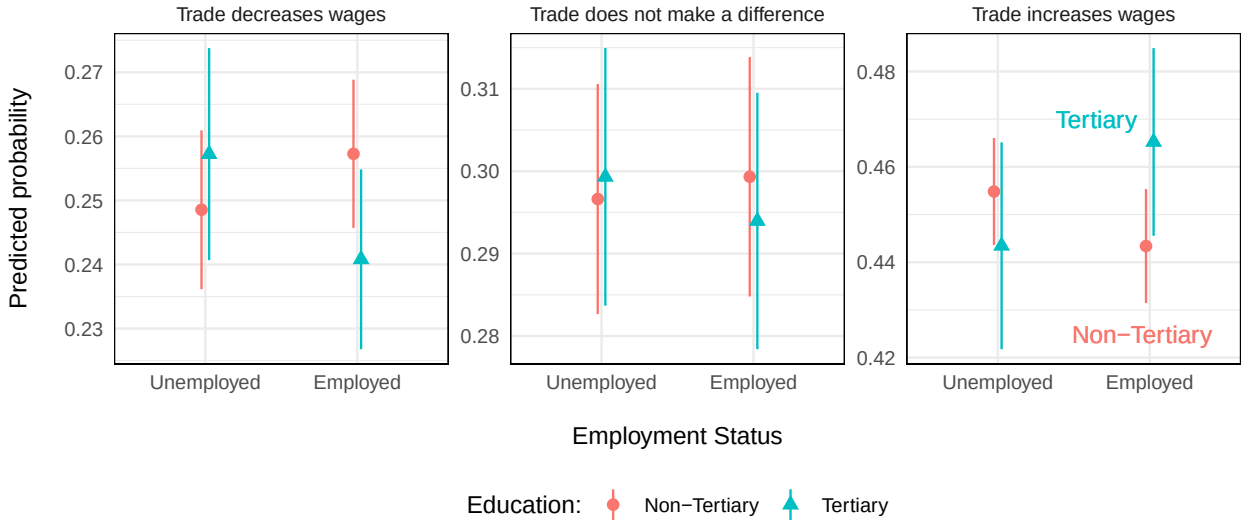
A2.6 Additional figures

Figure A17: Education, employment status, and perceived consequences of trade for jobs



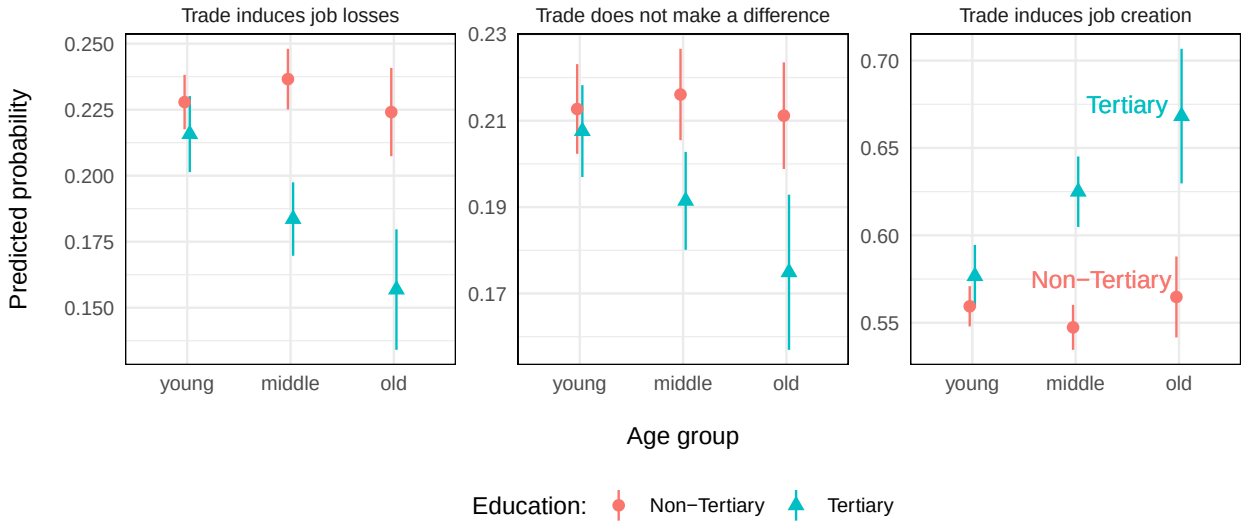
Note: Predicted values stem from the respective models shown in Table 3.2. Standard errors are clustered on the regional level. Ranges show 90 % confidence intervals.

Figure A18: Education, employment status, and perceived consequences of trade for wages



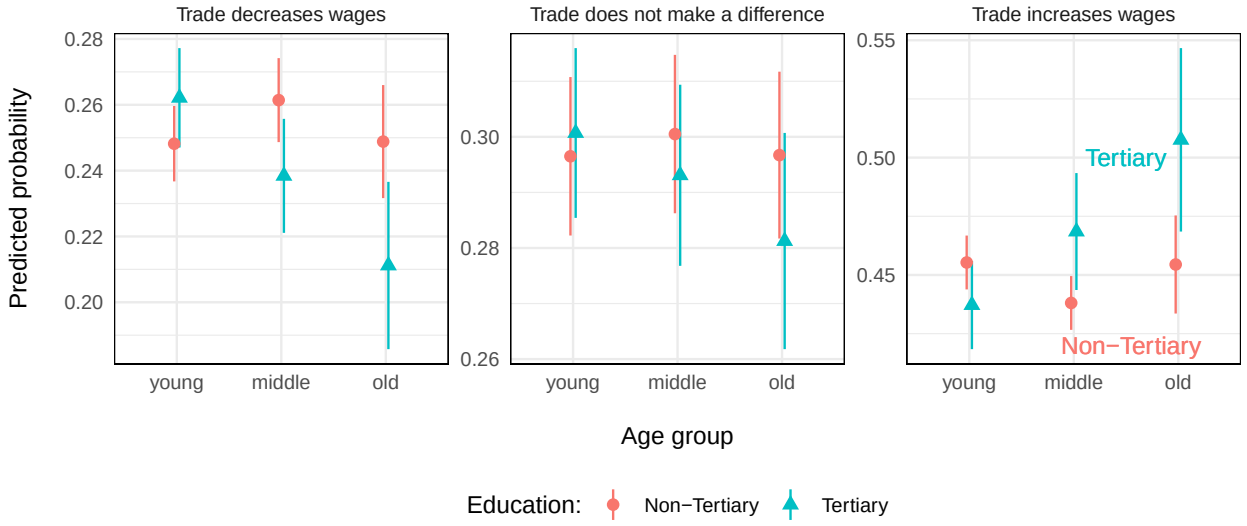
Note: Predicted values stem from the respective models shown in Table 3.2. Standard errors are clustered on the regional level. Ranges show 90 % confidence intervals.

Figure A19: Education, age, and perceived consequences of trade for jobs



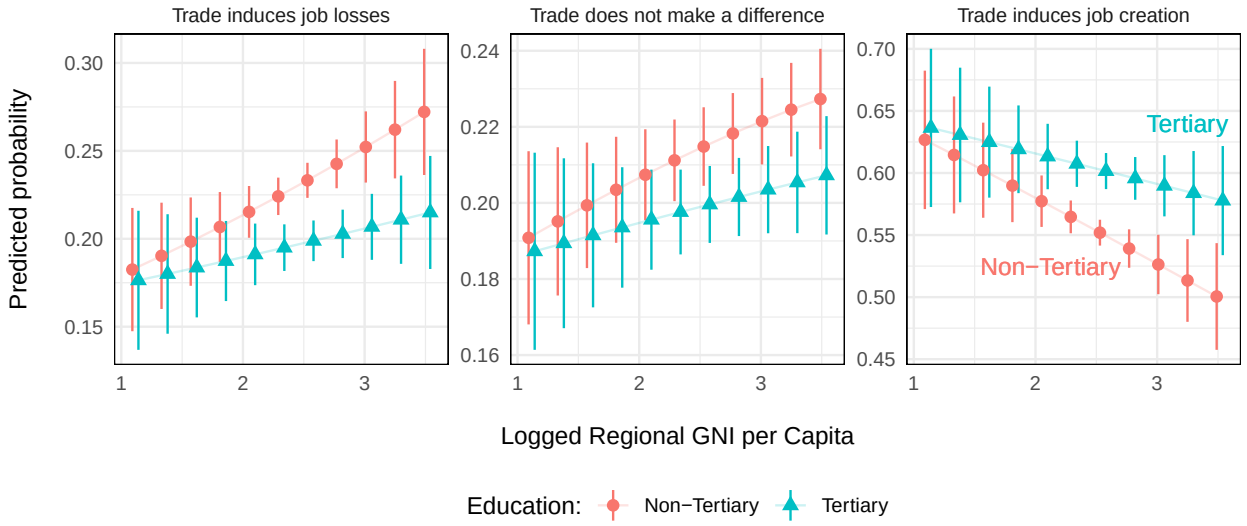
Note: Predicted values stem from the respective models shown in Table 3.2. Standard errors are clustered on the regional level. Ranges show 90 % confidence intervals.

Figure A20: Education, age, and perceived consequences of trade for wages



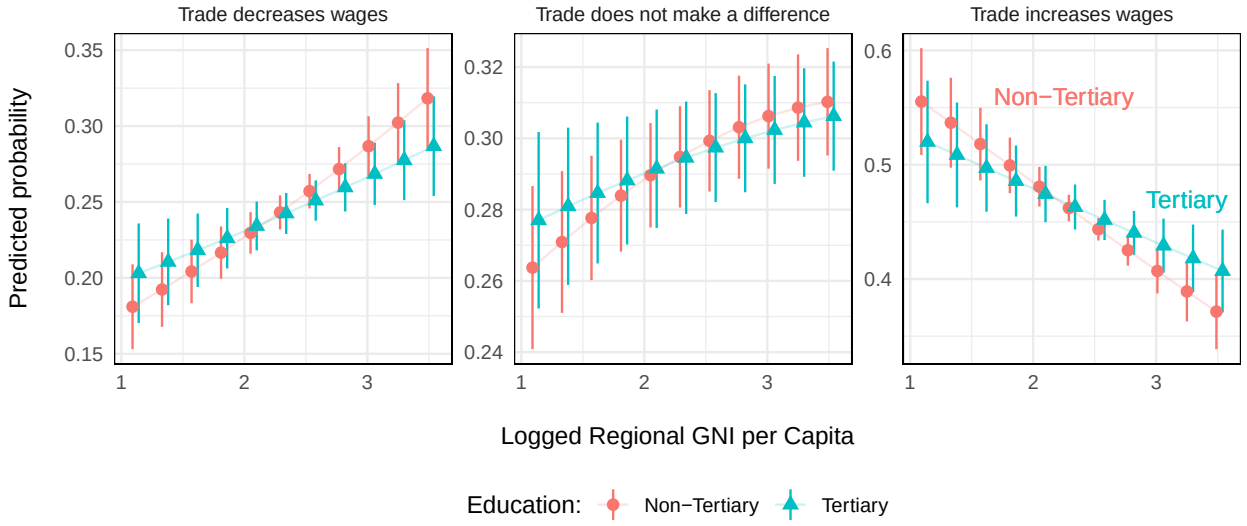
Note: Predicted values stem from the respective models shown in Table 3.2. Standard errors are clustered on the regional level. Ranges show 90 % confidence intervals.

Figure A21: Education, level of development, and perceived consequences of trade for jobs



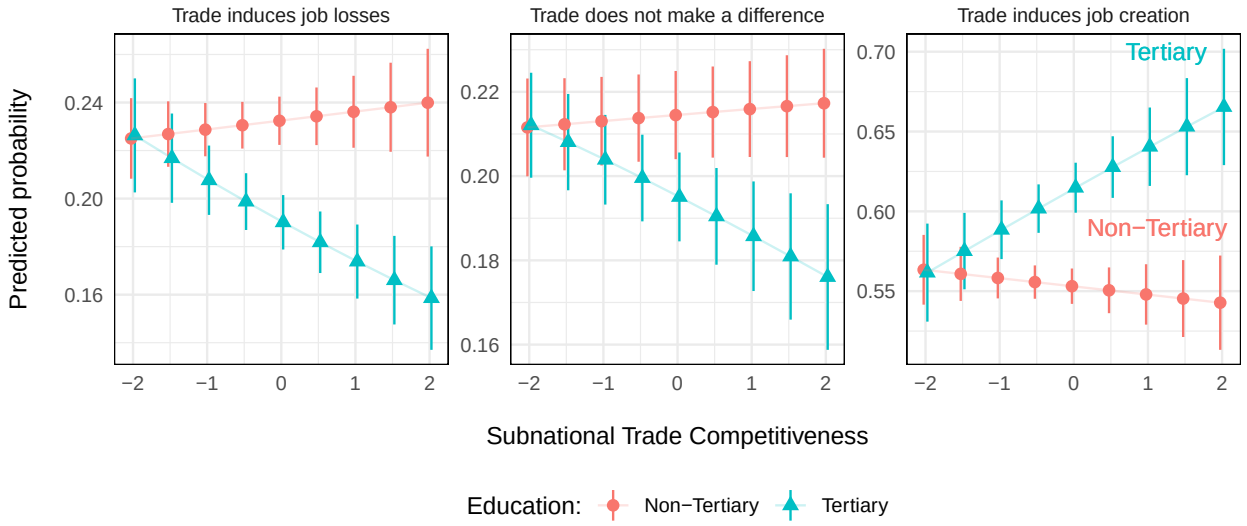
Note: Predicted values stem from the respective models shown in Table 3.2. Standard errors are clustered on the regional level. Ranges show 90 % confidence intervals.

Figure A22: Education, level of development, and perceived consequences of trade for wages



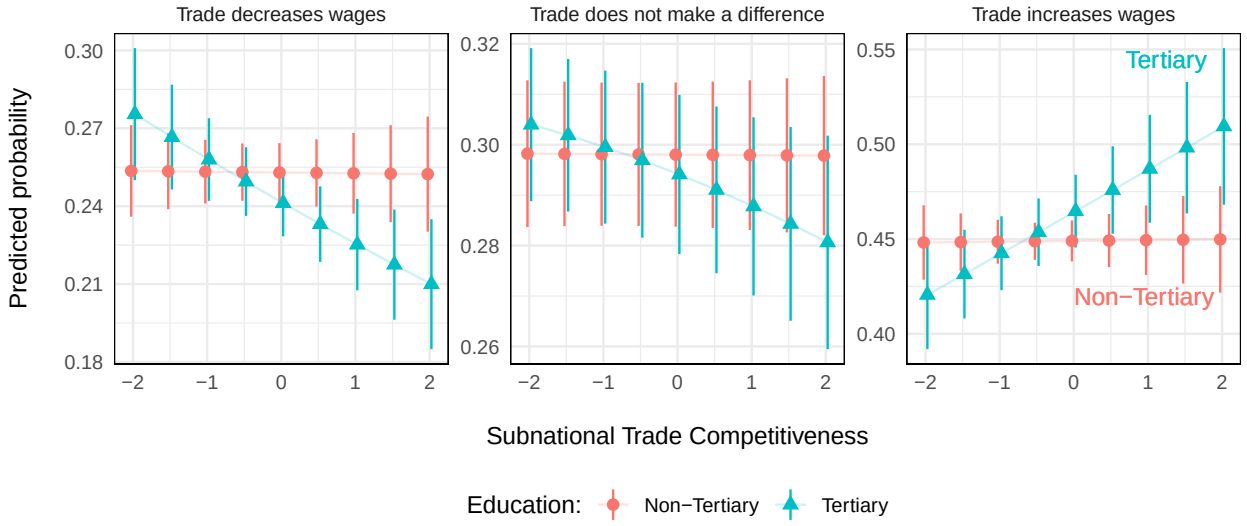
Note: Predicted values stem from the respective models shown in Table 3.2. Standard errors are clustered on the regional level. Ranges show 90 % confidence intervals.

Figure A23: Education, trade competitiveness, and perceived consequences of trade for jobs



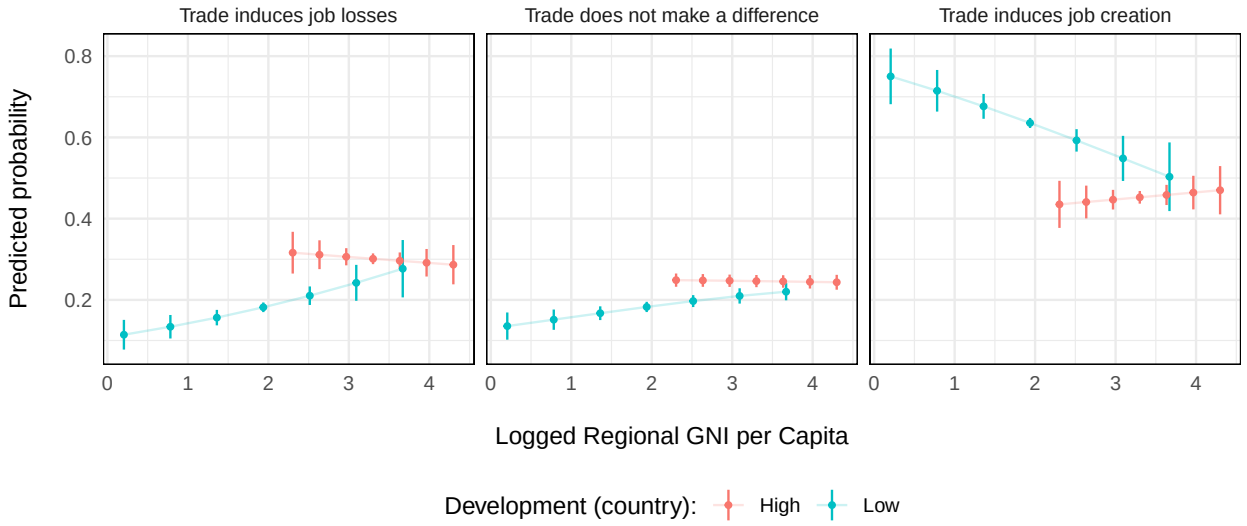
Note: Predicted values stem from the respective models shown in Table 3.2. Standard errors are clustered on the regional level. Ranges show 90 % confidence intervals.

Figure A24: Education, trade competitiveness, and perceived consequences of trade for wages



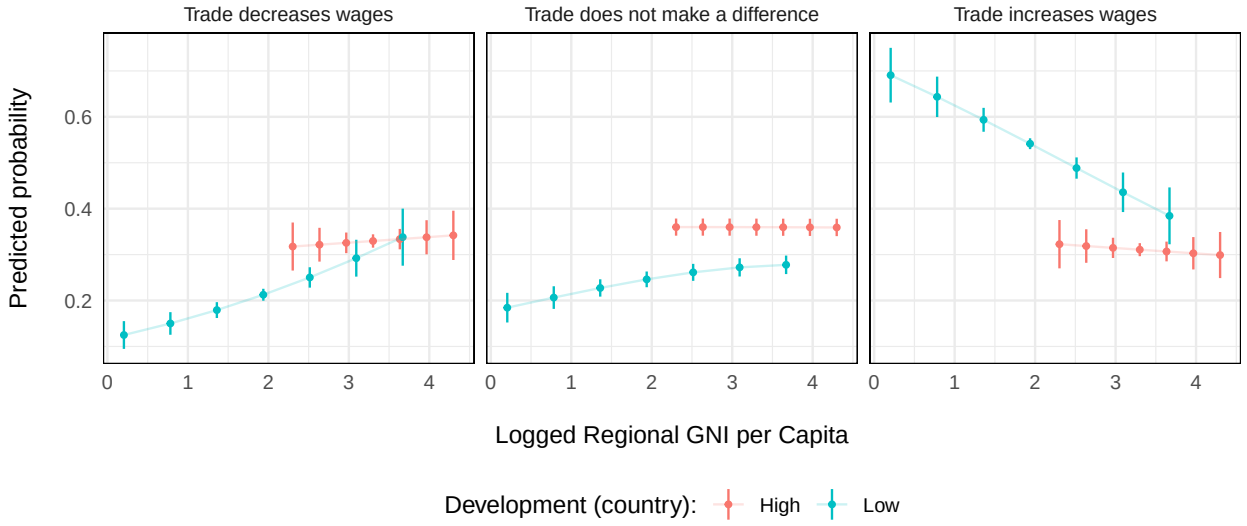
Note: Predicted values stem from the respective models shown in Table 3.2. Standard errors are clustered on the regional level. Ranges show 90 % confidence intervals.

Figure A25: Level of development and and perceived consequences of trade for jobs by country development



Note: Standard errors are clustered on the regional level. Ranges show 90 % confidence intervals. Countries are split at the mean of country GDP per capita (which is approx. 13,000 US$ per capita). Ranges overlap because countries close to the cut-off may have regions with lower/higher GNI per capita.

Figure A26: Level of development and and perceived consequences of trade for wages by country development



Note: Standard errors are clustered on the regional level. Ranges show 90 % confidence intervals. Countries are split at the mean of country GDP per capita (which is approx. 13,000 US$ per capita). Ranges overlap because countries close to the cut-off may have regions with lower/higher GNI per capita.

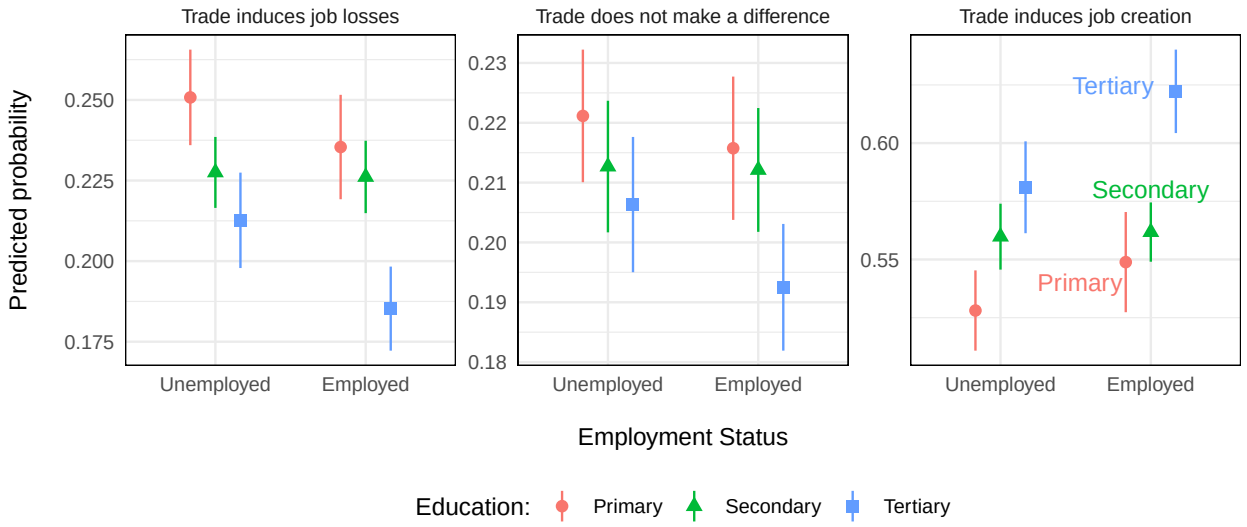
A2.7 Robustness checks

We present three sets of additional evidence in this section. First, we replicate our findings splitting education into three groups (primary, secondary, and tertiary). Second, we replicate all analyses using age as a moderator using a numeric variable capturing age in years. Finally, we explore three-way interaction terms between education, employment, and regional development/trade competitiveness. We will discuss the findings in more detail below. All in all, the results are consistent with our main argument and evidence.

More nuanced education groups

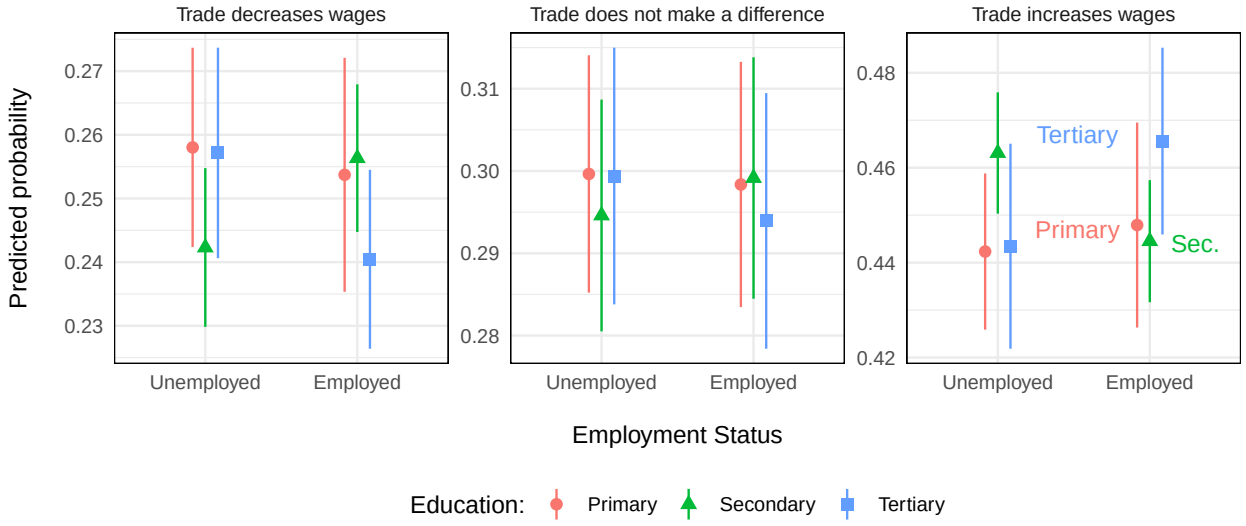
In this section, we split the group of non-tertiary educated individuals into two groups: those with primary education (red dots) and secondary education (green triangle). We contrast these groups with tertiary-educated individuals (blue squares). By and large, respondents with secondary education behave similar to primary educated individuals or take a middle position. However, clearly, individuals with tertiary education differ substantially from individuals with primary and secondary education, in ways that are consistent with our theoretical argument.

