Economic Statecraft
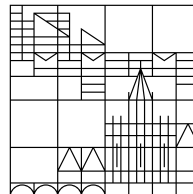# in Multipolar Times

Dissertation

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"Take care of freedom and truth will take care of itself"

– Richard Rorty

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Acronyms

AME Additive and Multiplicative Effects model

CAI EU-China Comprehensive Agreement on Investment

CEPII Centre d'Etudes Prospectives et d'Informations Internationales

CoW Correlates of War Project

DSGE Dynamic Stochastic General Equilibrium

EU European Union

FDI Foreign Direct Investment

GATT Generalized Agreement on Tariffs

GDP Gross Domestic Product

GSP Generalized System of Preferences

ICRG International Country Risk Guide

IMF International Monetary Fund

LPM Linear Probability Model

MID Militarized Interstate Conflict

NAFTA North American Free Trade Agreement

NATO North Atlantic Treaty Organization

PLA Peoples Liberation Army

PPI Pedalling Peril Index

RTA Regional Trade Agreement

SGPNE Subgame Perfect Nash Equilibrium

SQ status quo

THAAD Terminal High Altitude Area Defense

TRAINS Trade Analysis Information System

UN United Nations

UNCTAD United Nations Conference on Trade and Development

UNGA United Nations General Assembly

USA United States of America

USMECA Agreement between the United States of America, the United Mexican States, and Canada

WTO World Trade Organization

WWI World War I

WWII World War II

Summary

In the present work I answer pressing questions on the nature of economic statecraft and economic leverage. I provide an integrated model of economic coercion and military statecraft within an interstate bargaining model. Furthermore, this thesis identifies and discusses two failure points of economic statecraft: lack of trade leverage and sanction busting by third parties. This thesis consists of five chapters, starting with an extended theoretical overview and literature review. The main body of work is structured into three substantive chapters, each representing a unique and independent contribution. The final chapter summarizes the results and spells out scientific as well as policy conclusions.

The first chapter motivates and frames the thesis by reference to current developments in international relations. In addition, it gives an overview of the previous literature on trade, its connection to war, economic sanctions, and the multipolarity of the international system. Drawing from the collective understanding of economic statecraft, I draw out the overall research question of this thesis: What is the nature of economic leverage and economic statecraft? Furthermore, which factors determine the success and failure of economic statecraft? The three substantive chapters in this work then proceed to shine light on all of these questions.

According to conventional wisdom, domestic political concerns govern trade policies. In chapter 2, I develop a theoretical model that reconsiders the role of trade policy as a foreign policy instrument, arguing that the choice between protectionism and other

foreign policy instruments depends on the nature and level of economic interdependence. Economic interdependence empowers states to use trade and investment as a bargaining chip during interstate disputes, but trade wars and sanctions can also "use up" this leverage and thus make a violent conflict more likely. This theoretical argument is supported by a case study of pre-World War I Balkan politics as well as a game theoretical model of bargaining that includes both economic policy and military deterrence. The corresponding chapter extends both the currently existing literature on trade policy by taking into consideration national security considerations, and the commercial liberalism literature by incorporating determination of trade levels via an endogenous foreign policy choice.

The third chapter further extends the empirical literature on the trade-conflict nexus so as to include economic statecraft. Traditionally, this literature has been divided into the realist and the liberal schools of thought. While the realist position is that trade either has negative or no effect at all on peace, realists argue that trade indeed ensures peace. In order to cross this divide, I argue that trade interdependence leads to peace in general, even though states still can and do exploit asymmetries. To this end, I construct empirical measures of trade leverage and economic coercion. I further argue that the presence or absence of trade leverage determines whether states choose economic coercion or military statecraft when faced with an international crisis. This is supported by empirical testing of the theoretically derived hypotheses on a data set of post-World War II trade flows and conflict indicators. I conclude that trade leverage leads states to prefer economic coercion, but a lack of trade leverage makes it more likely that they choose war to resolve their differences.

Chapter 4 focuses on the issue of sanction busting. Sanctions are one common instrument of economic statecraft, and sanction busting is a major obstacle to the their success. Sanctions research has largely neglected the impact of sanctions on trade with third countries, focusing much more on the relationship between the sender and the target. Up to now, no systematic overview of the factors that determine the diversion of trade between the sender and its target towards third countries during a sanction case exists.

To fill the gap, in chapter 4 I first formulate a theoretical account of sanction busting that focuses on the attributes of potentially sanction busting third countries, rather than the relationship between the sender and the target. In particular, I point out that the state capacity of sanction busting countries has been previously overlooked. This leads to two complementary explanations of sanction busting: politically motivated sanction busting driven by political calculations and market based sanction busting driven by economic incentives. I empirically test the hypotheses derived from this theoretical argument, employing different measures of state capacity and comparing their effect on sanction busting with that of political alignment. Measures of state capacity as well as political alignment are both associated with the prevalence of sanction busting, with state capacity consistently being the more important factor. The weaker a third country's state capacity, the more prone it is to become a jurisdiction through which sanction busting trade is conducted. Finally, I show that including measures of state capacity in supervised machine learning algorithms meaningfully improves out of sample predictions of sanction busting trade flows. I conclude by suggesting that taking into account state capacity when designing sanctions will improve sanction success compared to focusing solely on the political alignment of potential sanction busters.

In the final chapter, I summarize my contribution to our collective understanding of economic statecraft. In addition, I draw out concrete policy prescriptions as well as potential avenues for future research.

The main contribution of this thesis lies in its theoretical definition of economic leverage as a function of economic costs states can impose upon each other. This definition is complemented empirically by a formulation of trade leverage as a function of relative market exposures of two interacting states. Beyond this vital definitional work, my thesis shows that economic leverage broadly, and trade leverage narrowly, can lead states to choose economic coercion over war. On the flipside, economic coercion in the form of sanctions may fail if low state capacity sanction busters succeed in sabotaging the sanction sender's efforts.

Zusammenfassung

In der vorliegenden Arbeit beantworte ich drängende Fragen zum Wesen der ökonomischen Außenpolitik. Ich präsentiere ein verhandlungstheoretisches Modell, das sowohl wirtschaftlichen Druck als auch militärische Drohungen einbezieht. Darüber hinaus werden in der vorliegenden Arbeit zwei potentielle Schwachstellen der ökonomischen Außenpolitik identifiziert und erörtert: das Fehlen von ökonomischer Verhandlungsmasse und das Umgehen von Sanktionen mithilfe Dritter. Die vorliegende Arbeit besteht aus fünf Kapiteln, beginnend mit einem ausführlichen theoretischen Überblick und einer Literaturübersicht. Der Hauptteil der Arbeit untergliedert sich in drei inhaltliche Kapitel, die jeweils einen eigenständigen Beitrag darstellen. Das abschließende Kapitel fasst die Ergebnisse zusammen und zieht wissenschaftliche sowie politisch praktische Schlussfolgerungen.

Das erste Kapitel motiviert die Dissertation und ordnet sie mit Bezug auf die jüngsten Entwicklungen interationaler Politik in ihren größeren Kontext ein. Außerdem wird dort ein Überblick über die bisherige Literatur zum Thema Handel, dessen Verbindung zum interstaatlichen Krieg, Wirtschaftssanktionen sowie die Multipolarität des internationalen Systems gegeben. Auf der Grundlage dieses kollektiven Verständnisses von ökonomischen Außenpolitik wird die allgemeine Forschungsfrage dieser Arbeit formuliert: Wie sind wirtschaftliche Verhandlungsmasse und ökonomischen Außenpolitik zu definieren? Und welche Faktoren bestimmen den Erfolg und Misserfolg jener ökonomischen Außenpolitik? Die drei Hauptkapitel beleuchten daraufhin diese Fragen im Detail.

Nach gängiger Auffassung bestimmen innenpolitische Bewegründe die Außenhandelspolitik von Staaten. In Kapitel 2 meiner Dissertation entwickle ich ein theoretisches Modell, das die Rolle der Handelspolitik als außenpolitisches Instrument überdenkt, und argumentiere, dass die Wahl zwischen Protektionismus und anderen außenpolitischen Instrumenten von der Art und dem Grad der wirtschaftlichen Beziehungen abhängt. Wirtschaftliche Interdependenz gibt Staaten die Möglichkeit, Handel und Investitionen als Druckmittel während zwischenstaatlichen Konflikten einzusetzen, aber Handelskriege und Sanktionen können dieses Druckmittel auch „aufbrauchen", wodurch bewaffnete Konflikte wahrscheinlicher werden. Dieses theoretische Argument wird durch eine Fallstudie über die Balkanpolitik vor dem Ersten Weltkrieg und ein verhandlungstheoretisches Modell gestützt, das sowohl Wirtschaftspolitik als auch militärische Abschreckung berücksichtigt. Dieses Kapitel erweitert die handelspolitische Literatur durch die Einbeziehung nationaler Sicherheitserwägungen und die Literatur zum Handelsliberalismus („commercial liberalism") durch die Modellierung der Handespolitik als aktive Entscheidung statt einem externen Faktor.

Im dritten Kapitel wird die empirische Literatur über den Zusammenhang zwischen Handel und Konflikten um den Aspekt der ökonomischen Außenpolitik erweitert. Traditionell hat sich diese Literatur in die realistische und die liberale Denkschulen unterteilen. Während die Realisten den Standpunkt vertreten, dass Freihandel entweder negative oder keine Auswirkungen auf Krieg und Frieden hat, argumentieren die Liberalen, dass der Freihandel den Frieden sichert. Um diese Kluft zu überwinden, argumentiere ich, dass Handelsverflechtungen im Allgemeinen zu Frieden führen, auch wenn Staaten in der Lage sind, Asymmetrien auszunutzen und dies auch tun. Ich konstruiere empirische Messgrößen für die Hebelwirkung von Handel sowie den Einsatz von wirtschaftlichem Zwang. Darüber hinaus argumentiere ich aus theoretischer Prespektive, dass das Vorhandensein oder Fehlen von Handelsbeziehungen darüber entscheidet, ob sich Staaten in einer internationalen Krise für wirtschaftlichen Zwang oder militärischen Angriff entscheiden. Ich prüfe die theoretisch abgeleiteten Hypothesen anhand eines Datensatzes von Handelsströmen und Konfliktindikatoren aus der Zeit seit dem Zweiten Weltkrieg. Ich komme zu

dem Ergebnis, dass Staaten aufgrund ihrer Handelsmacht wirtschaftlichem Zwang den Vorzug geben, während ein Mangel an Handelsmacht sie eher dazu veranlasst, ihre Differenzen durch Krieg auszutragen.

Kapitel 4 befasst sich mit dem Problem des „sanction busting". Sanktionen sind ein gängiges Instrument der wirtschaftlichen Staatsführung, und Sanction Busting ist ein großes Hindernis für ihren Erfolg. Die Sanktionsforschung hat die Auswirkungen von Sanktionen auf den Handel mit Drittländern weitgehend vernachlässigt und sich stattdessen auf die Beziehungen zwischen dem Sanktionssender und dem Sanktionsziel konzentriert. Bislang gibt es keinen systematischen Überblick über die Faktoren, die die Umlenkung des Handels zwischen dem Absender und dem Zielland über ein Drittland während eines Sanktionsfalls bestimmen. Um diese Lücke zu schließen, formuliere ich in Kapitel 4 zunächst eine theoretische Darstellung des Sanction Busting, die sich auf die Eigenschaften potenziell sanktionsbrechender Drittländer konzentriert und nicht auf die Beziehung zwischen dem Sender und dem Zielland. Insbesondere arbeite ich heraus, dass die Staatskapazität von sanktionsbrechenden Ländern bisher als Faktor vernachlässigt wurden. Daraus ergeben sich zwei komplementäre Erklärungen für Sanction Busting: politisch motiviertes Sanction Busting aufgrund von politischem Kalkül und marktbasiertes Sanction Busting aufgrund wirtschaftlicher Anreize. Ich prüfe die aus diesem theoretischen Argument abgeleiteten Hypothesen empirisch, indem ich verschiedene Maße der Staatskapazität verwende und ihre Auswirkungen auf das Sanction Busting mit denen der politischen Ausrichtung vergleiche. Sowohl die Indikatoren der Staatskapazität als auch der politischen Ausrichtung stehen in Zusammenhang mit der Häufigkeit von Sanction Busting, wobei die Staatskapazität durchweg der wichtigere Faktor ist. Je schwächer die Staatskapazität eines Drittlandes ist, desto eher wird es zu einem Rechtsraum, über den Sanktionen umgangen werden. Schließlich zeige ich, dass die Einbeziehung von Messgrößen der staatlichen Kapazität in verschiedenen Machine Learning Algorithmen die Vorhersage von sanktionsumgehenden Handelsströmen deutlich verbessert. Abschließend stelle ich fest, dass die Berücksichtigung von Staatskapazität bei der Gestaltung von Sanktionen deren Erfolg im Vergleich zu einer ausschließlichen

Konzentration auf die politische Ausrichtung potenzieller Sanktionsumgeher verbessern wird.

Im letzten Kapitel fasse ich meinen Beitrag zum kollektiven Verständnis von ökonomimischer Außenpolitik zusammen. Darüber hinaus zeige ich konkrete politische Handlungsempfehlungen auf und lege Weiterentwicklungsmöglichkeiten für zukünftige Forschung dar.

Der Hauptbeitrag dieser Arbeit liegt in der theoretischen Definition der wirtschaftlichen Einflussnahme als Funktion der wirtschaftlichen Kosten, die sich Staaten gegenseitig auferlegen können. Diese Definition wird empirisch ergänzt durch eine Formulierung der Handelshebelwirkung als Funktion der relativen Marktenabhängigkeit von zwei interagierenden Staaten. Über diese wichtige Definitionsarbeit hinaus zeigt meine Dissertation, dass wirtschaftlicher Einfluss im weiteren Sinne und handelspolitischer Einfluss im engeren Sinne Staaten dazu veranlassen kann, wirtschaftliche Zwangsmaßnahmen dem Krieg vorzuziehen. Andererseits kann wirtschaftlicher Zwang in Form von Sanktionen scheitern, wenn es Staaten mit geringer Staatskapazität gelingt, die Bemühungen des Sanktionssenders zu sabotieren.

1

Introduction

1.1   Motivation

"[N]o one has ever suggested that foreign policy analysis is easy."
— David A. Baldwin

Economic statecraft is back. The international system has become multipolar, with the United States of America (USA), China, and the European Union (EU) vying for political and economic influence. This dissertation discusses how economic statecraft — the application of economic power in the realm of foreign policy — operates in this environment: how do states use their economic power to achieve their goals? How does economic power interact with military strength? When will the application of economic power reach its goals, when might it fail?

The importance of these questions is twofold. First, they are important scientifically, extending our collective understanding of sanctions, geoeconomics, and trade. Second, their answers have significant policy implications. With economic statecraft increasingly being deployed by state actors, the practical relevance of these questions has never been higher.

The resurgence of economic statecraft can be traced back to the end of the unipolar moment, with the United States ceasing to be the single predominant power in the world. At the same time, China has become a political and economic counterweight in the international system. The European Union has similarly sought to find its strategic autonomy, thinking about ways to navigate an international environment where economic coercion is prominent[1].

The last time the world saw a stable multipolar state system was before the outbreak of the first World War. After an extended spell of bipolarity during the Cold War, the collapse of the Soviet Union brought in a period of unipolar US domination of the state

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[1]For an in-depth discussion on strategic autonomy, see e.g. Lippert et al. (2019).

system. The US viewed itself as a benevolent hegemon, establishing and enforcing international rules and organizations. Until recently, the liberal hope was that a rules-based international system, combined with the peace dividends of globalization, would be the end of history (Fukuyama, 1992). Instead, thirty years after the fall of the iron curtain, we are confronted with the decline of international organizations like the World Trade Organization (WTO) and an increase in uses of economic coercion, like sanctions and trade wars. Previously, especially in the 1990s and early 2000s, trade issues had been decoupled from high politics and settled under the auspices of the GATT/WTO. Today, the WTO has lost much of its power and states are back to bargaining over trade bilaterally or in small groups. The US and China resolved their trade war bilaterally, so did the US and the EU. Similarly, Canada, Mexico, and the US revised their previous trade agreement, NAFTA, and instead implemented USMECA in July of 2020. Meanwhile, the Trump administration functionally disempowered of the WTO dispute settlement mechanism by refusing to nominate new judges, and the Biden administration has been reluctant to change this new status quo.

The result of these and other developments is a resurgence of economic statecraft, the use of economic coercion against other countries to reach political goals. Issue linkage has brought trade and national security back into symbiosis.

Two contemporary examples serve to illustrate this point. First, the Nord Stream 2 pipeline, built to deliver natural gas from the Russian Federation to European energy markets, has produced real friction between the United States and their nominal EU and NATO allies. EU countries, especially Germany, see the pipeline as a provider of economic value — easier access to gas equals cheaper energy. The United States, as well as Ukraine and Poland, disagree. They claim Russia seeks to increase its economic leverage over EU countries. Russia could use the reduction of gas exports to Europe as a threat, whenever a political disagreement between the EU and Russia arises. Furthermore, so the argument[2] goes, this provides Russia with an easier way to pressure Ukraine

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[2]See e.g. Kramer (2021).

economically. The Kremlin could now decide to turn off gas deliveries to Ukraine but still provide them to the EU via Nord Stream 2.

US sanctions on companies and individuals affiliated with the pipeline proved futile in the end, as the pipeline is set to go online within a year. This case illustrates multiple aspect of economic statecraft: Russia allegedly builds up economic leverage vis-a-vis the EU, while at the same time seeking to undermine reliance of the EU on natural gas provision via Ukraine. The United States sought to economically pressure the EU to cease construction of the pipeline, an application of economic statecraft in the form of sanctions. In the end, European energy needs won out over security and alliance considerations.

Second, while European leaders seem to disagree with their ally across the Atlantic on questions of energy policy, they have been relatively united in their efforts to confront China. The Biden administration emphasized multilateralism when coordinating sanctions against Chinese entities with Canada and the EU in early 2021. The sanctions were squarely aimed at a non-economic issue, i.e. the human rights violations against the Uyghur minority in Xinjiang. The Chinese government reacted in kind, imposing travel bans on various members of the European Parliament in March 2021.

The most significant consequence of this dispute was only on its face incidental: towards the end of 2020, the EU and China had finalized a foreign investment treaty, the CAI (EU-China Comprehensive Agreement on Investment). Its ratification is now threatened, as European Parliamentarians are not inclined to look lightly upon the sanctioning of their colleagues. Disagreement on human rights caused a sanctions tit-for-tat, which in turn spilled over into substantive trade and investment ramifications — economic statecraft in action.

These two cases illustrate the practical issues my dissertation draws inspiration from. But do they constitute a broader trend? Or is a reversion to the mean of international cooperation imminent? This thesis is built on the assumption that recent instances of economic conflict are not mere aberrations but will constitute the status quo for the foreseeable future.

Two arguments help to make this assumption plausible. First, consider the fact that what is commonly called the 'liberal international order', especially the GATT (circa 1949 - 1995) and later the WTO (since 1995), was largely constructed and held up by the United States (Irwin et al., 2009). This, however, has changed in recent years. Mattoo and Staiger (2020) provide a view of the recent Trump presidency related trade wars (especially with China) that is grounded in the long term strategic trade interests of the US: as long as the United States were the hegemonic power on the world stage, they could profit from tying their hands with GATT/WTO rules in order to induce participation of weaker countries in the international trade system. On the other hand, "the enlightened self-interest of a declining hegemon" (ibid. p. 576) will probably lead the US to continue to use its bargaining power more aggressively during a phase of "hegemonic transition" (ibid. p. 570). The rise of China constitutes such a transitional phase. The US has ceased to be the predominant power and thus it is no longer in their rational interest to abide by the rules. Instead, they gain more from using their still considerable bargaining power to directly negotiate tariff rates and terms of trade. According to Mattoo and Staiger, the new status quo of direct tariff bargaining will stay in place until a new hegemon rises. Only such a hegemon has both the incentive and the power to back a rule-based system of international trade.

Second, and closely related, this will lead to an increase of issue linkage, both today and tomorrow. As the WTO looses influence, states will continue to pivot to smaller Regional Trade Agreements (RTAs), or even bilateral trade pacts. In this mode of negotiation, security issues are likely to be on the table as well. For instance, President Trump wanted to condition the provision of the THAAD missile defence system to South Korea on trade concessions by the South Korean government[3]. As will become apparent in Chapter 2 of this dissertation, such issue linkage is not novel, if put into a wider historical context. Before the end of World War II, the linkage of trade issues, investment decisions, and external and internal security questions was a natural form of statecraft. If the GATT/WTO system is based on norms, a normalization of issue

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[3]See e.g. (Woodward, 2018, ch. 13).

linkage symbolizes a change in these norms, and thus a return to the pre-GATT status quo. Trade-to-security issue linkage is here to stay.

To reiterate, this is not intended to provide a conclusive and deterministic argument about the transformations inside the international system. Certainly, we cannot know what the future holds. However, the plausibility of the structural changes described above reinforce the timeliness of the thesis presented here. The return of economic statecraft requires scholars and policy makers alike to think carefully about what constitutes economic leverage and how states use it. My thesis contributes to answering these questions.

1.2 Framework and previous literature

In the following, I shortly describe my own contribution to the study of economic statecraft[4], which is the subject of chapters 2 through 4. Subsequently, I summarize key literature that is relevant to the whole research project and couches the different chapters in the overall narrative of the dissertation. I exclusively survey literature that is key to my overall narrative here. In addition each substantive chapter contains its own literature review, focused on the more specific research question therein.