Figure A27: Three education groups, employment status, and perceived consequences of trade for jobs



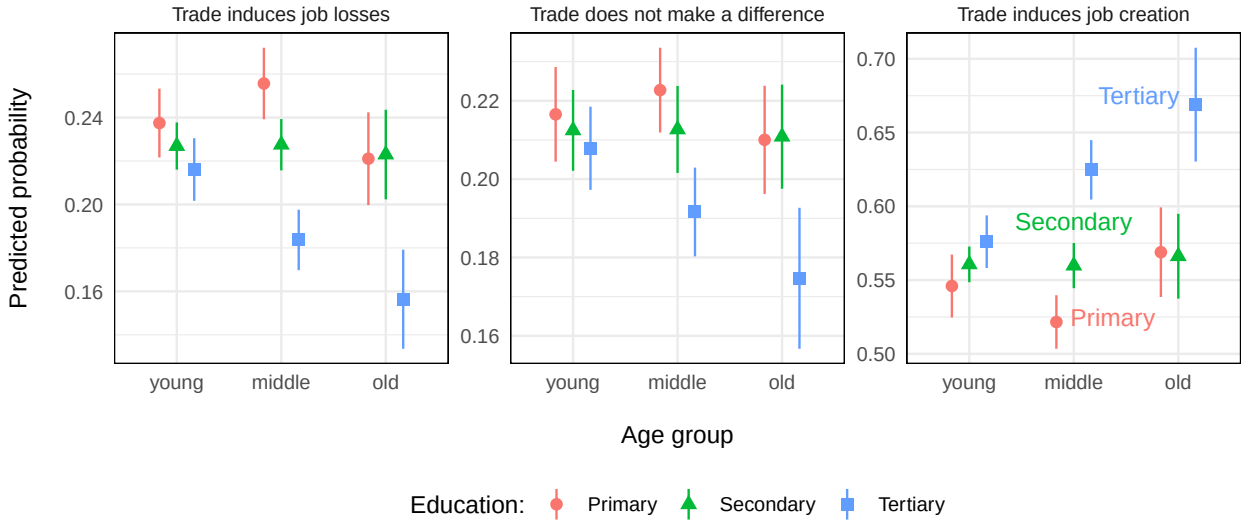
Note: Standard errors are clustered on the regional level. Ranges show 90 % confidence intervals.

Figure A28: Three education groups, employment status, and perceived consequences of trade for wages



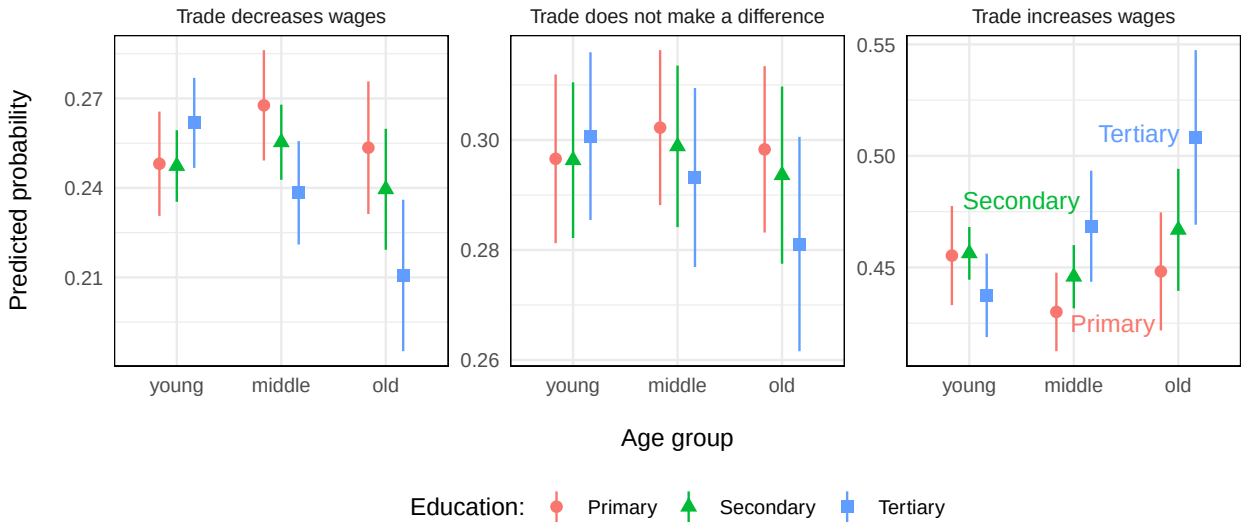
Note: Standard errors are clustered on the regional level. Ranges show 90 % confidence intervals.

Figure A29: Three education groups, age, and perceived consequences of trade for jobs



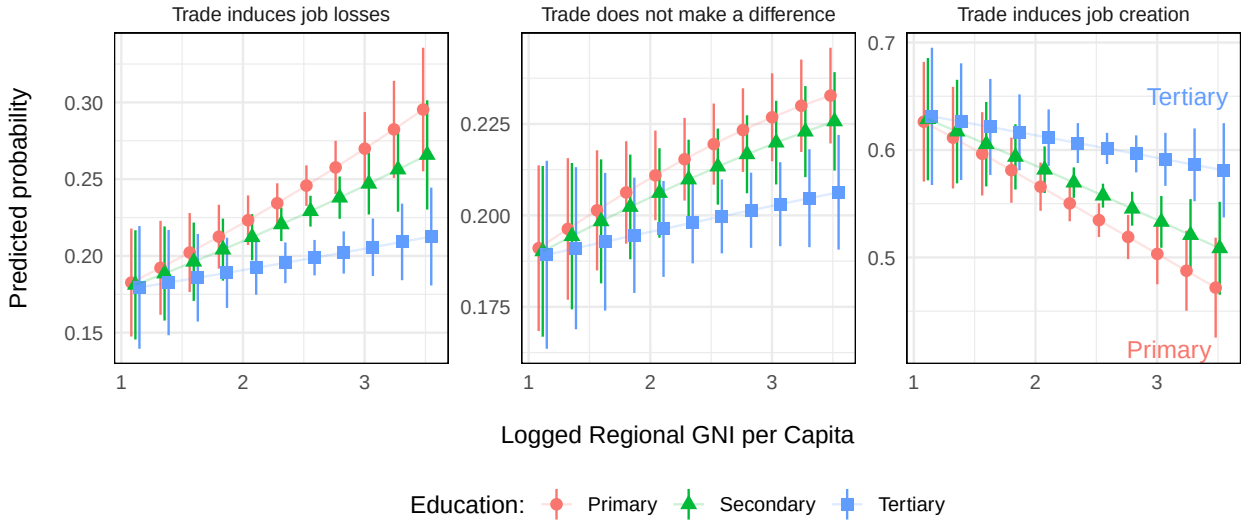
Note: Standard errors are clustered on the regional level. Ranges show 90 % confidence intervals.

Figure A30: Three education groups, age, and perceived consequences of trade for wages



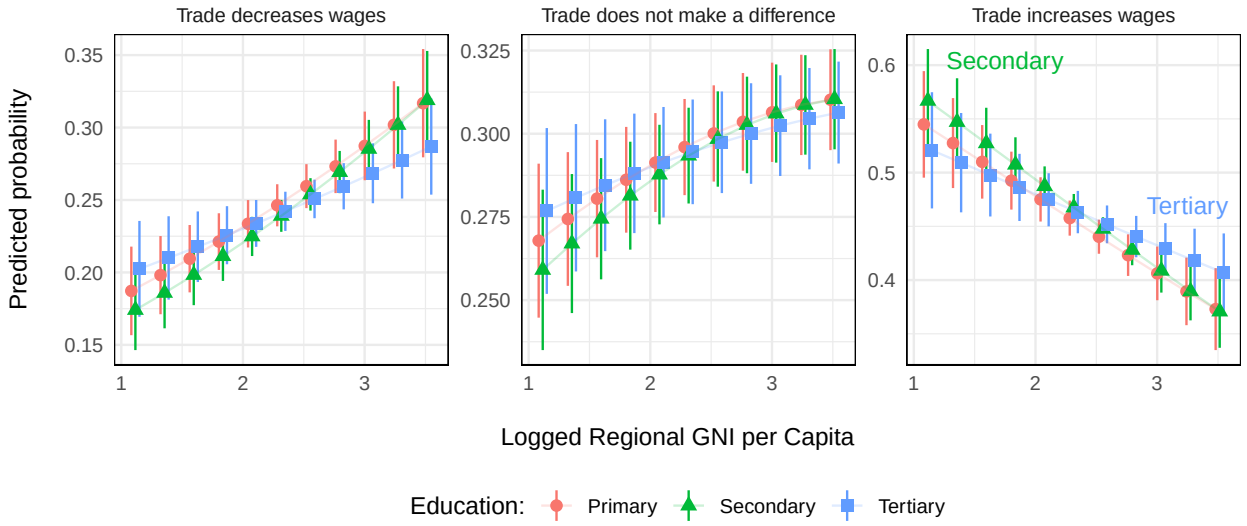
Note: Standard errors are clustered on the regional level. Ranges show 90 % confidence intervals.

Figure A31: Three education groups, level of development, and perceived consequences of trade for jobs



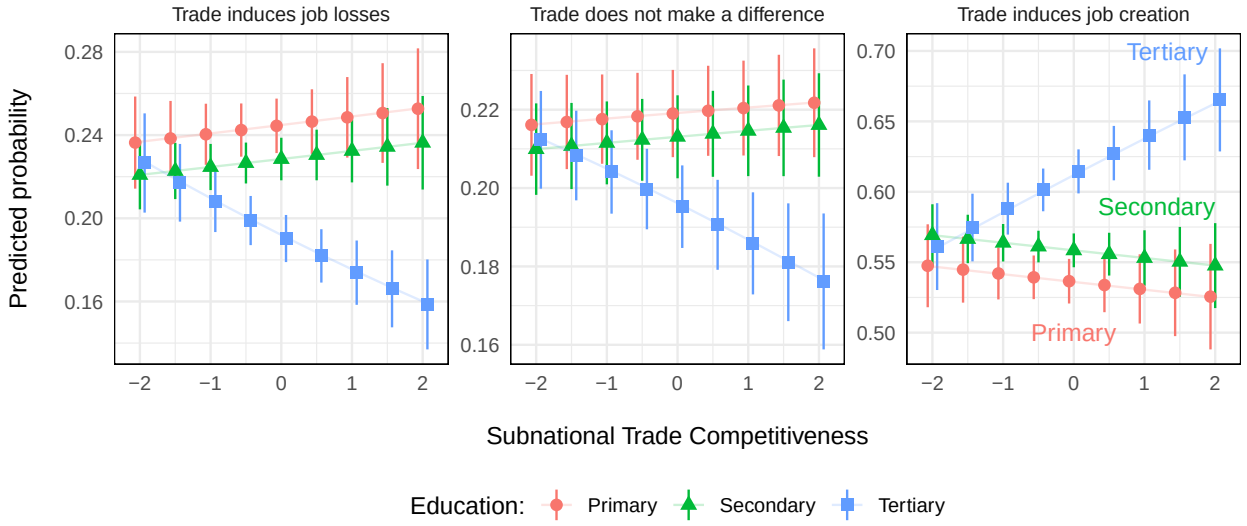
Note: Standard errors are clustered on the regional level. Ranges show 90 % confidence intervals.

Figure A32: Three education groups, level of development, and perceived consequences of trade for wages



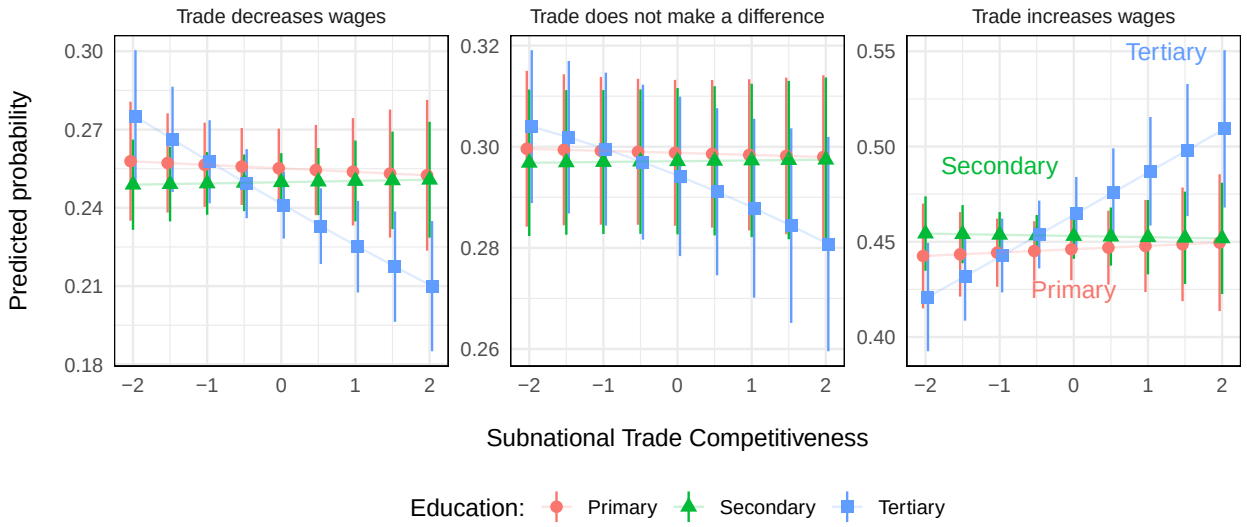
Note: Standard errors are clustered on the regional level. Ranges show 90 % confidence intervals.

Figure A33: Three education groups, trade competitiveness, and perceived consequences of trade for jobs



Note: Standard errors are clustered on the regional level. Ranges show 90 % confidence intervals.

Figure A34: Three education groups, trade competitiveness, and perceived consequences of trade for wages

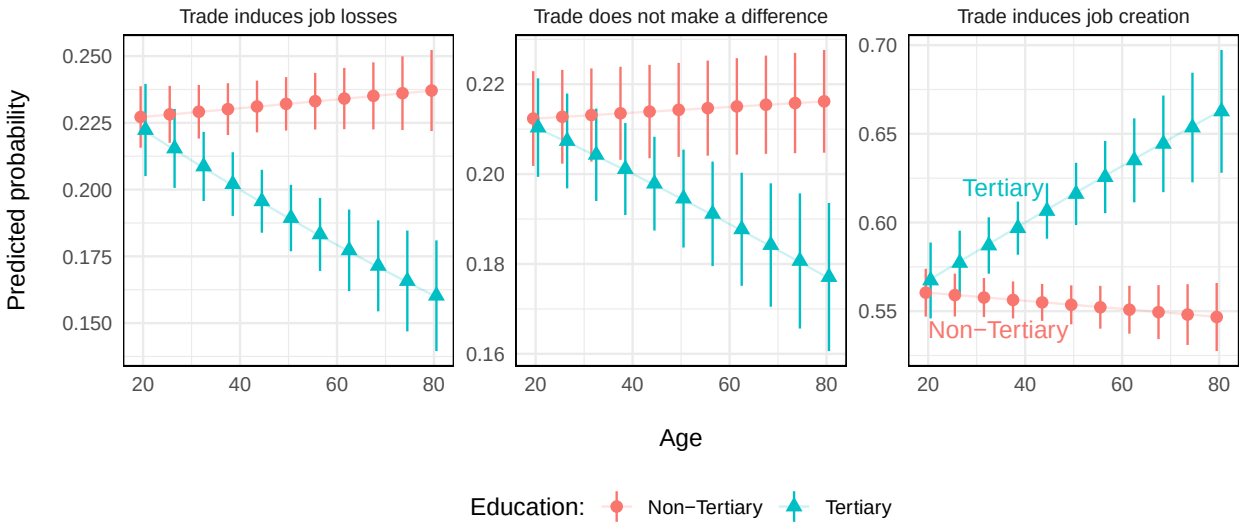


Note: Standard errors are clustered on the regional level. Ranges show 90 % confidence intervals.

Age as a continuous moderator

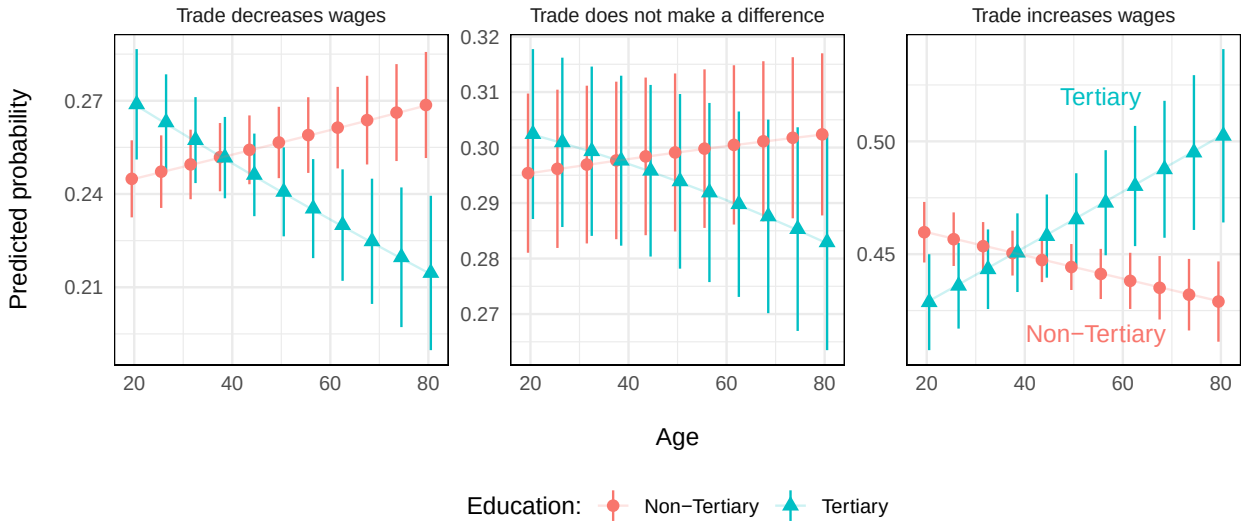
In the main text, we recode respondents' age in three groups: young ($age \leq 40$), middle ($40 < age \leq 65$), and old ($65 < age$) respondents. We use a continuous predictor (age in years) for the subsequent robustness tests. Figures A35 and A36 support the findings in Figure 3.2. The gap between tertiary and non-tertiary educated individuals increases with respondents' age. While the difference is close to zero among young respondents, older individuals with tertiary education perceive trade to be substantially more beneficial in terms of jobs and wages compared to individuals with a similar age but without tertiary education. Again, this finding is in line with our argument and Hypothesis 2.

Figure A35: Education, age in years, and perceived consequences of trade for jobs



Note: Standard errors are clustered on the regional level. Ranges show 90 % confidence intervals.

Figure A36: Education, age in years, and perceived consequences of trade for wages



Note: Standard errors are clustered on the regional level. Ranges show 90 % confidence intervals.

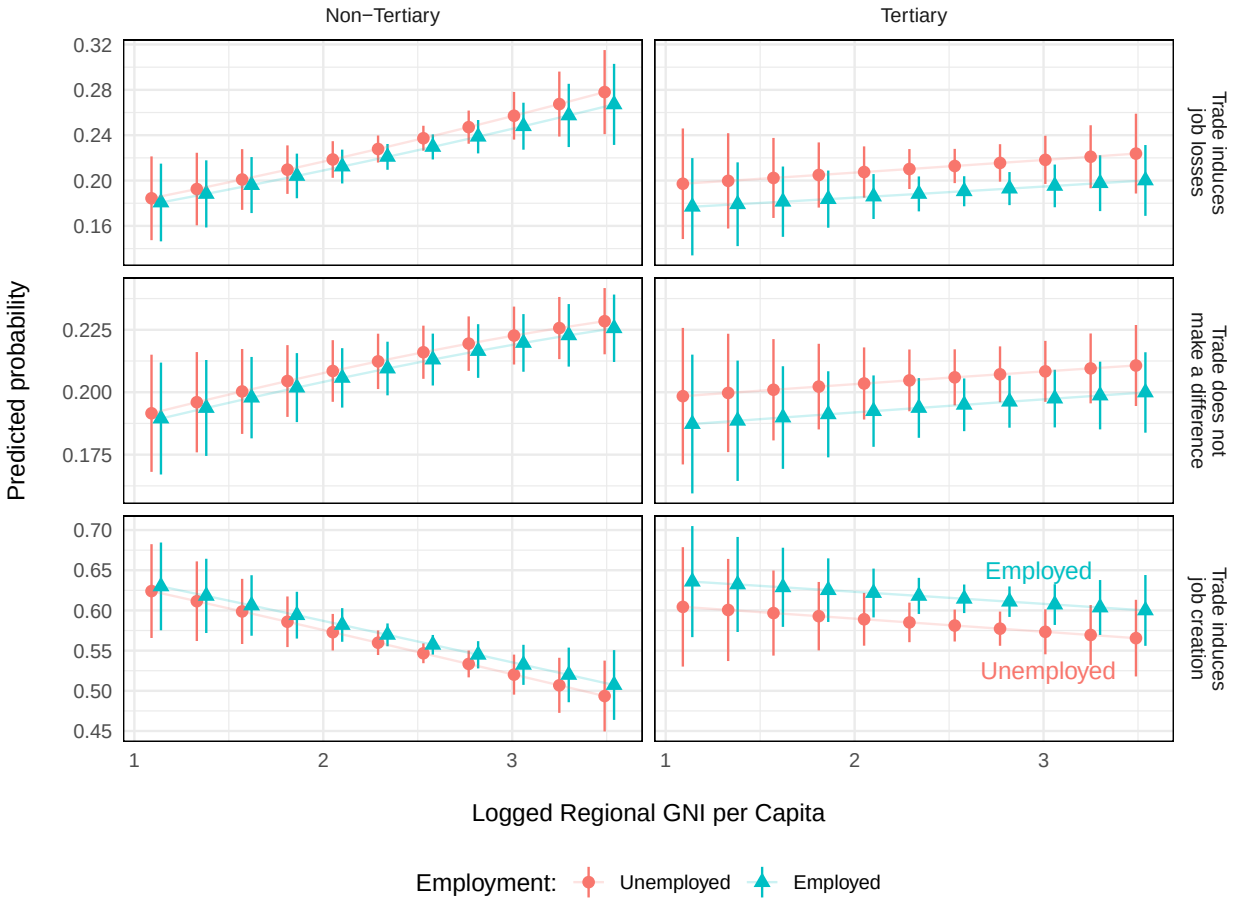
Three-way interaction effects: education × employment × regional development/trade competitiveness.

As a final robustness check, we explore potential three-way interaction effects between education, respondents' employment status and regional-level context factors. To this end, we include a three-way interaction term in our baseline regression model (education × employment × regional development/trade competitiveness). One may argue that our theoretical argument concerning regional context factors should be particularly strong among employed respondents. In contrast, one may anticipate that unemployed respondents do not care too much about these factors as they are no active part of the workforce. The figures split respondents by tertiary and non-tertiary education (left and right facets) and response (top, middle, and bottom facet). The x-axis shows the level of development and trade competitiveness, respectively.