1.2.1 Overview of contributions

Taking the dissertation as a whole, the main theoretical puzzle to be answered is thus: **Economic statecraft — what is it and under which circumstances does it work?**

In order to answer this overall research question, I divide it into several easier to tackle subquestions. Thus, chapter 2 theoretically defines the notion of economic leverage and discusses the theoretical mechanism by which economic statecraft works. Chapter

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[4]I define economic statecraft as the use of economic power, be it trade, investment, or financial flows, to reach foreign policy goals. The same definition has been used to describe the terms geoeconomics (Blackwill and Harris, 2016) or weaponized interdepence (Drezner et al., 2021). I make no further distinction between these terms.

3 empirically establishes the role of economic statecraft and its relationship to war. Lastly, chapter 4 looks at the possible failures of economic statecraft via the mechanism of sanction busting.

To begin with, chapter 2 approaches the topic of economic statecraft from a theoretical point of view. The concept of economic leverage is intuitively plausible but lacks a clear formal definition. This is remedied in the second chapter: I understand economic leverage to be a symmetric relational variable between two states, depending on their relative gains from trade. This basic definition is then illustrated and refined in two ways. First, I demonstrate its importance via a historical case study. Looking for analogies to the present multipolar moment, I locate interesting parallels in the relationship between Austria-Hungary and Serbia up to 1914. The case of pre-World War I Balkan politics illustrates what the (lack of) economic leverage means for interstate relations, and how we can draw analogies to the multipolar moment of today. Second, I provide a game-theoretical model, formalizing how economic leverage works in a bilateral coercive bargaining situation. My model illustrates not only that economic leverage matters, but when it succeeds and under which circumstances it might lead to disastrous outcomes. In particular, a continued application of economic coercion leads to a decrease in economic leverage and thus makes violent conflict more likely.

I continue and extend the latter reasoning in Chapter 3. While Chapter 2 does the conceptual and theoretical groundwork, Chapter 3 seeks to substantiate the role of economic statecraft via large-N statistical analysis. To this end, I assemble a dataset of trade flows and military confrontations and estimate a range of regression models. Using these data to test a number of theoretically derived hypotheses, I show that states resort to economic coercion when they have trade leverage beyond a certain threshold. On the flip side, a lack of trade leverage leads them to choose violence to solve interstate conflicts. This chapter demonstrates that both realist and liberal policy prescriptions fall short because each school of thought postulates an incomplete picture of the empirical relationship between trade and war. In contrast, a refocus on economic statecraft as a substitute for war produces a more accurate picture of international relations.

Chapter 4 narrows the focus to one specific instrument of economic statecraft: sanctions. Sanctions are an essential tool employed by the EU and the US, as well as by the international community collectively in the form of UN sanctions (Weber and Schneider, 2020b; Drezner, 2021). Following the general analysis of economic statecraft and its connection to military conflict, a focus on the major tool of economic statecraft is now in order. Chapter 4 also indirectly contributes to chapters 2 and 3, as instituting economic sanctions can be seen as an illustration of arguments about economic statecraft, and especially economic coercion, at large. Consequently, chapter 4 is concerned with the universe of cases where at least some economic leverage is present, such that sanctions are instituted.

In particular, I use chapter 4 to develop an account of *sanction busting*, the circumvention of sanctions for the purpose of economic or political gain. I extend the sender-target dichotomy traditionally used in the sanctions literature to include third countries that may act as sanction busters. I find strong evidence that the state capacity of these third countries is a key determinant of their sanction busting activity, even more so than their political alignment with the sanction target. I argue that this is due to economic incentives, with private firms identifying legal jurisdictions with a permissive attitude towards sanction busting — those with low levels of state capacity. In these jurisdictions, they can set up subsidiaries or cooperate with locals in order to circumvent sanctions without the danger of getting caught. States that seek to promote their interests via sanctions should focus their enforcement actions on countries with weak administrative states. Sanction policy is one instance of economic statecraft, ensuring their effective implementation is key if policy makers wish to reach their goals. With economic statecraft in resurgence, questions like enforcement gain practical as well as theoretical currency.

Together, these three chapters enrich our collective understanding of international relations by providing a theoretical and empirical account of economic leverage. In addition, they establish the role of economic statecraft and its relationship to war.

As a foundation of my own contribution, I engage with the up-to-date literature found in the disciplines of economics, political science, and, to a lesser extent, the historical studies

of the first World War. This interdisciplinary approach is motivated by the subject under study itself: trade policy has traditionally been inside the domain of economists, whereas international relations scholars have investigated how conflicts between states arise, and under which circumstances they turn into wars. In cases where these areas of investigation intersect, like in the sanctions literature, studies are often conducted in an interdisciplinary environment (e.g. Van Bergeijk et al., 2019; Felbermayr et al., 2020a,b; Gartzke and Lupu, 2012).

1.2.2 The origins of economic statecraft

The obvious starting point for any work with "economic statecraft" in its title is Baldwin's seminal book *Economic Statecraft*, as well as its most recent reprint (Baldwin, 1985, 2020). Therein, Baldwin gives the most influential account yet of economic tools for foreign policy, including sanctions, international trade, and economic aid. Before and since then, each of these policy tools has been the subject of its own strand of literature. My theses as a whole focuses mainly on international trade aspects of economic statecraft, including the impact of economic sanctions, thus paying special attention to the current research programs around these topics.

1.2.3 International trade

A general theory of international trade can provide a foundation for an analysis of trade policy as a foreign policy tool. Economists generally agree that international trade is a net positive for the states participating (Ricardo, 1891; Krugman, 1994; Frankel and Romer, 1999). States accrue large absolute gains from trading with each other. However, while the principle of comparative advantage ensures that international trade is pareto efficient on the state level, domestically there are winners and losers. These losers are bound to oppose trade liberalization, and a number of studies[5] have theoretically

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[5]The question of which societal groups are likely to lobby for, and profit from, protectionism has spawned a large swath of literature of its own. Two types of models have emerged to answer this question: factor models and sector models. On the factor side, Stolper and Samuelson (1941) use the

and empirically linked these interests to protectionist policies. In models of domestic politics, protectionism is largely attributed to lobbying by import competing interest groups (Grossman and Helpman, 1994, 1995; Mayer and Li, 1994; Goldberg and Maggi, 1999; Ossa, 2014; Anesi and Facchini, 2019). Even in a setting of interstate bargaining about trade policy, the main theoretical finding that "higher tariff rates will emerge in industries that are politically organized" (Grossman and Helpman, 1995, p. 705) remains unchanged. These authors are careful to make ceteris paribus statements, thus only claiming that domestic economic factors play a distinct role, however not being the only ones determining trade policy and the level of protectionism in any given country. They merely remain silent on how further considerations, for instance in foreign policy, might influence trade policy making. In the context of division of academic labor, this makes sense: economists provide estimates of the economic effects of trade as a component for further theory building, without focusing on the foreign policy aspects of trade and protectionism.

It falls to political scientists, and other scholars of statecraft, to extract and investigate key questions of how trade is related to other aspects of politics, in particular foreign policy. One long-standing debate that is especially relevant to my own contribution is the disagreement over the relationship between trade and peace. Two competing schools of thought have emerged regarding this question. Liberals claim that trade dependence pacifies interstate relations, while realists maintain that trade dependence does not cause peace — and might even make relationships more conflictual. As will become evident in the following subsection, the economic logic of comparative advantage gives a special force to the liberal argument.

Heckscher-Ohlin general equilibrium model of trade (Ohlin, 1935) to show that the abundant factor in a liberalizing country sees rising returns/wages, while the scarce factor sees decreases in returns/wages. This distinction relies on the assumption that production factors, i.e. labor and capital, are mobile between sectors. If this assumption is abandoned, sector cleavages come to the forefront. In models where capital and labor are sector specific, trade policy cleavages arise between sectors instead of factors (Beaulieu, 2002). More recent work in this field has found that trade liberalization and offshoring leads to backlash against globalization (Margalit, 2011; Autor et al., 2016; Owen and Johnston, 2017; Margalit, 2019; Autor et al., 2021).

1.2.4 Trade and conflict

During the first age of globalization, from about 1870 to 1913, trade increased manifold (Pascali, 2017). Before the first World War, the general consensus among the Western intelligentsia was that these trade flows were so massive that a trade-destroying war would be unthinkable. In other words, the loss of trade between enemies during a major war would make such a scenario prohibitively costly. Norman Angell made this argument powerfully in 1909, pointing out that then, for the first time in history, the losses from trade would outweigh any gains from captured resources during a hypothetical war (Angell, 1911)[6]. Even though his argument, if taken as a prediction, suffered a crucial blow by the outbreak of World War I just a few years later, it also spawned an influential research agenda in the so-called liberal international relations literature. Angell's thesis experienced a major resurgence in the context of the Kantian peace research program towards the end of the 20th century (Oneal and Russett, 1999). This corresponding literature formulates three factors that supposedly lessen the likelihood of war and thus promote peace: democracy, international institutions, and international trade (Oneal and Russet, 1997; Russett and Oneal, 2001). The last element of this Kantian tripod came to be known as *commercial liberalism*[7]: the claim that trade between states leads to these states having a peaceful relationship. Commercial liberalism is of special relevance to chapters 2 and 3 of my dissertation, hence I summarize it in the present section[8].

As a counterpoint to the liberal thesis, realist scholars have developed an opposing empirical argument, embodied by the claim that "trade follows the flag" (Keshk et al., 2004). In their view, trade goes to allies and not to adversaries, turning the causality on its head. Trade does not prevent war, but peace causes trade. Empirically, the realists (e.g. Barbieri, 1996, 2002; Keshk et al., 2004; Kim and Rousseau, 2005) attempted to

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[6]For a more general account of the societal (i.e. non-economic) atmosphere before the outbreak of WWI, see Neiberg (2011). I review the literature on the validity of WWI as a killing blow to commercial liberalism in chapter 2.

[7]The term itself is due to Nye (1988, p. 246), even though he attributes the term to an unpublished work by Keohane (ibid, fn 20).

[8]For a paper length survey of that literature, see e.g. Mansfield and Pollins (2001); Schneider (2010).

show that trade interdependence may cause war, or at least that there is no pacifying effect, the opposite of what was claimed by the liberals.

In addition, realists argue that states should be wary of increasing trade, as they are less concerned with absolute gains rather than relative gains. Whereas absolute gains describe the overall increases in economic welfare or other utility, relative gains describe the gains and losses vis-à-vis a (potential) opponent. If states are "defensive positionalists"(Grieco, 1990) then they care more about relative gains instead of absolute gains. Hence, what matters concerning trade are not the gains in absolute welfare, but how these are distributed between different states.

These realist arguments have been hotly debated, with counterarguments in favor of absolute gains by Powell (1991) and Morrow (1997), and further rebuttals in Powell (1993). The present dissertation engages with this literature mainly in chapter 2 and in chapter 3. In the game-theoretical model evaluated in chapter 2, considerations of both absolute gains and relative gains drive the behaviors of the players. In chapter 3, I show empirically that both realist and liberal mechanisms are present when considering the trade-conflict nexus.

Naturally, the liberals did not agree with the realists' conclusions and put forth their own approaches and research designs. Reacting to Barbieri (1996, 2002) in particular, Xiang et al. (2007) show that the realist results, i.e. that trade interdependence causes war, do not hold. When controlling for a previously missing confounder, dyadic power asymmetry, they find that trade does indeed lead to peace. Similarly, Hegre et al. (2010) use a simultaneous equation design to challenge the findings of Keshk et al. (2004) as well as Kim and Rousseau (2005), again reaching the conclusion that trade causes peace.

The credibility revolution reached this literature when Martin et al. (2008) employed an instrumental variable approach to tackle the direction of causation between the level of trade and peace. They find that bilateral trade does make military conflict less likely, but multilateral trade[9] can generate the opposite effect. They argue that this finding

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[9]Multilateral trade in this case refers to the general openness of a state to trade with all other countries, while bilateral trade is measured between two countries.

might be due to multilateral trade being a possible substitute for trade lost from an active conflict.

Chapter 3 of this dissertation engages with the empirical literature on the trade-conflict nexus in detail. As Martin et al. (2008) show, trade is not a conceptual monolith. In a separate study by Martin et al. (2012), the same authors theoretically and empirically investigate the decision of states to enter regional free trade agreements. They find that future peace dividends are an incentive states have to enter such agreements, in addition to gains from trade. Importantly, conceptualizing trade as a choice, instead of an external constraint, allows for a more complete picture of the relationship between trade and peace. My own work in chapters 2 and 3 explicitly endorses this approach. It will turn out not to fall neatly into either the realist or the liberal camp.

Copeland summarizes both these schools of thought as follows:

> "While the two camps [i.e. liberals and realists, comment mine] freely use the term 'interdependence,' both derive predictions from how particular decision-making units — states — deal with their own specific dependence. This allows both theories to handle situations of 'asymmetric interdependence,' where one state in a dyad is more dependent than the other. Their predictions are internally consistent, but opposed: liberals argue that the more dependent state is less likely to initiate conflict, since it has more to lose from breaking economic ties; realists maintain that this state is more likely to initiate conflict, to escape its vulnerability." (Copeland, 1996, p. 12)

The position I take in this dissertation is that both cited positions are incomplete. Liberals and realists equally view trade as a static external variable before states decide whether or not to go to war. A high level of trade enters the states' decision calculus differently from a lower level of trade. Then, if war occurs, trade flows decrease. Both schools of thought miss that trade and trade dependence can be actively used in lieu of war — as economic statecraft. Asymmetries in trade are ready to be exploited as an alternative to military statecraft, the use of military power to reach foreign policy

goals. States can reduce trade in the absence of war, by instituting trade blockades or sanctions. Analyzing this behavior is not possible without considering a model where trade is a key choice variable, not only an external constraint. I take this crucial step in chapter 2. In chapter 3, I proceed to show how these connections can be observed in a large sample of historical data.

1.2.5   Economic sanctions

Chapter 4 deals with one specific instance of economic statecraft: sanctions. In particular, my work analyzes economic sanctions, as opposed to, e.g. diplomatic or narrowly targeted financial sanctions. Following (Hufbauer et al., 2009, p. 3), I understand economic sanctions to be "the deliberate, government-inspired withdrawal, or threat of withdrawal, of customary trade or financial relations".

The sanctions literature has focused extensively on questions of imposition and effectiveness. The effectiveness question is especially relevant for policy makers in sanction sender states - they want to know whether they can reach their goal with the help of this specific instrument. In an influential study, Galtung (1967) charted the conditions under which sanctions are effective in reaching their stated goals. However, in his case study of Rhodesia, he concludes that they mainly failed. Decades later, Hufbauer et al. (1990) challenged that received wisdom with a more sophisticated statistical study[10]. Since then, the academic conversation on sanction effectiveness has notably diversified. In particular, different studies have found mixed effects of sanctions. These include, for instance, negative (Marinov, 2005; McLean and Radtke, 2018), positive (Peksen and Drury, 2010), and mixed (Escribà-Folch and Wright, 2010) effects of sanctions on the survival of sanction target leaders.

My contribution in chapter 4 is based on the assumption that sanction busting is an important component of sanction effectiveness. I use this as a starting point to determine the predictors of successful sanction busting. Sanction busting was already discussed

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[10]However, see Pape (1997) for a challenge to that book, and Elliott (1998) as well as Drury (1998) for further contributions to that debate.

as a possible counter strategy in Galtung (1967), and has received renewed attention especially in recent work by Brian Early and his coauthors (Early, 2009, 2011, 2015; Early and Spice, 2015). The relevance of sanction busting to sanction success is thus well-established. Hence, I focus on the different possible mechanisms of sanction busting. Starting from economic theory, I test competing hypotheses on the causes of sanction busting. My empirical work in chapter 4 provides strong evidence that state capacity is a major predictor of sanction busting activity: states that score low on indices of administrative quality are more likely to be jurisdictions through which sanction busting trade flows.

What does this mean for economic statecraft? Sanctions are part of the foreign policy toolbox of states. The evaluation of this tool illuminates its effectiveness and provides policy makers with a solid foundation for discussions on sanction implementation and enforcement.

1.2.6 Multipolarity

One theme pertinent to all three chapters is multipolarity. The term multipolarity, like bipolarity and unipolarity, describes a certain balance-of-power situation in the international system. Whereas in a unipolar system there is one predominant power (or pole) on the world stage, a bipolar system consists of two states or alliance blocks vying for influence. The Cold War is the predominant example for such a bipolar system, until the fall of the Soviet Union left the US as the sole power in a unipolar system. As I have already argued, the world today finds itself in a multipolar system. The power poles of this system are the United States, a great power in decline, China, a great power on the rise, and the European Union, a confederation of states that constitutes a major trading block, but seems still unsure whether it wants to be a great power on the world stage (Gehring et al., 2017)[11].

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[11]The question whether Russia or India deserve to be included in such a list can not be discussed here due to a lack of relevance. The answer does not bear on any of the substantial arguments made in this dissertation.

Past research into the nature of the state system has been focused on the differences in stability[12] between unipolar, bipolar, and multipolar systems. Structural realism, a school of thought that arose during the Cold War, emphasizes the stability of the bipolar system as opposed to a multipolar one (Waltz, 1964, 2010)[13]. The lack of major war between NATO and the Warsaw pact is the most illustrative point in favor of this realist postulation.

After the end of the Cold War, the United States were the only superpower left. Consequently, some realists argued that this would increase the risk of major war, as the stabilizing structure of bipolarity had fallen away with the end of the Soviet Union (Mearsheimer, 1990). Being less deterministic, but writing under the impression of the beginning Balkan Wars in the 1990s, Waltz (1993, p. 50) postulated three candidates for great power status in the two decades ahead of his writing: China, Japan, and Germany (or a West European state). He was right on one-and-a-half counts: China has become a great power, and the European Union is struggling to define itself as such, while Japanese politics have continued to focus on the domestic sphere.

I do not weigh in directly on this stability literature, but the whole dissertation is written under its impression. First, following the structural realists without endorsing their whole research agenda, I assume that a multipolar world allows for more dyadic conflicts to arise (Rosecrance, 1966). Consequently, the usage of economic statecraft will become more likely, reiterating the point that the present dissertation comes at the relevant time. Independently of whether the multipolar moment will last, it will inevitably be shaped by sanctions, trade wars, and everything in between.

Second, large swaths of the classical literature on economic statecraft were written in the shadow of the Cold War (Hirschman, 1945; Baldwin, 1985). The currently present multipolarity does not have an analog in the second half of the 20th century. Instead,

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[12]Stability can be defined "as the probability that the system retains all of its essential characteristics; that no single nation becomes dominant; that most of its members continue to survive; and that large-scale war does not occur." (Deutsch and Singer, 1964, p. 390). Note that Waltz (1964) shared this definition implicitly, but argued against it in Waltz (1993), explicitly distinguishing between peace (i.e. absence of a major war) and stability.

[13]See Deutsch and Singer (1964) for the opposing view, and for an in-depth discussion of both, see Rosecrance (1966).

following Waltz (1964), I argue in chapter 2 that we should look to the multipoliarity of Europe before World War I for instructive examples.

Lastly, in a multipolar system, state relationships should be analyzed in models that include third parties. Consequently, in chapters 2 and 3, I construct my measure of economic leverage with theoretical and empirical connections to third countries in mind. However, chapter 4 might provide the clearest connection to multipolarity: any investigation of sanction busting expands the number of relevant actors from two (the sender and the target) to include at least a third — the sanction buster.

In summary, my dissertation significantly contributes to two areas of international relations scholarship. In detail, Chapters 2 and 3 provide major theoretical and empirical contributions to the trade-conflict literature. In addition, chapter 4 substantively extends the already present literature about economic sanctions, specifically the empirical body of work on sanction busting.

1.3 A note on policy relevance and methods

As already stated, chapters 2 through 4 of the present work deal with the issue of economic statecraft along different dimensions and employing various analytical methods. In order to do so, I engage with the wide-ranging academic literature, which represents the current empirical and theoretical state of the art. I also apply the appropriate methods, which have increased in their formal and computational sophistication in recent years and decades. Unfortunately, there seems to be a tension between up-to-date methodology and policy relevance in the field of international relations. This section lays out how I approach this tension.

First and foremost, I selected the topics to be discussed in the three substantive chapters of this dissertation because they have proven to be relevant and timely. Opening a newspaper in 2021 will provide the reader with ample contemporary examples of economic statecraft. The European Commission is seeking to implement an anti-coercion measure this year (Hackenbroich and Zerka, 2021; European Commission, 2021). The

US treasury department is implementing and enforcing sanctions against other countries on a rolling basis. The Chinese government is continually building up economic leverage, in Africa, Europe, and South America (Horn et al., 2019, 2021) and also implementing its own anti-sanction tool (Drinhausen and Legarda, 2021).

All of these developments pose challenges for policy makers today. Is decoupling[14] an appropriate response to the rise of China? How should a European anti-coercion measure be designed? What is the most efficient way to enforce US sanctions? What is Chinese leverage worth, and how could it be mitigated?

The conclusions I provide in the following chapters, and the responses to these challenges, might in some cases not reach the highest level of scientific evidence, embodied by the randomized control trial. But for decision makers, the perfect can be the enemy of the good. Questions that elude treatment with up to date methodological innovations run the risk of being ignored by social scientists, even if their answers might be of crucial practical importance. The data might not be available or there might not be a suitable natural experiment. But policy choices will be made regardless of whether a randomized control trial has rigorously identified the causal effect of each possible alternative. Social scientists should do their best to contribute to solving policy challenges, even if their methods must be somewhat dirty from time to time.

A similar argument is made by Desch (2019)[15], who has charted the historical trajectory of the social sciences, especially international relations scholarship, with respect to its policy relevance. Focused exclusively on the US context, he argues that the "bridge between the Ivory Tower and the Beltway" (i.e. the Washington, D.C. policy making establishment) has crumbled. The social sciences were at the apex of their influence during the Second World War and, to a lesser extent, during the Cold War. But now they have lost most of their policy relevance. According to Desch, articles in top publications often turn out to be irrelevant to policy makers, eschewing pressing issues that are not accessible with state of the art empirical and theoretical methods. As I will discuss especially in chapter 2, a significant amount of relevant writing has been produced in

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[14]Decoupling can be defined as the conscious reduction of trade and investment interdependence.
[15]Supporting empirical work can be found in Avey and Desch (2014).

the think tank world[16]. Anecdotally, there seems to be a disconnect between academic writing on economic statecraft and policy focused output on the same topic. Of course, that latter type of writing is not without its own weaknesses. Rigorous empirical analysis is often lacking and theoretical arguments often rely on common sense rather than the spelling out of assumptions.