Figures A37 and A38 suggest that there is no three-way interaction. That is, the results suggest that the employment status does not alter the interaction between education and regional development (which is visible when comparing the left and right facets). In contrast, we observe substantial differences between employed and unemployed respondents for trade competitiveness. Figure A39 shows that employed individuals with tertiary education react more to regional trade competitiveness than individuals who are not currently employed. Figure A40 confirms this observation and shows that while there is no difference

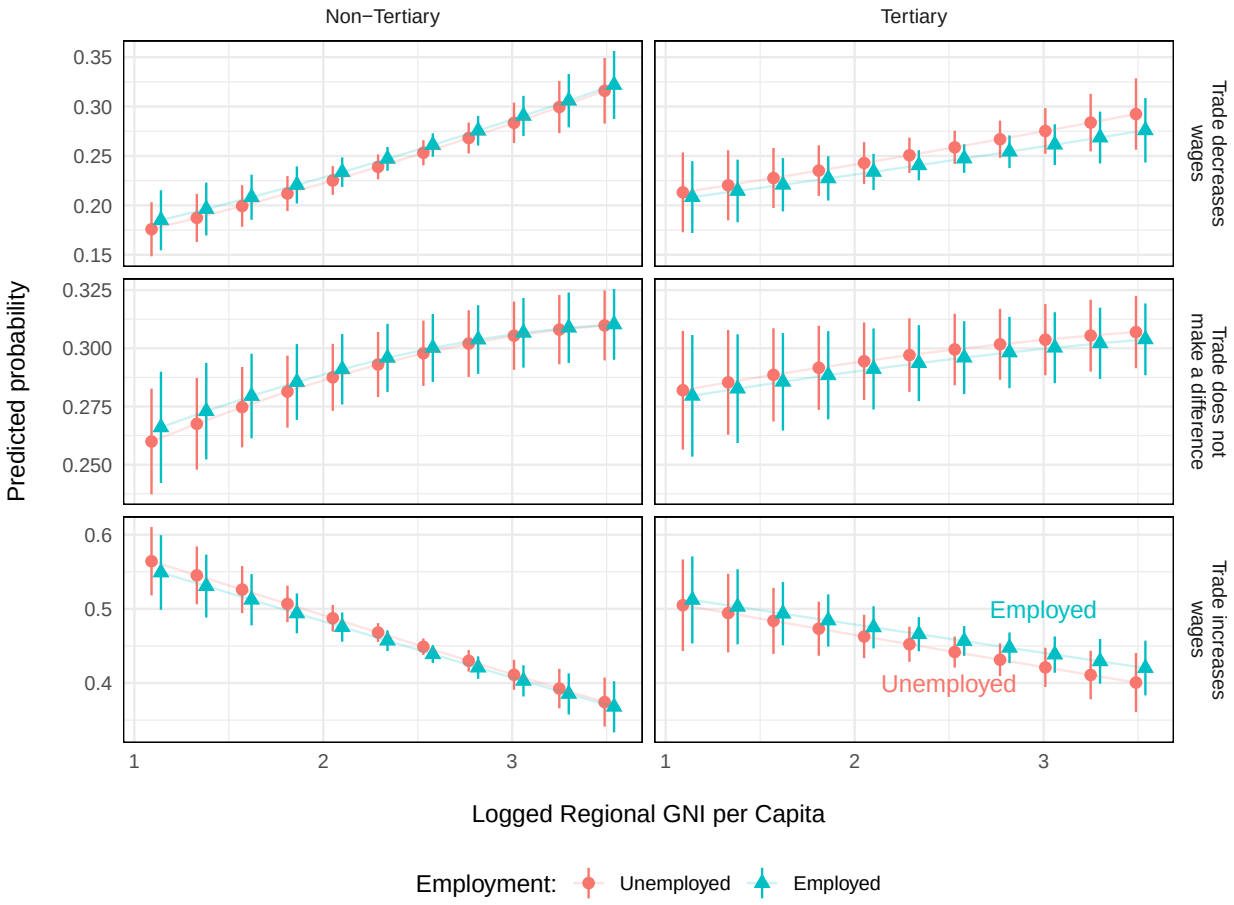
between tertiary and non-tertiary educated individuals when unemployed, stark differences arise among those who are employed. More specifically, while regional trade competitiveness does not alter the relationship of education and perceived consequences of trade for wages among unemployed respondents, tertiary educated individuals are substantially more likely to perceive trade as beneficial for wages in highly competitive regions, but only if they are employed. Again, this finding is in line with our theoretical argument.

Figure A37: Education, employment status, level of development, and perceived consequences of trade for jobs



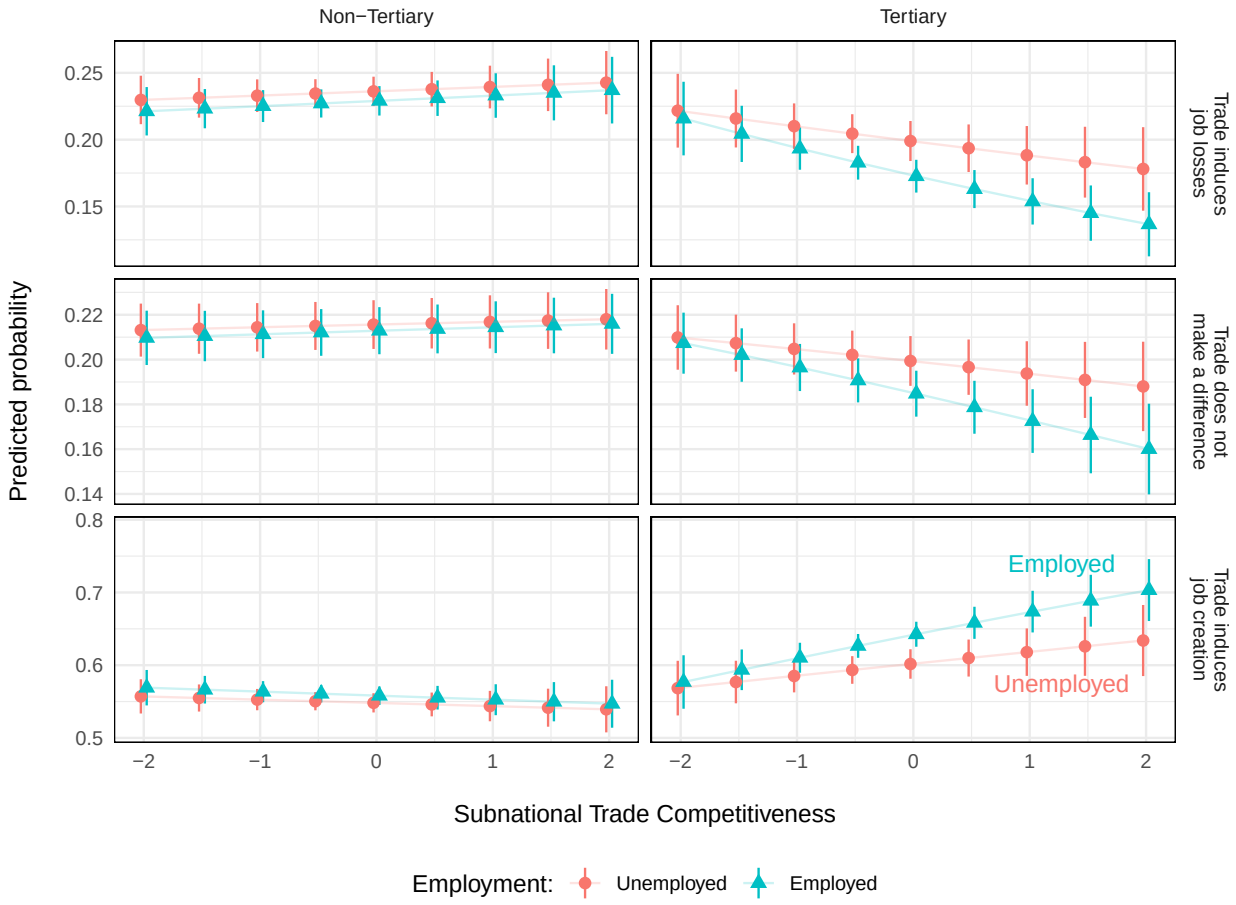
Note: Standard errors are clustered on the regional level. Ranges show 90 % confidence intervals.

Figure A38: Education, employment status, level of development, and perceived consequences of trade for wages



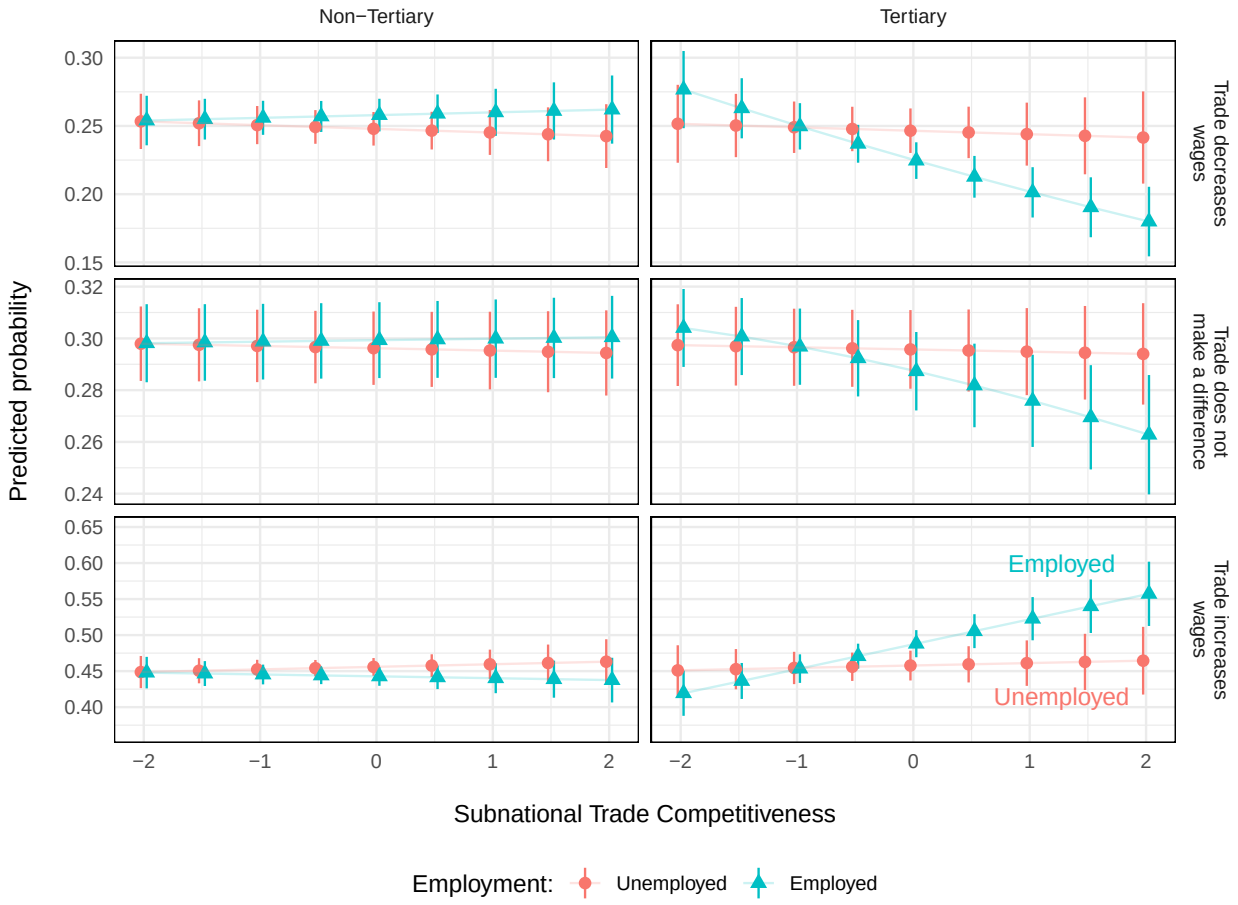
Note: Standard errors are clustered on the regional level. Ranges show 90 % confidence intervals.

Figure A39: Education, employment status, trade competitiveness, and perceived consequences of trade for jobs



Note: Standard errors are clustered on the regional level. Ranges show 90 % confidence intervals.

Figure A40: Education, employment status, trade competitiveness, and perceived consequences of trade for wages



Note: Standard errors are clustered on the regional level. Ranges show 90 % confidence intervals.

A3 Appendix for Chapter 4

A3.1 Used statistical software

The statistical software *R* was used for all analyses (R Core Team 2020*b*) except for the model with clustered standard errors, which was calculated with *Stata*. The multinomial logistic regression models were generated with *nnet* (Venables and Ripley 2002). The charts with the predicted probabilities were created with *sjPlot* (Lüdecke 2018).

A3.2 Descriptive statistics

Due to various data limitations and restrictions, the number of observations varies between the models in this paper. The following statistics describe the full sample including legislators from countries with just one type of rebel and legislators from national constituencies.

Variable	N	Mean	SD	Min	Max
Vote: Yes	13694	0.81	0.39	0.00	1.00
Vote: Abstain	13694	0.05	0.22	0.00	1.00
Vote: No	13694	0.14	0.34	0.00	1.00
Rebel: Loyal	13087	0.92	0.27	0.00	1.00
Rebel: Contra	13087	0.05	0.21	0.00	1.00
Rebel: Pro	13087	0.03	0.17	0.00	1.00
Logged GDP ratio	13694	0.34	1.11	-2.78	2.83
Agreement depth	13694	6.17	1.36	1.00	7.00
GNI per capita	13626	1.00	0.19	0.25	2.10
Mean years of school	13626	0.99	0.09	0.62	1.55
Subnational trade competitiveness	10313	0.01	0.16	-0.47	0.79
Female	13694	0.24	0.43	0.00	1.00
Party left-right position	13299	5.82	2.33	0.00	10.00
Years to election	13694	1.73	1.27	-1.75	7.42
Majoritarian system	13694	0.40	0.49	0.00	1.00
Proportional system	13694	0.60	0.49	0.00	1.00
Closed-list PR	13694	0.19	0.40	0.00	1.00
Open-list PR	13694	0.40	0.49	0.00	1.00
Government	13694	0.55	0.50	0.00	1.00
Age	12613	53.55	10.89	20.00	93.00
Consitutency seats	13694	12.46	23.32	1.00	150.00
Upper chamber	13694	0.14	0.35	0.00	1.00
Lower chamber	13694	0.46	0.50	0.00	1.00
Unicameral	13694	0.39	0.49	0.00	1.00
Share of "Yes" votes	13694	0.81	0.14	0.48	1.00
Votes per legislator	13694	4.65	3.27	1.00	14.00

Table A5: Descriptive statistics of variables

Figure A41: Most trade agreements are ratified with overwhelming majorities

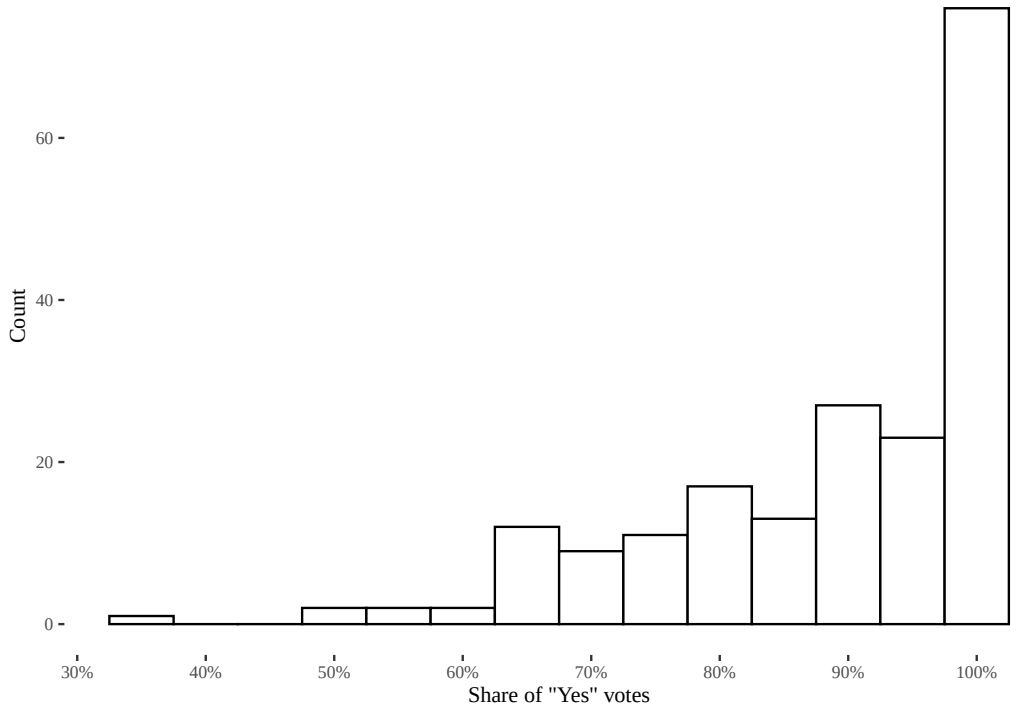


Figure A42: Mean value of variables by legislator type

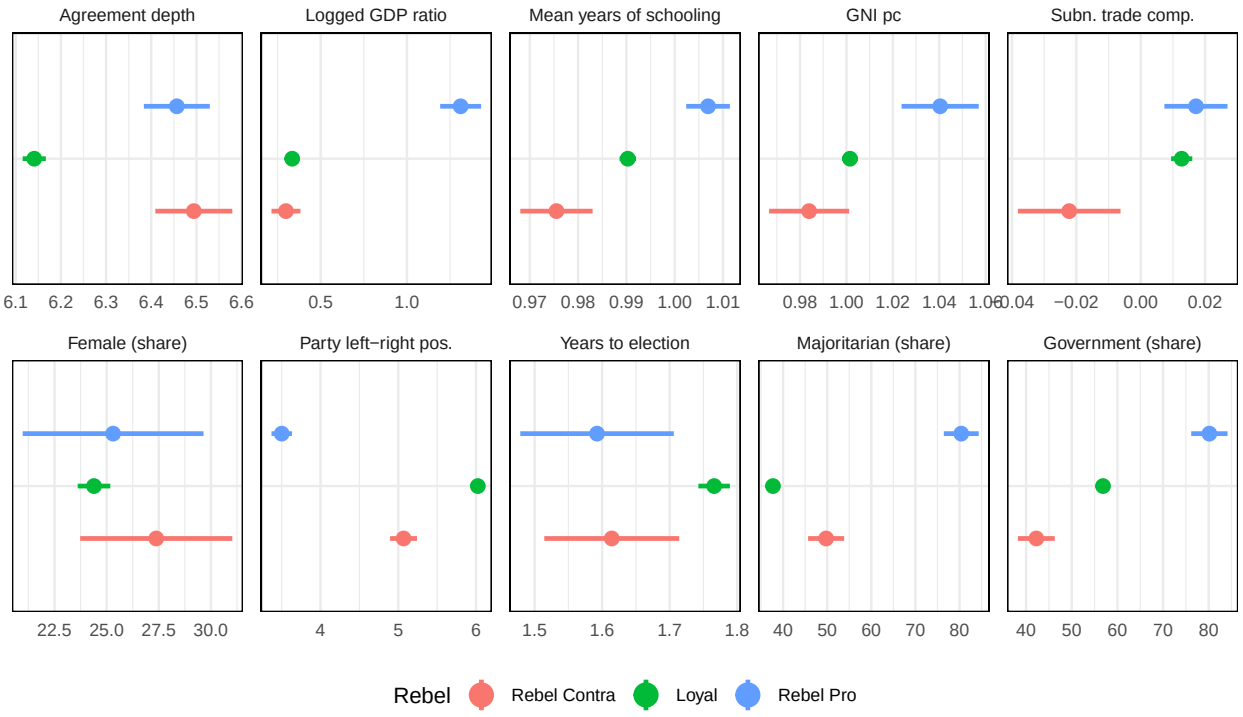


Figure A43: Countries

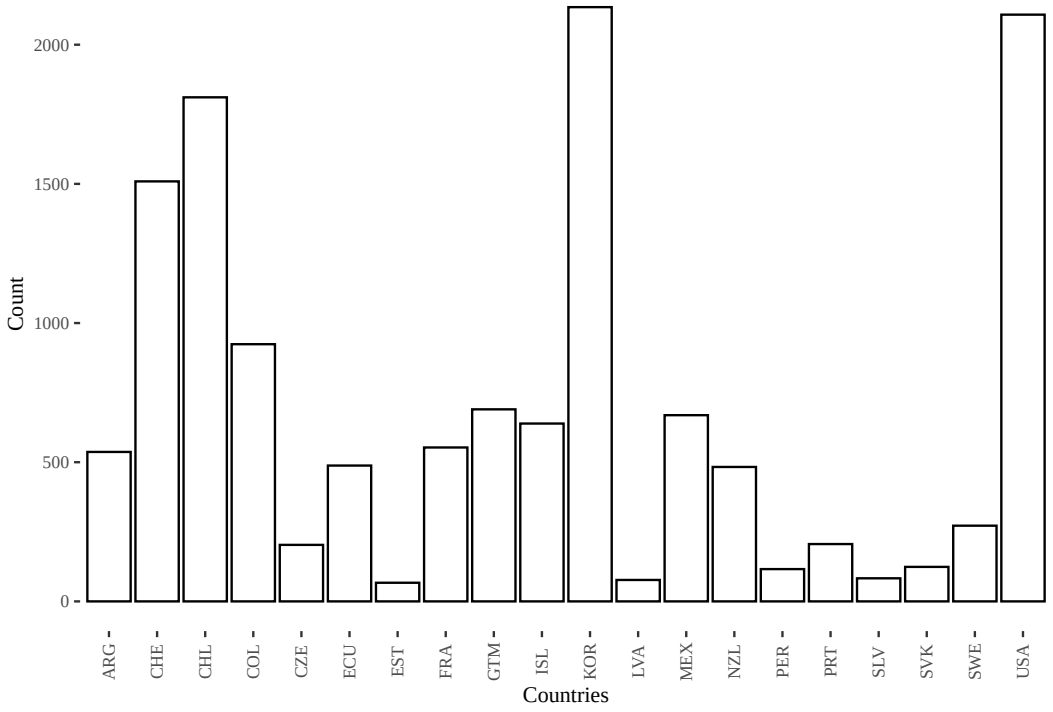


Figure A44: Depth of trade agreements

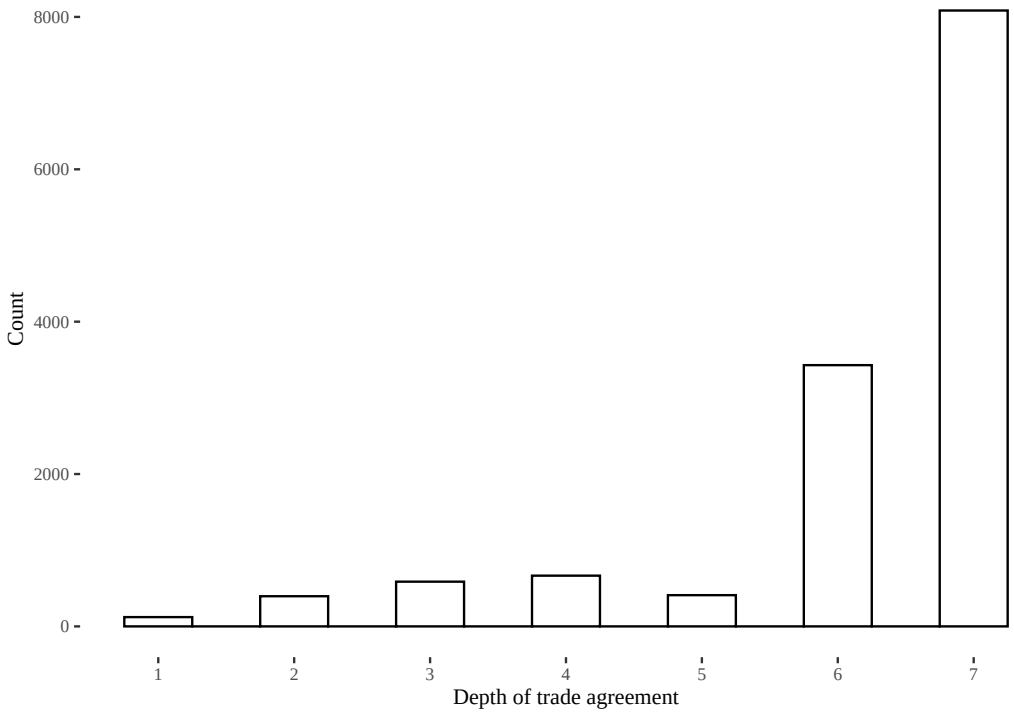


Figure A45: GDP ratio

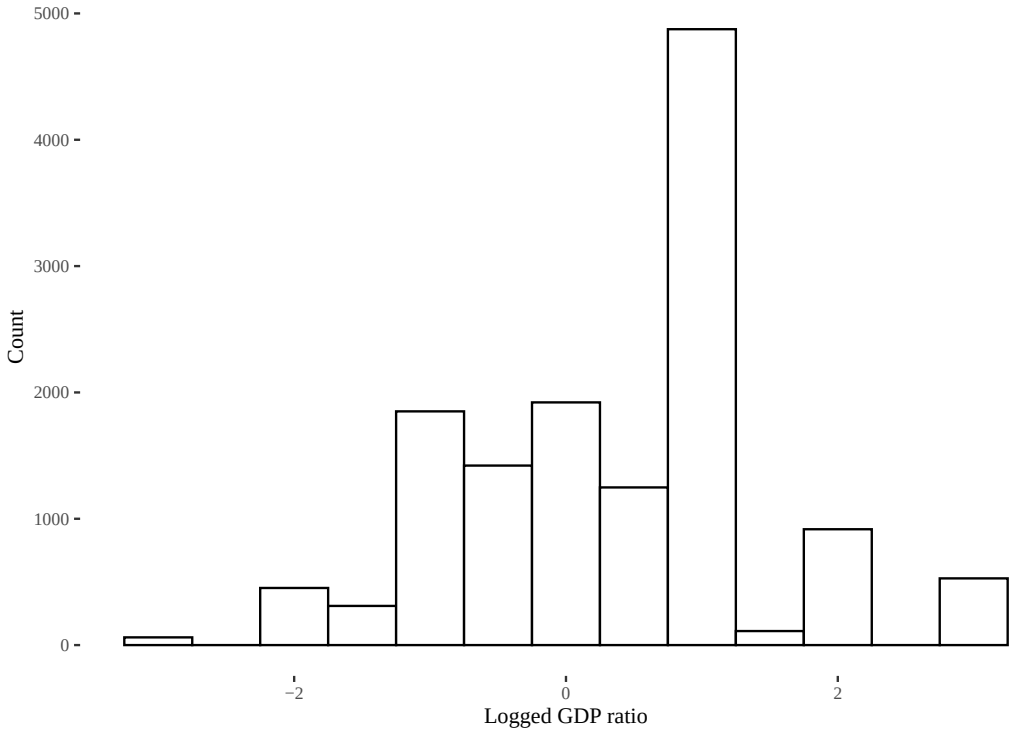


Figure A46: Mean years of school (relative to country mean)

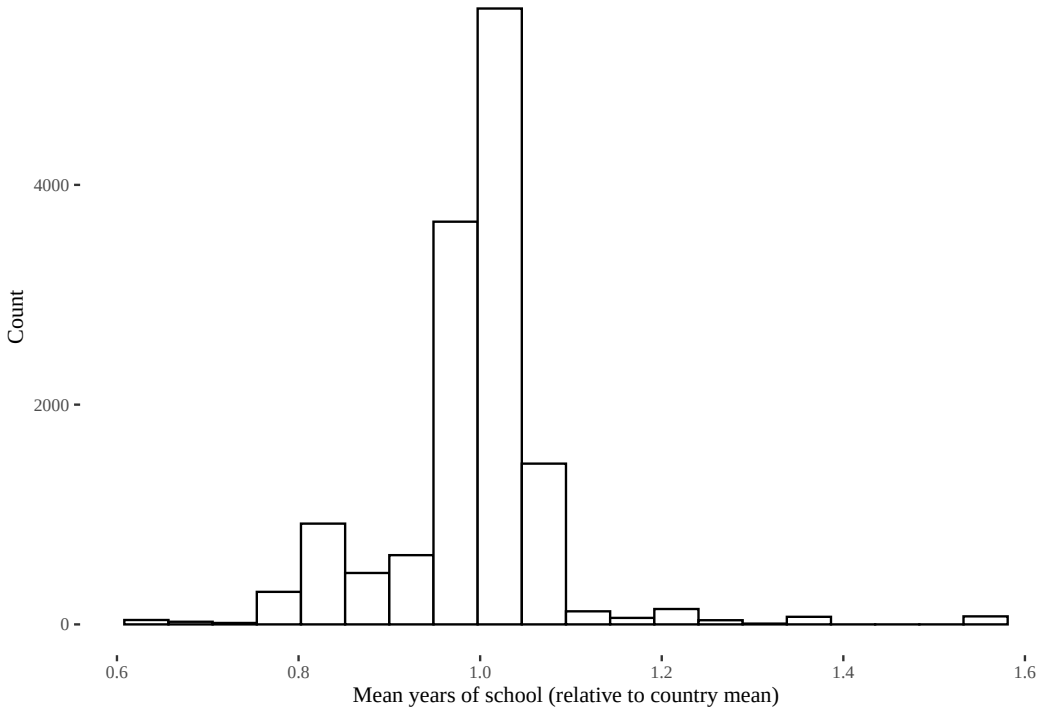


Figure A47: GNI per capita (relative to country mean)

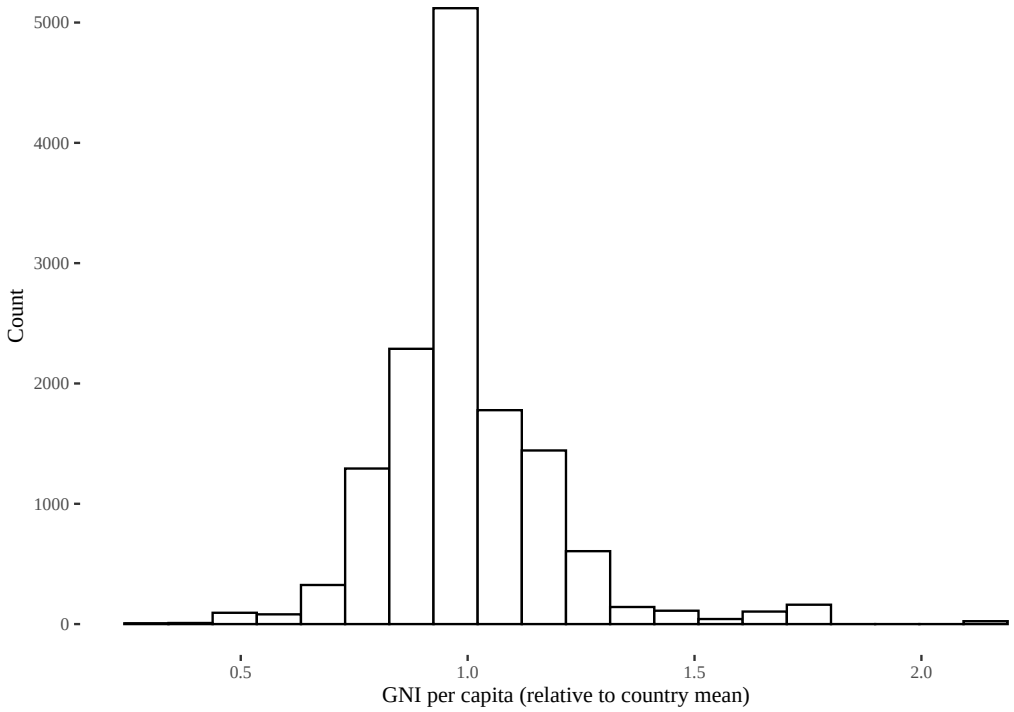
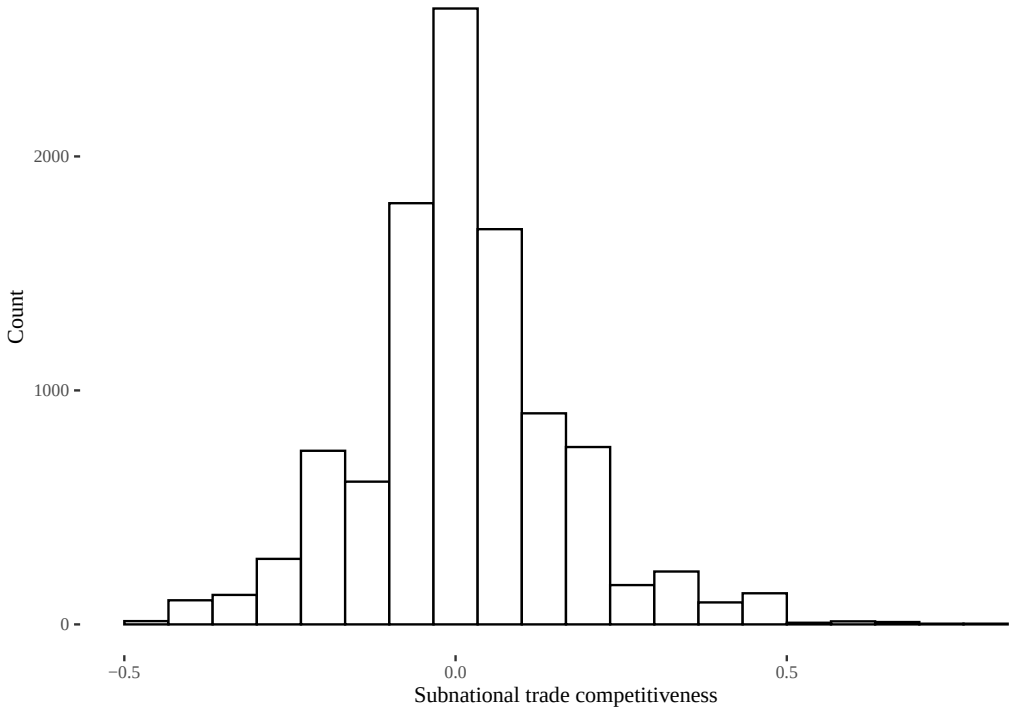


Figure A48: Subnational trade competitiveness (standarized within country)



A3.3 Country overview

Due to various data limitations and restrictions, the number of observations varies considerably between the different models presented in this paper. Below, I outline coding decisions for the electoral systems, the subnational level for which the measures of constituency economic interests are available (Mean years of schooling and GNI per capita from the SHDI database; subnational trade competitiveness from the STC database) as well as the limitations that restrict the inclusion of this country in the various model specifications.

- Argentina (ARG): The lower chamber uses closed-list proportional representation. Electoral districts are the 24 provinces. STC data is available for all provinces; SHDI data is available for 11 province groups. Because there are no "Pro Rebels" in Argentina, the country is only included in the model that includes even countries with just one type of rebel as well as in the vote choice model.

- Switzerland (CHE): The chamber house uses open-list proportional representation except for 6 cantons that have just one representative and thus use majoritarian representation. The upper chamber uses majoritarian representation. Electoral districts of both chambers are the 26 cantons and half-cantons. STC data is available for all cantons; SHDI data is available for 7 regions.

- Chile (CHL): Both chambers use open-list proportional representation. Most of the 16 regions are one single electoral district but some regions are split in more than one electoral district. STC data and SHDI data is available for all regions.

- Colombia (COL): Both chambers use open-list proportional representation. The upper chamber is elected nationally; the electoral districts for the lower chamber are the 33 departments. STC data and SHDI data is available for all departments. Because there are no "Pro Rebels" in the lower chamber and the upper chamber (which has "Pro Rebels") is elected nationally, the country is not included in the main model.

- Czechia (CZE): The lower chamber uses open-list proportional representation; the electoral districts are the 14 regions. The upper chamber uses majoritarian representation. STC data is not available; SHDI data is available for 8 region groups.

- Ecuador (ECU): The unicameral parliament uses closed-list proportional representation. Electoral districts are the 24 provinces. STC data is available for all provinces; SHDI data is available for 3 regions. Because there are no "Pro Rebels" in Ecuador, the country is only included in the model that includes even countries with just one type of rebel as well as in the vote choice model.

- Estonia (EST): The unicameral parliament uses open-list proportional representation. Electoral districts are largely identical to the counties. STC and SHDI data is available for 5 areas. Because there are no "Pro Rebels" in Ecuador, the country is only included in the model that includes even countries with just one type of rebel as well as in the vote choice model.

- France (FRA): The lower chamber uses majoritarian representation. Electoral districts are nested in the departments. STC data is available for all departments; SHDI data is available for 20 regions.

- Guatemala (GTM): The unicameral parliament uses closed-list proportional representation. Electoral districts are the 23 departments; some legislators are elected in a national constituency. STC data is available for all departments; SHDI data is available for 8 regions.

- Iceland (ISL): The unicameral parliament uses open-list proportional representation. STC data is not available; SHDI data is available only on the national level. Thus the country is only included in the model including national districts.

- Republic of Korea (KOR): The unicameral parliament uses majoritarian representation for most legislators and closed-list proportional representation for some nationally elected legislators. Electoral districts are nested in 17 provinces and metropolitan cities. STC data is available for all provinces; SHDI data is available for 7 regions.

- Latvia (LVA): The unicameral parliament uses open-list proportional representation. Electoral districts are largely identical to the regions. STC data and SHDI data is available for all regions. Because there are no "Pro Rebels" in Latvia, the country is only included in the model that includes even countries with just one type of rebel as well as in the vote choice model.

- Mexico (MEX): The upper chamber uses majoritarian representation for most legislators and closed-list proportional representation for some nationally elected legislators. Electoral districts are the 32 states. STC data and SHDI data is available for all states.

- New Zealand (NZL): The unicameral parliament uses majoritarian representation for most legislators and closed-list proportional representation for some nationally elected legislators. Electoral districts are mostly nested within the 15 regions. STC data is not available; SHDI data is available for all regions. Because there are no "Pro Rebels" in New Zealand, the country is only included in the model that includes even countries with just one type of rebel as well as in the vote choice model.

- Peru (PER): The unicameral parliament uses open-list proportional representation. Electoral districts are the 26 regions. STC data is available for all regions; SHDI data is available for 6 region groups. Because there are no "Pro Rebels" in Peru, the country is only included in the model that includes even countries with just one type of rebel as well as in the vote choice model.

- Portugal (PRT): The unicameral parliament uses closed-list proportional representation. Electoral districts are nested in 7 regions. STC data and SHDI data is available for all regions.vBecause there are no "Pro Rebels" in Portugal, the country is only included in the model that includes even countries with just one type of rebel as well as in the vote choice model.

- El Salvador (SLV): The unicameral parliament uses open-list proportional representation. Electoral districts are the 14 departments. STC data is available for all departments, SHDI data is available for 4 regions. Because there are no "Pro Rebels" in El Salvador, the country is only included in the model that includes even countries with just one type of rebel as well as in the vote choice model.

- Slovakia (SVK): The unicameral parliament uses open-list proportional representation. All legislators are elected nationally. Thus the country is only included in the model including national districts.

- Sweden (SWE): The unicameral parliament uses open-list proportional representation. The electoral district are mostly identical to the 21 counties. STC data is not available; SHDI data is available for 8 areas. Because there are no "Pro Rebels" in Sweden, the country is only included in the model that includes even countries with just one type of rebel as well as in the vote choice model.

- United States of America (USA): Both chambers use majoritarian representation. Some states elect just one at-large legislator to the lower chamber; the electoral districts of states with more than one legislator are nested within their state. The legislators in the upper house are elected in the states. STC and SHDI data is available for all states.

Table A6 summarizes the number of observations by country, parliamentary chamber, and electoral system used in the baseline model (M1) of each set of models presented in this paper. Thus, column "Main model" reflects the observations used in the baseline model (M1) presented in Table 4.1. To illustrate this table, the votes from the Colombian Senate and Slovakia were only used in the robustness check that included nationally elected legislators because these chambers have no electoral districts at all and legislators cannot be attributed to a specific geographic constituency. The observations used in the alternative model specifications with clustered standard errors and no country fixed effects are the same as in the main model.

Country	Chamber	Electoral system	Votes	Main model	All countries	Incl. national	Add. controls	No abst.	10 seats	Majoritarian
ARG	Lower	PR: Closed-lists	537		454	454				
CHE	Lower	PR: Open-lists	1263	1214	1214	1214	1214	1029	485	
CHE	Lower	Majoritarian	34	28	28	28	28	28	28	28
CHE	Upper	PR: Open-lists	20	18	18	18	18	12	18	
CHE	Upper	Majoritarian	192	178	178	178	178	167	178	178
CHL	Lower	PR: Open-lists	1554	1485	1485	1485	1485	1417	1485	
CHL	Upper	PR: Open-lists	257	239	239	239	239	236	239	
COL	Lower	PR: Open-lists	564		534	540				
COL	Upper	PR: Open-lists	360			356				
CZE	Lower	PR: Open-lists	132	122	122	122	122	116	22	
CZE	Upper	Majoritarian	71	61	61	61	61	38	61	61
ECU	Unicameral	PR: Closed-lists	488		393	468				
EST	Unicameral	PR: Open-lists	67		66	66				
FRA	Lower	Majoritarian	553	520	512	520	520	447	520	520
GTM	Unicameral	PR: Closed-lists	690	518	518	625	361	518	397	
ISL	Unicameral	PR: Open-lists	639			621				
KOR	Unicameral	PR: Closed-lists	379			338				
KOR	Unicameral	Majoritarian	1756	1474	1474	1474	1474	1422	1474	1474
LVA	Unicameral	PR: Open-lists	77		76	76				
MEX	Upper	PR: Closed-lists	153			147				
MEX	Upper	Majoritarian	516	506	506	506	478	501	506	506
NZL	Unicameral	PR: Closed-lists	203			203				
NZL	Unicameral	Majoritarian	280		275	275				
PER	Unicameral	PR: Open-lists	116		113	113				
PRT	Unicameral	PR: Closed-lists	206		202	206				
SLV	Unicameral	PR: Open-lists	83		77	77				
SVK	Unicameral	PR: Open-lists	124			100				
SWE	Unicameral	PR: Open-lists	272		268	268				
USA	Lower	Majoritarian	1713	1712	1712	1712	1712	1712	1712	1712
USA	Upper	Majoritarian	395	395	395	395	395	395	395	395
Overall			13694	8470	10920	12885	8285	8038	7520	4874

Table A6: Countries, electoral systems, and observations by models

A3.4 Summary of ratification votes

Country	Chamber	Agreement	Year	Share yes	Pro rebels	Contra rebels	Share rebels
Argentina	Lower	Argentina Chile	2018	0.69	0	0	0.00
Argentina	Lower	Egypt MERCOSUR	2017	0.92	0	3	0.01
Argentina	Lower	Israel MERCOSUR	2011	0.90	0	2	0.01
Chile	Upper	Brazil Chile	2020	0.77	1	1	0.07
Chile	Lower	Brazil Chile	2020	0.63	3	3	0.04
Chile	Upper	Argentina Chile	2019	0.97	0	0	0.00
Chile	Upper	Chile UK	2019	0.97	1	0	0.03
Chile	Lower	CPTPP	2019	0.52	6	0	0.04
Chile	Lower	Chile UK	2019	0.75	1	9	0.09
Chile	Upper	Chile China	2018	0.96	0	0	0.00
Chile	Lower	Argentina Chile	2018	0.66	1	14	0.14
Chile	Lower	Chile Uruguay	2018	0.94	0	5	0.06
Chile	Lower	Chile China	2018	0.78	0	6	0.05
Chile	Lower	Chile Indonesia	2018	0.87	0	2	0.02
Chile	Lower	Canada Chile	2018	0.92	0	5	0.04
Chile	Upper	Chile Thailand	2015	1.00	0	0	0.00
Chile	Lower	Chile Thailand	2015	0.98	0	0	0.00
Chile	Upper	Chile Hong Kong	2014	1.00	0	0	0.00
Chile	Lower	Chile Hong Kong	2014	0.94	0	3	0.03
Chile	Lower	Pacific Alliance	2013	0.80	0	10	0.12
Chile	Upper	Chile Vietnam	2012	1.00	0	0	0.00
Chile	Lower	Chile Vietnam	2012	0.91	0	8	0.07
Chile	Upper	Chile Malaysia	2011	1.00	0	0	0.00
Chile	Lower	Chile Malaysia	2011	1.00	0	0	0.00
Chile	Upper	Chile Turkey	2010	1.00	0	0	0.00
Chile	Lower	Chile Turkey	2010	0.97	0	3	0.03
Colombia	Lower	Colombia Israel	2017	0.77	0	14	0.15
Colombia	Upper	Colombia Israel	2016	1.00	3	0	0.05
Colombia	Lower	Colombia Costa Rica	2015	0.89	0	5	0.05
Colombia	Upper	Colombia Costa Rica	2014	0.97	0	0	0.00
Colombia	Upper	Colombia Korea	2014	0.82	0	4	0.05
Colombia	Lower	Colombia Korea	2014	0.88	0	4	0.04
Colombia	Upper	Pacific Alliance	2013	0.87	1	0	0.02
Colombia	Lower	Pacific Alliance	2013	0.82	0	12	0.14
Colombia	Lower	Colombia EC Peru	2013	0.79	0	17	0.17
Colombia	Upper	Colombia US	2012	0.94	0	2	0.04
Colombia	Upper	Colombia EC Peru	2012	0.82	0	4	0.07
Colombia	Lower	Colombia US	2012	0.94	0	1	0.01
Czech Republic	Upper	Canada EC (CETA)	2017	0.62	0	24	0.34
Czech Republic	Lower	Canada EC (CETA)	2017	0.64	1	12	0.10
Ecuador	Unicam.	Andean Countries UK	2020	0.78	0	1	0.01
Ecuador	Unicam.	Ecuador EFTA	2020	0.99	0	1	0.01
Ecuador	Unicam.	Ecuador El Salvador	2017	1.00	0	0	0.00
Ecuador	Unicam.	Colombia EC Peru Ecuador acc.	2016	0.95	0	3	0.03
El Salvador	Unicam.	Central America EC	2013	0.99	0	1	0.01
Estonia	Unicam.	Canada EC (CETA)	2017	0.99	0	1	0.01
France	Lower	Canada EC (CETA)	2019	0.48	20	69	0.16
Guatemala	Unicam.	Centr. Am. EFTA Guatemala	2020	0.91	0	10	0.08
Guatemala	Unicam.	Central America UK	2019	0.84	0	11	0.11

Guatemala	Unicam.	Guatemala Trinidad and Tobago	2017	0.91	1	7	0.07
Guatemala	Unicam.	Central America Mexico	2013	0.92	0	1	0.01
Guatemala	Unicam.	Central America EC	2013	0.87	0	13	0.10
Guatemala	Unicam.	Guatemala Peru	2013	0.89	0	14	0.11
Iceland	Unicam.	EFTA Indonesia	2019	1.00	0	0	0.00
Iceland	Unicam.	EFTA Philippines	2019	0.79	1	5	0.10
Iceland	Unicam.	Ecuador EFTA	2019	1.00	0	0	0.00
Iceland	Unicam.	EFTA Georgia	2017	0.96	0	2	0.04
Iceland	Unicam.	Centr. Am. EFTA Guatemala	2016	1.00	0	0	0.00
Iceland	Unicam.	Central America EFTA	2014	0.98	0	1	0.02
Iceland	Unicam.	EFTA Colombia	2014	0.98	0	1	0.02
Iceland	Unicam.	Bosnia and Herzegovina EFTA	2014	0.98	0	1	0.02
Iceland	Unicam.	China Iceland	2014	0.92	1	2	0.05
Iceland	Unicam.	Albania EFTA	2011	1.00	0	0	0.00
Iceland	Unicam.	EFTA Peru	2011	1.00	0	0	0.00
Iceland	Unicam.	EFTA Serbia	2011	1.00	0	0	0.00
Iceland	Unicam.	EFTA Ukraine	2011	1.00	0	0	0.00
Latvia	Unicam.	Canada EC (CETA)	2017	0.92	0	2	0.03
Mexico	Upper	USMCA	2019	0.94	0	6	0.05
Mexico	Upper	CPTPP	2018	0.72	0	7	0.07
Mexico	Upper	Mexico Panama	2015	1.00	0	0	0.00
Mexico	Upper	Pacific Alliance	2012	1.00	0	0	0.00
Mexico	Upper	Mexico Peru	2011	0.54	1	0	0.01
Mexico	Upper	Colombia Mexico Venezuela	2011	0.76	0	0	0.00
Mexico	Upper	Central America Mexico	2011	1.00	0	0	0.00
New Zealand	Unicam.	CPTPP	2018	0.93	0	0	0.00
New Zealand	Unicam.	Korea New Zealand	2015	0.79	0	0	0.00
New Zealand	Unicam.	Hong Kong New Zealand	2010	0.92	0	2	0.02
New Zealand	Unicam.	Malaysia New Zealand	2010	0.91	0	2	0.02
Peru	Unicam.	Andean Countries UK	2020	0.91	0	4	0.03
Portugal	Unicam.	Canada EC (CETA)	2017	0.82	0	1	0.00
Slovakia	Unicam.	Canada EC (CETA)	2019	0.73	2	4	0.05
South Korea	Unicam.	China Korea	2015	0.74	5	1	0.02
South Korea	Unicam.	Korea New Zealand	2015	0.89	0	30	0.11
South Korea	Unicam.	Korea Vietnam	2015	0.89	0	29	0.11
South Korea	Unicam.	Colombia Korea	2014	0.89	0	17	0.09
South Korea	Unicam.	Canada Korea	2014	0.76	5	0	0.02
South Korea	Unicam.	Australia Korea	2014	0.76	5	1	0.02
South Korea	Unicam.	Korea Turkey	2012	0.94	2	3	0.03
South Korea	Unicam.	Korea Peru	2011	0.79	0	33	0.19
South Korea	Unicam.	Korea US	2011	0.89	5	12	0.10
South Korea	Unicam.	EC Korea	2011	0.96	0	6	0.04
Sweden	Unicam.	Canada EC (CETA)	2018	0.91	0	5	0.02
Switzerland	Upper	EFTA Turkey	2019	0.86	12	4	0.36
Switzerland	Upper	Ecuador EFTA	2019	1.00	12	0	0.27
Switzerland	Lower	EFTA Turkey	2019	0.69	0	4	0.02
Switzerland	Lower	Ecuador EFTA	2019	0.75	0	4	0.02
Switzerland	Upper	EFTA Georgia	2017	1.00	12	0	0.27
Switzerland	Lower	EFTA Georgia	2017	0.80	5	2	0.04
Switzerland	Upper	China Switzerland	2014	0.64	9	4	0.33
Switzerland	Upper	Central America EFTA	2014	1.00	0	0	0.00
Switzerland	Lower	Central America EFTA	2014	0.83	0	0	0.00
Switzerland	Lower	China Switzerland	2013	0.66	14	8	0.12
Switzerland	Lower	EFTA Hong Kong	2012	0.70	3	0	0.02

Switzerland	Lower	EFTA Peru	2011	0.67	23	2	0.15
United States	Upper	USMCA	2020	0.90	0	10	0.10
United States	Lower	USMCA	2019	0.90	0	40	0.09
United States	Upper	Colombia US	2011	0.67	22	2	0.24
United States	Upper	Panama US	2011	0.78	31	0	0.31
United States	Upper	Korea US	2011	0.85	38	1	0.40
United States	Lower	Colombia US	2011	0.61	31	9	0.09
United States	Lower	Korea US	2011	0.65	59	21	0.19
United States	Lower	Panama US	2011	0.70	66	6	0.17

Table A7: Summary of ratification votes

A3.5 Regression tables

Table A8: Rebel behavior on trade ratification, with clustered standard errors

	Model 1a		Model 2a		Model 3a		Model 4a	
	Contra	Pro	Contra	Pro	Contra	Pro	Contra	Pro
Explanatory variables								
Logged GDP ratio	-0.26^{***}	-0.04	-0.27^{***}	-0.05	-0.27^{***}	-0.05	-0.33^{***}	-0.06
	(0.09)	(0.06)	(0.09)	(0.06)	(0.09)	(0.06)	(0.09)	(0.06)
Agreement depth	0.19^{***}	-0.09^{*}	0.20^{***}	-0.09^{*}	0.19^{***}	-0.09^{*}	0.25^{***}	-0.07
	(0.06)	(0.05)	(0.06)	(0.05)	(0.06)	(0.05)	(0.06)	(0.05)
Mean school years			-2.11^{***}	4.26^{**}				
			(0.55)	(1.96)				
GNI per capita					-0.62^{**}	0.84		
					(0.25)	(0.48)		
Subn. trade comp.							-1.74^{***}	0.10
							(0.56)	(0.64)
Control variables								
Female	0.38^{***}	-0.16	0.40^{**}	-0.18	0.40^{***}	-0.20	0.36^{***}	-0.19
	(0.13)	(0.14)	(0.13)	(0.18)	(0.13)	(0.19)	(0.14)	(0.18)
Party left-right	-0.14^{***}	-0.85^{***}	-0.15^{***}	-0.88^{***}	-0.14^{***}	-0.89^{***}	-0.15^{***}	-0.91^{***}
	(0.02)	(0.07)	(0.02)	(0.07)	(0.02)	(0.08)	(0.03)	(0.08)
Years to election	-0.22^{***}	0.14^{**}	-0.22^{***}	0.13^{**}	-0.22^{***}	0.14^{**}	-0.19^{***}	0.14^{**}
	(0.05)	(0.07)	(0.05)	(0.06)	(0.05)	(0.07)	(0.05)	(0.07)
Majoritarian	1.85^{***}	2.27^{***}	1.86^{***}	2.32^{***}	1.84^{***}	2.33^{***}	1.76^{***}	2.33^{***}
	(0.28)	(0.35)	(0.28)	(0.35)	(0.29)	(0.35)	(0.28)	(0.35)
Government	-0.76^{***}	1.51^{***}	-0.78^{***}	1.60^{***}	-0.76^{***}	1.58^{***}	-0.79^{***}	1.60^{***}
	(0.12)	(0.22)	(0.12)	(0.23)	(0.12)	(0.22)	(0.12)	(0.23)
(Intercept)	-3.81^{***}	-0.76^{*}	-1.70^{***}	-5.03^{***}	-3.19^{***}	-1.55^{**}	-4.09^{***}	-0.84
	(0.49)	(0.46)	(0.70)	(1.94)	(0.55)	(0.64)	(0.54)	(0.47)
AIC	5137.95		5071.41		5084.21		4697.87	
BIC	5349.28		5296.77		5309.56		4907.20	
Log Likelihood	-2538.98		-2503.71		-2510.10		-2318.94	
Deviance	5077.95		5007.41		5020.21		4637.87	
Num. obs.	8470		8453		8453		7922	
K	3		3		3		3	

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Entries are unstandardised coefficients from a multinomial logistic regression model. Standard errors in brackets. Dependent variable is likelihood of rebellion either in favor or against the agreement compared to the baseline of loyal legislators. Country fixed effects omitted.