The holy grail of causal social science research, of which international politics is considered a sub-field, is the (natural) experiment. Natural experiments are extremely hard to identify in international relations. The number of cases is often low, and the quality of available data is highly heterogeneous. In an ideal world, in order to identify the causal effect of trade conflicts on the subsequent incidence of military confrontation, for example, researchers would randomly assign trade wars to country pairs. Evidently, this is neither possible nor ethical. Alternatively, we would like to identify other sources of exogenous variation in trade relations, as in instrumental variable approaches or regression discontinuity designs. If this is also not possible, the choice is between applying the methodological toolkit to a more suitable question or approaching the research question with a different method. In my dissertation, I have chosen the latter option.

As discussed above, I focus on what I consider to be practically relevant research questions in my dissertation, but do so with the methods scientifically appropriate. Ideally, my dissertation bridges the gap between "the Ivory Tower and the Beltway", which Desch bemoans.

As a consequence, each of the three substantial chapters in this dissertation includes policy prescriptions that can be implemented, if so desired, by policy makers, or insights they should keep in mind when deciding on how to tackle a given challenge. Nevertheless, the analysis underlying my prescription is based on sound scientific methodology. Empirically, I employ a wide range of methods, from a historical case study, to regression analysis and machine learning algorithms. To make theoretical discussions as clear as possible, I draw on the game theoretical bargaining literature. This allows me

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[16]See e.g. Blackwill and Harris (2016); McCormick et al. (2020); Farrell and Newman (2019); Drezner et al. (2021); Leonard (2021). These are reviewed in detail in section 2.2.

to make assumptions explicit and formulate unambiguous conditions under which my results should hold.

2

Overshadowed liberalism: Economic coercion during interstate disputes

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2.1   Introduction

"The First World War was the Third Balkan War before it became the First

World War." (Clark 2014, p. 242)

This chapter seeks to answer two questions: (1) What is economic leverage? (2) What is the theoretical mechanism describing how states use economic leverage to attain their goals?

If, instead of Archduke Franz Ferdinand in 1914, a different Austrian official had been assassinated five or ten years earlier, World War I might not have happened. Instead of global destruction on a scale previously unimaginable, a sanctions dispute or a trade war between Austria-Hungary and Serbia might have sufficed to settle a rising conflict. But history turned out differently, and the reasons why it did can yield insights into foreign policy making even today.

In this chapter I argue that the origins of the Third Balkan War, and thus World War I (WWI), go back to the depletion of economic leverage by the Austro-Hungarian Empire vis-a-vis Serbia. The decision makers in Vienna could originally draw from a toolbox of foreign policy tools, from diplomacy and economic coercion up to military posturing and including full out war. Employing insights from the historical literature of pre-WWI Austria-Hungary - Serbia relations, I show how economic leverage — the ability of Austria-Hungary to coerce Serbia economically — was slowly depleted in the first decade of the 20th century. This depletion limited the foreign policy tool box of politicians and other decision makers, leaving only the ultimate option of war in the face of Franz Ferdinand's assassination in June of 1914.

This analysis motivates the two questions discussed in this chapter: (1) What is economic leverage? (2) What is the theoretical mechanism describing how states use it to attain their goals?

To answer the first question, I define and discuss the concept of *economic leverage*, which is already implicit in large swaths of international relations literature, but nevertheless worth spelling out. For example, the commercial liberalism literature posits that economic bonds between states pacify them by increasing the opportunity costs of war. However, this assumes that trade is a factor determined externally, only constituting a constraint on states' decision calculus. The only decision states can make, in this view, is whether to go to war and thus give up most of the gains from trade or, alternatively, to retain the status quo. But this picture is incomplete to a great extent. If there is trade, there is economic leverage, which enables states to use their economic weight in order to achieve their political goals. Crucially, states are painfully aware of this, as Mearsheimer (1990) points out:

> "States will struggle to escape the vulnerability that interdependence creates, in order to bolster their national security. States that depend on others for critical economic supplies will fear cutoff or blackmail in time of crisis or war; they may try to extend political control to the source of supply, giving rise to conflict with the source or with its other customers."

To answer the second question, I start by analyzing the historical case of Austria-Hungary and Serbia. From this historical analysis I construct a more generalized argument about the role of economic leverage in interstate relations, formalized in a game theoretical model. In conjunction, these approaches shed light on the role of economic statecraft in the foreign policy tool box of sovereign nations. The role of economic statecraft is likely to increase in the multipolar moment of today, a moment that shares a large number of characteristics with the situation in Europe on the eve of World War I. Consequently, I derive some implications for the relationship between Austria-Hungary and Serbia in 1914, but also provide more contemporary examples.

This chapter focuses mainly on a historical case study, but contemporary anecdotes abound. Chinese investments in south-eastern European countries are intended to buy influence on a national level as well as Sino-friendly voting behaviour in the EU. Due to extensive economic investment, China might be able to put pressure on vulnerable EU

members by applying economic coercion. For instance, in June 2021 Hungary blocked a EU foreign policy statement critical of the Chinese government's actions in Hong Kong (Reuters, 2021b), while at the same time courting further Chinese investments in the Hungarian domestic economy (Brattberg et al., 2021, p. 27-39). EU foreign policy is conducted on the principle of unanimity, such that every memberstate represents a veto point. Thus, Chinese economic pressure needs to succeed only in dissuading one EU member from taking unwelcome policy stances towards China[1]. The Kremlin has been using its natural gas resources to pressure its neighbors, and is seeking to further increase its leverage via the construction of the Nord Stream 2 pipeline. Still, this behavior is not exclusive to autocratic countries. The Trump administration abandoned a broad bipartisan consensus in international politics, including US commitments to international organizations and the 'rule-based international order'. Not only has it refocused US trade policy from the World Trade Organization to bilateral negotiations, but has also consciously begun substituting tariffs for sanctions (Forrer and Harrington, 2019). Forrer and Harrington cite the example of US sanctions and tariffs against Turkey in August of 2018. In that case, both sanctions and tariffs were used to pressure the Turkish government to concede on various policy issues. Their example shows that tariffs and sanctions were seen as substitutes by the Trump administration. Which tool was used was determined more by domestic political considerations than the type of policy target, related to trade or not (Forrer and Harrington, 2019, p. 26).

Looking at these examples, as well as the historical case study in section 2.3, an answer to the second question manifests itself. What becomes apparent in these real world cases is that states increasingly come to see their trade and investment flows as leverage. They can be used to reach different goals, independent from trade issues, in particular related to external security interests. States build up their leverage for later use, as is happening with Chinese investment in Europe or the Nord Stream 2 pipeline. They are also acutely aware when economic leverage is missing, as I demonstrate in detail in this chapter.

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[1]For an extensive discussion on Chinese economic pressure in Europe, see Brattberg et al. (2021), and without a specific European focus see Horn et al. (2019, 2021).

In view of these examples, I aim to establish an account of trade policy in its role as economic leverage. Several strands of literature, which I summarize in section 2.2, have contributed to this space. In section 2.3, I go in depth on the historical argument sketched above, and from its narrative I develop my hypotheses. Section 2.4 introduces a game theoretical model that formalizes the historical argument. The final section concludes and puts the results in a broader context.

2.2 Related literature

This chapter draws information from different areas of literature, which are now classified and summarized in turn. First, the *economic statecraft* literature speaks most directly to the research question of how states use their economic statecraft in order to achieve their international goals. Second, the *commercial liberalism* literature aims to establish the link between trade and peace, and hence crucially informs my own treatment of this relationship. Third, I engage with the formal *bargaining and deterrence* literature upon which my game theoretical model is built. Finally, in section 2.3 I also reference the appropriate historical literature relevant to my case study of Austria-Hungary and Serbia.

2.2.1 Commerce and conflict

As cited in the first chapter of this dissertation, the foundational text on economic statecraft is Baldwin (1985). Therein, he provides a sweeping overview of different instruments of economic statecraft. In particular, this work is impressive in its theoretical sophistication, which is supplied by several case studies. Building on a more holistic understanding of what constitutes "success" in economic statecraft, Baldwin reevaluates instances of embargoes and sanctions that previous scholars had dismissed as failures.

40 years before Baldwin, Hirschman (1945) introduced a theory of the effects of trade interdependence on national power[2]. He explicitly analyzes the role of trade as bargaining power, as does Wagner (1988). However, Wagner disagrees with Hirschman's analysis and constructs a bargaining model based on differences in discount rates and under full information.

It is worth mentioning that much of the recent literature on economic statecraft is produced and published by "think tanks" and other policy-adjacent publications, rather than academia (e.g. Blackwill and Harris, 2016; McCormick et al., 2020; Farrell and Newman, 2019; Drezner et al., 2021). Blackwill and Harris (2016), for instance, survey a wide variety of economic instruments used to make foreign policy, including finance, investment, and trade. However, their book is focused on descriptions of policies and prescriptions for grand strategy, rather than rigorous theoretical or empirical analysis. Similarly, McCormick et al. (2020) focus on concrete prescriptions for US lawmakers on how to "better [. . .] sustain the country's economic might and leverage it in the service of American primacy" (ibid p. 51). By contrast, Farrell and Newman (2019) as well as Drezner et al. (2021) take a network approach to assess asymmetries in the international system and their effect on foreign policy, particularly from a US perspective. They focus on the role of the United States as a hub for international communication and finance. While this substantial focus is different from my own, their theoretical arguments run in parallel with mine: interdependence can be exploited by states to attain their goals.

On the academic side, the commercial liberalism research program in particular spawned a large swath of literature, both empirical and theoretical. As this chapter is predominantly theoretical, I will mainly focus on those latter contributions here. The empirical literature on commercial liberalism is summarized in chapters 1 and 3, and can additionally be found in a review by Schneider (2010).

McDonald (2009, p. 11) identifies five different mechanisms by which trade pacifies interstate relations. First, the classical opportunity cost argument (Angell, 1911; Polachek, 1980; Russett and Oneal, 2001), according to which states will refrain from war

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[2]For a history and conceptual analysis of the term "interdepence", see Baldwin (1980)

if armed conflict imposes foregone profits from trade upon them. Second, conquest looses attractiveness vis-a-vis trade in terms of acquiring resources for economic growth as economies become more integrated (Staley, 1939; Rosecrance, 1986). Thus more integrated economies will focus on growth and forego war. Third, a more constructivist approach emphasizes how trade not only transmits goods, but also societal values, which in turn leads to converging identities and interests, lessening potentially violent disagreements between states (Deutsch, 1957). Fourth, trade can not only communicate values but also decrease information asymmetries (Morrow, 1999; Gartzke et al., 2001). If information asymmetries are one of the reasons for war, as one particularly influential study argues (Fearon, 1995), then this would reduce the chance of war. Fifth and last, McDonald himself (McDonald, 2009, 2010) adds the argument that capitalism is responsible for peace between nations due to its domestic effects, i.e. the predominance of private over public ownership. This last argument, however, moves away from trade and focuses instead on the domestic economic structure of states[3].

The realist counter-argument goes back to the security dilemma and the distinction between relative and absolute gains (Baldwin, 1993, p. 5-6). On the one hand, liberals emphasize the pareto efficency of trade, which promises absolute economic gains compared to autarky (see section 1.2.4 above). Realists, on the other hand, question the relevance of this consideration for the conduct of nations. Rather, as their argument reads, nation states care about the relative gains they can achieve over their opponents. In an international environment characterized by anarchy, any gains by a potential adversary are a risk. Put differently, trade changes the relative power of states, which realists traditionally regard as a source of instability and conflict (Waltz, 1970; Buzan, 1984; Mearsheimer, 1990; Mansfield and Pollins, 2001).

Copeland (1996), writing after the end of the Cold War, establishes the role of trade expectations in determining war or peace. States care not only about trade today, but also about the fruits of trading relationships in the future. The decision to go to war, then, depends on "the expectations of future trade" (ibid, p. 6). The present chapter

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[3]For an in depth discussion of the differences between commercial liberalism and the capitalist peace, see Schneider (2014).

echoes this move away from a static picture of trade to a dynamic one. However, I go beyond the expectations channel and consider trade as a choice variable.

If trade policy is a choice, how was that choice traditionally analysed by the economics and political science literature? Trade restrictions are usually explained by references to economic, rather than political incentives. They are seen as an outcome of tariff bargaining (Grossman and Helpman, 1995) or changing evaluations of trade institutions (Mattoo and Staiger, 2020) or trade flows themselves, e.g. due to recessions (Conybeare, 1985, 1987). Domestic structural factors play a role throughout the literature (Grossman and Helpman, 1994, 1995; Mayer and Li, 1994; Goldberg and Maggi, 1999; Ossa, 2014; Anesi and Facchini, 2019), but non-trade related political reasons are usually ignored[4]. The major exception to this is the sanction literature[5], where coercive bargaining with a threat of trade disruption is the name of the game. As I discuss below, the sanctions literature significantly informs my understanding of the bargaining dynamics in my theoretical model.

While my main criticism of the international relations literature is its understanding of trade as a static variable, there are some exceptions to this. One of these is a study by Martin et al. (2012) on the effects of regional trade agreements on conflict. Therein, the authors formally derive a model where countries enter regional trade agreements (RTAs) as a choice, in order to boost trade and thereby prevent conflict. Reduced risk of conflict as a positive externality of trade explicitly enters the utility calculations of the agents in Martin et al.'s game theoretical model. The authors furthermore test their hypothesis empirically and find statistically significant coefficients, indicating that states enter RTAs at least in part because they perceive them as ensuring peace.

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[4]One work that could be considered as an exception is Kim and Margalit (2021). Kim and Margalit argue that China used tariffs to "apply counterpressure" during the trade war between China and the US. The immediate goal was to dislodge a Republican majority in the 2018 midterm elections, which was successful. However, the ultimate goal was still trade related, i.e. achieving a trade deal advantageous to China.

[5]On an analytical level, there is no significant difference between a trade war and a sanction dispute. Both consist of (1) two states or alliance blocks (2) using restriction of commerce (3) in order to reach some goal. The difference lies merely in the type of goal. Trade wars are traditionally understood to be about trade policy, while sanctions are considered to be related to some non-trade policy objective. However, any bargaining logic that applies to trade wars applies to sanctions, and vice versa. Put differently, if two states use sanctions against each other in order to coerce changes in trade policy they are engaged in a trade war.

With the ascendancy of economic nationalism in the western hemisphere, some scholars have also gone back to reconsider the relevance of trade ties to high politics. Peterson (2020) uses a network setting to draw out the difference between leverage and vulnerability in an international trade context.

In summary, the literature on commercial liberalism has not put the choices of trade policy at the center of that research program. The economics literature has focused almost exclusively on the economic rationale for trade policy. However, a refocus towards endogenous trade policy, as in Martin et al. (2012), would further complement the already rich literature on the effects of trade on conflict. The present chapter is written with this refocus in mind. It does not aim to invalidate the cited literature, but rather to complement it and refocus analysis on the interaction of foreign and trade policy.

2.2.2   Compelling economic statecraft

The second substantial part of this chapter (section 2.4) employs game theory to illustrate the theoretical argument. The use of game theory in international relations has a long history (Nicholson, 1989; Zagare and Slantchev, 2010), with the most influential contribution made by Fearon (1995). The latter uses a bargaining framework to understand under which circumstances states choose conflict and when they settle on a peaceful resolution instead. He famously identifies three avenues for conflict: (1) incomplete information and incentives to mislead, (2) commitment problems, and (3) indivisibility of objectives. In addition to the contribution by Fearon (1995), formal modelling of the same kind has played a crucial role in analyzing (nuclear) deterrence and sanction policy. Deterrence theorists use game theory to analyze the application of threats by states to preserve the status quo (e.g. Schelling (1960, 1966); Jervis (1979); Kilgour and Zagare (1991); Zagare and Kilgour (2000)).

The same type of model can be used to analyze compellence, when states try to use threats to achieve certain foreign policy objectives. Compellence models are constructed to allow a challenger to attempt to change the status quo by threatening a certain action,

usually a military escalation. Compellence models usually distinguish between initiating
a crisis and escalating it further (e.g Morrow, 1999). This general structure of initiation
and escalation is also present in my model, albeit significantly extended. I consider the
intitation of a crisis to be more than a mere threat of military action, in order to jointly
model economic and military coercion.

One broadly similar class of models to compellence are those that analyze the strategic
interaction of a sanction dispute, simply referred to as 'sanction models´ from here on
(Morgan and Miers, 1999; Drury, 1998; Smith, 1995; Krustev, 2010; Bapat and Kwon,
2015; Morgan and Kobayashi, 2021). In general terms, these sanction models include
an element of threat performed by the sanction sender and then the possibility of the
sanction target to concede. If there is no such concession, in the next step the sender
can either impose sanctions or do nothing.

Both compellence and sanction modes have a similar general structure to the model I
construct in this chapter, but also exhibit some crucial differences. First, I substitute
any action of economic statecraft for the imposition of a sanction. Second, this action
of economic statecraft is the initial step in my model. It can be seen as a combination
of a threat, as in the first step of a deterrence model, with a sanction, as in the last step
in a formal model of the sanctions process. As will become evident, this ensures a more
realistic modelling of the sanction process as well as military escalations.

The advantage of such a combined model is that it allows for a more wide-ranging
analysis, including both economic and military statecraft. In my model states can use
either economic sanctions, trade wars, and economic blockades, or military action to
defeat their opponent. I argue that this is a closer approximation of reality: states can
use both of these instruments to achieve their goals, and they often consider them as
substitutes.

One study that seeks to integrate economic dependence and war withing a formal model
can be found in (Gartzke et al., 2001). However, these authors focus their argument
on monetary dependence narrowly, while I explore economic coercion more generally.

On the other hand, Morrow (1999) argues within a bargaining model with asymmetric information that trade can be used to credibly signal resolve during a crisis[6].

The remainder of this chapter is separated into two parts. First, as mentioned in the introduction, I start with a historical case study of the political situation in the Balkans on the eve of World War I (section 2.3). Analyzing the role of economic statecraft in this case allows for a more general account of how economic statecraft and economic leverage work. Second, I construct a game theoretical model that generalizes and formalizes the theoretical argument (section 2.4).

2.3 The Third Balkan War

2.3.1 World War I — again?

The debate whether World War I was a failure of liberal international relations theory is almost as old as the idea of the commercial peace itself[7]. During the first wave of globalization (circa 1870 - 1913) the great powers of Europe intensified their trading relationships to levels previously unimaginable. Still, the war that followed was equally novel, in both geographical and industrial scale. Hence, if the outbreak of World War I was a failure of the liberal peace, it would be a severe blow to that theory.

Beyond this challenge to commercial liberalism, which has been taken on by the literature at length (Gartzke and Lupu, 2012; McDonald and Sweeney, 2007; Copeland, 1996), the state system of pre-war Europe exhibits certain parallels to the state system today[8]. For instance, during the first decade of the 20th century there was no single predominant power, with the Austro-Hungarian, British, French, German, and Russian

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[6]See also the discussion on the theoretical mechanisms of the liberal peace in section 2.2.1 above.

[7]See e.g. Gartzke and Lupu (2012) for an argument why World War I was not a failure of the liberal peace and the citations within for competing accounts. McDonald and Sweeney (2007) similarly argue that World War I was not a failure of commercial liberalism. Copeland (1996) argues that World War I occurred due to high levels of trade combined with low expectations of future trade on the part of German political leaders (p. 7).

[8]Writing during the Cold War, Waltz (1964) saw the pre-World War I equilibrium as either an unstable bipolar or a multipolar system. As I have argued in chapter 1, we currently find ourselves in a multipolar state system.

empires competing. The most frequent narrative about the outbreak of World War I is that of rigid alliance blocks enthusiastically going to war with each other. As Clark (2012) shows, the longer view of the outbreak of World War I includes the contingencies of these alliances[9]. In this great power competition, military statecraft was an option, but so was economic statecraft. Policy makers at the time did not hesitate to use trade flows in order to get their way on foreign policy and security matters.

If the multipolarity at the beginning of the 20th century is analogous to the multipolarity of today, then understanding the outbreak of World War I from the perspective of economic statecraft will provide vital lessons. On the flip side, understanding how economic statecraft might have prevented the outbreak of the war could help to prevent escalations in future conflicts between major powers.

In the following section, I concentrate upon a subset of the relations between European powers prior to World War I: the case of Austria-Hungary and its complicated relationship with its Serbian neighbors. This case illustrates how economic policy was perceived as a tool of foreign policy by decision makers, and how economic leverage was squandered, contributing to the military option as the final choice. From the insights gathered in the historical account, I build a theoretical argument to show why and how economic leverage matters.

2.3.2   Bringing theory back in

The outbreak of the First World War has been a highly influential case in the study of international relations, a discipline that often relies on historical examples and arguments to draw its conclusions (Levy and Vasquez, 2014; Vasquez, 2014; Wolford, 2019). "The outbreak" as a puzzle to be explained is too broad, however — in it, at least two subquestions are hidden. First, why did a crisis in the Balkans break out, and how did it become a war between Austria-Hungary and Serbia? Second, how did this Balkan

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[9]For instance, the British Empire was at odds with Imperial Russia over Afghanistan and India, France and Britain had earlier disagreements about their colonies in North Africa, etc.

war escalate to the level of continent wide conflict between alliance blocks[10]? Without a doubt, both questions are related; Austria-Hungary's decision to go to war with Serbia was crucially dependent on the blank check provided by Germany, and Germany's actions in turn influenced decisions in St. Petersburg, London, and Paris. However, my analysis centers on the decision making process in Vienna, in particular on the foreign policy options available to politicians and generals there.