Table A9: Rebel behavior on trade ratification, without country fixed effects

	Model 1b		Model 2b		Model 3b		Model 4b	
	Contra	Pro	Contra	Pro	Contra	Pro	Contra	Pro
Explanatory variables								
Logged GDP ratio	−0.28***	0.31***	−0.26***	0.30***	−0.28***	0.28***	−0.22***	0.29***
	(0.05)	(0.06)	(0.05)	(0.06)	(0.05)	(0.06)	(0.06)	(0.06)
Agreement depth	0.30***	−0.05	0.31***	−0.06	0.30***	−0.07	0.38***	−0.04
	(0.06)	(0.07)	(0.06)	(0.07)	(0.06)	(0.07)	(0.07)	(0.07)
Mean school years			−2.66***	1.98*				
			(0.56)	(1.03)				
GNI pc					−0.87***	0.89***		
					(0.28)	(0.30)		
Subn. trade comp.							−1.77***	0.41
							(0.38)	(0.54)
Control variables								
Female	0.37***	−0.12	0.42***	−0.16	0.39***	−0.18	0.39***	−0.16
	(0.11)	(0.13)	(0.11)	(0.13)	(0.11)	(0.14)	(0.12)	(0.14)
Party left-right	−0.13***	−0.87***	−0.14***	−0.89***	−0.13***	−0.90***	−0.16***	−0.91***
	(0.02)	(0.05)	(0.02)	(0.05)	(0.02)	(0.05)	(0.02)	(0.05)
Years to election	−0.09**	−0.05	−0.11***	−0.06	−0.10**	−0.06	−0.05	−0.06
	(0.04)	(0.05)	(0.04)	(0.05)	(0.04)	(0.05)	(0.04)	(0.05)
Majoritarian	0.55***	1.63***	0.66***	1.63***	0.54***	1.66***	0.70***	1.69***
	(0.12)	(0.17)	(0.13)	(0.18)	(0.12)	(0.18)	(0.14)	(0.18)
Government	−0.74***	1.94***	−0.73***	2.05***	−0.74***	2.04***	−0.68***	2.03***
	(0.11)	(0.16)	(0.11)	(0.17)	(0.11)	(0.17)	(0.11)	(0.17)
(Intercept)	−3.75***	−1.40***	−1.22*	−3.31***	−2.86***	−2.16***	−4.45***	−1.40***
	(0.38)	(0.46)	(0.64)	(1.15)	(0.48)	(0.54)	(0.45)	(0.47)
AIC	5406.63		5340.28		5348.64		4939.77	
BIC	5519.33		5467.04		5475.40		5065.36	
Log Likelihood	-2687.31		-2652.14		-2656.32		-2451.88	
Deviance	5374.63		5304.28		5312.64		4903.77	
Num. obs.	8470		8453		8453		7922	
K	3		3		3		3	

***$p < 0.01$; **$p < 0.05$; *$p < 0.1$. Entries are unstandardised coefficients from a multinomial logistic regression model. Standard errors in brackets. Dependent variable is likelihood of rebellion either in favor or against the agreement compared to the baseline of loyal legislators. No country fixed effects included.

Table A10: Rebel behavior on trade ratification, including countries with only one type of rebel

	Model 1c		Model 2c		Model 3c		Model 4c	
	Contra	Pro	Contra	Pro	Contra	Pro	Contra	Pro
Explanatory variables								
Logged GDP ratio	−0.18**	−0.04	−0.18**	−0.05	−0.18**	−0.05	−0.24***	−0.06
	(0.07)	(0.08)	(0.07)	(0.08)	(0.07)	(0.08)	(0.08)	(0.08)
Agreement depth	0.13**	−0.09	0.13***	−0.09	0.13***	−0.09	0.16***	−0.07
	(0.05)	(0.08)	(0.05)	(0.08)	(0.05)	(0.08)	(0.06)	(0.08)
Mean school years			−1.76***	4.28**				
			(0.45)	(1.68)				
GNI per capita					−0.44**	0.84**		
					(0.20)	(0.36)		
Subn. trade comp.							−1.39***	0.12
							(0.36)	(0.56)
Control variables								
Female	0.33***	−0.16	0.36***	−0.18	0.35***	−0.20	0.33***	−0.19
	(0.11)	(0.14)	(0.11)	(0.14)	(0.11)	(0.14)	(0.12)	(0.14)
Party left-right	−0.17***	−0.86***	−0.17***	−0.88***	−0.17***	−0.89***	−0.17***	−0.91***
	(0.02)	(0.05)	(0.02)	(0.05)	(0.02)	(0.05)	(0.02)	(0.06)
Years to election	−0.27***	0.13**	−0.28***	0.12**	−0.28***	0.13**	−0.25***	0.13**
	(0.05)	(0.06)	(0.05)	(0.06)	(0.05)	(0.06)	(0.05)	(0.06)
Majoritarian	1.21***	9.28***	1.21***	10.78***	1.06**	12.77***	0.97**	12.39***
	(0.45)	(0.29)	(0.45)	(0.36)	(0.45)	(0.30)	(0.43)	(0.22)
Open-list PR	−0.69	6.98***	−0.69	8.44***	−0.83*	10.42***	−0.86**	10.05***
	(0.44)	(0.31)	(0.44)	(0.38)	(0.44)	(0.32)	(0.42)	(0.23)
Government	−0.54***	1.55***	−0.56***	1.61***	−0.54***	1.59***	−0.62***	1.61***
	(0.10)	(0.19)	(0.10)	(0.19)	(0.10)	(0.19)	(0.11)	(0.19)
(Intercept)	−3.56***	−19.87***	−1.80***	−26.30***	−3.11***	−27.37***	−3.61***	−23.55***
	(0.53)	(0.47)	(0.69)	(1.50)	(0.57)	(0.55)	(0.55)	(0.34)
AIC	5782.80		5732.60		5745.97		5181.29	
BIC	6147.72		6112.04		6125.41		5497.19	
Log Likelihood	-2841.40		-2814.30		-2820.98		-2546.65	
Deviance	5682.80		5628.60		5641.97		5093.29	
Num. obs.	10920		10905		10905		9695	
K	3		3		3		3	

***$p < 0.01$; **$p < 0.05$; *$p < 0.1$. Entries are unstandardised coefficients from a multinomial logistic regression model. Standard errors in brackets. Dependent variable is likelihood of rebellion either in favor or against the agreement compared to the baseline of loyal legislators. Country fixed effects omitted.

Table A11: Rebel behavior on trade ratification, including national districts

	Model 1d		Model 2d		Model 3d		Model 4d	
	Contra	Pro	Contra	Pro	Contra	Pro	Contra	Pro
Explanatory variables								
Logged GDP ratio	−0.14**	−0.05	−0.15**	−0.06	−0.14**	−0.06	−0.24***	−0.06
	(0.06)	(0.08)	(0.07)	(0.08)	(0.07)	(0.08)	(0.08)	(0.08)
Agreement depth	0.16***	−0.11	0.16***	−0.11	0.16***	−0.11	0.16***	−0.07
	(0.05)	(0.07)	(0.05)	(0.07)	(0.05)	(0.07)	(0.06)	(0.08)
Mean school years			−2.05***	3.70**				
			(0.47)	(1.48)				
GNI per capita					−0.47**	0.83**		
					(0.21)	(0.35)		
Subn. trade comp.							−1.39***	0.12
							(0.36)	(0.56)
Control variables								
Female	0.28***	−0.17	0.31***	−0.19	0.30***	−0.21	0.33***	−0.19
	(0.10)	(0.13)	(0.10)	(0.14)	(0.10)	(0.14)	(0.12)	(0.14)
Party left-right	−0.20***	−0.80***	−0.20***	−0.82***	−0.20***	−0.83***	−0.17***	−0.91***
	(0.02)	(0.05)	(0.02)	(0.05)	(0.02)	(0.05)	(0.02)	(0.06)
Years to election	−0.20***	0.12**	−0.20***	0.11*	−0.20***	0.12**	−0.25***	0.13**
	(0.04)	(0.05)	(0.04)	(0.06)	(0.04)	(0.06)	(0.05)	(0.06)
Majoritarian	0.48**	2.00***	0.51**	2.03***	0.48**	2.05***	1.83***	2.34***
	(0.20)	(0.27)	(0.20)	(0.27)	(0.20)	(0.27)	(0.29)	(0.29)
Government	−0.50***	1.31***	−0.53***	1.38***	−0.51***	1.36***	−0.62***	1.61***
	(0.09)	(0.17)	(0.10)	(0.18)	(0.10)	(0.17)	(0.11)	(0.19)
(Intercept)	−3.64***	−14.29***	−1.59**	−18.56***	−3.16***	−15.59***	−3.61***	−18.77***
	(0.52)	(0.49)	(0.70)	(1.50)	(0.56)	(0.60)	(0.55)	(0.51)
AIC	6513.98		6444.88		6461.12		5181.29	
BIC	6917.03		6862.59		6878.83		5497.19	
Log Likelihood	-3202.99		-3166.44		-3174.56		-2546.65	
Deviance	6405.98		6332.88		6349.12		5093.29	
Num. obs.	12885		12824		12824		9695	
K	3		3		3		3	

***$p < 0.01$; **$p < 0.05$; *$p < 0.1$. Entries are unstandardised coefficients from a multinomial logistic regression model. Standard errors in brackets. Dependent variable is likelihood of rebellion either in favor or against the agreement compared to the baseline of loyal legislators. Country fixed effects omitted.

Table A12: Rebel behavior on trade ratification, with additional control variables

	Model 1e		Model 2e		Model 3e		Model 4e	
	Contra	Pro	Contra	Pro	Contra	Pro	Contra	Pro
Explanatory variables								
Logged GDP ratio	−0.28***	0.11	−0.29***	0.10	−0.29***	0.10	−0.34***	0.09
	(0.08)	(0.09)	(0.08)	(0.09)	(0.08)	(0.09)	(0.09)	(0.09)
Agreement depth	0.18***	−0.07	0.19***	−0.06	0.19***	−0.07	0.26***	−0.04
	(0.06)	(0.08)	(0.06)	(0.08)	(0.06)	(0.08)	(0.07)	(0.08)
Mean school years			−2.25***	3.52**				
			(0.56)	(1.66)				
GNI per capita					−0.62**	0.99***		
					(0.24)	(0.37)		
Subn. trade comp.							−1.79***	−0.31
							(0.41)	(0.57)
Control variables								
Female	0.39***	−0.11	0.42***	−0.13	0.41***	−0.16	0.37***	−0.14
	(0.12)	(0.14)	(0.12)	(0.14)	(0.12)	(0.14)	(0.13)	(0.14)
Party left-right	−0.14***	−0.80***	−0.15***	−0.83***	−0.14***	−0.83***	−0.15***	−0.86***
	(0.02)	(0.05)	(0.02)	(0.05)	(0.02)	(0.05)	(0.03)	(0.05)
Years to election	−0.22***	−0.10	−0.23***	−0.10	−0.23***	−0.10	−0.20***	−0.10
	(0.05)	(0.06)	(0.05)	(0.06)	(0.05)	(0.06)	(0.06)	(0.07)
Majoritarian	1.84***	1.17***	1.85***	1.21***	1.85***	1.18***	1.67***	1.16***
	(0.36)	(0.34)	(0.36)	(0.34)	(0.36)	(0.34)	(0.36)	(0.34)
Government	−0.76***	0.96***	−0.79***	1.04***	−0.77***	1.02***	−0.79***	1.04***
	(0.12)	(0.20)	(0.12)	(0.21)	(0.12)	(0.21)	(0.12)	(0.21)
Age in years	0.00	0.01	−0.00	0.01	0.00	0.01	0.00	0.01
	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)
Unicameral	0.38**	−0.16	0.35*	−0.53	0.40**	−0.22	−0.23	−0.17
	(0.18)	(0.38)	(0.18)	(0.47)	(0.18)	(0.39)	(0.18)	(0.21)
Share of yes votes	0.43	−4.97***	0.41	−4.86***	0.44	−4.90***	0.59	−4.85***
	(0.53)	(0.79)	(0.53)	(0.80)	(0.53)	(0.80)	(0.54)	(0.80)
(Intercept)	−4.12***	2.81***	−1.75*	−0.90	−3.48***	1.76*	−4.83***	2.64***
	(0.69)	(0.87)	(0.90)	(1.94)	(0.73)	(0.95)	(0.74)	(0.88)
AIC	4953.61		4891.69		4900.60		4613.40	
BIC	5206.41		5158.46		5167.36		4864.46	
Log Likelihood	-2440.80		-2407.85		-2412.30		-2270.70	
Deviance	4881.61		4815.69		4824.60		4541.40	
Num. obs.	8285		8268		8268		7894	
K	3		3		3		3	

***$p < 0.01$; **$p < 0.05$; *$p < 0.1$. Entries are unstandardised coefficients from a multinomial logistic regression model. Standard errors in brackets. Dependent variable is likelihood of rebellion either in favor or against the agreement compared to the baseline of loyal legislators. Country fixed effects omitted.

Table A13: Rebel behavior on trade ratification, with partner variables

	Model 2f		Model 3f	
	Contra	Pro	Contra	Pro
Explanatory variables				
Logged GDP ratio	−0.26***	−0.04	−0.26***	−0.04
	(0.08)	(0.08)	(0.08)	(0.08)
Agreement depth	0.20***	−0.06	0.20***	−0.06
	(0.06)	(0.08)	(0.06)	(0.08)
Mean school years (MSCH)	−2.14***	3.73**		
	(0.53)	(1.85)		
GNI per capita (GNIC)			−0.67***	−0.13
			(0.23)	(0.47)
Control variables				
Beneficial factor endowment (MSCH)	0.05	0.05		
	(0.11)	(0.14)		
Beneficial factor endowment (GNIC)			−0.04	0.62***
			(0.11)	(0.16)
Female	0.42***	−0.13	0.41***	−0.19
	(0.12)	(0.14)	(0.12)	(0.14)
Party left-right	−0.14***	−0.90***	−0.14***	−0.90***
	(0.02)	(0.06)	(0.02)	(0.06)
Years to election	−0.24***	0.20***	−0.24***	0.21***
	(0.05)	(0.06)	(0.05)	(0.06)
Majoritarian	2.03***	2.41***	2.01***	2.49***
	(0.29)	(0.28)	(0.29)	(0.29)
Government	−0.80***	1.76***	−0.78***	1.75***
	(0.12)	(0.20)	(0.12)	(0.20)
(Intercept)	−1.74**	−4.87**	−3.18***	−1.15
	(0.69)	(1.91)	(0.51)	(0.71)
AIC	4959.98		4956.93	
BIC	5198.14		5195.09	
Log Likelihood	-2445.99		-2444.46	
Deviance	4891.98		4888.93	
Num. obs.	8141		8141	
K	3		3	

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Entries are unstandardised coefficients from a multinomial logistic regression model. Standard errors in brackets. Dependent variable is likelihood of rebellion either in favor or against the agreement compared to the baseline of loyal legislators. Country fixed effects omitted.

Table A14: Rebel behavior on trade ratification, excluding legislators who abstained from voting

	Model 1f		Model 2f		Model 3f		Model 4f	
	Contra	Pro	Contra	Pro	Contra	Pro	Contra	Pro
Explanatory variables								
Logged GDP ratio	−0.20*	0.11	−0.21*	0.11	−0.21*	0.11	−0.29**	0.11
	(0.11)	(0.10)	(0.11)	(0.10)	(0.11)	(0.10)	(0.13)	(0.10)
Agreement depth	0.19**	0.01	0.20***	0.02	0.19**	0.01	0.30***	0.06
	(0.08)	(0.10)	(0.08)	(0.10)	(0.08)	(0.10)	(0.11)	(0.10)
Mean school years			−2.43***	4.34**				
			(0.61)	(2.00)				
GNI per capita					−0.82**	1.06**		
					(0.32)	(0.43)		
Subn. trade comp.							−2.94***	−0.12
							(0.64)	(0.74)
Control variables								
Female	0.11	−0.28*	0.11	−0.26*	0.11	−0.30*	0.00	−0.29*
	(0.17)	(0.16)	(0.17)	(0.16)	(0.17)	(0.16)	(0.20)	(0.16)
Party left-right	−0.13***	−1.26***	−0.14***	−1.30***	−0.14***	−1.33***	−0.15***	−1.44***
	(0.03)	(0.10)	(0.03)	(0.11)	(0.03)	(0.11)	(0.04)	(0.13)
Years to election	−0.26***	0.28***	−0.27***	0.27***	−0.27***	0.29***	−0.22**	0.29***
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.09)	(0.07)
Majoritarian	0.15	2.61***	0.15	2.67***	0.10	2.70***	0.10	2.74***
	(1.08)	(0.39)	(1.08)	(0.40)	(1.08)	(0.40)	(1.08)	(0.41)
Government	−1.45***	2.27***	−1.48***	2.33***	−1.44***	2.32***	−1.73***	2.35***
	(0.18)	(0.27)	(0.18)	(0.28)	(0.18)	(0.28)	(0.21)	(0.28)
(Intercept)	−4.97***	−1.43**	−2.51**	−5.76***	−4.09***	−2.38***	−5.40***	−1.35*
	(0.79)	(0.67)	(1.00)	(2.17)	(0.86)	(0.82)	(0.95)	(0.72)
AIC	3357.89		3313.90		3325.12		2913.78	
BIC	3567.64		3537.58		3548.80		3121.43	
Log Likelihood	-1648.94		-1624.95		-1630.56		-1426.89	
Deviance	3297.89		3249.90		3261.12		2853.78	
Num. obs.	8038		8023		8023		7492	
K	3		3		3		3	

***$p < 0.01$; **$p < 0.05$; *$p < 0.1$. Entries are unstandardised coefficients from a multinomial logistic regression model. Standard errors in brackets. Dependent variable is likelihood of rebellion either in favor or against the agreement compared to the baseline of loyal legislators. Country fixed effects omitted.

Table A15: Rebel behavior on trade ratification, limited to constituencies with at most 10 seats

	Model 1g		Model 2g		Model 3g		Model 4g	
	Contra	Pro	Contra	Pro	Contra	Pro	Contra	Pro
Explanatory variables								
Logged GDP ratio	−0.22**	−0.07	−0.23***	−0.08	−0.22**	−0.09	−0.29***	−0.08
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
Agreement depth	0.21***	−0.10	0.22***	−0.10	0.21***	−0.10	0.27***	−0.10
	(0.06)	(0.08)	(0.06)	(0.09)	(0.06)	(0.09)	(0.07)	(0.09)
Mean school years			−1.80***	4.05**				
			(0.68)	(1.83)				
GNI per capita					−0.16	0.83**		
					(0.27)	(0.37)		
Subn. trade comp.							−1.68***	0.59
							(0.41)	(0.64)
Control variables								
Female	0.38***	−0.11	0.41***	−0.13	0.39***	−0.16	0.37***	−0.15
	(0.12)	(0.15)	(0.12)	(0.15)	(0.12)	(0.15)	(0.13)	(0.15)
Party left-right	−0.14***	−0.89***	−0.15***	−0.92***	−0.14***	−0.93***	−0.15***	−0.93***
	(0.03)	(0.06)	(0.03)	(0.06)	(0.03)	(0.06)	(0.03)	(0.06)
Years to election	−0.25***	0.17***	−0.25***	0.16***	−0.25***	0.17***	−0.24***	0.17***
	(0.05)	(0.06)	(0.05)	(0.06)	(0.05)	(0.06)	(0.06)	(0.06)
Majoritarian	1.36***	2.36***	1.37***	2.39***	1.37***	2.40***	1.33***	2.40***
	(0.39)	(0.34)	(0.39)	(0.34)	(0.39)	(0.34)	(0.40)	(0.34)
Government	−0.83***	1.91***	−0.85***	2.03***	−0.84***	2.02***	−0.86***	2.01***
	(0.12)	(0.22)	(0.12)	(0.23)	(0.12)	(0.23)	(0.13)	(0.22)
(Intercept)	−3.73***	−1.12*	−1.96**	−5.16***	−3.58***	−1.89***	−4.13***	−1.09*
	(0.52)	(0.61)	(0.85)	(1.93)	(0.58)	(0.71)	(0.58)	(0.62)
AIC	4662.65		4608.40		4615.50		4289.05	
BIC	4870.41		4829.94		4837.04		4495.06	
Log Likelihood	-2301.33		-2272.20		-2275.75		-2114.53	
Deviance	4602.65		4544.40		4551.50		4229.05	
Num. obs.	7520		7503		7503		7093	
K	3		3		3		3	

***$p < 0.01$; **$p < 0.05$; *$p < 0.1$. Entries are unstandardised coefficients from a multinomial logistic regression model. Standard errors in brackets. Dependent variable is likelihood of rebellion either in favor or against the agreement compared to the baseline of loyal legislators. Country fixed effects omitted.

Table A16: Rebel behavior on trade ratification, limited to majoritarian electoral systems

	Model 1h		Model 2h		Model 3h		Model 4h	
	Contra	Pro	Contra	Pro	Contra	Pro	Contra	Pro
Explanatory variables								
Logged GDP ratio	-0.26^{**}	-0.10	-0.26^{**}	-0.12	-0.26^{**}	-0.12	-0.37^{***}	-0.12
	(0.11)	(0.10)	(0.11)	(0.10)	(0.11)	(0.10)	(0.11)	(0.10)
Agreement depth	0.68^{***}	-0.31^{***}	0.67^{***}	-0.32^{***}	0.68^{***}	-0.32^{***}	0.64^{***}	-0.32^{***}
	(0.16)	(0.11)	(0.16)	(0.11)	(0.16)	(0.11)	(0.17)	(0.11)
Mean school years			-3.32^{***}	6.66^{***}				
			(0.99)	(2.29)				
GNI per capita					-0.13	0.92^{**}		
					(0.30)	(0.38)		
Subn. trade comp.							-4.07^{***}	0.73
							(0.59)	(0.86)
Control variables								
Female	0.34^{**}	-0.05	0.40^{***}	-0.06	0.35^{**}	-0.10	0.41^{***}	-0.09
	(0.15)	(0.16)	(0.15)	(0.16)	(0.15)	(0.16)	(0.15)	(0.16)
Party left-right	-0.16^{***}	-0.90^{***}	-0.17^{***}	-0.95^{***}	-0.16^{***}	-0.96^{***}	-0.15^{***}	-0.95^{***}
	(0.03)	(0.06)	(0.03)	(0.07)	(0.03)	(0.07)	(0.03)	(0.07)
Years to election	-0.25^{***}	0.22^{***}	-0.25^{***}	0.21^{***}	-0.25^{***}	0.23^{***}	-0.24^{***}	0.22^{***}
	(0.08)	(0.07)	(0.08)	(0.07)	(0.08)	(0.07)	(0.08)	(0.07)
Government	-0.91^{***}	2.30^{***}	-0.94^{***}	2.51^{***}	-0.91^{***}	2.49^{***}	-0.84^{***}	2.50^{***}
	(0.14)	(0.27)	(0.14)	(0.29)	(0.14)	(0.29)	(0.14)	(0.29)
(Intercept)	-5.71^{***}	2.12^{***}	-2.33	-4.46^{*}	-5.58^{***}	1.30	-5.89^{***}	2.21^{***}
	(1.23)	(0.79)	(1.59)	(2.41)	(1.26)	(0.89)	(1.24)	(0.82)
AIC	3403.77		3340.05		3354.59		3296.33	
BIC	3559.57		3508.74		3523.28		3464.95	
Log Likelihood	-1677.88		-1644.02		-1651.29		-1622.16	
Deviance	3355.77		3288.05		3302.59		3244.33	
Num. obs.	4874		4857		4857		4844	
K	3		3		3		3	

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Entries are unstandardised coefficients from a multinomial logistic regression model. Standard errors in brackets. Dependent variable is likelihood of rebellion either in favor or against the agreement compared to the baseline of loyal legislators. Country fixed effects omitted.