I thus follow Clark's position, that WWI "was the Third Balkan war before it became the First World War" (2012, p. 242), and locate the proximate cause of the First World War in the Balkans. Understanding how war broke out in this region is necessary, albeit not sufficient, to explain the outbreak of the war in Europe overall. Where I differ from Clark is my insistence on a counterfactual[11] argument that attempts to identify a causal relationship, while he focuses on the purely descriptive *how* question (Clark, 2012, p. xxvii). While making heavy use of Clark's and other historians' work, I bring theory back in, providing an answer to the *why* question: a lack of economic leverage removed economic coercion from the menu of options, leaving war as the only viable option. Put differently, I use these idiosyncratic descriptions of history as the starting point for a more general argument, an argument about how the lack of economic leverage may lead to war.

After having shown this, I will remain agnostic on the second subquestion. Whether the escalation towards a worldwide war was inevitable, or whether a crisis elsewhere might have led to the outbreak of an essentially identical war in the absence of a Third Balkan war, is not subject of this chapter or this dissertation. The actual escalation, which lead to the First World War, was downstream from events in Sarajevo and decisions in

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[10]A third question might be how the conflict went global, although this has been studied far less in political science. Consequently, I will not consider this question here.

[11]The category of counterfactual arguments is controversial among historians. However, as a social scientist, I am interested in a causal argument that can be used to explain a wider ranger of social phenomena. Any causal argument relies on counterfactual reasoning: claiming that X causes Y is identical to the claim that in the absence of X, Y would not be the case. For the use of counterfactuals in social science research, see Morgan and Winship (2015). For the underlying philosophical argument, see Lewis (1973, 1974). For an argument about the necessity of counterfactual arguments to historical research, see Sunstein (2016).

Vienna and Belgrade. My reasoning is thus focused narrowly on the relationship between Austria-Hungary and Serbia, and stays explicitly silent on larger, structural questions.

2.3.3 The Serbian question

In an international settlement at the Berlin conference in 1878, Austria-Hungary gained administrative control of Bosnia-Herzegovina. The previously predominant power in the Balkans, the Ottoman empire, had been on the decline, and a war with Russia was the nail in the coffin for its great power ambitions in the region. The power vacuum in Bosnia was filled by the dual monarchy of Austria-Hungary, who took over the administration of the region. Short of annexation, the dual monarchy gained full de-facto control of the area. Thus Austria-Hungary became a direct neighbor of Serbia, and it was a border crossing between Serbia and Bosnia that would see Gavrilo Princip and his co-conspirators enter the Empire in 1914 on their way to assassinate Franz Ferdinand.

Serbia was not always hostile towards the Habsburg Monarchy. On the contrary, in the Balkan state system of the 1900's, the Russian Empire was aligned with Bulgaria, which the Austrians aimed to balance out by close relations with various Serbian governments in Belgrade (Clark, 2012, p. 272 - 281). This pattern of alliances was turned on its head in large part by a major German loan to Bulgaria. In the end, a controversial vote in the Bulgarian national parliament in favor of the loan sealed the attachment of Bulgaria to Germany — and thus of Russia to Serbia (Clark, 2012, p. 278). These contingencies serve to underline that alliances were not baked in stone. Alliances were mere instruments in the larger design of foreign policy makers in the European capitals. Any account of the first World War that explains the outbreak of the war not via Balkan contingencies but purely by structural alliances fails to account for this fact.

All the while, the combination of a more belligerent government in Belgrade and the Austrian annexation of Bosnia-Herzegovina lead to a lasting souring of relations between the two states. In Belgrade, politics became more radical and anti-Habsburg. On the other side of the border, after 30 years of administrative control, the Habsburg empire finally annexed Bosnia-Herzegovina in 1908. This alienated the Serbian government in

Belgrade even more, which had aimed to unify with the Serbs in the newly annexed provinces (Williamson, 1990; Stevenson, 1996). Thus, the relationship between Serbia and Austria-Hungary soured, even though they had previously been allies against the Ottoman Empire[12]. This did not mean that war was suddenly on the menu. Instead, differences were resolved diplomatically with decision makers sometimes resorting to economic coercion to give their demands additional force.

The tensions reached a boiling point in 1906, when a trade war broke out. This so called "Pig Trade War" was fought mainly over pork exports from Austria-Hungary to Serbia and other agricultural issues[13], but had underlying geopolitical dimensions as well: the Austrians were unhappy with the Serbs buying French weapons (Glenny, 2000, p. 281-2). The customs dispute between Austria-Hungary and Serbia brought Imperial Russia, a Serbian ally by this point, and Austria-Hungary to the brink of military conflict as well.

In the end, kinetic warfare could be avoided, but Austria-Hungary lost the trade war as well as their economic leverage. As can be seen in figure 2.1, the trade flows between the two adversaries recovered only slowly and incompletely. Furthermore, the headline number of total trade tells an incomplete story. Austria-Hungarian exports recovered to levels higher than before the trade war, but imports stayed below earlier levels. The impact of the trade war on the Serbian domestic economy was profound. Germany became a new major trading partner. In addition, a customs union between Serbia and Bulgaria reoriented Serbian exports away from Austria-Hungary (Glenny, 2000, p. 282).

Between the Pig Trade War and the First Balkan War (1912 - 1913)[14], the Austria-Hungarian Empire considered steps to reign in Serbia politically. At the same time, Serbia had been inching ever closer to Imperial Russia, which sought to increase its geopolitical influence in the region. These two developments mark another high point of tensions between the two states.

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[12]In particular, they had signed a secret treaty, the Austro–Serbian Convention of 1881 (Beaver, 2009).

[13]The official reason given for Austria-Hungary's trade restriction were health concern over Serbian pork. These were largely pretense however, as Serbia and Austria-Hungary had signed a "Veterinary Agreement" in 1881 (Palotás, 1993, p. 611).

[14]In this conflict Bulgaria, Greece, Serbia, and Montenegro fought and defeated the Ottoman Empire. Austria-Hungary did not participate in the fighting, but was concerned with any territorial consolidations by especially Serbia (Clark 2014, ch 5; Hall 2000, ch 2).
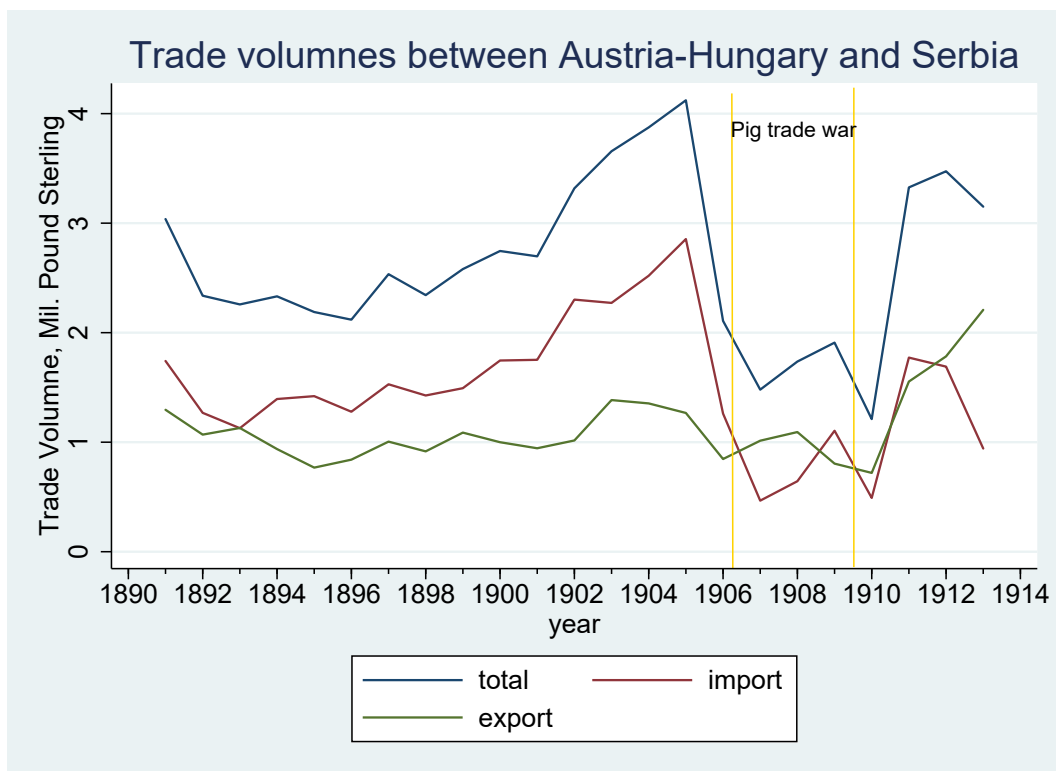
Figure 2.1: Impact of the Pig Trade War on trade between Austria-Hungary and Serbia. Source: RICardo project, Dedinger and Girard (2017) and own calculations.

Against this backdrop and in order to contain Serbian ambitions, the Foreign Minister of the double monarchy, Leopold von Berchtold, considered a currency union between Austria-Hungary and Serbia[15]. This plan aimed to move Serbia from the Russian back into the Austro-Hungarian sphere of influence. The proposal initially enjoyed broad support among the relevant foreign policy decision makers at the time. For instance, it was supported by the otherwise hawkish chief of the general staff, Franz Conrad von Hötzendorff. The latter had been previously dismissed from his post due to his aggressive advocacy for preventive war with Italy (Schindler, 2015). After his reinstatement, he supported the plan for a currency union with Serbia when it was proposed by von Berchtold. There was thus considerable consensus that such a currency union would be desirable, with even foreign policy hawks like von Hötzendorff agreeing (Mulligan and Levy, 2019). The economic option was considered a legitimate tool in the foreign policy toolbox by all involved decision makers.

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[15]This plan had been originally formulated by von Berchthold's predecessor, Alois von Aehrenthal.

In the end, however, the proposed currency unions was abandoned due to a lack of economic leverage. At this point, Austria-Hungary had insufficient capital to provide for non-trivial investments within Serbia. Furthermore, trade flows between the two countries had declined in the wake of the two year trade war raging from 1906 to 1908. There was neither the necessary carrot for a currency union nor the effective stick of tariffs to induce Habsburg friendly foreign policy in Belgrade. In the wake of this failure of economic statecraft, Habsburg diplomacy was instead supported by military buildup — arguably a development contributing to the outbreak of the First World War less than a decade later (Williamson, 1990; Mulligan and Levy, 2019)[16].

2.3.4 A counterfactual currency union

How does this relate to the outbreak of the First World War? To illustrate the relevance of economic statecraft, consider the counterfactual case where significant trade flows between Serbia and Austria-Hungary cross their common border every year, possibly within a currency union. In this counterfactual world, the assassination of Franz Ferdinand might still take place — after all, the Black Hand would likely still be a powerful force within Serbian politics. One factor that does change if there is a currency union between Serbia and Austria-Hungary is the foreign policy toolbox available to Vienna in the aftermath of the assassination. In the counterfactual world where Vienna has economic leverage, e.g. because the currency union von Berchthold envisioned was in place, economic statecraft is a serious option. When considering how to respond to the assassination, military options are on the table, but so are restrictions on trade and withdrawal of investments. Both of these approaches — military and economic — could

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[16]At the same time, diplomacy further to the east had similar problems. The Imperial Russian government aimed to induce the Ottoman Empire to alter the terms of a military mission by the Germans. After diplomatic efforts to convince France to put financial pressure on the Ottomans failed, the Russians considered economic sanctions themselves. However, the Russian Foreign Minister Sergei Sazonov was keenly aware of the lack of economic leverage his country had in this regard and so the measures were discarded. In an analogue to the Austro-Hungarian case, this and other foreign policy failures led to a renewed focus on military armaments and military response all around during the July Crisis in 1914 (Mulligan and Levy, 2019).

have been used in conjunction with an ultimatum similar to the one that was actually sent to Belgrade on 23rd of July 1914.

One might argue that the assassination of the crown prince might have led to war anyways. But a few factors should cast doubt on the narrative that this escalation was unavoidable. First, assassinations were not uncommon, at least compared to today. Normalizing royal assassinations, however, could not be in the interest of the European monarchies, including the British Crown and the Russian Tsar. Thus, the Austrians were in the unique position that they had international (public and elite) opinion on their side (Neiberg, 2011) — provided they did not start a war against a direct ally (Serbia) of a triple entente member (Imperial Russia). Second, the ultimatum against Serbia was backed up by military force. In a case where sufficient economic leverage would have been available, the Austro-Hungarians could have backed up their demands with threats of tariffs, withdrawing of investments, or other economic instruments. But these instruments were not available, for the reasons explained above. Third, the Serbs agreed to the vast majority of the demands made in the ultimatum. Had this ultimatum been backed up by some sort economic measure, then these measure would have to be instated, in turn giving more time for diplomacy and a peaceful settlement[17]. Finally, it would be a misconception to view the relationship between Serbia and Austria-Hungary as inherently conflictual and predestined for war. Recall that just a few year before, in the years leading up to the first Balkan War, Russia was aligned closely with Bulgaria while Austria-Hungary was counterbalancing on the side of Serbia (Rossos, 1981, p. 394). Shifts in alliances where characteristic of the state system in the late 19th and early 20th century. Thus, war between these two states was hardly an inevitability.

A further counterargument that seems forceful at first glance is the claim that the Habsburg military establishment wanted war against Serbia, and the generals were going to get their way eventually. On further investigation, this argument does not hold up. First, the assumption that military leaders, Conrad von Hötzendorf foremost among

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[17]It could even be argued that this might be a likely outcome, as other serious diplomatic crises between the European powers had been peacefully resolved in the preceding decades as well, see e.g. Neiberg (2011); Clark (2012); Münkler (2014).

them, were in favor of military strikes against Serbia is generally correct (Beaver, 2009; Schindler, 2015). However, these preferences arise out of previous applications of economic statecraft. Both the failure of the Pig Trade War and the discarded currency union plan had presumably shaped policy makers' perceptions. In addition, initially even Conrad von Hötzendorf himself was in favor of a currency union with Serbia. Hence, the policy preferences of Austrian foreign policy hawks was causally downstream from the lack of economic leverage. Second, the generals did not fully dominate Austro-Hungarian foreign policy making. The same accounts that point out their belligerence emphasize their absolute loyalty to the House of Habsburg. The decision to go to war was made very much with the Kaiser and the political elite, not against them. Even if Conrad von Hötzendorf and the other hawks were insistent on war, economic leverage would have given the doves a realistic alternative — and an argument against war.

In summary, these counterfactual considerations about a possible avoidance of World War I illustrate a broader point. What I have shown is that economic leverage is a vital resource in international relations. It can be used for foreign policy aims, and when it is used up, then the foreign policy toolbox includes one tool less. Military statecraft becomes attractive due to a lack of realistic alternatives.

2.4 The role of trade in foreign policy

What can we generalize from the regional politics in the Balkans shortly before the First World War? First and foremost, it becomes clear that states considered trade policy as foreign policy. As in the case of Foreign Minister von Bechthold, key actors are often identical for trade policy making and the development of large scale military strategy. These decision makers seek to attain foreign policy goals, be it influence in Serbia, reduction of German influence in the Ottoman Empire or many other possible objectives. To these ends, diplomacy is often backed up either by the threat of sanctions and trade restrictions or direct military action.

2.4.1   Conceptualizing economic leverage

In order to make the argument from the historical case study above suitable for further analysis, it is helpful to conceptualize the notion of *economic leverage*[18] in more detail[19]. In rational choice terms, *trade leverage* describes the disutility one state can incur onto another by economic means, particularly the blockage of trade flows, for a given cost. Various economic means can be used to block trade flows: tariffs and other trade barriers, economic blockades and other import and export restrictions, like economic sanctions. If these are used, they can incur a cost on the targeted country. A secondary element of economic leverage is the inverse cost of these elements. If sanctions are extremely costly for the sender, but leave scarcely a mark on the targets economy, they don't have much leverage behind them[20]. The amount of costs, to all countries involved, depend on economic variables like existing trade flows and investments.

Ignoring scale for simplicity, we can conceive of trade leverage lev_{ij} of country i on country j as a value between -1 and 1. When lev_{ij} takes the value 1, i dominates j economically, meaning it can incur the maximum possible costs on j for minimal cost. If $lev_{ij} = 0$, then the two countries are balanced in terms of economic power. Finally, $lev_{ij} = -1$ describes the same situation as $lev_{ij} = 1$, but with countries reversed, i.e. $lev_{ij} = -1 \iff lev_{ji} = 1$. In this last case, country j dominates country i. In effect, trade leverage is inherently a dyadic relation, meaning trade leverage can not be simply assigned to a country as such. Instead, it describes a relationship between two countries[21], for example the leverage Austria-Hungary had (or did not have) with regards to Serbia was not the same it had towards the United Kingdom or France. Furthermore, trade leverage is a continuum, with the extremes signifying that one party holds all the cards and the middle expressing a symmetry of power. For instance, as the

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[18]Closely related is the concept of "trade leverage". Economic leverage would include trade leverage as well as leverage from foreign direct investments. Conceptually, there is nothing fundamentally disanalogous about the concept of trade leverage and economic leverage, as far as it pertains to bargaining. Naturally, empirical measurements will differ.

[19]This section is inspired by Hirschman (1945); Spaulding (1991).

[20]Making a related argument, Bapat and Kwon (2015) show that sanctions (i.e. instances of economic statecraft) are less effective if the sender is highly reliant on the target's economy and costs of sanctions are high. They argue that this due to the difficulty inherent in enforcing costly sanctions.

[21]In the vocabulary of Baldwin (1985), trade leverage is a 'relational' variable.

trade leverage Austria-Hungary held over Serbia declined, the leverage Serbia held over Austria-Hungary increased.

The key components in trade leverage are import and export market shares. If country i exports a large amount of $j's$ overall imports, then cutting these exports will incur high costs by disrupting the market equilibrium in j. The goods that were previously imported to $j's$ economy must be substituted, either by domestic production or by import from other countries that are not i. Martin et al. (2008) identify a positive effect of multilateral trade on conflict. As their argument reads, states that more easily substitute the trade they forgoe due to conflict, will be more belligerent. This is consistent with my own stipulation that trade leverage depends on the ease of substitutability: the easier a nation can substitute lost trade, the less vulnerable to economic pressure it is — its opponents will have less economic leverage over it.

Either of these options, substitution from abroad or domestic restructuring, will in turn lead to adjustment costs in the short run until a new equilibrium is reached. Furthermore, comparing the old and new equilibrium state, we can expect the new one to be less efficient. To see why, assume the new equilibrium to be more efficient. If this were the case, then markets should have adjusted earlier towards this new equilibrium. Then, the new equilibrium would have arisen absent a change in trade policies anyway. Hence, in the medium and long run, the new equilibrium will likely be less efficient, ceteris paribus. The logic for export markets proceeds analogously: when i imports a high share of $j's$ overall exports, cutting of these exports will have similar effects on $j's$ markets, causing short term disruptions and in all likelihood a worse long term equilibrium.

Lastly, economic leverage should be conceptualized as zero-sum[22]. For every 'unit' of economic leverage state i gains over state j, j looses on unit of leverage over i. While this assumption might not be strictly necessary for the analysis below, it is both intuitive and simplifying.

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[22]This does not imply that trade is zero sum. Indeed, the analysis below assumes that trade is positive sum.

In summary, economic leverage is a relational variable, describing the parameters of the trading and investment relationship between two nations. It is a function of trade flows between these two countries, but also of their trade with third parties, as well as their foreign direct investments, and domestic economies. Formally, this can expressed as a function:

$$\textbf{Economic leverage:} \quad lev_{ij} = f(a_i, a_j, b_{ij})$$

where lev_{ij} refers to the economic leverage of state i over state j, depending on a function of characteristics of states i and j, a_i and a_j, as well as attributes of their relationship (other than leverage itself), b_{ij}. To keep the definition as general as possible, I do not specify a functional form of $f()$.

This conceptualization of trade leverage captures an underlying dynamic seen in the historical case study above: it enabled Austria-Hungary to apply economic pressure during the "Pig Trade War", and its lack prohibited Vienna from reacting in the same way during the July crisis.

2.4.2   A formal model of economic coercion and war

While the historical account in the preceding section adds detail and color, I will now provide a game-theoretical model, which supports the abstract side of my argument. The analysis of interstate bargaining with game theoretical instruments was one of game theories earliest applications (Nicholson, 1989; Zagare and Slantchev, 2010).

The model I construct has multiple antecedents in the international relations literature, which has for a long time used formal models to analyze crisis bargaining and deterrence situations. The most similar class of models are coercive bargaining models, of the sort discussed in Zagare and Kilgour (2000, ch. 5), with which my approach shares several characteristics. Put differently, I apply this general class of models to the problem at hand, the integration of economic coercion and military conflict into one coherent theory. Moreover, the models specified in Zagare and Kilgour (2000) consist of preferences

relations instead of utility functions. Hence, each player has a complete ordinal rankings of all possible outcomes. In contrast, my model is microfounded. I spell out the different sources of utilities in order to determine the relationship between different objectives and instruments.

I model an asymmetric three step interaction between two states, a *challenger* and a *defender*. While in traditional deterrence and escalation models, the first step is usually a (costly) threat, I specify this to include economic costs. In particular, this initial defection is a restriction of trade flows by one party to induce its opponent to change their behavior. This will stay in place until the defender follows the challenger's demands, or until conflict is initiated later on. This model views economic coercion is the initial step in a conflict, which may later escalate towards war. Indeed, in reality economic statecraft often precedes military actions, as for instance in the first Gulf War, where the international community first imposed an embargo on Iraq before escalating further and taking military action on the ground.

While in traditional deterrence models the success of a threat relies on the credibility of 'following through' on the threat, this is not the case in my specification. Instead, states can reach their goals by means of economic statecraft, by instituting economic sanctions, or by otherwise restricting trade flows[23]. Deterrence is the stick and trade is the carrot — a temporarily withdrawn carrot, but one that might do the job even without the stick, if circumstances are favorable.