A3.6 Jackknifing

The following two charts show the coefficients of the explanatory variables from two series of regression analyses based on the main model specification but with one agreement or country dropped from the sample. This process is also known as Jackknifing. The legend indicates which agreement or country is dropped. The coefficient of the main model from Table 4.1 is provided as reference.

Figure A49: Jackknifing of the 15 agreements with the largest share of rebels

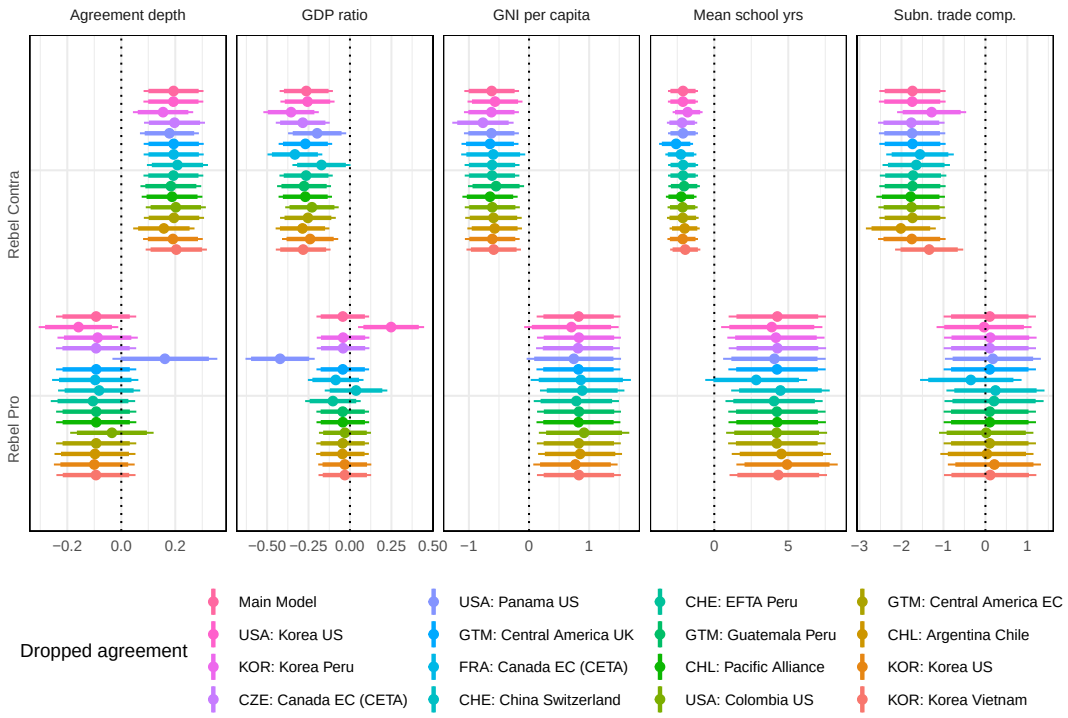
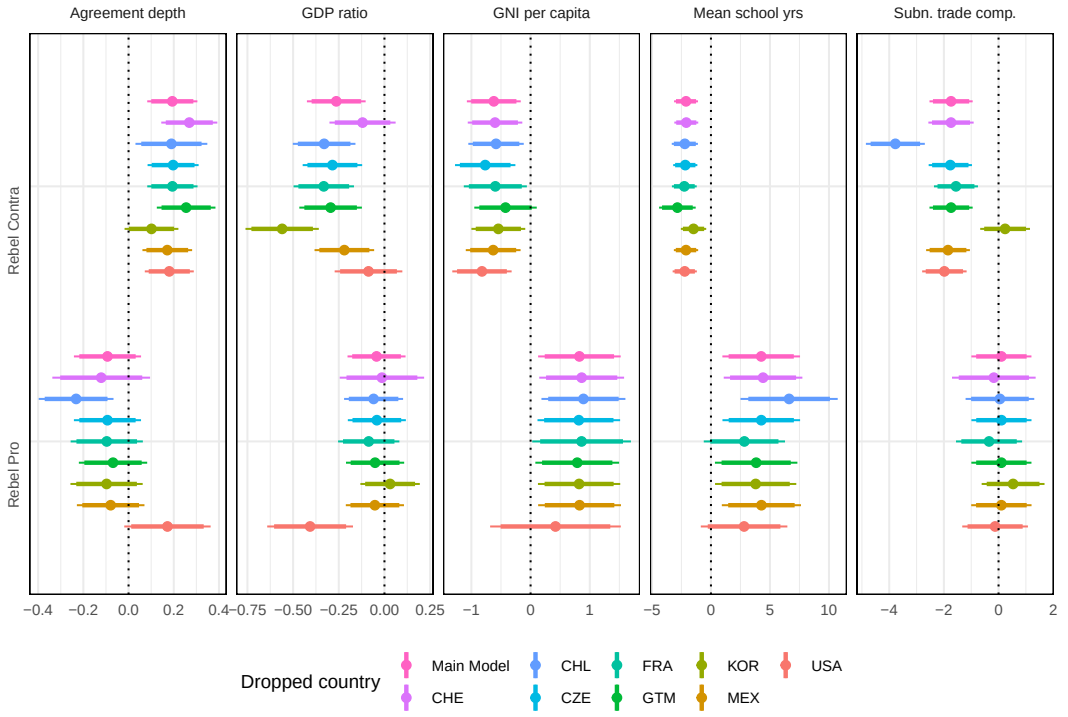


Figure A50: Jackknifing of countries



A3.7 Interaction effects

The following charts summarize the interaction effects between the five control variables of the main model (Gender, party position, electoral cycle, electoral system, and government status) with the five explanatory variables (Agreement depth, gdp ratio, mean years of schooling, GNI per capita, and subnational trade competitiveness). These interaction effects are calculated separately (i.e. gender x depth in one model, party position x depth in the next). This results in a total of 25 regression models. Each set of charts shows the interaction effects with one of the explanatory variables. Each column represents one control variable. The upper row shows the predicted probability of a contra rebellion; the lower row shows the predicted probability of a pro rebellion. For example, the panel in the first chart, first column, upper row shows the interaction effect of gender on agreement depth for contra rebellions. The predicted probabilities are estimated for two levels of depth. The first set of estimates show the predicted probabilities from the main model in Table 4.1 as comparison. The two other sets of estimates show the predicted probabilities for both levels of depth for men and women respectively. We can see here that whilst the predicted probability of a contra rebellion is significantly different for both genders when we vary the depth of the agreement, the effect of agreement depth is larger for women than for men. This indicates an interaction effect between gender and agreement depth.

Figure A51: Interactions with depth of trade agreements

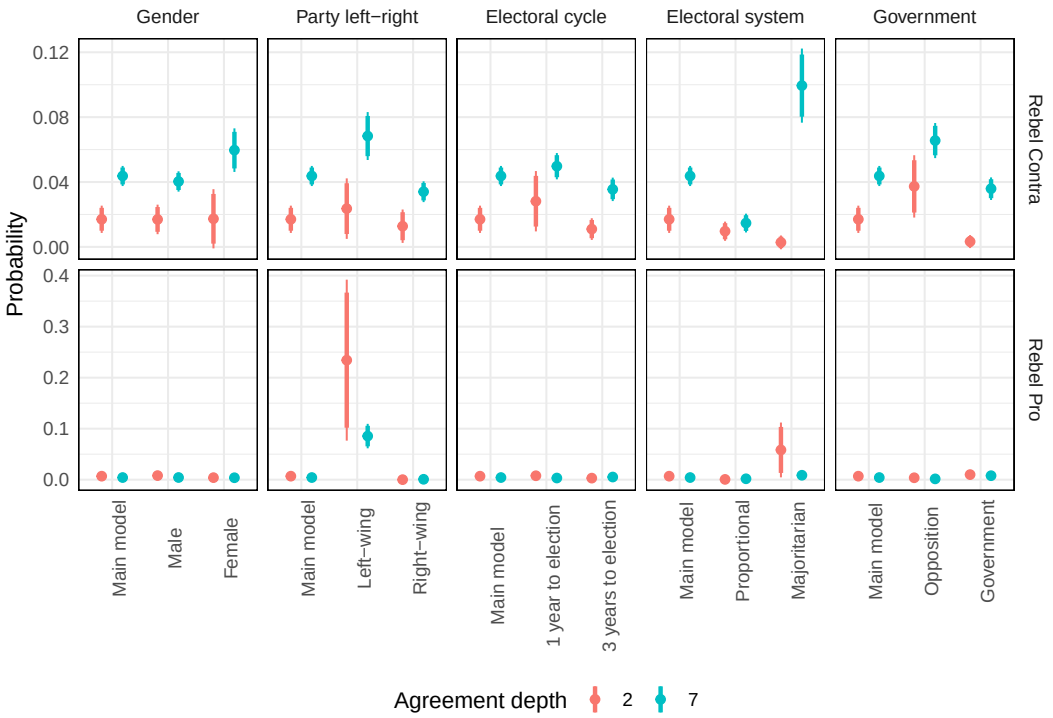


Figure A52: Interactions with GDP ratio

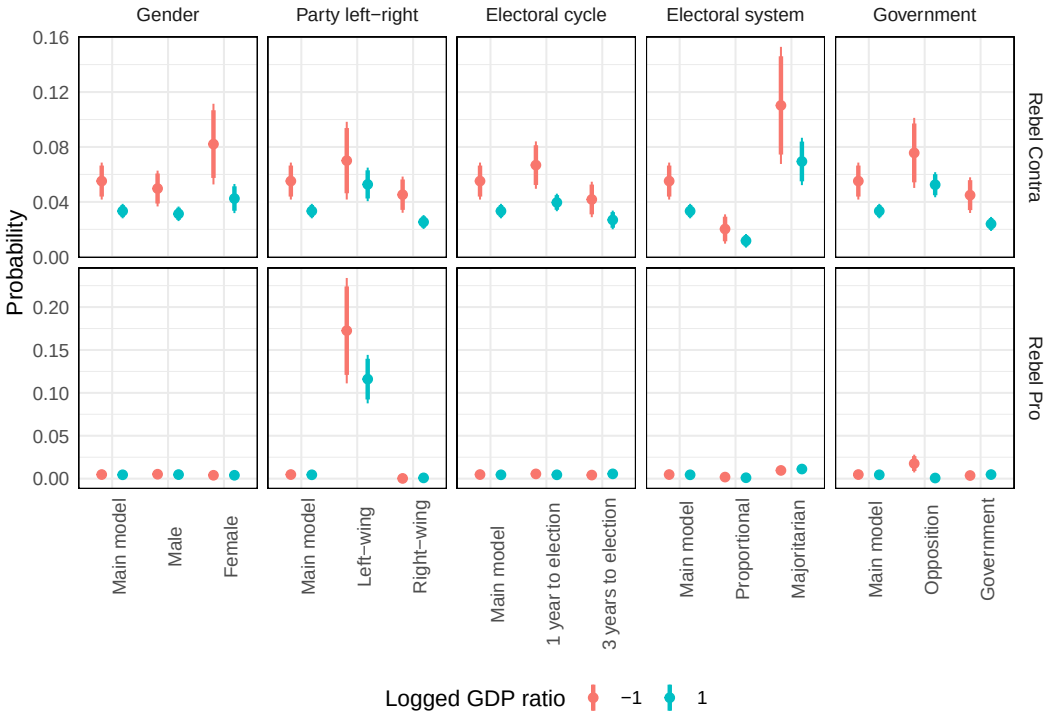


Figure A53: Interactions with mean years of school

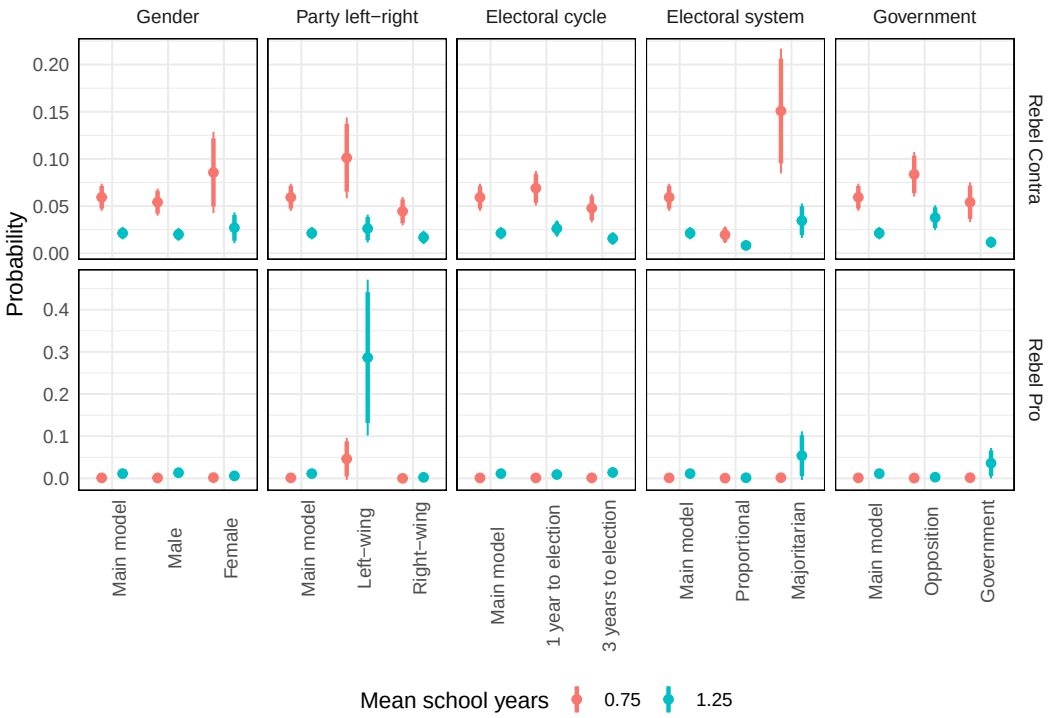


Figure A54: Interactions with GNI per capita

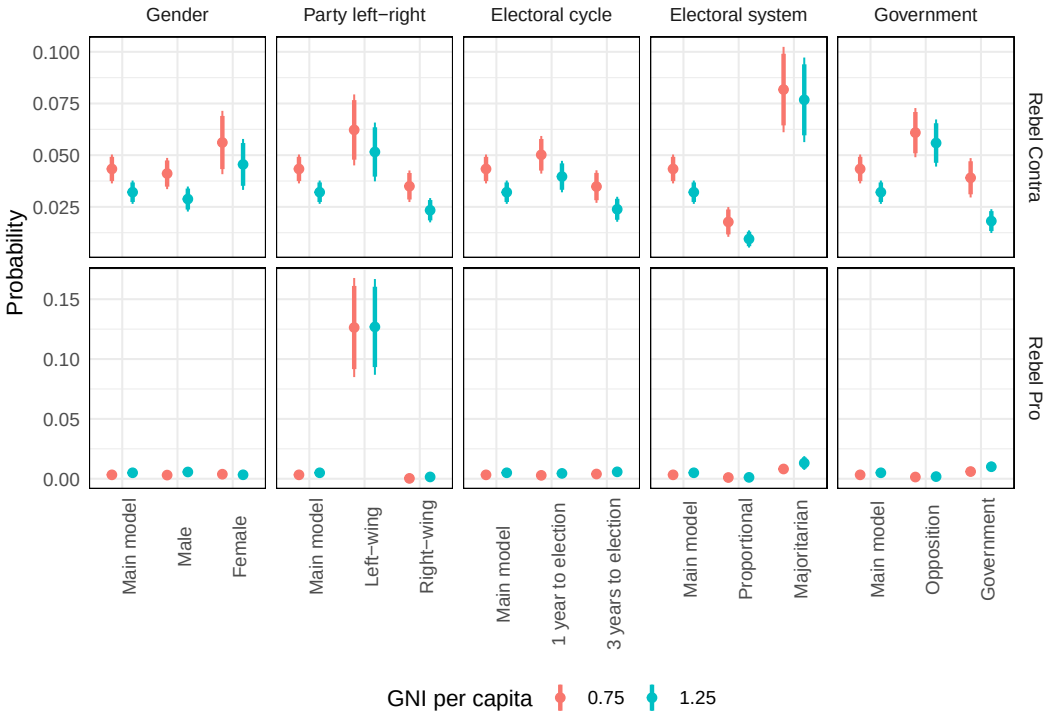
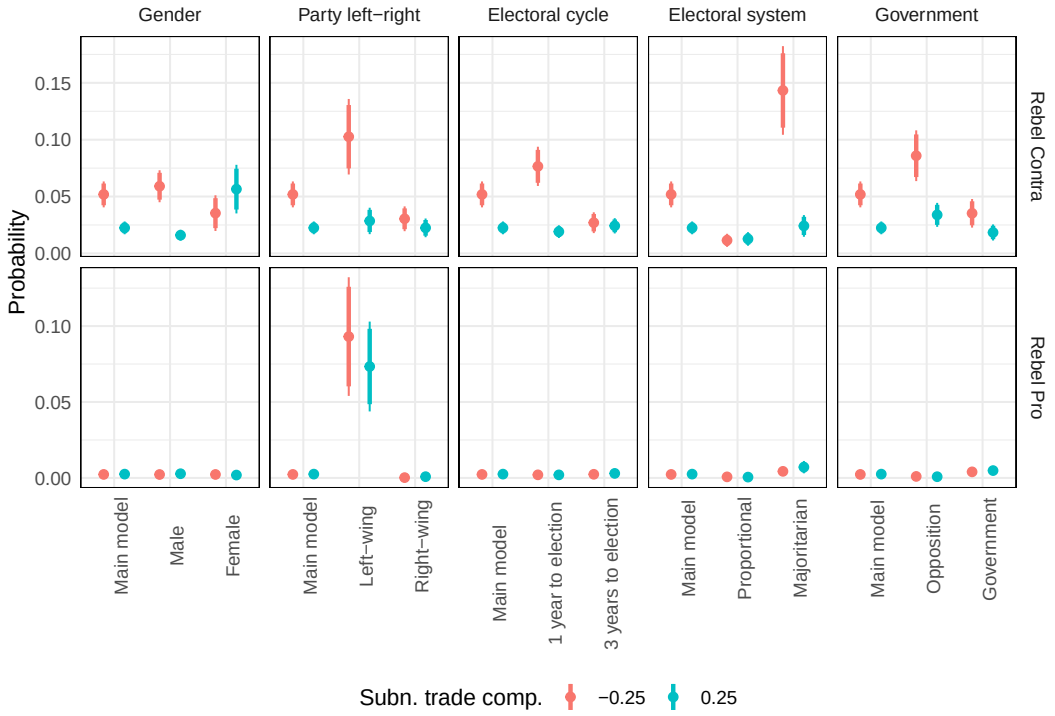


Figure A55: Interactions with subnational trade competitiveness



A4 Appendix for Chapter 5

A4.1 Sample information

Table A17: Samples Included in Analyses and Sources for Trade Competitiveness Data

Leg. period	Survey year	Coding	Level	Department	Source
ARG 2005	2004	CAES		Agglomeration	INDEC (2021)
ARG 2007		CAES		Agglomeration	INDEC (2021)
ARG 2009	2008	CAES		Agglomeration	INDEC (2021)
ARG 2011		CAES		Agglomeration	INDEC (2021)
BOL 2006					INE (2021*a*)
BOL 2010	2007				INE (2021*a*)
BOL 2015	2014				INE (2021*a*)
CHL 2006	2003	ISIC 2			MDSF (2021)
CHL 2010	2009	ISIC 2			MDSF (2021)
CHL 2014	2011				MDSF (2021)
COL 2006		ISIC 3 COL	Division	8/32 missing	DANE (2021)
COL 2010		ISIC 3 COL		8/32 missing	DANE (2021)
COL 2014		ISIC 3 COL		8/32 missing	DANE (2021)

COL 2018		ISIC 3 COL		8/32 missing	DANE (2021)
CRI 2006		ISIC 3 CRI			INEC (2021*a*)
CRI 2010		ISIC 3 CRI			INEC (2021*a*)
CRI 2014				Birth	INEC (2021*a*)
CRI 2018				Birth	INEC (2021*a*)
DOM 2010	2010		Group	Birth	ONE (2021)
DOM 2016	2015				ONE (2021)
ECU 2007	2006			1/22 missing	INEC (2021*b*)
ECU 2009	2008			1/24 missing	INEC (2021*b*)
ECU 2013				1/24 missing	INEC (2021*b*)
ECU 2017					INEC (2021*b*)
SLV 2009			Group		DIGESTYC (2021)
SLV 2012					DIGESTYC (2021)
SLV 2015					DIGESTYC (2021)
SLV 2018					DIGESTYC (2021)
GTM 2008			Division		INE-GTM (2006)
GTM 2012	2011		Division		INE-GTM (2011)
GTM 2016			Division		INE-GTM (2014)
HND 2014	2013				INE-HND (2013)
MEX 2006	2005	SCIAN			INEGI (2021)
MEX 2009		SCIAN			INEGI (2021)
MEX 2012		SCIAN			INEGI (2021)
MEX 2015		SCIAN			INEGI (2021)
MEX 2018		SCIAN			INEGI (2021)
NIC 2007					INIDE (2021)
NIC 2012	2012				INIDE (2021)
NIC 2017	2014				INIDE (2021)
PAN 2009	2008		Division		INEC (2021*c*)
PAN 2014	2010				INEC (2021*c*)
PAN 2019					INEC (2021*c*)
PRY 2008	2007			11/17 missing	DGEEC (2016)
PER 2011					INEI (2021)
PER 2016					INEI (2021)
URY 2010	2007				INE (2021*b*)
URY 2015					INE (2021*b*)

Notes: Cells are empty if no caveats apply. This means that the household survey year is t_{-2}, the coding scheme is either ISIC rev.3, rev.3.1, or rev.4, the coding level is ISIC class, the geographical information is the department of residency.

A4.2 Used statistical software

We use the statistical software *R* (R Core Team 2020*b*) for all analyses. We use the following packages to process and analyze the data: *car* (Fox and Weisberg 2019), *countrycode* (Arel-Bundock, Enevoldsen and Yetman 2018), *data.table* (Dowle and Srinivasan 2019), *foreign* (R Core Team 2020*a*), *ggrepel* (Slowikowski 2020), *ggthemes* (Arnold 2019), *ipumsr* (Ellis

and Burk 2020), *janitor* (Firke 2020), *lmtest* (Zeileis and Hothorn 2002), *margins* (Leeper 2018), *mgsub* (Ewing 2019), *plm* (Croissant and Millo 2008), *prediction* (Leeper 2019), *questionr* (Barnier, Briatte and Larmarange 2018), *readstata13* (Garbuszus and Jeworutzki 2018), *readxl* (Wickham and Bryan 2019), *texreg* (Leifeld 2013), *tidyverse* (Wickham et al. 2019), *viridis* (Garnier 2018), and *zoo* (Zeileis and Grothendieck 2005).

A4.3 Questionnaire

Note: These questions have been taken from Honduras 2014. Slight alternations are possible between countries.

- Dependent variable: support for trade agreements

  ES En una escala de 1 a 10 donde "1" significa muy negativo y "10" muy positivo ¿cómo valora Ud. el Tratado de Libre comercio con Estados Unidos para América Latina?

  EN On a scale from 1 to 10 where "1" means very negative and "10" means very positive, how do you rate a free trade agreement with the United States for Latin America?

  ES En una escala de 1 a 10 donde "1" significa muy negativo y "10" muy positivo ¿cómo valora Ud. el Tratado de Libre comercio con la Unión Europea?

  EN On a scale from 1 to 10 where "1" means very negative and "10" means very positive, how do you rate the free trade agreement with the European Union?

  ES Y, en una escala de 1 a 10, donde el "1" significa muy negativo y el "10" muy positivo, ¿cómo valora Ud. la Alianza del Pacífico?

  EN And, on a scale from 1 to 10, where "1" means very negative and "10" very positive, how do you rate the Pacific Alliance?

- Political Ideology

  ES En esta tarjeta hay una serie de casillas que van de izquierda a derecha ¿En qué casilla se colocaría Ud. teniendo en cuenta sus ideas políticas?

  EN On this card there are a series of boxes that go from left to right. In which box would you place yourself taking into account your political ideas?

- Gender

  ES ¿Sexo?

  EN Gender?

A4.4 District-level trade competitiveness measures

Calculation process of competitiveness measures

The first step to estimate the RCA is to calculate the share of a country's exports in a specific product to the partner country in the country's total exports to the partner country. We then divide this share by the share of the world's exports in this product to the partner country in the total world exports to the partner country.[2] If a country exports the same share of a given product to the partner country as the world exports to the partner country, the RCA equals 1. If the RCA value is below 1, the country is not competitive in this product. Producers of that product in that country hence can be assumed to face import competition. By contrast, when the value is above 1, the country is competitive in this product and domestic producers should mainly be export-oriented. In robustness checks, we run the models with measures of global competitiveness without this changing our results.