While constructing the model, I make several simplifying but necessary assumptions. First, I assume unitary actors throughout, meaning I abstract the complex interiors of foreign policy decision making processes to a single utility function. Second, this utility function includes only three elements: the costs of war, the gains from trade[24], and some a priori unidentified exogenously given policy outcome. Third, I assume risk neutrality. Fourth, I exclude successful conquest by assumption. Cases where great powers could

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[23]These restrictions are costly, and the costs of restricting trade flows are equal to the costs of escalation. The mode includes no further costs of escalation, e.g. reputational costs to the escalating player.

[24]To be precise, I model the foregone utility from lost trade, but these two formulations are analytically identical for the present purpose: the status quo is assigned a utility of zero from which lost trade is deducted. This makes calculations within the model more straightforward than postulating an arbitrary positive integer as the gains from trade.
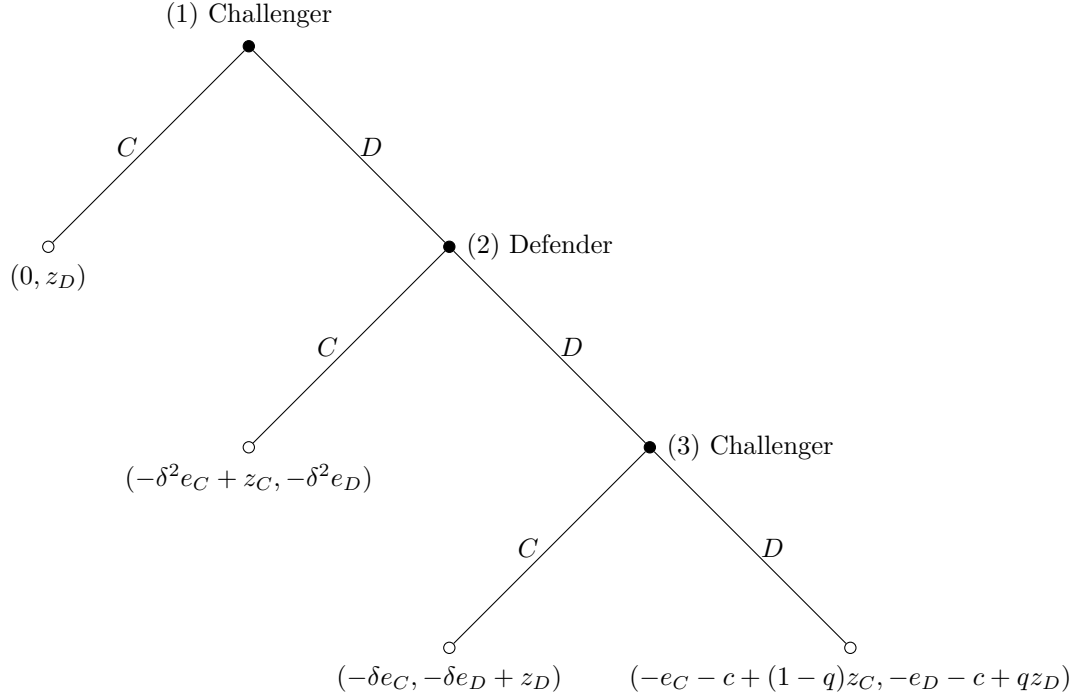
Figure 2.2: Game tree of the stage game.

simply conquer smaller states would lead them to do so regularly. Fifth, I assume that trade is positive sum and sticky. Last, I assume that all interactions between the states are included. For instance, side payments are excluded by assumption.

To give a clear overview, figure 2.2 shows the set-up of the stage game with full information. In the following, I first give an overview of the different actions the players can take and then expand on the utilities attached to these choices. I provide solutions and discussion for two versions of the game, a one-shot and an iterated version.

Order of actions In the first decision node, the challenger can decide whether to cooperate or to defect from the *status quo (SQ)*. In the former case the game ends and payoffs are realized. In the latter case, the challenger defects by employing economic statecraft; cutting of trade or instituting sanctions. The defender then decides either to cooperate and acquiesce to the challenger's aggression, or to defect in turn. If the defender acquiesces, the game ends and payoffs are realized. Call this outcome *Defender Concedes*. Otherwise, in the third decision node, the challenger has to make one final decision, either to defect and escalate further or to cooperate and back down. If the

challenger backs of, the game ends with a new status quo. Call this outcome *Challenger Defeated.* If the challenger defects in the third decision node instead, *Conflict* is initiated, with the winner being decided with a draw from a Bernoulli probability distribution with probability q.

To understand the choices states will make when confronted with these decisions, it is necessary to specify the payoffs they receive in every terminal node of the game. As depicted above, the players receive payoffs from three different sources:

- Costs of war: if the last terminal node is reached, both players pay fixed cost of $c \in \mathbb{R}_{>0}$. These costs are assumed to be symmetric to ensure straightforward exposition, but this assumption is not critical.

- Trade: in the status quo, players receive some fixed gain from trade, which can be expressed by a constant, set as 0. In case players defect, they gradually loose the gains from trade. Utility from trade is denoted by $(e_C, e_D) \in \mathbb{R}^2_{>0}$. (e_C, e_D) can intuitively be understood to be the maximum utility the players derive from trade, and therefore also the most they can loose from foregone trade, hence the maximum costs are (e_C, e_D). These are the costs that the literature commonly refers to as the opportunity costs of war (Polachek and Xiang, 2010, p. 133).

- Policy: the players bargain about some indivisable policy issue[25], $(z_C, z_D) \in \mathbb{R}^2_{>0}$. The winner of the war gains additional utility from an external policy issue; the object of the conflict denoted by z_C and z_D.

Payoff structure   Combining these payoffs leads to the utilities depicted in figure 2.2. In the SQ outcome, arising after the challenger plays C in the first node, the challenger receives a zero payoff[26], while the defender retains payoff z_D from the policy issue. In the first terminal node, the status quo, no economic coercion takes place and no economic costs arise for either player.

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[25]This captures any potentially contentious issue: e.g. territory, human rights issues, nuclear weapon proliferation, terrorist financing. While a majority of wars break out over territorial issues (Toft, 2014), this does not imply that territory would be the main issue states disagree about. It might also be the case that territorial disagreements are the ones most likely to escalate.

[26]The payoff of in SQ can be set to a more general constant, I use 0 to keep calculations straightforward.

If the challenger plays D instead of C, the defender has to make a decision in node (2). If the defender cooperates, the game ends and the challenger has succeeded in attaining her policy goal, gaining utility z_C. This comes at some economic costs of the initial defection, $-\delta^2 e_C$, which depends on the economic damage that the defection has caused the challenger, denoted by e_C. The economic costs of the defender in turn depend on her economic vulnerability to trade restrictions by the challenger. In the Defender Concedes outcome, the defender 'looses' the policy objective compared to the status quo and has an overall utility of $-\delta^2 e_D$. The economic costs for both players are discounted[27], indicating that they scale with the escalation of the game. If the game escalates (i.e. the defender defects), the economic costs for both players will rise[28].

If the defender decides to defect, the challenger's final decision in node (3) is whether to cooperate and accept the outcome Challenger Defeated or to defect and initiate military Conflict. If the challenger cooperates, trade is permanently disrupted and economic costs for both players are higher than in either the status quo or the Defender Concedes outcomes of the game. In addition, the defender holds on to the payoff from the policy objective z_D. Intuitively, this can be thought of as the institution of trade embargo, sanction, tariff, or other trade reduction measure in a new permanent trade equilibrium[29]. This new equilibrium is similar to the SQ in terms of the policy issue, which the defender keeps control of. However, both players lose in proportion to their vulnerability from trade, i.e. economic leverage determines who looses more and who looses less utility[30].

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[27]Formally, this is denoted by the symmetric factor δ^a (with $0 < \delta < 1, a \in \{0, 1, 2\}$), where a indicates the level of escalation.

[28]This structure assumes that trade is sticky. E.g. when sanctions are instituted and then removed, trade flows do not simply return to the pre-sanctions equilibrium. Instead, trade is permanently disrupted, albeit less than if sanctions would stay in place permanently. Ceteris paribus, the longer a trade disruption is in place, the further the post-disruption equilibrium is from the pre-disruption equilibrium.

[29]The term "trade equilibrium" here does not refer to a game-theoretical solution concept, but a macro-economic international trade equilibrium.

[30]There is an element of counter intuitive logic in this order. Intuitively, a challenger, e.g. the sender of a sanction, first restricts trade flows. Then, the defender can choose to cooperate, leading to outcome DC. In this order, the outcome would move from SQ to CD to DC. From a bargaining perspective, the ordering in my model is accurate, however: within the game, the defender decides whether to defect, and if she defects, the game continues. In real terms, this defection is equal to not reacting in the face of economic coercion. Then, the ball is in the challengers court, who can either escalate or back off, with the latter leading to the Challenger Concedes outcome in the game.

The final terminal node arises out of a chain of three defections, when the challenger chooses defection as her final action and thus Conflict as the outcome. In that case, both players pay a lump sum war cost, c, and loose all gains from trade, e_D and e_C. The winner of the war gains the policy objective, z_D or z_C. The winner of the war is decided probabilistically. The probability q is determined by the relative military strength of both players[31].

Clearly, much of this model set-up hinges on the value of z_C and z_D, respectively. We can conceive of these as policy issues randomly drawn from some distribution. In the historical case study above, the two players are Austria-Hungary and Serbia. As discussed, they disagreed about pork imports from Serbia, Serbian purchases of French weapons, the annexation of Bosnia-Herzegovina, and the appropriate response to the assassination of Franz Ferdinand at various points in time. These can be understood as repeated random draws of z_C and z_D within my model. My assumption is that each of these issues comes up functionally exogenous and is evaluated differently by the states. For instance, z_C in the case of the assassination is probably higher than z_C in the case of French weapon imports, meaning Austria-Hungary values Serbian cooperation with the investigation more than the cessation of weapon purchases from France.

2.4.3 Results in a one shot-game

Before discussing the more complicated iterated game scenario, discussing the one-shot full information set-up can serve to clarify some intuitive mechanisms. These can be divided into subgame perfect nash equilibria (SGPNE) and comparative statics[32].

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[31]I take q to be externally determined. A possible extension of this model would be to model the lottery of war as a contest success function (Hirshleifer, 1989). The relevance of spelling this out depends on what the inputs of success are. If these are exclusively other external variables, e.g. military power, then modelling this explicitly would not make a substantial difference in terms of model dynamics. However, if the contest success function takes into account other variables, e.g. if military power depends on economic interdependence, this might have significant effects. In particular, if states have the ability to increase their chances of success in war by escalating the conflict, e.g. because they can cut off their opponent from key raw materials relevant for military build-up, this biases the model towards both escalation and conflict.

[32]All proofs are provided in appendix A.

Before analyzing these equilibria, some preliminary restrictions on variables are helpful to isolate interesting cases. Throughout much of the following analysis I will assume that the Relevance condition holds.

Relevance: **(1)** $\delta^2 e_C < z_C$ and **(2)** $(1 - \delta^2)e_D + c > q z_D$

This condition ensures that the challenger does not prefer the status quo to all other outcomes. If the first part of the relevance condition, R(1), were not true, then the challenger would always cooperate in the first node and the status quo would stay in place. Substantively, this is the case if the economic costs of escalation, $\delta^2 e_C$, for the challenger are higher than the value of the policy issue, z_C. Intuitively, states will not challenge the status quo if even the start of an escalation is more expensive than the policy concession they can conceivably achieve[33]. This guarantees that the game does not immediately end in the preserved status quo.

The second part of the relevance condition ensures that the defender does not prefer conflict to any other outcome than the status quo. If this were not the case, then the defender would always escalate. Substantively, this is the case if the product $q z_D$, i.e. the utility of the policy outcome weighted by the probability of persevering during conflict, becomes large.

Taken on their own, the two inequalities in the relevance condition do not fully determine an SGPNE, and thus the outcome of the game. They do, however, preclude the conflict outcome. In the full information setting, conflict is not possible if the defender prefers giving in, i.e. playing C in the second decision node, to conflict. I will come back to this condition and the possibility of conflict in the latter part of this section. Both of the inequalities stated in the Relevance condition are considered true in the following analysis.

Credible Threat condition (CT): If $(1 - q)z_C > (1 - \delta)e_C + c$, the challenger has a credible threat.

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[33]By construction, from the challenger's point of view, Defender Concedes is always preferred over Challenger Defeated and Conflict.

A credible threat allows the challenger to attain her policy goal without further escalation. Given Relevance, CT leads to the SGPNE $\{D, D; C\}^{34}$. Thus the outcome DC is reached, with payoffs $(-\delta^2 e_C + z_C, -\delta^2 e_D)$. If CT is true, the challenger will defect in the first decision node. The the defender anticipates that the challenger would follow through on her threat and decides to yield instead. This result is not novel, but shows that my model reproduces dynamics of more classical deterrence theory. More interesting is the economic coercion condition:

> **Economic Coercion condition (EC):** If $(\delta - \delta^2)e_D > z_D$, the defender will yield to the challenger even if the challenger has no credible threat.

The EC condition is a second pathway by which the challenger can reach her policy goal. Given this condition, the defender would prefer to give up her gains from the policy position, z, because the economic costs are sufficiently high. This is even the case if a threat of war is non-credible. The equilibrium $\{D, C; C\}$ can be reached given EC and even if CT does not hold. Intuitively, the challenger uses economic coercion to deprive the defender of economic utility. The challenger prefers to give up on the policy issue rather than accepting the sanction equilibrium that would arise after $\{D, C; D\}$. In traditional models of compellence, which rely on threats, this equilibrium will not be reached.

In environments where Relevance holds, CT and EC are sufficient, but not necessary, conditions of the Defender Concedes outcome, which is reached in both the $\{D, D; C\}$ and the $\{D, C; C\}$ equilibrium. If both CT and EC hold, the Defender Concedes outcome is overdetermined. Both conditions present pathways for the challenger to reach her policy goals; she can either credibly threaten conflict or impose sufficient economic costs to make compliance defenders preferred option.

How does economic leverage matter within this model? Consider economic leverage as the relational variable lev_{ij} defined above, i.e. from the perspective of the chal-

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[34]Equilibria are denoted as $\{\sigma_C^1, \sigma_C^3; \sigma_D^2\}$, where σ_C^1 denotes the action of the challenger in the first decision node and so forth.

lenger. Then lev_{CD} describes the leverage that the challenger has over the defender. It is straightforward to assume that $lev_{CD} = f(e_C, e_D, \dots)$ which fulfills:

$$\frac{\partial f}{\partial e_C} < 0 \text{ and } \frac{\partial f}{\partial e_D} > 0 \tag{2.1}$$

Economic leverage thus describes a function $f()$, which depends, among other things, on the costs that a reduction in trade incurs upon both players. The leverage of the challenger is decreasing in her vulnerability to the defender and increasing in the defender's vulnerability to her. Put differently, the more the challenger's economy would be hurt by a cutoff of trade, the lower the challenger's leverage. The more the defender's economy would be be hurt by a loss of trade, the higher the challenger's leverage.

Combining this definition of leverage and the three conditions above yields the following results. First, higher leverage increases the ceteris paribus likelihood of Relevance holding: increases in e_D or decreases in e_C each lead to an increase in the likelihood of one of the two inequalities included in Relevance. If e_D increases, i.e. the defender is more vulnerable to the challenger's economic pressure, the defender is less likely to prefer conflict.

Second, an increase in leverage has ambivalent effects on conflict. On the one hand, an increase of e_D makes the Economic Coercion condition more likely to hold, it increases the economic pressure the challenger can create. States are more likely to defect from the status quo if they have leverage. For conflict to become more likely as a result, the challenger would need to be more likely to credibly threaten, which is the case: the credible threat condition is negatively related to e_C, hence if a lower e_C implies more leverage of the challenger over the defender, more leverage increases the credibility of a threat. Intuitively, if a challenger has less costs of war, due to reduced economic costs of war by lower e_C, she is more likely to both threaten war and follow through.

This all points in the direction of leverage increasing the likelihood of conflict. However, if e_D increases, the defender is more likely to play cooperate when threatened or economically coerced, because the policy issue is comparatively less valuable if costs from

withheld trade are high. As a consequence, trade leverage has no direct effect on the likelihood of conflict.

Third, the relative evaluations of the policy objective, z_C and z_D, play a key role. If the defender does not value the the policy issue sufficiently high, she will give in to economic pressure or credible threats. If the challenger values the policy issue higher, she is more likely to defect, and her threats are more credible.

Lastly, the role of q, the probability of the defender winning the war, has a clear implications for conflict. Naturally, the higher q, the less likely the challenger is to initiate military conflict. Consequently threats are also less credible if the challenger would be less likely to win the war. On the other hand, economic coercion does not vary with q — it's irrelevant how strong the challenger's military is if she aims to coerce economically.

2.4.4 Stability and economic leverage

In order to provide some intuition, consider a long-term strategic rivalry between two states, like Austria-Hungary and Serbia. Every time an issue comes up between these two states, this can be conceptualized as a novel draw of (z_C, z_D) from some fixed distribution function such that $(z_C, z_D) \sim \mathcal{D}_{z_C, z_D}(z_{min}, z_{max})$. The status quo stays in place in cases where the challenger attaches utility to the policy issue below some threshold value, i.e. $z_C < \bar{z}_C$, and thus does not defect in the first decision node. As soon as there is a draw of z_C that fulfills the first part of the relevance condition, the challenger will defect. Put differently, $\bar{z}_C$ determines the stability of the status quo. It follows from the equilibria derivations in the appendix that $\bar{z}_C$ is defined as:

$$
\bar{z}_C = \begin{cases} \delta^2 e_C, & \text{if } EC \\ \frac{(1-\delta)e_C+c}{(1-q)} & \text{if } R(2) \\ min\{\delta^2 e_C, \frac{(1-\delta)e_C+c}{(1-q)}\} & \text{if } EC \wedge R(2) \\ \infty & \text{if } \neg(EC \vee R(2)) \end{cases} \tag{2.2}
$$

Formally, $\bar{z}_C$ can thus be understood as a function of the allocation of economic power, the costs of war, and other variables, $\bar{z}_C(e_c, c, q, \delta)$. This function exhibits some intuitively plausible properties:

$$\frac{\partial \bar{z}_C(e_c, c, q, \delta)}{\partial e_C} > 0 \text{ and } \frac{\partial \bar{z}_C(e_c, c, q, \delta)}{\partial c} \geq 0 \tag{2.3}$$

These partial derivatives imply that in substantial terms, higher economic dependence of the challenger on the defender will lead to a more stable status quo. The minimum evaluation needed for the challenger to deviate from the status quo is thus increasing with e_C, meaning, ceteris paribus, challengers exhibiting lower economic vulnerability, and thus higher leverage, will defect more often. Intuitively, the lower the economic cost of economic coercion, the more likely states are going to apply it. Under the reasonable assumption that higher $\bar{z}_C$ are less likely, i.e. more important policy issues are rare, this confirms the liberal presumption that trade dependence pacifies interstate relations.

However, e_C is only one half of the trade variables in this model. The other, e_D enters the function $\bar{z}_C(e_c, c, q, \delta)$ only indirectly, via the the EC condition[35]. The effect of e_D on the EC condition is straightforward[36]:

$$\frac{\partial EC(e_D, \dots)}{\partial e_D} > 0 \tag{2.4}$$

In summary, a higher e_D ceteris paribus increases the probability of the EC condition holding. In turn, this increases the likelihood of defection from the status quo. Hence, challenger will choose to maintain the status quo if she a) is highly dependent on trade with the defender and b) the defender is highly dependent on trade with her.

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[35]It might seem counter-intuitive that the challenger does not "directly" care about e_D, the economic damage that the defender is exposed to. However, this is fully in line with intuition: the challenger is interested on the economic pressure she can put on the defender only for what this pressure can achieve. Power is only useful for what it enables.

[36]This partial derivative requires some reformulations, see appendix A2.

2.4.5 Results in iterated play

In order to formalize the notion of "using up" economic leverage, this section discusses repeated play of the game depicted in figure 2.2. For the sake of exposition, I only consider a two-stage version of the game here[37], but extensions are straightforward. Overall utilities are the sum of payoffs in both games, with the latter being discounted by the discount factor π, with $(0 < \pi < 1)$, if viewed from the first iteration. Low values in π indicate that the players have a preference for immediate payoffs relative to those in the future[38].

Within this setup, what happens if states apply economic leverage and use the economic coercion condition to achieve their goals?

Assume for the sake of exposition that the defender concedes in the first iteration. In the Defender Concedes outcome, economic costs arise for both players. Thus, while economic costs in the SQ are given as $(0,0)$, they increase to $(\delta^2 e_C, \delta^2 e_D)$ if the defender concedes[39]. Looking at the game iteratively, any future instances of play start at a lower status quo with respect to trade, $(-\delta^2 e_C, -\delta^2 e)$. Put differently, the economic costs of escalation are sticky. Hence, both e_C and e_D, the maximum economic costs of both players, have functionally decreased. As a result, the costs of defection and conflict have decreased as well[40].

The stickiness of economic costs has some important implications for repeated play. These can be interrogated by comparing (I) a second iteration after the first ended in the SQ to (II) a second iteration after Defender Concedes.

In (I), if the second iteration ends in war, the challenger will pay e_C in trade costs and c in lump some costs compared to the status quo, for overall costs of $e_C + c$. Compare this

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[37]These are denoted by $t = 1$ and $t = 2$, respectively.

[38]Traditionally, higher discount values haven been associated with cooperative behavior (Axelrod and Hamilton, 1981).

[39]For the moment, any elements of the utility functions apart from trade are ignored.

[40]For illustrative purposes, consider the classical commercial liberalism logic. If countries go to war, they loose gains from trade. Hence, if they went to war before, and thus do not engage in significant trade, they are more likely to go to war. My argument proceeds along the same lines: if states use their economic leverage, they will be less deterred by losses from trade in cases of war.

to (II), where a previous iteration has ended in Defender Concedes. Then the challenger's costs of conflict, compared to the new status quo, are now $(1 - \delta^2)e_C + c$. The costs of war of thus decreased for the challenger[41], and an analogous argument applies to the defender.

Hence, play in $t = 1$ impacts decisions in $t = 2$. After every instance of deviation from the status quo, $\bar{z}_C$ decreases due to a decrease in e_C. On the one hand, a decrease in e_C makes a credible threat more likely. The challenger is more inclined to risk conflict if the economic costs of conflict are lower. On the other hand, e_D also declines in lockstep with e_C, which makes the EC condition less likely to hold. Recall that the defender is economically coerced if $(\delta - \delta^2)e_D > z_D$, which will be less likely given a decrease in e_D.

If discount factors are very small, this concludes the analysis. The two players do not care about the future, thus they do not make their choices in $t = 1$ while strategically anticipating what they will want to do in $t = 2$. On the other hand, if π is close to 1, states will be more inclined to cooperate, as they seek to retain gains from trade. In addition, the anticipate that they might want to use their economic leverage in the future.

In summary, the iterative version of the game illustrates the dynamics of economic coercion in the face of sticky trade. Economic leverage is like a currency that can be spent, and spending it makes military conflict more likely. This might even lead to escalatory spirals, as after every defection from the status quo, future defections become more likely. At this point, however, the model reaches its limits. To be more realistic, while trade is sticky, spending the currency of economic leverage is not a one way street. Over time, new trade relationships can be established, enabling a way out of a potentially escalatory spiral. This dynamic is not part of the formal model presented here, but presents a prime candidate for future extensions.

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[41] $(1 - \delta^2)e_C + c < e_C + c$ because $(1 - \delta^2) < 1$ when $0 < \delta < 1$, which was previously defined.

2.5 Economic statecraft, past and present

The analysis of the above model shows the role of economic leverage during interstate disputes in an abstract way. The present section serves to link the case study in section 2.3 with the formal model in 2.4 and summarize the insights gained. These insights can be applied to concrete cases, past and present.

2.5.1 The Serbian question, revisited

From the historical narrative, it is evident that the level of economic leverage had decreased before World War I. How can this be translated into the language of the formal model? In game-theoretical terms, what happened between Austria-Hungary and Serbia in the years before the First World War? Which potentially conflictual relationships might play out similarly in the near future?

The long-term relationship between Austria-Hungary and Serbia can be described as a repeated bargaining interaction, i.e. iterative play of the game depicted in figure 2.2. For the majority of iterations, Austria-Hungary was the challenger and Serbia the defender. Every new "issue" that presented itself was a new draw of $(z_C = z_{AH}, z_D = z_S)$. For instance, when import competing Hungarian farmers were unhappy with Serbian pig exports, this was an issue. The evaluation of this issue — how much the decision makers in Vienna would value a significant decrease in pig exports — is equivalent to the value of z_{AH}. The same volume of pig exports has the value of z_S to decision makers in Belgrade[42].

The draws satisfied the inequality in R(1): the evaluation of trade interests was high enough for Vienna to decided to impose tariffs and press for a concession. Vienna attempted economic coercion, but did not have a credible threat of military escalation. However, this did not work, as Serbia did not value the losses of trade so much that it

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[42]In the interest of historical accuracy, the second cause of the pig trade war of 1907/1908 were Serbian weapons imports (see section 2.3). We can conceptualize this as a second draw of z, which can be added to the first, leading to an increased value of (z_{AH}, z_S) at the outset of the game.

relented on either the issue of pork exports or weapons imports. In the language of the game, Serbia defected because $(\delta - \delta^2)e_S < z_s$. Vienna then kept the tariff regime in place for some time, leading to a permanent decrease in trade flows and the Challenger Defeated outcome.

A second iteration of the game was played after the assassination of June 14th, 1914. The Austro-Hungarian ultimatum of July 23rd, 1914, sets out the policy issue. The evaluation of the ultimatum is a novel draw of (z_{AH}, z_S). The Austrian evaluation was again high enough to induce action. Crucially, this time Vienna was playing with live ammunition. Conrad von Hötzendorf and his compatriots aimed to compel by military threat, not by economic cost. Belgrade did not agree to fulfil the demands in the ultimatum and played defect[43]. The evaluation of z_S, i.e. the costs of accepting the demands, was too high. In the final decision node of the game, Austria-Hungary evaluated the costs of giving up higher than those of going to war. The CT condition was fulfilled. Consequently, they decided to follow through and declared war.

Lastly, consider the counterfactual currency union between Austria-Hungary and Serbia. Keeping historical events otherwise equal, the draws of (z_{AH}, z_S) stay the same. However, both e_{AH} and e_S would have been higher in case of a currency union, or even just the absence of the pig trade war. With increased e_{AH} and e_S, the EC condition is more likely to be fulfilled, and the CT condition is less likely to be fulfilled. Consequently, Austria-Hungary would have been more inclined to use economic statecraft, but less inclined to declare war.

2.5.2   Contemporary cases of economic statecraft

The first World War ended over a century ago. What does this analysis contribute to foreign policy making today? To make the case for the enduring relevance of my theory, consider the case of the Nord Stream 2 pipeline. The US opposition to the pipeline is

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[43]There is considerable debate how seriously fulfilling the ultimatum was considered by the Serbian decision makers in Belgrade (Fromkin 2005, ch. 31; Neiberg, 2011, ch. 3; Clark, 2012, ch. 10).

frequently explained by reference to the economic leverage Russia might derive from it. Does this argument hold any weight?

Increased gas exports from Russia to Germany, and into the European common market, do not necessarily imply an increase in Russian leverage vis-a-vis the EU. Consider two alternative scenarios, in the first with the EU having economic leverage over Russia, and in the second with Russia having economic leverage over the EU:

1. Russia's economy stays reliant on natural resource exploitation (e_{Russia} is relatively high), while the EU transitions to a green economy that can easily substitute natural gas consumption (e_{EU} is relatively low).

2. Russia manages to diversify its economy, not relying on energy exports as the core of economic activity (e_{Russia} is relatively low). At the same time, the EU replaces coal and nuclear power with natural gas and is only slowly transitioning to renewable energy (e_{EU} is relatively high).

In the first case, Europe profits from Nord Stream 2 in geopolitical and geoeconomic terms. When a policy disagreement arises, the threat of turning off gas imports has substantial force. If gas exports are a significant fraction of Russian GDP, then a lack thereof will incur substantial costs on the Russian economy. Moreover, this will translate directly into a loss of state revenue, because Gazprom, the operator of Nord Stream 2, is majority owned by the Russian state. On the flip side, a green European economy is by definition less reliant on natural gas. A decrease of gas imports will still lead to increasing prices, but this increase will be less politically dangerous for European governments than it is today.

As an example, if the Kremlin seeks to consolidate or even conquer new territory in eastern Ukraine, the EU could threaten to unilaterally close the pipeline to deter from such a move. In the face of an invasion of Ukraine, the EU could turn off gas imports until the previous status quo is reinstated. The costs of doing so would be relatively low to the EU, as the EU has transitioned away from gas into renewable energy. Hence,

paying these limited costs to ensure Ukrainian territorial integrity would be acceptable to EU policy makers.

In the second case, the situation is reversed. Any decrease in gas imports will lead to significant energy price increases in a gas-reliant European economy. If energy prices are politically dangerous for democratically elected European politicians, they will be reluctant to pay high electoral costs in order to preserve the territorial integrity of Ukraine. Hence, the benefit of compelling Russia would not be worth the political costs, and the EU would not intervene by restricting gas imports.

In addition, a diversified Russian economy would not be pressured significantly by a block of gas exports to Europe. If Russia manages to transform its economy, and if its government revenues become less reliant on natural resource extraction, then the denying of earnings from Nord Stream 2 will not be felt in a significant way in the Moscow Kremlin.

In summary, if a political crisis over e.g. Ukraine arises, the side who holds the economic leverage will benefit from (the threat of) turning of Nord Stream 2. Any debate on the political implications of the pipeline should be based on a realistic assessment of the economic costs to both Russia and the EU. Clarifying different assumptions about these costs will make clear where policy disagreements originate, and therefore are a necessary precondition of solving these disagreements.

2.6   Conclusion

In the current political climate, trade policy has once more taken a more salient role in foreign policy. If there is indeed a transition from a rule based world order to a power based one, as e.g. Mattoo and Staiger (2020) argue, then this development will not reverse. Instead, states, especially great powers like the US, China, and Russia, will aim to use their economic leverage to attain influence among smaller states and other foreign policy aims. The World Trade Organization will loose even more of its relevance, as

states aim to more actively use trade flows and investment as leverage points in great power competition and bargaining.

If this is the world to come, the results of this chapter provide some insight into what international politics will look like in the near future. Trade relationships will become further politicized, as they provide an outlet for interstate competition. Trade policy will become normalized as a tool of foreign policy, meanwhile economic superpowers like China and the US will throw their economic way around when military confrontation is too costly.

My analysis also suggests that a frequent framing of the current political climate in popular discourse is wrong. Comparisons with the trade wars during the interwar years are readily available to spin narratives predicting a repeat of downwards spirals and eventual destructive war. But these trade wars were due to domestic economic concerns, most notably the Great Depression. Instead, a more apt comparison would be the world on the eve of the First World War. If military confrontation, for instance between China and the US, is to come, then it would be due to previously depleted leverage in the form of trade. In that case, even a small inciting event could light the fire of war[44].

Policy makers often hold on to history as their guide. This chapter makes the argument that we can indeed learn something from history. Thus, even if the centennial of World War I is behind us, the current political environment has moved to a place of parallel concern to this time period. If states spend their trade leverage without resolving fundamental issues, their toolbox shrinks. And eventually, the final tool left we will be war.

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[44]Two plausible scenarios for such an escalation are cited in a recent book by O'Hanlon (2019), namely an incident involving the Senkaku Islands between Japan and China or the South China Sea.

3

The right tool for the job?
Trade leverage in the foreign policy tool box

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3.1   Introduction

How do states act when they have trade leverage[1] over their counterparts? Are they
more likely to go to war? Or can economic coercion substitute for war? The present
chapter answers these questions based on readily available longitudinal trade and conflict
data. The search for answers gains enhanced relevance due to recent developments in
international relations, as discussed in the two previous chapters.

The previous literature on the trade-conflict nexus has largely focused on the causal
relationship between trade and war. This chapter argues that, in order to give accu-
rate policy advice and improve our academic understanding of international relations, a
reevaluation of the relationship between trade and conflict is essential. To achieve this,
I move from a narrow theory of conflict to a broader theory of foreign policy behavior.

In the US national security establishment and the commentariat, a debate has been
raging over the US-China relationship. When looking for analysis and advice on what
to do in the classical texts of international relations, what will policy makers find? The
answers can be divided roughly into two camps, or schools of thought, both complete
with foundations in great texts, sophisticated theories, and scores of empirical papers[2].

On the one hand, disciples of liberalism may draw from Immanuel Kant (1983)[1795],
arguing that trade pacifies the relationship between countries. Following this logic, the
US should seek trade with China, thus making war so costly for each side that peace
will reign eternally.

On the other hand, realists rely on arguments going back to Thucydides (1998). In his
History of the Peloponnesian War, he provides an account of preventive war. In his
consideration, a declining hegemon (then Sparta, today the United States) declares pre-
ventive war on a challenger (then Athens, today China), because delaying confrontation

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[1]Trade leverage, as well as economic coercion, will be defined in detail later on. Trade leverage can be
roughly understood to denote how much power a state has to coerce another, based on trade flows.
Any such coercion, be it a trade blockade or a sanctions regime, can be considered economic coercion.
[2]These will be reviewed in detail in section 3.2.

would only decrease the odds of winning. According to this line of thought, the US should confront China, economically and maybe even militarily, before its too late.

Both the liberal and the realist school of thought[3] give policy prescriptions, but on many issues these will be diametrically opposed. They stem from answers to almost philosophical questions such as: "Are states more interested in absolute or relative gains?"

In this chapter, I argue that on the narrow question of how trade relates to conflict, empirical political science can give a more useful answer. Instead of getting lost in metaphysical questions about the nature of states, I argue that a holistic understanding of the trade and conflict relationship contains insights from both liberalism and realism. The opportunity costs of lost trade can make war less likely, while asymmetric trade dependence allows for exploitation of weak states by more powerful ones.

This chapter proceeds by first summarizing the relevant literature dealing with the relationship between trade and conflict, as well as various writings on policy substitution. As a next step in section 3.3, I provide a theoretical argument, showing how economic coercion via trade can be a substitute for military action. This argument is then distilled into falsifiable hypotheses. Sections 3.4 and 3.5 describe the available data and use them test the theoretically derived hypotheses. The final section summarizes the policy relevant insights of my analysis and concludes.

3.2   Related literature

The debate over the relationship between trade and conflict has been focused on the question whether trade causes peace or not, as summarized in the previous two chapters. Before formulating my own contribution in detail, I will first recap the existing literature in this field.

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[3]I am generally sceptical that "schools of thought" are a useful frame through which to understand science. Dividing research agendas along such lines implies the danger that proponents of such schools are attached to certain assumptions that make it hard to have cross-cutting conversations and progress empirically. See also Grieco (2019).

The present chapter is an empirical counterpart to chapter 2, which was more theoretical in focus. Consequently, I first turn to reviewing the empirical literature on the trade-conflict nexus, with the theoretical side having been covered in chapter 2. Second, I discuss some of the literature on foreign policy substitution. Last, I discuss some methodological literature relevant for my implementation in the subsequent sections.

3.2.1 Correlations between trade and conflict

The main empirically founded contributions to the relationship between interstate trade and conflict can be divided into the realist and the liberal schools of thought. While realist scholars expect that trade has a positive effect (Waltz, 1970; Buzan, 1984) or no effect at all (Levy, 1989; Ripsman and Blanchard, 1996) on conflict, liberals (e.g. Angell, 1911; Polachek, 1980; Oneal and Russet, 1997) postulate a pacifying effect of trade. According to the liberal argument, trade increases the costs of war, because trade is beneficial to both trading parties and would be disrupted by war[4]. When rational actors decide whether to go to war, they will weigh the benefits against the costs of doing so. Since existing trade makes war more costly, states are less likely to go to war. In other words, the opportunity costs of war should make trading states more peaceful.

The first major empirical study on commercial liberalism is due to Polachek (1980), who analyzed the empirical relationship between trade volume and violent conflict[5]. His finding confirmed the liberal thesis that an increase in trade is associated with a decreased incidence of conflict. These results were in turn confirmed in findings by Oneal and Russett (1999) as well as Russett and Oneal (2001).

However, the commercial liberalism thesis did not go uncontested. Using standard panel regressions, Barbieri (1996, 2002) argues, in opposition to Oneal and Russett (1999) and Russett and Oneal (2001), that trade does not in fact inhibit war, but may under some circumstances promote it. However, Xiang et al. (2007) show that omitted variable bias

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[4]For the claim that war decreases trade, see e.g. Anderton and Carter (2001); Bayer and Rupert (2004). The opposing claim is made by Barbieri and Levy (1999), but based on a small sample size.

[5]See also extensions of this work in Gasiorowski and Polachek (1982) as well as Polachek et al. (1999).

was responsible for this result — controlling for dyadic power asymmetries switches the sign of the trade coefficient, and Xiang et al. (2007) consequently estimate a negative effect of trade on war. Hegre et al. (2010) further solidify the case for the pacifying impact of trade by estimating several simultaneous equation models that yield such an effect.

Beyond the aggregated level of trade, researchers have investigated the effect of different types of trade on conflict. For instance, Dorussen (2006) finds that the goods that are traded are a crucial factor in whether trade really reduces the tendency towards conflict. Some goods are of more strategic importance than others, and thus we should not expect all trade to have the same impact on the occurrence of conflict.

3.2.2 Empirical stumbling blocks

Early empirical work, such as that cited above, relied on comparably simple regression analysis, without the help of the modern statistical tools available to social scientists today. Unfortunately, there are some inherent challenges in analyzing the relationship between trade and conflict, which simple regression analysis is unequipped to properly deal with:

1. The direction of causation is not clear,
2. Dyadic research designs are vulnerable to multiple sources of bias.

The first of these challenges is theoretically motivated. Observing a correlation between peace and trade does by no means imply causation. On the one hand, if the liberals are right, trade increases opportunity costs of states, causing them to stay away from conflict. On the flip side, war inevitably causes a decrease in trade volume between enemies. If the trading firms and individuals reduce cross-border economic activity in the anticipation of a war, simplistic analysis runs the risk of misreading this correlation as trade causing peace (Keshk et al., 2004).

The second challenge is less theoretically motivated and applies to dyadic research designs at large. In dyadic research designs, the units of observation are the relationships between

states. Exports from state i to state j are one example of such a variable. For example, in a dyadic sample with n states, each state will appear $n-1$ times as part of an observation of trade flows, and the resulting data set of trade flows will consist of $n(n-1)/2$ such observations.

While these large sample sizes make hypothesis testing more attractive to researchers, observations are not in fact independent — an important assumption in many causal inference methods (Erikson et al., 2014; Poast, 2016; Minhas et al., 2021). In effect, an increased amount of observations will lead to upwardly biased estimates and therefore inflated statistical significance, if the independence assumption remains unquestioned.

3.2.3   Identifying causal effects

The empirical literature has been slow to react to the aforementioned challenges and adapt. In order to deal with reverse causality, Hegre et al. (2010) use simultaneous equation models. More convincingly, (Martin et al., 2008) employ an instrumental variable approach to estimate the effect of both bilateral and multilateral trade openness on conflict. The two instruments used are the geographical distance between countries and the Generalized System of Preferences (GSP) of the European Union, both tested in a post-1945 sample. The authors find that bilateral trade decreases the risk of war (measured as onset of militarized interstate disputes, see section 3.4), in accordance with the commercial liberalism hypothesis. Their secondary finding is that multilateral trade increases the likelihood of conflict, a fact they attribute to the easier substitution of any trade that is hindered by conflict. As their argument goes, stronger trading relations with third parties make it easier to replace the trade that is lost due to conflict.

In my view, the main shortcoming in the commercial liberalism literature is its implicit assumption that trade is purely an exogenous variable that has an effect on the likelihood of conflict. The implicit theoretical model underlying this literature claims that there is a causal effect of trade on war. This claim can then in turn be measured by the appropriate statistical model. This is done by keeping all other variables constant, either by using

controls, a sophisticated research design, or both. On a theoretical level, this misses the point, however. Trade is not only influenced by a myriad of other factors, it is also actively used to make foreign policy. Politicians who decide to take a nation to war are also involved in trade policy, with overlapping aims and domestic constraints. It is thus crucial to consider trade policy as part of foreign policy, and endogenize the former in theoretical as well as in empirical terms. It should be noted that this does not invalidate any causal claims with regard to the effect of trade on conflict. Given such an effect is estimated properly, it does not provide a wrong but an incomplete picture of the relationship between trade and war.

3.2.4 Substitution in theory

In addition to the trade-conflict literature, the present chapter builds on the policy substitution literature. This literature goes back to Most and Starr (1984) and, in the simplest terms, discusses the substitutability of different foreign policy instruments. As (Most and Starr, 1984, p. 392) convincingly argue, in order to understand foreign policy as a whole, it is necessary to move beyond the separate analysis of concrete behaviors. This branch of literature is thus straightforwardly relevant to the present chapter, which discusses the substitutability of economic coercion for military action.

In general, the foreign policy choices of political leaders make should depend on "leaders' utilities for different policies, the costs associated with those policies, and the resources available [. . .] (Clark et al., 2008, p. 763)"

In terms of concrete implications, Dorussen (2001) reviews several works on the role of sanctions compared with positive incentives, like development aid, IMF assistance, WTO Most Favored Nation status. Whereas these positive incentives are certainly an option in the standard foreign policy toolkit, the present paper focuses instead on economic coercion and military action as mutual substitutes.

Drawing from economic theory, Morgan and Palmer (2000, 2003) formulate policy substitution as an economic utility maximization problem. They point out that states can

have multiple goals (e.g. security, prosperity) and several ways to achieve them (e.g. military spending, alliances). In the next step, they then derive and test multiple hypotheses on resource allocation in foreign policy. Throughout their analysis, they assume that a single resource can be allocated to multiple policies. By contrast, my analysis assumes that one resource — trade leverage — can be used for economic coercion, but does not directly impact the feasibility of military action.

Lastly, Lin-Greenberg (2019) provides an argument that policy makers can use foreign policy substitution to mitigate audience costs during crisis bargaining. Using survey experiments, he shows that leaders incur less audience costs after "backing up" rather than "backing down". Backing down means that a leader remains inactive after issuing a foreign policy threat. Backing up, on the other hand, means substituting the threatened action (e.g. a ground invasion) with a lower level action (e.g. a set of sanctions).

In contrast to the previous research on foreign policy substitution, I focus on the role of trade leverage as the deciding factor. As I argue in the theoretical section, its presence or absence determines whether states choose either economic coercion or war.

3.2.5   Towards a new empirical approach

A proper empirical investigation of economic statecraft proceeds by first formulating more complex hypotheses than "trade causes peace" or "trade causes war", which I do in section 3.3. These hypotheses are then tested, looking at the relationship not only between two variables (trade, war), but also at all other choice and outcome variables involved in the trade-conflict nexus.

This means empirical analysis requires several novel steps. Following the theoretical argument in the next section, I discuss the measurement of a *trade leverage* variable. This concept builds on previous work by Hirschman (1945) and Spaulding (1991). In addition to measuring the level of trade leverage, I introduce a measure of economic coercion. By way of an analogy, the trade leverage variable is similar to a military capability index, while the economic statecraft variable aligns with a measure of war.