The following equations describe the calculation process for the two measures of subnational trade competitiveness for both the partner and the world variation.

$$RCA(Partner)_{ijpt} = \frac{\frac{exp_{ijpt}}{exp_{jpt}}}{\frac{exp_{iwpt}}{exp_{wpt}}}$$

$$EX/IM(Partner)_{ijpt} = \frac{exp_{ijpt}}{imp_{ijpt}}$$

$$RCA(World)_{ijt} = \frac{\frac{exp_{ijt}}{exp_{jt}}}{\frac{exp_{iwt}}{exp_{wt}}}$$

$$EX/IM(World)_{ijt} = \frac{exp_{ijt}}{imp_{ijt}}$$

Here, i refers to the product, j to the country, p to the partner (US, EU, or Pacific Alliance), t to a specific year, and w to the world.

The following example from the leather industry in Uruguay illustrates these procedures. The leather industry is included in the ISIC rev.4 class 1511, which is 'Tanning and dressing of leather; dressing and dyeing of fur'. This ISIC class contains two SITC product groups: 'Leather' (SITC 611) and 'Furskins, tanned or dressed' (SITC 613). We add the trade data for both product groups together to obtain the total trade of ISIC class 1511 and then calculate the RCA and EX/IM values using this combined trade data. Table A18 shows the resulting competitiveness values for a worker in the leather and fur industry in Uruguay for the case of an agreement with the United States as well as vis-à-vis the world, according to both RCA and EX/IM. It becomes evident that the leather and fur industry in Uruguay is very competitive in comparison with the USA. The RCA and EX/IM measures strongly correlate $r(6,552) = 0.754, p = 0.000$.

Table A18: Competitiveness of ISIC class 1511 in Uruguay

	USA	World
RCA	4.90	2.88
EX/IM	2.39	1.27

[2] In form of an equation: $RCA_{ijpt} = \frac{\frac{exp_{ijpt}}{exp_{jpt}}}{\frac{exp_{iwpt}}{exp_{wpt}}}$, where i refers to the product, j to the country, p to the partner (US, EU, or Pacific Alliance), t to a specific year, and w to the world.

A4.5 Descriptive statistics

Table A19: Descriptive Statistics

Variable	N	Mean	SD	Min	Max
Trade support	6,361	6.11	2.62	1	10
RCA	6,361	0.46	0.31	0	1
EX/IM	6,361	0.43	0.31	0	1
District Magnitude (Large)	6,361	0.67	0.47	0	1
Political Ideology	6,258	3.84	2.42	0	9
Gender (Female)	6,322	0.28	0.45	0	1
Agreement (US)	6,361	0.53	0.50	0	1
Agreement (EU)	6,361	0.27	0.44	0	1
Agreement (PA)	6,361	0.20	0.40	0	1
First Term	6,191	0.66	0.47	0	1
Hypothetical Agreement	6,361	0.36	0.48	0	1
RCA Partner (Endogeneity)	4,408	0.46	0.30	0	1
EX/IM Partner (Endogeneity)	4,408	0.45	0.31	0	1
RCA World	6,361	0.44	0.30	0	1
EX/IM World	6,361	0.44	0.32	0	1
Distict GNIpc	6,361	9.24	0.53	7.28	10.11
District Density (log)	6,333	4.78	1.80	-0.12	9.59
District Education (High)	6,361	0.54	0.50	0	1
Education (Pri.)	6,273	0.01	0.11	0	1
Education (Sec.)	6,273	0.07	0.25	0	1
Education (Ter.)	6,273	0.92	0.27	0	1
Income	5.696	3.05	1.02	2	5

A4.6 Regression tables

Table A20: Subnational Trade Competitiveness and Trade Attitudes (Partner Competitiveness)

	RCA	EX/IM
Subnational Trade Competitiveness	0.27***	0.21**
	(0.10)	(0.10)
Political Ideology	0.45***	0.45***
	(0.03)	(0.03)
Female	0.09	0.09
	(0.07)	(0.07)
Pacific Agreement	−0.48***	−0.48***
	(0.11)	(0.10)
US Agreement	−0.73***	−0.74***
	(0.05)	(0.05)
(Intercept)	2.93***	3.05***
	(0.12)	(0.13)
R^2	0.28	0.28
Adj. R^2	0.27	0.27
Num. obs.	6253	6253

***$p < 0.01$; **$p < 0.05$; *$p < 0.1$. Entries are unstandardized coefficients from a linear regression model. Standard errors in parentheses are clustered on the district-year. RCA or EX/IM refers to the revealed comparative advantage measure and trade balance (net-trade) measure of subnational trade competitiveness. RCA or EX/IM measures are calculated vis-a-vis the respective partner (US, EU or Pacific Alliance). Country-wave fixed effects omitted.

Table A21: Subnational Trade Competitiveness, Boundary Conditions, and Trade Attitudes

	RCA	EX/IM
Subnational Trade Competitiveness	0.58*	0.41
	(0.30)	(0.28)
District Magnitude	−0.32**	−0.11
	(0.15)	(0.13)
Comp. x Dst. Magnitude	0.60**	0.23
	(0.23)	(0.23)
Comp. x Pol. Ideology	−0.13**	−0.07
	(0.06)	(0.05)
Political Ideology	0.51***	0.48***
	(0.04)	(0.04)
Female	0.10	0.09
	(0.07)	(0.07)
Pacific Agreement	−0.46***	−0.47***
	(0.11)	(0.11)
US Agreement	−0.74***	−0.74***
	(0.05)	(0.05)
(Intercept)	2.87***	2.97***
	(0.19)	(0.18)
R^2	0.28	0.28
Adj. R^2	0.27	0.27
Num. obs.	6253	6253

***$p < 0.01$; **$p < 0.05$; *$p < 0.1$. Entries are unstandardized coefficients from a linear regression model. Standard errors in parentheses are clustered on the district-year. RCA or EX/IM refers to the revealed comparative advantage measure and trade balance (net-trade) measure of subnational trade competitiveness. RCA or EX/IM measures are calculated vis-a-vis the respective partner (US, EU or Pacific Alliance). Country-wave fixed effects omitted.

Table A22: Subnational Trade Competitiveness, Trade Attitudes and Agreement Status

	RCA	EX/IM
Political Ideology	0.45***	0.45***
	(0.03)	(0.03)
Subnational Trade Competitiveness	0.29***	0.25***
	(0.11)	(0.10)
Hypothetical	−1.16***	−1.01***
	(0.15)	(0.13)
Comp. x Hypothetical	0.11	−0.12
	(0.20)	(0.20)
Female	0.09	0.08
	(0.07)	(0.07)
Pacific Agreement	0.02	0.01
	(0.09)	(0.09)
US Agreement	−0.74***	−0.74***
	(0.05)	(0.05)
(Intercept)	4.01***	4.10***
	(0.15)	(0.15)
R^2	0.29	0.29
Adj. R^2	0.28	0.28
Num. obs.	6253	6253

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Entries are unstandardized coefficients from a linear regression model. Standard errors in parentheses are clustered on the district-year. RCA or EX/IM refers to the revealed comparative advantage measure and trade balance (net-trade) measure of subnational trade competitiveness. RCA or EX/IM measures are calculated vis-a-vis the respective partner (US, EU or Pacific Alliance). Country-wave fixed effects omitted.

Table A23: Total Competitiveness and Trade Attitudes (Only First Term)

	RCA	EX/IM
Political Ideology	0.45***	0.45***
	(0.03)	(0.03)
Competitiveness	0.28**	0.18
	(0.14)	(0.14)
Female	0.08	0.08
	(0.08)	(0.08)
Pacific Agreement	−0.37***	−0.37***
	(0.11)	(0.11)
US Agreement	−0.83***	−0.84***
	(0.04)	(0.03)
(Intercept)	3.04***	3.18***
	(0.18)	(0.14)
R^2	0.29	0.29
Adj. R^2	0.28	0.28
Num. obs.	4073	4073

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Entries are unstandardized coefficients from a linear regression model. Standard errors in parentheses are clustered on the district-year. RCA/EX/IM refers to the revealed comparative advantage measure and trade balance (net-trade) measure of in competitiveness. RCA or EX/IM measures are calculated vis-a-vis the respective partner (US, EU or Pacific Alliance). Country-wave fixed effects omitted.

Table A24: Endogeneity Tests

	RCA	EX/IM
(Intercept)	0.22***	0.48***
	(0.03)	(0.04)
Trade Support	−0.00	0.00
	(0.00)	(0.00)
Subnational Trade Competitiveness	0.76***	0.79***
	(0.03)	(0.03)
Political Ideology	−0.00	−0.00
	(0.00)	(0.00)
Female	−0.00	−0.01
	(0.01)	(0.00)
Pacific Agreement	0.01	0.07***
	(0.02)	(0.02)
US Agreement	−0.01	−0.00
	(0.02)	(0.01)
R^2	0.69	0.72
Adj. R^2	0.69	0.72
Num. obs.	4323	4323

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Entries are unstandardized coefficients from a linear regression model. Standard errors in parentheses are clustered on the district-year. RCA or EX/IM refers to the revealed comparative advantage measure and trade balance (net-trade) measure of subnational trade competitiveness. RCA or EX/IM measures are calculated vis-a-vis the respective partner (US, EU or Pacific Alliance). Country-wave fixed effects omitted.

Table A25: Subnational Trade Competitiveness and Trade Attitudes (World Competitiveness)

	RCA	EX/IM
Subnational Trade Competitiveness	0.43***	0.25**
	(0.12)	(0.13)
Political Ideology	0.45***	0.45***
	(0.03)	(0.03)
Female	0.09	0.09
	(0.07)	(0.07)
Pacific Agreement	−0.46***	−0.46***
	(0.10)	(0.10)
US Agreement	−0.74***	−0.74***
	(0.05)	(0.05)
(Intercept)	2.84***	3.02***
	(0.12)	(0.12)
R^2	0.28	0.28
Adj. R^2	0.27	0.27
Num. obs.	6253	6253

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Entries are unstandardized coefficients from a linear regression model. Standard errors in parentheses are clustered on the district-year. RCA or EX/IM refers to the revealed comparative advantage measure and trade balance (net-trade) measure of subnational trade competitiveness. RCA or EX/IM measures are calculated vis-a-vis the world. Country-wave fixed effects omitted.

Table A26: Subnational Trade Competitiveness and Trade Attitudes (District Characteristics)

	RCA	EX/IM
Subnational Trade Competitiveness	0.32***	0.25**
	(0.12)	(0.11)
Political Ideology	0.45***	0.45***
	(0.03)	(0.03)
Female	0.07	0.07
	(0.07)	(0.07)
Pacific Agreement	−0.49***	−0.49***
	(0.11)	(0.11)
US Agreement	−0.73***	−0.74***
	(0.05)	(0.05)
GNI per capita	0.32**	0.29*
	(0.16)	(0.17)
Log District Denisty	−0.02	−0.02
	(0.03)	(0.03)
(Intercept)	−0.04	0.37
	(1.49)	(1.54)
R^2	0.28	0.28
Adj. R^2	0.27	0.27
Num. obs.	6225	6225

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Entries are unstandardized coefficients from a linear regression model. Standard errors in parentheses are clustered on the district-year. RCA or EX/IM refers to the revealed comparative advantage measure and trade balance (net-trade) measure of subnational trade competitiveness. RCA or EX/IM measures are calculated vis-a-vis the respective partner (US, EU or Pacific Alliance). Country-wave fixed effects omitted.

Table A27: Subnational Trade Competitiveness and Trade Attitudes (Individual Characteristics)

	RCA	EX/IM
Subnational Trade Competitiveness	0.25**	0.23**
	(0.12)	(0.11)
Political Ideology	0.44***	0.44***
	(0.03)	(0.03)
Female	0.18**	0.17**
	(0.07)	(0.07)
Pacific Agreement	−0.52***	−0.52***
	(0.11)	(0.10)
US Agreement	−0.77***	−0.77***
	(0.05)	(0.05)
Educ. Primary	3.22***	3.22***
	(0.46)	(0.47)
Educ. Secondary	3.47***	3.47***
	(0.30)	(0.31)
Educ. Tertiary	3.69***	3.68***
	(0.18)	(0.20)
Income (4-7k)	0.28***	0.28***
	(0.10)	(0.10)
Income (7-10k)	0.42***	0.42***
	(0.11)	(0.11)
Income (above 10k)	0.65***	0.65***
	(0.17)	(0.17)
(Intercept)	−0.69***	−0.59***
	(0.16)	(0.15)
R^2	0.29	0.29
Adj. R^2	0.28	0.28
Num. obs.	5619	5619

***$p < 0.01$; **$p < 0.05$; *$p < 0.1$. Entries are unstandardized coefficients from a linear regression model. Standard errors in parentheses are clustered on the district-year. RCA or EX/IM refers to the revealed comparative advantage measure and trade balance (net-trade) measure of subnational trade competitiveness. RCA or EX/IM measures are calculated vis-a-vis the respective partner (US, EU or Pacific Alliance). Country-wave fixed effects omitted.

Table A28: Subnational Trade Competitiveness and Trade Attitudes (Party Characteristics)

	RCA	EX/IM
Subnational Trade Competitiveness	0.18	0.19*
	(0.11)	(0.10)
Political Ideology	0.24***	0.24***
	(0.03)	(0.03)
Female	0.17**	0.17**
	(0.07)	(0.07)
Pacific Agreement	−0.47***	−0.48***
	(0.10)	(0.10)
US Agreement	−0.73***	−0.74***
	(0.05)	(0.05)
(Intercept)	2.53***	2.64***
	(0.53)	(0.53)
R^2	0.38	0.38
Adj. R^2	0.36	0.36
Num. obs.	6253	6253

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Entries are unstandardized coefficients from a linear regression model. Standard errors in parentheses are clustered on the district-year. RCA or EX/IM refers to the revealed comparative advantage measure and trade balance (net-trade) measure of subnational trade competitiveness. RCA or EX/IM measures are calculated vis-a-vis the respective partner (US, EU or Pacific Alliance). Country-wave and party-fixed effects omitted.

Table A29: Subnational Trade Competitiveness and Trade Attitudes (US Agreement)

	RCA	EX/IM
Subnational Trade Competitiveness	0.28**	0.15
	(0.12)	(0.12)
Political Ideology	0.64***	0.64***
	(0.02)	(0.02)
Female	−0.10***	−0.11***
	(0.03)	(0.04)
(Intercept)	1.60***	1.74***
	(0.15)	(0.18)
R^2	0.39	0.39
Adj. R^2	0.38	0.38
Num. obs.	3313	3313

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Entries are unstandardized coefficients from a linear regression model. Standard errors in parentheses are clustered on the district-year. RCA or EX/IM refers to the revealed comparative advantage measure and trade balance (net-trade) measure of subnational trade competitiveness. RCA or EX/IM measures are calculated vis-a-vis the respective partner (US, EU or Pacific Alliance). Country-wave fixed effects omitted.

Table A30: Subnational Trade Competitiveness and Trade Attitudes (EU Agreement)

	RCA	EX/IM
Subnational Trade Competitiveness	0.38**	0.28**
	(0.17)	(0.14)
Political Ideology	0.38***	0.38***
	(0.02)	(0.02)
Female	0.20***	0.20***
	(0.06)	(0.06)
(Intercept)	4.08***	4.04***
	(0.37)	(0.38)
R^2	0.25	0.25
Adj. R^2	0.23	0.23
Num. obs.	1663	1663

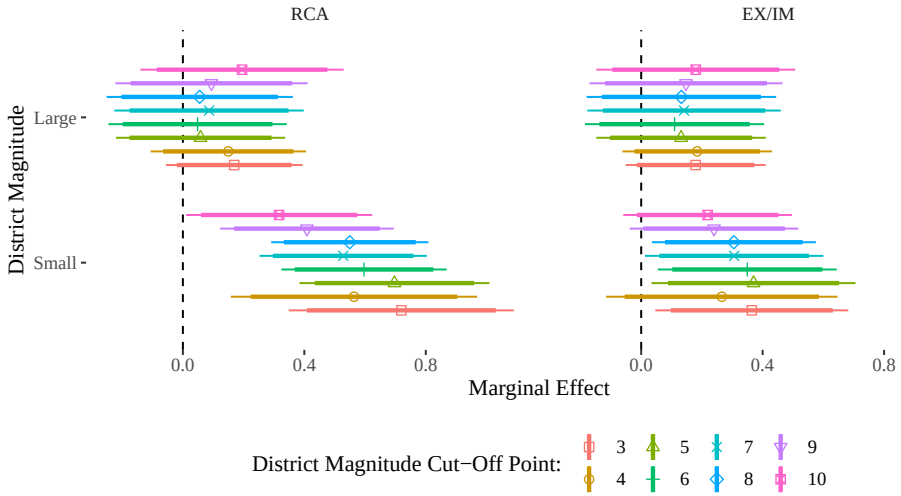
***$p < 0.01$; **$p < 0.05$; *$p < 0.1$. Entries are unstandardized coefficients from a linear regression model. Standard errors in parentheses are clustered on the district-year. RCA or EX/IM refers to the revealed comparative advantage measure and trade balance (net-trade) measure of subnational trade competitiveness. RCA or EX/IM measures are calculated vis-a-vis the respective partner (US, EU or Pacific Alliance). Country-wave fixed effects omitted.

Table A31: Subnational Trade Competitiveness and Trade Attitudes (Pacific Alliance)

	RCA	EX/IM
Subnational Trade Competitiveness	0.66***	−0.09
	(0.16)	(0.26)
Political Ideology	0.13***	0.13***
	(0.03)	(0.03)
Female	0.42***	0.43***
	(0.14)	(0.13)
(Intercept)	6.18***	6.36***
	(0.07)	(0.07)
R^2	0.11	0.11
Adj. R^2	0.09	0.09
Num. obs.	1277	1277

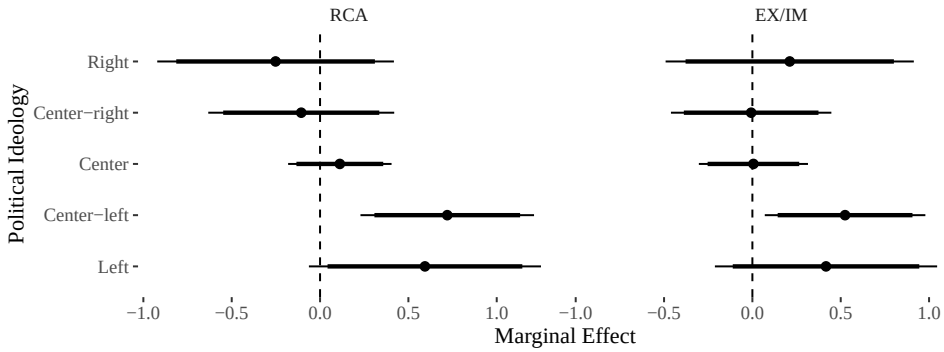
***$p < 0.01$; **$p < 0.05$; *$p < 0.1$. Entries are unstandardized coefficients from a linear regression model. Standard errors in parentheses are clustered on the district-year. RCA or EX/IM refers to the revealed comparative advantage measure and trade balance (net-trade) measure of subnational trade competitiveness. RCA or EX/IM measures are calculated vis-a-vis the respective partner (US, EU or Pacific Alliance). Country-wave fixed effects omitted.

Figure A56: Alternative Specifications of District Magnitude



Note: Ranges represent 90 and 95 percent confidence intervals using standard errors clustered at the district-year level.

Figure A57: Alternative Specifications of Political Ideology



Note: Ranges represent 90 and 95 percent confidence intervals using standard errors clustered at the district-year level.

A5 Appendix for Chapter 6

A5.1 Agreement summary

	Agreement	Year	Country	GATS	Commitment	Concession
1	AUS-CHL	2008	Australia	57	57	0
			Chile	20	68	48
2	BRN-JPN	2007	Brunei	8	12	4
			Japan	53	63	10
3	CAN-PER	2008	Canada	43	59	17
			Peru	31	68	36
4	CHL-CRI	1999	Chile	20	65	45
			Costa Rica	6	55	49
5	CHL-JPN	2007	Chile	20	68	48
			Japan	53	68	15
6	CHL-SLV	1999	Chile	20	65	45
			El Salvador	13	42	29
7	CHN-NZL	2008	China	39	40	1
			New Zealand	54	56	1
8	CHN-PER	2009	China	39	40	1
			Peru	31	53	22
9	CHN-SGP	2008	China	39	40	1
			Singapore	38	42	5
10	CRI-MEX	1994	Costa Rica	6	58	52
			Mexico	41	57	17
11	EU-CHL	2002	Chile	20	54	34
			European Union	55	58	3
12	HND-TWN	2007	Honduras	7	56	49
			Taiwan (1)	65	74	9
13	IND-SGP	2005	India	33	37	5
			Singapore	38	56	18
14	JOR-SGP	2004	Jordan	50	51	1
			Singapore	38	42	4
15	JPN-CHE	2009	Japan	53	68	15
			Switzerland	60	73	13
16	JPN-IDN	2007	Indonesia	17	24	7
			Japan	53	63	10
17	JPN-MEX	2004	Japan	53	67	15
			Mexico	41	58	17
18	JPN-MYS	2005	Japan	53	63	10
			Malaysia	27	29	2
19	JPN-PHL	2006	Japan	53	63	10
			Philippines	16	28	11

20	JPN-SGP	2002	Japan	53	59	6
			Singapore	38	60	22
21	JPN-THA	2007	Japan	53	62	9
			Thailand	19	20	1
22	JPN-VNM	2008	Japan	53	55	2
			Vietnam	34	34	0
23	KOR-CHL	2003	Chile	20	66	46
			South Korea	49	61	12
24	KOR-IND	2009	India	33	38	6
			South Korea	49	50	2
25	KOR-SGP	2005	Singapore	38	71	33
			South Korea	49	58	10
26	MEX-GTM	2000	Guatemala	10	81	71
			Mexico	41	57	17
27	MEX-HND	2000	Honduras	7	61	54
			Mexico	41	57	17
28	MEX-SLV	2000	El Salvador	13	67	54
			Mexico	41	57	17
29	NZL-SGP	2000	New Zealand	54	63	9
			Singapore	38	56	18
30	PAK-CHN	2009	China	39	40	1
			Pakistan	20	33	13
31	PAK-MYS	2007	Malaysia	27	32	4
			Pakistan	20	31	11
32	PAN-CHL	2006	Chile	20	54	42
			Panama (2)	39	73	35
33	PAN-SGP	2006	Panama	40	73	32
			Singapore	38	63	26
34	PAN-SLV	2002	El Salvador	13	77	64
			Panama	40	69	29
35	PAN-TWN	2003	Panama	40	72	32
			Taiwan	62	72	10
36	PER-SGP	2008	Peru	31	67	36
			Singapore	38	55	18
37	SGP-AUS	2003	Australia	57	80	23
			Singapore	38	68	31
38	SLV-TWN	2007	El Salvador	13	64	51
			Taiwan	62	71	10
39	THA-AUS	2004	Australia	57	59	1
			Thailand	19	23	4
40	USA-AUS	2004	Australia	57	82	24
			United States	55	67	11
41	USA-BHR	2004	Bahrain	28	84	56
			United States	55	67	11
42	USA-CHL	2003	Chile	20	68	48

			United States	55	68	12
43	USA-COL	2006	Colombia	28	82	54
			United States	55	67	11
44	USA-JOR	2000	Jordan	50	56	5
			United States	55	55	0
45	USA-KOR	2007	South Korea	49	67	18
			United States	55	68	13
46	USA-MAR	2004	Morocco	18	75	57
			United States	55	67	11
47	USA-OMN	2006	Oman	48	81	32
			United States	55	67	11
48	USA-PAN	2007	Panama	40	76	36
			United States	55	67	11
49	USA-PER	2006	Peru	31	85	53
			United States	55	67	11
50	USA-SGP	2003	Singapore	38	76	38
			United States	55	67	11
51	ASEAN-AUS-NZ	2009	Australia	57	57	0
			Brunei	8	10	2
			Indonesia	17	22	5
			Malaysia	27	32	5
			New Zealand	54	55	1
			Philippines	16	21	5
			Singapore	38	40	3
			Thailand	19	20	0
			Vietnam	34	34	0
52	ASEAN-CHN	2007	Brunei	8	9	1
			China	39	40	1
			Indonesia	17	18	0
			Malaysia	27	29	1
			Philippines	16	19	2
			Singapore	38	44	6
			Thailand	19	20	1
			Vietnam	34	34	0
53	ASEAN-KOR	2007	Brunei	8	10	2
			Indonesia	17	23	6
			Malaysia	27	34	6
			Philippines	16	18	2
			Singapore	38	40	2
			South Korea	49	50	1
			Thailand	19	20	0
			Vietnam	34	34	0
54	CAFTA-DOM-USA	2004	Costa Rica	6	71	65
			Dominican Republic	27	82	55
			El Salvador	13	86	73