In addition to measurement, empirical analysis requires careful model selection. As the theoretical framework below demonstrates, my theory cannot be neatly packaged into a single outcome and a single treatment variable. Keeping this challenge in mind, in section 3.5.2 I construct several multinomial regression models. These are designed to test economic coercion and military conflict as competing foreign policy outcomes directly. Lastly, I take seriously the challenge to dyadic research designs formulated in section 3.2.2 and fit several AME models specifically constructed to take into account dyadic dependence.

3.3   Theoretical framework

The purpose of this section is to proceed from a general theory on economic statecraft to specific hypotheses that can be empirically tested.

Trade leverage[6] is a relational variable, describing the relationship between two states. It measures the economic pressure one state can put on another, specifically by restricting trade flows. Trade leverage can not be ascribed to one single state, which would be a category error. For instance, Russia does not have trade leverage as such, only a certain level of trade leverage against Ukraine, and another level of trade leverage against the EU. As an extreme example, consider a world with only one state. It would not make sense to assign a level of trade leverage to this state — it does not trade with anyone, and it has no one to coerce. Therefore, trade leverage is a relational, or dyadic, variable.

3.3.1   Components of trade leverage

Each component of trade leverage falls into one of three groups:

1. Other relational variables than trade leverage;

2. Variables specific to one state, state i;

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[6]Analogous discussions are possible for similar concepts, like investment leverage based on FDI or financial leverage. This chapter focuses on trade leverage and does not discuss other variants of economic leverage.

3. Variables specific to the other state, state j;

The most important other relational variables are trade flows: exports from i to j and exports from j to i. These alone will not determine trade leverage, however. In addition, the structures of i's and j's economies are an important factor in determining trade leverage. For instance, if j trades exclusively with i, but i has many more trading partners, then i will have more leverage over j than j over i, other factors being equal. This is due to the fact that i has an easier time substituting lost trade from trading partners other than j. On the other hand, if economic coercion takes place, j will have to either find new trading partners or substitute the lost trade via domestic markets.

Empirically, trade leverage should thus depend on import and export market shares. More specifically, the higher the share of j's imports that come from i, the more 'captured' j's import market is by i. The same applies to export markets. The trade leverage i has over j is a function of import and export market captures of i over j and j over i.

Finally, trade leverage is a symmetrical variable. The more i captures j's import market, for instance, the more economic damage i can inflict, and thus the more trade leverage i has. Conversely, the more i captures j's import market, the higher the costs for an application of economic coercion by j, and thus the lower the level of trade leverage j has over i.

After having ascribed different levels of trade leverage to states, how should we expect them to use this resource?

3.3.2   Uses of trade leverage

Without any doubt, states can use trade leverage to reach policy goals. In many cases, the goals of economic coercion will be trade issues, but other foreign policy issues are also possible. In everyday parlance, if economic coercion is used to settle a trade dispute, we would call that a trade war. If foreign policy is the object of contention, a sanction dispute is the more appropriate term. However, both trade wars and sanctions disputes have the same general structure: states (temporarily) restrict their trading relationship in

order to induce behavioral changes in each other. Consequently, both sanctions disputes and trade wars, as well as all further uses of trade leverage, can be summarized under the term economic coercion.

In general, states will only engage in economic coercion if they want to reach some clearly defined goal. Two states that are in perfect alignment on all policy positions have no reason to engage in economic coercion, even if they anticipate a 100% success rate. Hence, a policy disagreement is a necessary precondition of economic coercion.

On the other hand, a policy disagreement is not a sufficient condition for economic coercion. If Liechtenstein has a policy disagreement with Switzerland, they are unlikely to use their trade leverage to coerce the Swiss government — simply because they lack that trade leverage. Generally speaking, states that are weak in the sense of trade leverage will have a hard time engaging in economic coercion.

States that have both available trade leverage as well as a policy disagreement with another state still have an alternative to economic coercion: military action. Economic coercion and military action can be considered as mutual substitutes. Both are instruments appropriate to reach certain goals. Both instruments include the application of force, either economic or kinetic. By which criteria will states decide between these two instruments, trade leverage and military power?

First, one of the instruments might be mechanically excluded. Liechtenstein has neither the military nor the economic power to use either instrument in an imaginary confrontation with Switzerland. The United States has attempted to economically isolate North Korea, but scarcely any trade leverage left. Military options still remain, even if they might be costly. Smaller members of the EU might use their trade leverage to compel certain Russian behavior, but they do not really have the military power to apply kinetic force[7].

Second, states which have both options available will choose that which is more cost efficient. Cost efficient in this context refers to the relationship between military power

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[7]In any case, European foreign and trade policy are conducted collectively in Brussels, so any unilateral deployment of economic or military force by a EU member state is highly unlikely.

and trade leverage. For example, if state i has a policy disagreement with j and j's economy is highly dependent on imports from i, but i's economy is not reliant on trade with j, for i economic coercion will be relatively cheap. This consideration is further reinforced if deploying military power is costly.

3.3.3   Hypotheses on trade leverage

For economic statecraft to be effective, sufficient trade leverage is a necessary prerequisite. In my framework, a state that wants to achieve a foreign policy goal, has a choice between two options: either exert economic pressure or employ military means. What will this choice depend on? Firstly, for there to be any chance of success by economic means, the state should have leverage over its counterpart. Absent this leverage, states will decline to pursue their aims by economic means and gravitate more towards military action instead. On the other hand, available trade leverage might create an opening to avoid military confrontation. If both the economic and the military option are available in principle, there are several reasons to suspect the former might be preferable to the latter from the vantage point of the decision maker. First, economic pressure might be less costly than military action. Whereas foregoing some economic gains, this loss of wealth will be easier to sell to a domestic audience than mounting causality numbers of a military confrontation, especially if the latter has a tail risk of escalating. Second, economic coercion can proceed on a lower level of salience than military action. The general public will be less interested in coverage of trade talks than in the progress of an ongoing war, leading to more flexibility. This consideration leads me to formulate the following hypothesis:

> **H**: The higher the level of trade leverage, the higher the likelihood that states
>
> engage in economic coercion if faced with a policy disagreement.

Put in terms of a regression equation[8], this can be expressed as:

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[8] All equations in this section are expressed in terms of variables as concepts, independent of their measurements. They can be thought of as more formal expressions of the hypotheses. I reformulate them with the appropriate empirical variables after discussing measurement.

$$EC_{ij} = \alpha_1 + \beta_1(lev_{ij} \times pd_{ij}) + \gamma_1 Z + \epsilon_1 \tag{3.1}$$

where greek letters describe regression coefficients and error terms. EC_{ij} denotes an instance of economic coercion of j by i, lev_{ij} denotes leverage of i over j, pd_{ij} denotes a policy disagreement between i and j, and Z is a vector of control variables.

Crucially, I expect β_1 to be positive: if a policy disagreement arises, then states with high levels of trade leverage will engage in economic coercion. They will do so in lieu of military confrontation:

>   **Corollary (H2)**: The lower the level of trade leverage, the higher the like-
>   lihood of military conflict if faced with a policy disagreement.

Which can equally be formulated in the shape of a regression equation:

$$War_{ij} = \alpha_2 + \beta_2(lev_{ij} \times pd_{ij}) + \gamma_2 Z + \epsilon_2 \tag{3.2}$$

where War_{ij} indicates whether i and j engage in conflict. I expect a negative coefficient β_2, as theory predicts that higher levels of trade leverage should be associated with lower levels of military conflict.

Before turning to test these hypotheses empirically, some groundwork is necessary. Up to now, the concept of trade leverage was left empirically ambiguous. The coming section alleviates this, by discussing trade leverage and its definition in detail.

3.4 Data description

Before analyzing the concept of trade leverage empirically, I use this section to describe the different data sources that I combine for the intended empirical analysis. These data sources are especially interesting as the ingredients for an index on trade leverage I develop in section 3.4.3. Following a description of the data sources, I expand on the

operationalizations of my most important variables: 1. economic coercion, 2. militarized interstate disputes, and 3. trade leverage. Throughout the data and results sections, I refer to the use of economic pressure by application of trade leverage as economic coercion.

I investigate the role of trade leverage in a large post World War II (WWII) data set. Unfortunately, my dataset does not cover eras of multipolarity, when economic statecraft is more proliferate. However, there are two arguments for nevertheless proceeding this way: first, systematic data on trade, military conflicts, foreign policy dynamics and other variables is only available on a consistent basis in this time frame. Second, whereas economic statecraft may be more proliferate in multipolar times, it was not fully absent in bipolar or multipolar systems of the past.

One factor reducing the proliferation of economic statecraft was the existence of the GATT/WTO. This international organization institutionalized trade relationships. The conversation moved from bilateral bargaining to the different negotiation rounds in the GATT/WTO. Of course, this arrangement did not make trade wars and sanction disputes disappear. Whereas trade leverage might have been used during interstate conflicts more sparsely, understanding the dynamics of that usage will still assist our understanding of the nature of economic statecraft.

3.4.1   Main data sources

I aggregate data from two main sources: the CEPII TRADEHIST dataset and the Correlates of War project.

TRADEHIST   The TRADHIST dataset, provided by the Centre d'Etudes Prospectives et d'Informations Internationales (CEPII), is the most extensive dataset on historical trade data. It aggregates trade flow and other data from several primary and secondary sources (Fouquin and Hugot, 2016). The coverage period for this data ranges from 1827 to 2014. The data in TRADHIST is arranged in the directed dyad format,

meaning every observation is uniquely defined by an exporting country, an importing country, and one year. The variables that are candidates for constructing a measure of protectionist foreign policy are general tariff rates, bilateral tariff rates, and trade flows themselves. The former describe the level of protection by one country generally, independent of the other country in the dyad. Consequently, it does not capture trade policy changes towards another country, only trade policy changes in general[9]. On the other hand, the bilateral tariff rate variable does capture tariff rates that are specific to a given country pair. Unfortunately, this variable is coded as missing in over 99% of observations[10].

I exclude some observations based on population size and missing data. Countries with less than 200,000 inhabitants are classified as micro states and excluded from the analysis. The smallest state included is thus Vanuatu with around 250,000 inhabitants in 2014. Dyads with missing population numbers or trade flows are excluded as well. This does not extend to dyads where trade flows take the value zero, these remain in the sample. Overall the sample includes around 1.1 Mio directed dyadic observations, meaning every country-country-year combination appears twice to capture both directions. Missing control variables reduce sample size further, accurate observation numbers are listed in the results tables below each model.

CoW The Correlates of War Project (CoW) project provides data on national military capabilities (*cinc*), militarized interstate disputes (MIDs) (Palmer et al., 2015) and polity scores (Gleditsch and Ward, 1997). I also make use of the directed nature of the MID data, which includes data on which side initiated the event. MIDs are classified by severity, with 0 being no event up to 5 for an interstate war. Some control variables are also provided by the CoW data set.

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[9]In theory, a bilateral increase in tariffs should, ceteris paribus, also increase average unilateral tariff rates. This measure would be extremely coarse, however, and not be able to account for, e.g., any compensatory bilateral tariff decreases with other countries.

[10]This is surprising, not least because countries in the EU have their average bilateral tariff rates coded as missing, ignoring the European Single Market, a customs union with no internal tariffs.

3.4.2   Additional variables

Besides these two main variables, I include a range of additional independent variables on the right-hand-side of multiple regressions. From the TRADHIST dataset, I utilize trade flows as well as distance, GDP, population, and GDP per capita data. The CoW project provides data on national military capabilities and polity scores (Palmer et al., 2015).

In addition, I include a variable of relative foreign policy position of nations as estimated by United Nations General Assembly (UNGA) voting data (Voeten et al., 2009; Bailey et al., 2017a). In particular, I use the absolute difference in estimated ideal points to measure how far apart two nations are on foreign policy[11]. This variable serves as an indicator of foreign policy disagreement: the further apart two countries are, the less they are in agreement. Adversaries will on average have high values, while allies will exhibit low values in this variable.

3.4.3   Variable construction

In order to test empirically the relationship between economic coercion and conflict, it is first necessary to construct a measure of a) trade leverage b) the application of that leverage, which I refer to as economic coercion.

a) Trade leverage   In line with the theoretical discussion above (section 3.3), I construct trade leverage as a function of market shares, with market shares being themselves functions of trade flows. Import market shares are the share of trade flows from i to j divided by the overall imports into country j, similarly for export market shares. Formally, this is constructed as follows:

$$lev_{ij} = \frac{IMC_{ij}(imp_j, exp_{ij}) + EMC_{ij}(exp_j, exp_{ji})}{IMC_{ji}(imp_i, exp_{ji}) + EMC_{ji}(exp_i, exp_{ij})} \tag{3.3}$$

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[11]For the complete description of the data and how this particular variable is constructed, see Bailey et al. (2017b).

with

$$IMC_{ij}(imp_{j,i}, exp_{ij}) = \frac{exp_{ij}}{\sum_{i=1}^{n} imp_j}$$

$$EMC_{ij}(exp_{j,i}, exp_{ji}) = \frac{exp_{ji}}{\sum_{i=1}^{n} exp_j}$$

$$IMC_{ji}(imp_{i,j}, exp_{ji}) = \frac{exp_{ji}}{\sum_{j=1}^{n} imp_i}$$

$$EMC_{ji}(exp_{i,j}, exp_{ij}) = \frac{exp_{ij}}{\sum_{j=1}^{n} exp_i}$$

The leverage variable is constructed as the ratio of market share captures. For instance IMC_{ij} gives the share of $j's$ import market captured by i, meaning the share of total imports by j that are exported by i to j. Other market shares are constructed analogously. The basic variables are denoted straightforwardly as follows: imp_j gives the overall imports flowing into j, or $j's$ import market. This is calculated as the sum of $j's$ imports, $\sum_{i=1}^{n} imp_j$. exp_{ij} denotes exports from i to j, with $exp_{ij} = imp_{ji}$. The enumerator in equation (3.3) gives the sum of export market share and import market share of j captured by i, which translate into the economic power i can apply to j. The denominator flips this around, summing up the import and export market shares of i captured by j.

The resulting ratio in equation (3.3) provides a relative measure of trade leverage: an increase in lev_{ij} necessitates a decrease in lev_{ij}, as $lev_{ij} = (lev_{ij})^{-1}$. Taking the natural log of this variable provides standardization around 0, with negative values of lev_{ij} marking a relative strength of j and positive values indicating that i has the upper hand[12].

For illustrative purposes, figure 3.1 provides a snapshot of the trade leverage variable in its logged form. The two left panels show the global distribution of trade leverage in 1950 and 2014, with little change apparent[13]. The middle panels show how US trade leverage changed between 1950 and 2014, with a small overall move to the right. This indicates that the average economic power of the US has slightly increased since 1950.

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[12]See appendix B.1 for the formal derivation of this variable transformation.

[13]While the sample begins in 1945, by 1950 the immediate effects of the second World War should have abated somewhat. 2014 marks the end of the sample and thus provides a logical point of comparison.

Figure 3.1: Overview of the trade leverage variable distribution, global and by countries.

A few factors may contribute to this: First, the world is more interconnected today than it was in 1950. Especially trade between the US and former Eastern Bloc countries should have increased since the fall of the Berlin wall. Second, the US has since 1950 increased its focus on trade, politically and institutionally supporting the WTO (Irwin et al., 2009). Assuming the US is a rational actor seeking to increase its power, these factors should lead to an average increase of US economic power. The two panels on the right show the same time comparison for China. Here the contrast is stark, with Chinese trade leverage increasing markedly from 1950 to 2014. This can be attributed to the general increase in Chinese economic growth, which in turn increased trade leverage in almost all bilateral relationships.

b) Economic coercion   It would be insufficient to define economic coercion simply as a decrease in bilateral trade. While a trade war or sanctions dispute will most likely cause a significant decrease in trade, the reverse relation must not hold, i.e. not every decrease in trade is due a trade war or sanctions dispute. In other words, a decrease in trade a necessary but not a sufficient condition of an instance of trade-based economic coercion[14].

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[14]Naturally, other types of economic coercion might not involve a (noticeable) degree in trade flows, e.g. the weaponization of financial flows or a price increase in a good that is very price inelastic.

Instead, decreases in trade my be downstream from decreases in national production, as during the Great Recession (Bems et al., 2012). A decrease in trade between nations that is due to a domestic contraction in either or both of their economies does not describe the kind of use of trade leverage relevant to the present analysis. Ideally, instances of economic coercion (trade wars, sanctions disputes) would be measured by an increase in overall bilateral tariffs and the presence of sanction cases. This would capture a policy action rather than an outcome, thus excluding changes in trade volumes caused by global market fluctuations.

Unfortunately, consistent high-quality bilateral tariff data is hard to come by. The UNCTAD Trade Analysis Information System (TRAINS) provides fine grained data, disaggregating tariffs as well as non-tariff measures for 150 countries down to the HS6 level of product classification. The disadvantage of this data is twofold: first, it does not readily provide simply, aggregated bilateral tariff rates. While these could be constructed, i.e. by constructing trade weighted averages, the second drawback of this data is its limited coverage. Data is only available from 1988 onward. This excludes large stretches of time for which data in many other variables is available. By construction, this data also includes only the later half of the GATT/WTO period. I suspect that the use of trade policy as an instrument of economic statecraft was limited by the introduction of the liberal rules-based framework of that institution. To test whether this suspicion is true, coverage of other periods is a necessary condition. The tariff data from CEPII is equally impractical for the present purpose, for reasons described above.

In the face of these difficulties, I proceed as follows: I code economic coercion as two versions of a binary variable, taking the value 1 if the following conditions are fulfilled:

1. There is no Militarized Interstate Dispute of severity 4 or 5.

2. The first difference of trade flows is negative.

3. (a) The percentage change in trade in at least twelve percentage points higher than the overall reduction in world trade, alternatively:
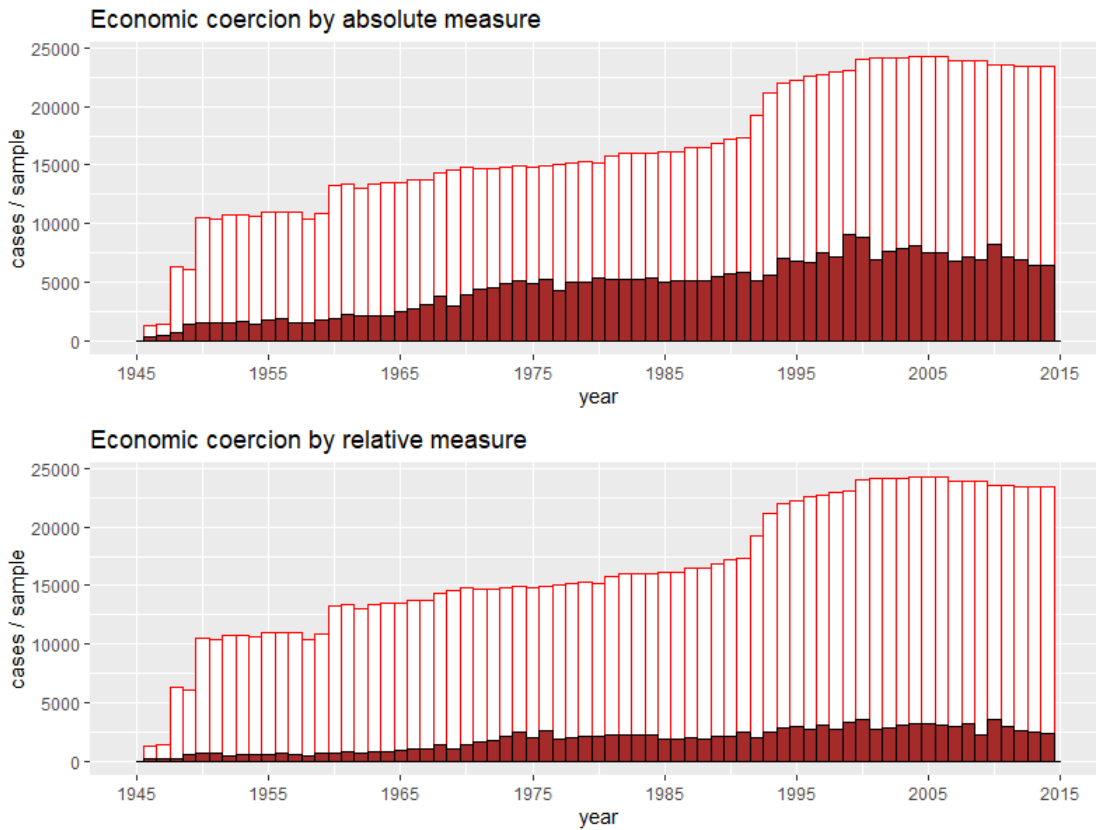
Figure 3.2: Development of economic coercion and sample size over time.

(b) The percentage change is at least one standard deviation higher than the
mean percentage change in trade of the dyad.

The first condition serves to exclude observations where an interstate war occurs, which
we can expect to reduce trade. However, the lower coded MIDs include diplomatic threats
and show of force actions, which should not mechanically cause trade reductions[15]. The
second point is self-explanatory, no economic coercion should occur without a reduction
in trade volume. This reduction should be disproportionally large, compared to overall
trade flows, wich is captured by point 3. For instance, the 2008/9 recession caused
stark reductions in international trade overall. These were, however, not driven by trade
policy but by a reduction in economic growth. Hence, the economic coercion variable
should not pick up on this reduction in trade, unless it was overly large. As an example,
overall trade in 2009 decreased by around 9%. Thus, for a dyad to be coded as a 1 in

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[15]One potential weakness is the possibility that economic actors anticipate escalation when they observe
even lower level MIDs. This would lead to an organic reduction of trade by market forces. Of course,
this dynamic itself could be anticipated and consciously employed by policy makers as well.

the economic coercion variable, it would have to experience a decrease in trade by at least 21% in line with condition 3(a). Ideally, the number of economic coercion events should thus not depend on global trade flows, i.e. we should not, ceteris paribus, expect a higher count in 2008/9 than any other year. The top panel of figure 3 confirms this, showing a gradual increase in economic coercion over time, which can be attributed to the higher sample size over time.