			Guatemala	10	86	75
			Honduras	7	77	70
			Nicaragua	25	77	52
			United States	55	67	11
55	EFTA-CHL	2003	Chile	20	54	34
			Iceland	54	54	0
			Liechtenstein	44	44	0
			Norway	59	59	0
			Switzerland	60	60	0
56	EFTA-KOR	2005	Iceland	54	54	0
			Liechtenstein	44	44	0
			Norway	59	59	0
			South Korea	49	49	0
			Switzerland	60	60	0
57	EFTA-MEX	2000	Iceland	54	54	0
			Liechtenstein	44	44	0
			Mexico	41	41	0
			Norway	59	59	0
			Switzerland	60	63	3
58	EFTA-SGP	2002	Iceland	54	55	1
			Liechtenstein	44	45	1
			Norway	59	62	3
			Singapore	38	61	24
			Switzerland	60	60	0
59	EU-CARIFORUM	2008	Antigua & Barbuda	13	39	26
			Bahamas (3)			
			Barbados	16	46	31
			Belize	10	31	21
			Dominica	7	36	29
			Dominican Republic	27	68	41
			European Union	55	64	8
			Grenada	14	35	21
			Guyana	15	59	44
			Jamaica	28	52	24
			St. Kitts & Nevis	5	28	23
			St. Lucia	13	37	24
			St. Vincent & the Grenadines	13	35	22
			Suriname	7	40	33
			Trinidad & Tobago	18	38	20
60	ASEAN (7th package)	2009	Brunei	8	31	23
			Indonesia	17	42	24
			Malaysia	27	43	16
			Philippines	16	35	19
			Singapore	38	42	4

			Thailand	19	38	18
			Vietnam	34	38	4
61	MERCOSUR	2005	Argentina	34	70	36
	(6th package)		Brazil	20	59	39
			Paraguay	5	23	17
			Uruguay	16	45	28

Table A32: Summary of preferential trade agreements in dataset

A5.2 Sector summary

	Sector	Mode 1	Mode 3
1	Business services	43	45
2	Communication services	23	22
3	Construction and related engineering services		5
4	Distribution services	4	4
5	Educational services	5	5
6	Environmental services	4	4
7	Financial services	17	17
8	Health related and social services	3	3
9	Recreational, cultural and sporting services	4	4
10	Tourism and travel related services	3	3
11	Transport services	36	40

Table A33: Coded Subsectors per Sector and Mode of Supply

A5.3 Descriptive statistics

Variable	N	Mean	SD	Min	Max
Country commitment	3685	52.49	32.35	0.00	100.00
Country GATS	3696	34.21	31.28	0.00	100.00
Partner commitment	3706	56.33	30.63	0.00	100.00
Partner GATS	3717	40.04	31.09	0.00	100.00
Net-concession	3675	1.94	34.33	-100.00	100.00
GDP ratio (log10)	3738	-0.65	1.71	-4.62	3.08
GVC share (in %)	3633	1.91	2.80	0.00	15.21
Sector trade competitiveness	3591	-0.68	1.17	-5.45	3.41
Sector share in exports (in %)	3591	2.50	4.19	0.00	42.78
Services mode M3 (binary variable)	3738	0.52	0.50	0.00	1.00
Country GDPpc (in thousand USD)	3738	19.82	19.94	0.75	104.54
Partner GDPpc (in thousand USD)	3738	20.18	16.95	0.75	70.32
Agreement depth	3738	5.30	1.43	2.00	7.00
Sector share in employment (in %)	3570	6.31	4.68	0.17	23.11
Total services share (in % of GDP)	3738	57.35	10.94	28.01	81.17

Table A34: Descriptive Statistics

A5.4 Robustness checks

Table A35: Commitments in trade negotiations (Additional variables)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
GDP ratio (log10)	−2.89***	−2.89***	−2.73***	−2.89***	−2.83***	−3.43***	−3.18***
	(0.35)	(0.35)	(0.36)	(0.35)	(0.35)	(0.37)	(0.37)
GVC share	0.59*	0.59*	0.64*	0.59*	0.30	0.34	−0.06
	(0.36)	(0.36)	(0.36)	(0.36)	(0.37)	(0.36)	(0.38)
Interaction GDP ratio x GVC share	0.30*	0.30*	0.33*	0.30*	0.11	0.28	0.10
	(0.17)	(0.17)	(0.17)	(0.17)	(0.19)	(0.17)	(0.19)
Sector trade competitivness	0.05	0.05	0.09	0.05	−0.02	−0.62	−0.72*
	(0.39)	(0.39)	(0.40)	(0.39)	(0.40)	(0.42)	(0.43)
Country GATS	0.70***	0.70***	0.71***	0.70***	0.71***	0.70***	0.70***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Partner commitment	−0.06***	−0.06***	−0.06***	−0.06***	−0.06***	−0.05***	−0.04**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Partner GATS	0.12***	0.12***	0.11***	0.12***	0.12***	0.12***	0.11***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Sector share in exports	−0.43***	−0.43***	−0.42***	−0.43***	−0.42***	−0.43***	−0.40***
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Services mode: M3		0.01					0.05
		(0.69)					(0.69)
Country GDPpc			−0.11**				−0.15***
			(0.05)				(0.05)
Partner GDPpc			−0.05				−0.00
			(0.06)				(0.06)
Agreement depth				28.53***			26.63***
				(3.34)			(3.40)
Sector share in employment					0.20		0.24*
					(0.12)		(0.13)
Total services share (% of GDP)						0.20***	0.29***
						(0.05)	(0.05)
(Intercept)	12.60***	12.60***	16.50***	−158.58***	11.38***	1.33	−161.50***
	(2.07)	(2.07)	(3.16)	(20.59)	(2.25)	(3.33)	(20.64)
R^2	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Adj. R^2	0.68	0.68	0.68	0.68	0.68	0.68	0.69
Num. obs.	3444	3444	3444	3444	3423	3444	3423

***$p < 0.01$; **$p < 0.05$; *$p < 0.1$. Entries are unstandardised coefficients from a linear regression model. Standard errors in parentheses. Dependent variables range from 0 to 100 with higher values representing higher country commitments. Sector fixed effects not shown.

Figure A58: Country commitments in GATS

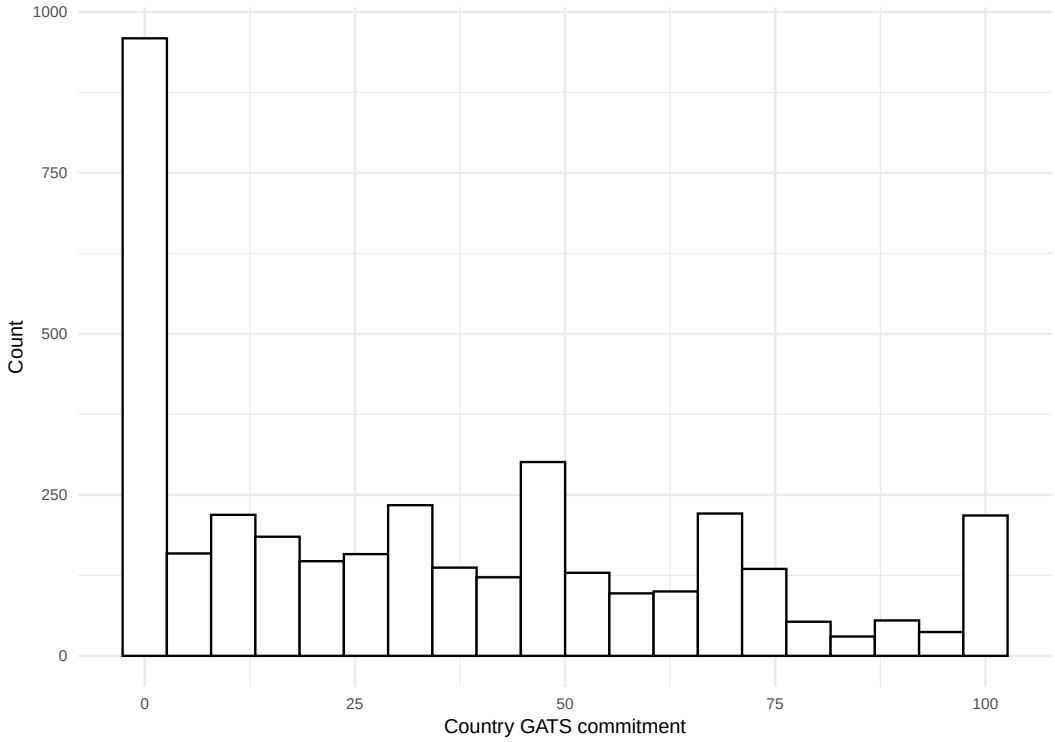


Figure A59: Partner commitments in PTAs

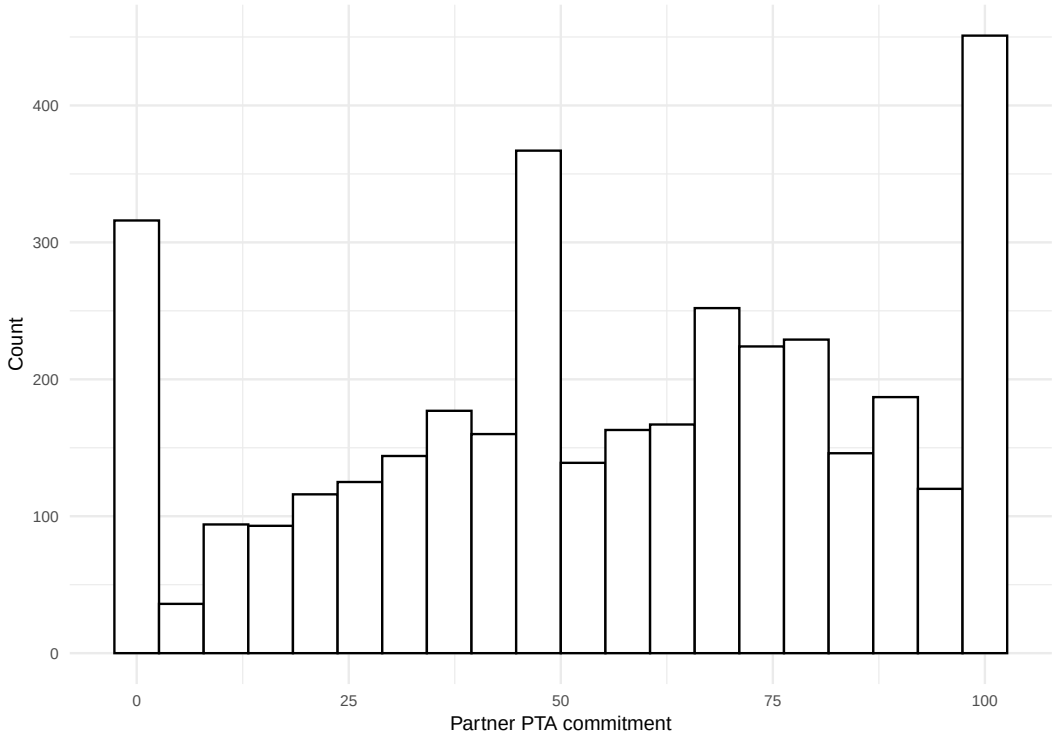


Figure A60: Partner commitments in GATS

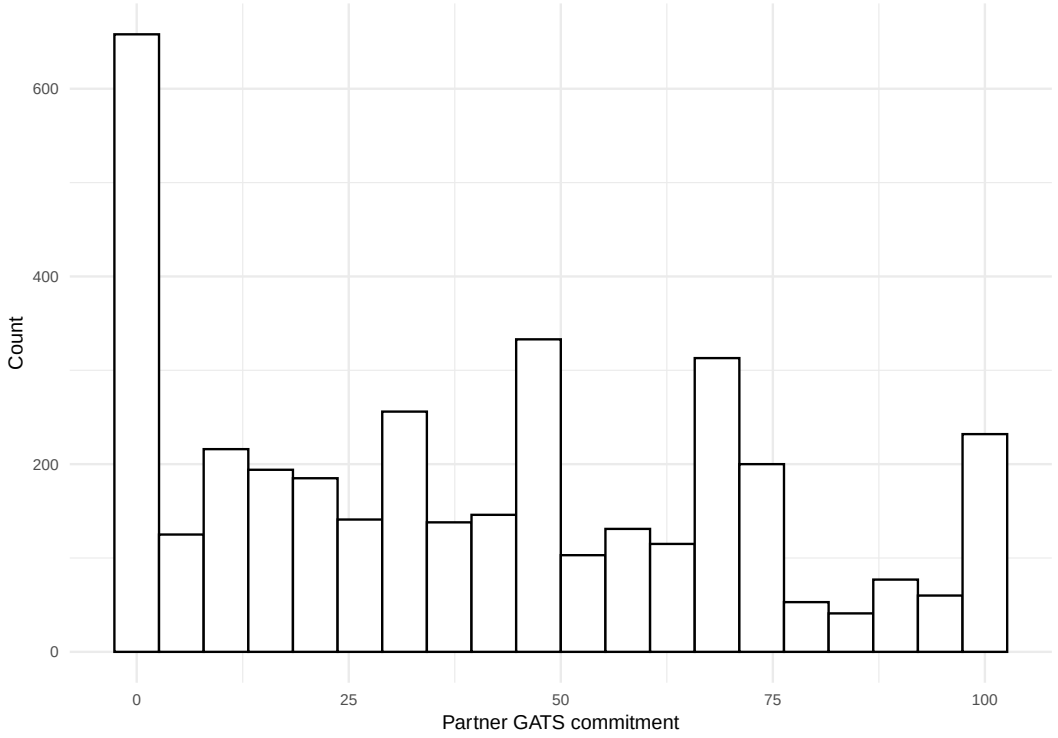


Figure A61: Net concessions of country

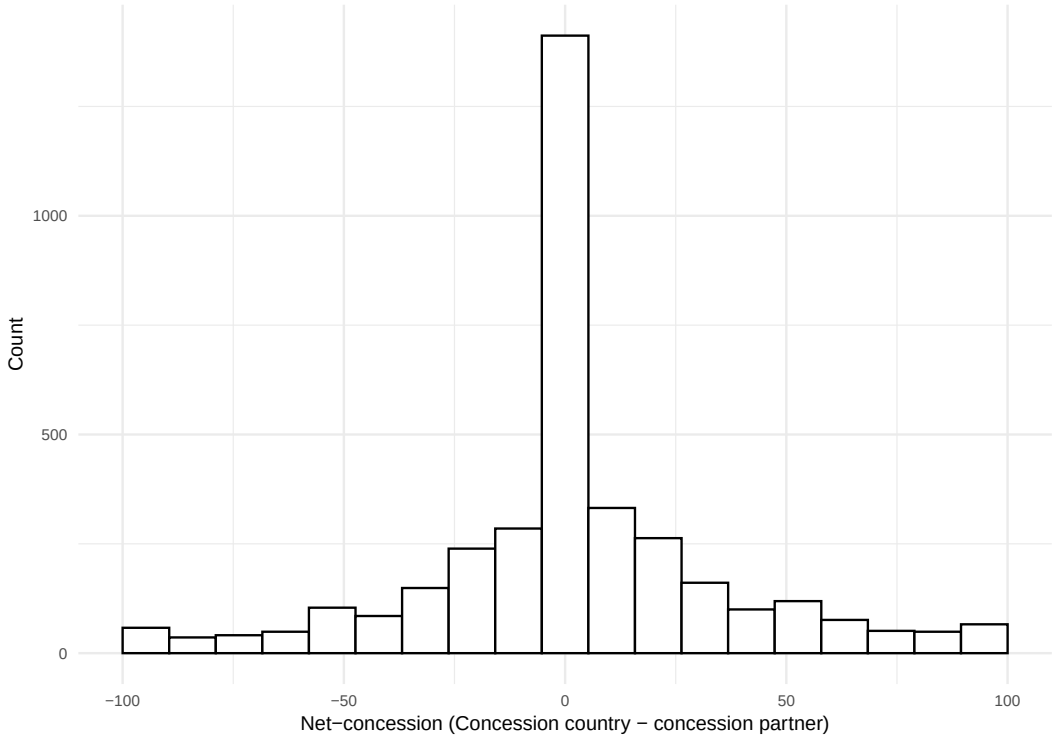


Figure A62: GDP ratio (Log10) between country and partner

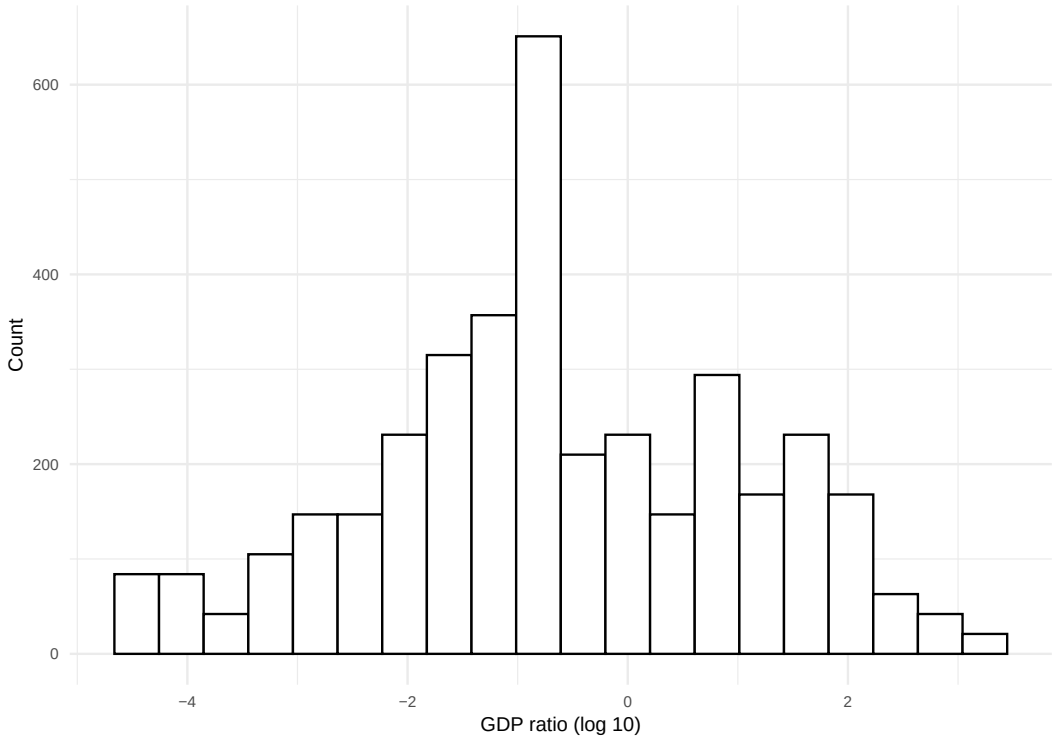


Figure A63: Global value chains (GVCs) of country with partner

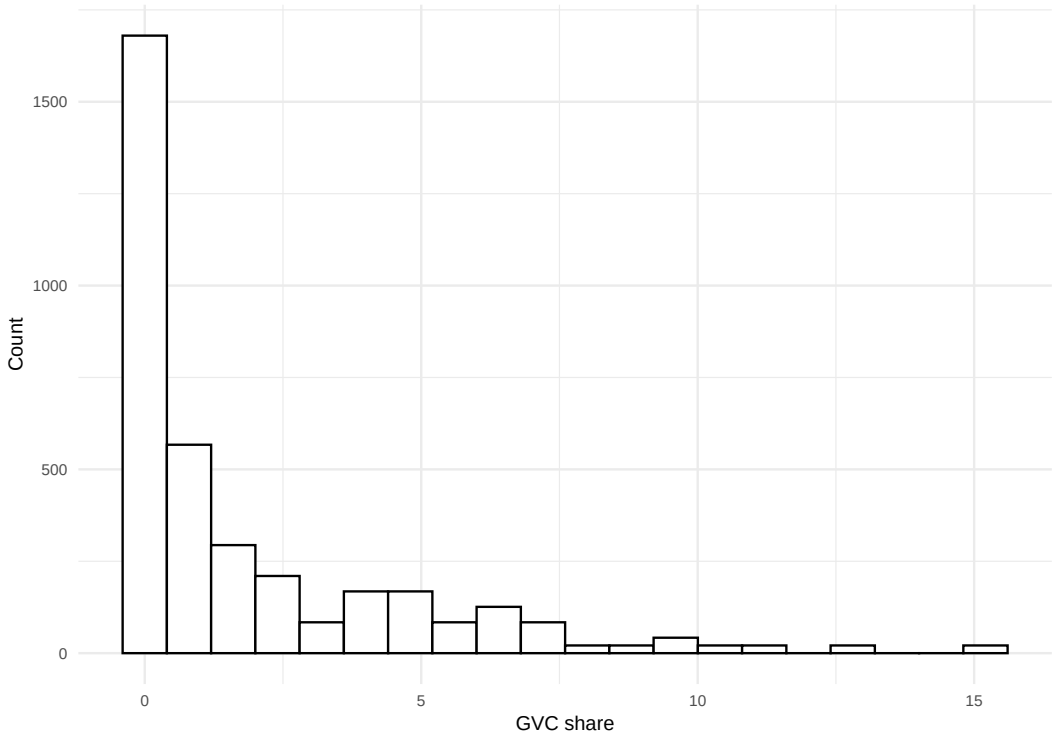


Figure A64: Sector trade competitiveness

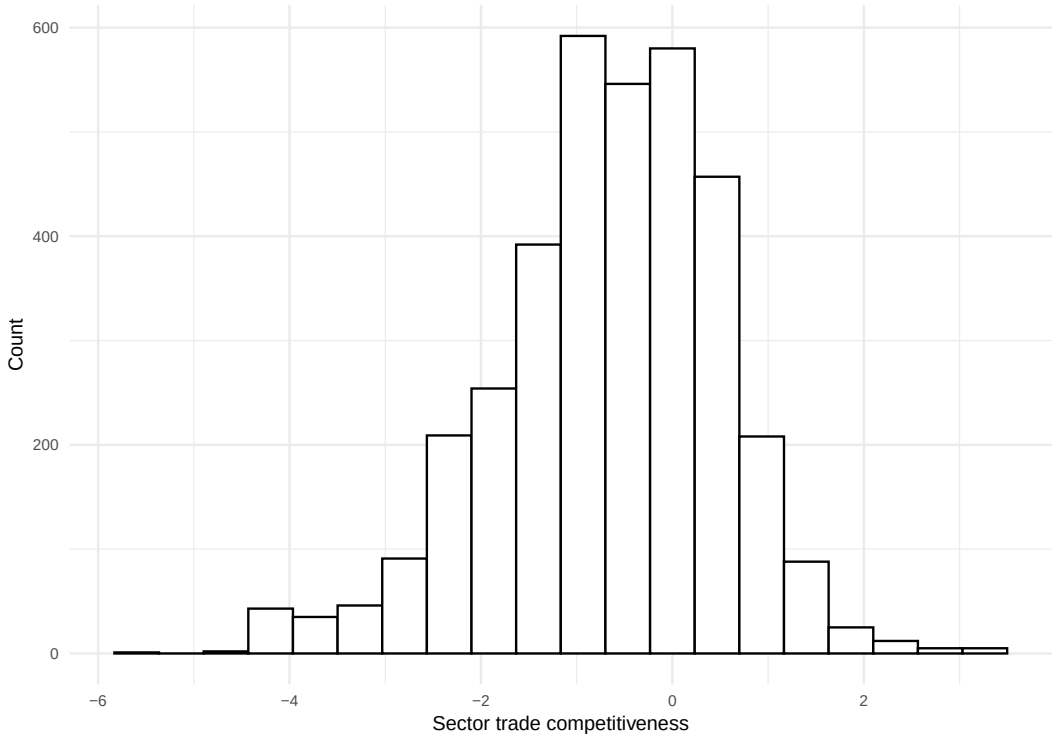


Table A36: Net-concessions in trade negotiations

	Model 1	Model 2
GDP ratio (log10)	−10.96***	−10.99***
	(0.47)	(0.51)
GVC share	0.06	0.13
	(0.32)	(0.56)
Interaction GDP ratio x GVC share		0.04
		(0.27)
Sector trade competitivness	−1.51**	−1.51**
	(0.61)	(0.61)
Sector share in exports	−1.42***	−1.42***
	(0.19)	(0.19)
(Intercept)	−6.28**	−6.36**
	(2.77)	(2.81)
R^2	0.32	0.32
Adj. R^2	0.30	0.30
Num. obs.	3444	3444

***$p < 0.01$; **$p < 0.05$; *$p < 0.1$. Entries are unstandardised coefficients from a linear regression model. Standard errors in parentheses. Dependent variables range from -100 to 100 with higher values representing higher country net-concessions. Sector fixed effects not shown.

Table A37: Commitments in trade negotiations (Linear mixed effects models)

	Model 1	Model 2
GDP ratio (log10)	-2.74^{***}	-2.88^{***}
	(0.33)	(0.35)
GVC share	0.06	0.43
	(0.20)	(0.35)
Interaction GDP ratio x GVC share		0.22
		(0.17)
Country GATS	0.70^{***}	0.70^{***}
	(0.01)	(0.01)
Partner commitment	-0.04^{**}	-0.04^{**}
	(0.02)	(0.02)
Partner GATS	0.11^{***}	0.11^{***}
	(0.02)	(0.02)
Sector trade competitivness	0.04	0.06
	(0.38)	(0.39)
Sector share in exports	-0.44^{***}	-0.42^{***}
	(0.12)	(0.12)
(Intercept)	34.59^{***}	34.60^{***}
	(2.46)	(2.47)
AIC	30027.73	30029.77
BIC	30150.62	30158.80
Log Likelihood	-14993.87	-14993.89
Num. obs.	3444	3444
Num. groups: agreement	60	60
Var: agreement (Intercept)	193.34	197.50
Var: Residual	335.41	335.23

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Entries are unstandardised coefficients from a linear mixed effects model. Standard errors in parentheses. Dependent variables range from 0 to 100 with higher values representing higher country commitments. Sector and agreement random effects not shown.