The same holds for the second panel in figure 3. Here, I use condition 3(b) instead of 3(a), defining the cutoff point as at least one standard deviation below the world trade reduction of 9%. This standard deviation for 2009 amounts to a staggering 58 percentage points[16], putting the cut off at -67%.

Overall, the variable EC_{ij} takes the value 1 in around 25% of the sample if measured with condition 3a) and around 10% when measured via 3b). The two variables are highly correlated ($r = 0.57$). For the remainder of the analysis I use the first variable, measured in absolute changes. Robustness checks are provided in appendix B.

3.5   Results

This section presents the results from several regression analyses. These aim to establish the effect of trade leverage on economic coercion and military conflict. To this end, I first run straightforward linear regressions and logit models. In both of these analyses I employ interaction effects in order to distinguish the effect of foreign policy disagreements on the choice of foreign policy[17]. I supplement this approach with a multinomial regression analysis, thereby viewing economic coercion and military actions as one single triple-valued foreign policy variable instead of two different binary variables. Lastly, I estimate several additive and multiplicative effects models (AMEs), providing further reinforcement of my results.

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[16]This is due to the unique shape of trade changes in 2009, see figure A.1 in the appendix.

[17]Unfortunately, this makes it exceedingly difficult to employ causal inference in an instrumental variable framework, as e.g. in Martin et al. (2008), because this would require a valid instrument for each variable in the interaction term.

Before discussing results it is helpful to put the hypotheses formulated in the theoretical section into more empirical terms:

H1: Higher levels of leverage are correlated with higher probabilities of economic coercion (denoted EC_{ij}), while the likelihood of observing an MID decreases.

In regression terms, and including the variables defined in the preceding sections, this hypothesis can be put as:

$$EC_{ij} = \alpha_1 + \beta_1 lev_{ij} + \gamma_1 Z + \epsilon_1 \tag{3.4}$$

$$EC_{ij} = \alpha_2 + \beta_2 (lev_{ij} \times UNGAd_{ij}) + \gamma_2 Z + \epsilon_2 \tag{3.5}$$

and on the flipside:

Corollary (H2): Lower levels of leverage increase the likelihood of MIDs.

or:

$$MID_{ij} = \alpha_3 + \beta_3 lev_{ij} + \gamma_3 Z + \epsilon_3 \tag{3.6}$$

$$MID_{ij} = \alpha_4 + \beta_4 (lev_{ij} \times UNGAd_{ij}) + \gamma_4 Z + \epsilon_4 \tag{3.7}$$

In line with theory I expect β_1 and β_2 to take positive values but β_3 and β_4 to take negative values.

Equations (3.5) and (3.7) include interaction terms in order to capture the presence, or absence, of a foreign policy disagreement. As theorized in section 3.3, such a disagreement is a necessary but not sufficient condition for the application of any foreign policy instrument. I hope to capture this by investigating the impact of changes in UNGA voting on the effect of economic leverage.

3.5.1 Isolated regression analysis

The choice of control variables in the following regression models is determined by concerns of potential endogenity. I include these variables if I suspect they might be correlated with both leverage and economic coercion. For example, I expect that states that share borders (denoted by the *Contig* variable), should be less likely to restrict trade, other things being equal, as they will have a harder time controlling both import and exports, compared to state dyads that are more distant from each other. The control variable for geographical distance, logdistance, also points in this direction[18].

In a first step (table 3.1), I regress the level of trade leverage on the prevalence of economic coercion. I use heteroskedasticity-consistent (HC) standard errors. I expect the coefficient of the leverage variable to be positive, signifying a positive correlation between trade leverage and economic coercion. This is only partly borne out in the specifications summarized by table 3.1. More concerning however is the low coefficient size: model 4 shows a statistically significant effect of trade leverage on economic coercion. However, this effect has the size of 0.001%, meaning an increase of 1 on the trade leverage scale increases the likelihood of a trade war by 0.001%.

The control variables included in the regression also provide some interesting insights. First, the coefficient of distance[19] is significantly positive, indicating that higher distance increases the likelihood of a trade war. Furthermore, two geopolitical variables, alliances and the closeness in UNGA votes, are negatively correlated with economic coercion. This indicates that countries are more likely to find themselves in economic coercion with their adversaries rather than their allies, an intuitively plausible result.

I also include an interaction term between UNGA position and trade leverage. This is driven by the conjecture that the likelihood of economic coercion should be low for

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[18]Other control variables are labeled as follows: logGDP denotes the logged gross domestic product for both ends of the dyad marked by subscripts i and j. UNGADd denotes the changes in estimated difference on the United Nations General Assembly votes between the two states in the dyad. cinc give a measure of relative military power taken from the CoW project. polity2 gives the standard polity2 scores. Contig refers to contiguity, a dummy indicating whether the two states share a border. Lastly, alliance is a dummy for the existance of an alliance between the two members of the dyad.

[19]For models with dyad fixed effects both distance and the contiguity dummy are subsumed by these fixed effects.

	Dependent variable:					
	EC_{ij}	EC_{ij}	EC_{ij}	EC_{ij}	EC_{ij}	EC_{ij}
	OLS	OLS	panel linear	panel linear	panel linear	logistic
leverage	0.00000	.00001***	.00001***	.00001**	0.00000	.0001**
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(.00003)
logGDP_i		.007***	.010***	.014***	.014***	.046***
		(.0003)	(.0004)	(.002)	(.002)	(.002)
logGDP_j		.006***	.009***	.013***	.013***	.042***
		(.0003)	(.0004)	(.002)	(.002)	(.002)
UNGAd_{ij}		.024***	.027***	.011***	.011***	.124***
		(.001)	(.001)	(.001)	(.001)	(.003)
logdistance_{ij}		.031***	.030***			.138***
		(.001)	(.001)			(.004)
cinc_i		.625***	.489***	.328**	.316**	2.454***
		(.027)	(.034)	(.137)	(.137)	(.145)
cinc_j		.616***	.482***	.330**	.330**	2.411***
		(.027)	(.034)	(.137)	(.137)	(.144)
polity2_i		.001***	.001***	.0003*	.0003*	.003***
		(.0001)	(.0001)	(.0002)	(.0002)	(.0004)
polity2_j		.001***	.001***	.0003*	.0003*	.003***
		(.0001)	(.0001)	(.0002)	(.0002)	(.0004)
alliance		.011***	.011***	.035***	.035***	.052***
		(.002)	(.003)	(.006)	(.006)	(.011)
Contig		.015***	.015***			.084***
		(.004)	(.004)			(.018)
$\text{UNGAd}_{ij} \times \text{leverage}$					0.00000*	.00001
					(0.00000)	(.00001)
Constant	.341***	.358***				.090
	(.001)	(.012)				(.159)
Year FE	No	No	Yes	Yes	Yes	Yes
Dyad FE	No	No	No	Yes	Yes	No
Observations	831,222	616,871	616,871	616,871	616,871	616,871

Note: *p<0.1; **p<0.05; ***p<0.01

Table 3.1: Effect of trade leverage on economic coercion.

countries that are close on the UNGA scale. In line with this thinking, this dynamic should be present irrespective of the present levels of trade leverage — allies don't coerce each other. However, with increasing difference on the UNGA scale, states slowly move from being allies to being adversaries. Then, trade leverage becomes relevant, and should lead to an increase in the likelihood of economic coercion.

All but the last columns in table 3.1 report Linear Probability Models (LPMs), i.e. linear regressions with a binary dependent variable. The last model of table 3.1 depicts the results of a logit regression, confirming the direction and level of significance of the LPMs. Magnitudes cannot be directly compared, as logit models produce logged odds rations instead of marginal probabilities derived from LPMs[20].

The analysis in table 3.1 shows that trade leverage is indeed associated with an increase in economic coercion, thus H1 is confirmed. On the other hand, the impact of UNGA voting behavior on this effect remains negligible.

3.5.2 Multinomial regression analysis

So far, the presented regression models have only tested the direct relationship between trade leverage and economic coercion. This forgoes one of the three variables mentioned in H2: MIDs. In order to test the effect of trade leverage on the choice between the economic option, as measured by economic coercion, and the military option, as measured by MIDs, I fit a multinomial logit model implemented in a feed-forward neural net[21] To this end, I create a factor variable of foreign policy choice, taking the value 1 when the observation includes an instance of economic coercion, 2 when there is an MID present, and 0 otherwise. Results are summarized in table 3.2: three models are provided, each with two columns. The coefficients are logged odds ratios for the outcome variable compared to the baseline, which is no event, economic or military.

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[20]Table A.2 in the appendix reproduces similar models to table 3.1, using a maximum likelihood function that adjusts for bias (Kosmidis et al., 2020), implemented via the brglm R package.
[21]This is implemented via the *nnet* R package (Ripley et al., 2016).

	Dependent variable:					
	1	2	1	2	1	2
leverage	.00002***	−.0001	−.00001	−.032***	.00004***	.0003***
	(0.00000)	(.0001)	(0.00000)	(.002)	(.00001)	(.0001)
UNGA$_{ij}$			.141***	.172***	.121***	.307***
			(.003)	(.015)	(.003)	(.005)
logGDP$_i$			−.027***	−.035***	−.043***	.068***
			(.001)	(.006)	(.001)	(.008)
logGDP$_j$			−.037***	.43***	−.043***	−.035***
			(.001)	(.006)	(.001)	(.008)
logdistance			.179***	.244***	.139***	−.211***
			(.003)	(.012)	(.003)	(.012)
cinc$_i$			−4.276***	2.570***	−2.383***	5.308***
			(.0002)	(.0001)	(.0001)	(.0001)
cinc$_j$			−4.338***	−14.527***	−2.220***	5.893***
			(.0002)	(.0001)	(.0001)	(.0001)
polity2$_i$			−.0004	−.003*	−.003***	−.018***
			(.0004)	(.002)	(.0004)	(.003)
polity2$_j$			−.004***	−.003*	−.002***	−.002
			(.0004)	(.002)	(.0004)	(.003)
alliance			.025**	.387***	−.054***	.143***
			(.011)	(.029)	(.011)	(.002)
Contig			−.028	2.059***	−.033***	2.095***
			(.018)	(.017)	(.010)	(.004)
leverage×UNGAd$_{ij}$					0.00000	−.001***
					(.00001)	(.0002)
Constant	−.676***	−5.734***	−.817***	−8.786***	.001	−4.788***
	(.002)	(.024)	(.007)	(.003)	(.001)	(.0001)
Year FE	No	No	Yes	Yes	Yes	Yes
Dyad FE	No	No	No	No	No	No
Note:					*p<0.1; **p<0.05; ***p<0.01	

Table 3.2: Multinomial logit model, impact of trade leverage on foreign policy decisions.

The results are consistent both with prior expectations and the results provided in table 3.1. The first model (columns 1 and 2), without any controls, indicate that leverage is positively related to economic coercion and negatively to militarized interstate disputes. When adding controls (columns 3 and 4), the effect on economic coercion becomes insignificant, while the effect on military confrontation remains statistically significant. In addition, the magnitude of the effect is actually quite large, compared to the controls. While e.g. alliances are more important to the initiation of war, trade leverage seems to have a relatively greater effect than regime type, as measured by polity scores.

The last two columns add an interaction term between UNGA voting and trade leverage, providing ambivalent results. When interacted with UNGA voting distance, the effect of trade leverage on both economic coercion and militarized interstate disputes becomes negative.

In summary, the multinomial analysis confirms H1 once more. Trade leverage leads states to engage in economic statecraft in the full specification. The coefficient depicting the effect of trade leverage on MID initiation, however, does not correspond to H2.

3.5.3   Modelling dyadic data

Section 3.2.2 discussed some challenges to modelling dyadic empirical data. In this section, I tackle these challenges by implementing an (AME) model, as suggested by Minhas et al. (2021).

AME models can take into account the underlying data generating process in the dyadic data set I analyse throughout this chapter. Specifically, this modelling approach takes into account first order dependencies. This is relevant because if an actor is more likely to engage in economic coercion, this will be reflected in multiple dyads. On top of this, AME models allow for second and third order networking dependencies (Minhas et al., 2021).

Thus, in order to establish the effect of trade leverage on economic coercion, I re-run the analysis of section 2.4.1 within the AME framework. Results are depicted in table 3.3,

which includes four different models[22]. For the two outcomes, economic coercion and MID initiation, I estimate the effect of leverage and an interaction effect of leverage and UNGA voting distance. The latter effect is never significant.

Regarding the effect of economic leverage, the AME findings here align with the previously estimated models above (tables 3.1 and 3.2). Higher levels of economic leverage are associated with a higher incidence of economic coercion. For military conflict, the reverse holds, as more economic leverage is associated with lower levels of MID initiation by the country which holds the leverage.

The estimated AME models thus reinforce the previous results, thereby ensuring that those were not driven by the dyadic data structure. Future work should further expand on the usage of AME models to answer similar questions.

In summary, the provided results lend extensive support for my theoretical argument. Trade leverage predicts that a dyad moves towards economic coercion rather than militarized interstate disputes, as stated in H1. States perceive economic coercion as a susbstitute for military action. In the data, trade leverage is associated with economic coercion rather than military interstate disputes. Unfortunately, the theorized effects of UNGA voting behavior could not be established conclusively.

3.6 Conclusion

This chapter presented empirical analysis showing that states are both deterred from war by trade and that asymmetric trade interdependence can be exploited. Trade leverage is associated with economic coercion instead of military conflict. Thus, economic coercion can act as a substitute of military action if the circumstances are right. If we consider economic conflict to be preferable to military conflict, this is good news. States can exchange blows economically, rather than militarily, and settle their differences that way. While this might be economically costly, wars would be costly both in economic and in humanitarian terms.

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[22]Complete model outputs are provided in appendix B.4.

	Dependent variable:			
	EC_{ij}	EC_{ij}	MID_{ij}	MID_{ij}
logGDP$_i$	−.009***	−.009***	.002**	.003***
	(.001)	(.001)	(.001)	(.001)
cinc$_i$	.050	−.016	.128***	−.330***
	(.187)	(.047)	(.046)	(.081)
polity2$_i$	−.002***	−.002***	−.000	−.001**
	(.000)	(.000)	(.000)	(.000)
logPop$_i$	.011***	.011***	−.003***	−.005***
	(.001)	(.001)	(.001)	(.001)
logGDP$_j$	.001	.001	.000	−.005***
	(.001)	(.001)	(.001)	(.002)
cinc$_j$	.246***	.300***	.043	.050
	(.076)	(.079)	(.137)	(.037)
polity2$_j$	−.003***	−.002***	−.001**	.000
	(.000)	(.000)	(.000)	(.000)
logPop$_j$	−.002**	−.003**	. −.003***	.004**
	(.001)	(.001)	(.001)	(.002)
leverage	0.0***	0.0***	0.0	0.0
	(.000)	(.000)	(.000)	(.000)
UNGAd	.055***	.054***	.031***	.028***
	(.009)	(.007)	(.010)	(.008)
UNGAdxlev		0.0		0.0
		(.000)		(.000)
logdistance	.014***	.016***	−.227***	−.228***
	(.001)	(.000)	(.021)	(.021)
Alliance	−.105***	−.095***	−.206***	−.196***
	(.014)	(.012)	(.019)	(.021)
Contig	−.116***	−.119***	0.143	0.143
	(.016)	(.018)	(.088)	(.089)
Constant	−.508***	−.504***	.021**	.022**
	(.019)	(.018)	(.010)	(.010)

Note: *p<0.1; **p<0.05; ***p<0.01

Table 3.3: AME model results, effect of leverage on economic coercion and war.

My results have important implications for policy makers. In the introduction, I discussed the shortcomings of policy advice based on the liberal and the realist schools of thought. The present chapter improves upon this. Both realist and liberal insights are correct under different circumstances. On the one hand, trade pacifies interstate relations, because it can work as a mechanism of settling disputes. On the other hand, trade asymmetries can be sources of (non-military) conflict. They allow the state with trade leverage to exploit its position vis-a-vis the weaker state. This might lead to instabilities in the international system, and thus even decrease economic interconnectedness.

States have an incentive to build up trade leverage. If US policy makers look to the international relations literature for guidance on the US-China relationship, they should first consider where the asymmetries in the US-China trade relationship lie. Building up trade leverage will give the US a tool short of military engagement to use in a future dispute with China. Such a dispute could arise over international shipping lanes or a Chinese invasion of Taiwan.

On the flip side, policy makers should consider the trade leverage China has over its opponents. For instance, in a future conflict with Taiwan, trade between Taiwan and the US, as well as other trading partners, would be a key factor. In testimony in front of the US Congress, retired Defense Intelligence Officer Lonnie Henley pointed out that,

> "If ordered to compel reunification by military force, the PLA would bring every tool to bear. Among its most effective lines of operations would be a **long-term air, maritime, and information blockade** of Taiwan. [...] The distinctive geography of the Taiwan theater would finally start working in the PLA's favor and its remaining short-range strike assets would still be useful." Henley (2021), emphasis mine.

This testimony shows how Chinese military actions can not be divorced from considerations of trade leverage. A trade blockade of Taiwan might be the most extreme form of economic coercion, but also an effective one. Policy makers need to confront these issues. But more importantly, the international relations literature needs to provide rig-

orous theoretical and empirical answers to questions policy makers might have. To this end, it is time to take a step away from dogmatic schools of thought and investigate different mechanisms, like trade leverage and economic coercion, without any unquestioned assumptions.

4

The capacity to learn: Analyzing the predictors of sanction busting trade

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4.1   Introduction: Salmon from Belarus

After the annexation of Crimea by Russian supported forces in 2014 and the resulting militarized conflict in the Ukranian region of Donbass, the US and EU governments instated severe economic sanctions against Russia[1]. The Kremlin promptly responded with its own countersanctions, which resulted in an even stronger decrease of trade between the two blocks. Specifically, Moscow imposed sanctions on food imports from Europe. Among these were French cheese and other milk products from Europe, Norwegian salmon, Italian prosciutto and other regionally produced goods. The pictures of empty supermarkets in Moscow and other parts of Russia quickly reached news outlets all over the world and comparisons to Soviet food shortages readily presented themselves (Vendik, 2014). While of course not as dire as during the Soviet era, supply still diminished significantly and prices sky rocketed in response. However, as Russian consumers enjoy their seafood and milk products, there remains a desire to supply that demand form other sources.

Norway, for instance, had been providing the majority of seafood before the EU sanctions[2,3]. In 2014, Norwegian exports in non-fillet fresh fish to Russia decreased from 864 $M to 436 $M and non-fillet frozen fish exports similarly decreased from 199 $M to 78.4 $M. In 2015, when the sanctions were in full effect, the fish exports from Norway to Russia converged to zero, according to official statistics. Fortunately, the neighboring country of Belarus was able to pick up the tab and supply the missing fish to hungry Moscovites. From 2013 to 2014, Russian processed fish imports from Belarus increased by nearly 100%, from 63.3 $M to 116 $M. On the basis of these numbers, what happened might seem like a straightforward story of substitution: the trade that was sanctioned had to be replaced from a different supplier, which was not part of the sanction regime.

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[1]Office of Foreign Asset Control (2016); EU Council (2020).

[2]Although Norway is not a member of the European Union, its government still joined the sanction regime by the EU and the US.

[3]The trade data in this section are provided by UN COMTRADE.

However, Belarus is a landlocked country that cannot produce seafood on its own[4]. More-over, Belarus started increasing their imports of fish from Norway, with for instance fresh fish imports increasing from 81.7 \$M to 111 \$M. The picture that this story draws is evident: trade was not substituted but rather rerouted through Belarus[5] — an instance of sanction busting.

Sanction busting occurs when, during a sanction dispute, a third country supplies the sanctioned country with goods it has been deprived of by the sanctions, either via trade or foreign aid. Sanction busting diminishes the effects of sanctions, as the economic pains that the sender intends to cause are eased. This weakened effect of sanctions, in turn, will reduce their effectiveness. If the sanctions do not hurt the target, there is no reason for its government to concede on policy in order to have them lifted. Only when the determinants of sanction busting are properly understood, policy can be optimally designed in a way that takes potential sanction busters and their actions into account.

In this chapter, I aim to give a general account of which states engage in sanction busting. I use two indicators of state capacity of third countries to show how the ability of states to comply with international sanctions regimes explains trade diversion. I compare this with the effect of political alignment[6] on sanction busting trade flows. Lastly, I evaluate both factors with regards to their performance when predicting sanction busting out of sample. Throughout the present chapter I refer to sanctioning countries as 'senders of sanctions' or simply 'senders', while the targeted states are called 'targets' or 'target states'. Finally, a 'third country' refers to any (potential) sanction buster.

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[4]While Salmon hatch in freshwater, they migrate into saltwater oceans. Norway remains the biggest producer of Atlantic Salmon by 2018, likely due to its natural advantage in access to ocean fishing grounds and therefore low production costs (Iversen et al., 2020).

[5]See also Reuters (2014).

[6]In this case the political alignment between a (potential) sanction buster and a state targeted by sanctions.

4.2 A theory of sanction busting

This section reviews the previous literature on sanction busting. Building on this, I propose a theory of sanction busting. This leads me to formulate two hypotheses on the main determinants of sanction busting, which are then tested in the subsequent section.

4.2.1 Literature review

While the origins of the modern literature on sanctions are usually traced back to Galtung (1967), the first substantial treatment of sanction busting is given by Hufbauer et al. (1990). Hufbauer et al. also coined the phrase 'black knights' to describe countries that engage in sanction busting for political reasons, and thus decrease the effectiveness of sanctions.

The main innovations and findings in the sanction busting literature, however, lie in the last ten years. This literature is attempting to answer different, often rather narrow, questions about the causes and implications of sanction busting. McLean and Whang (2010) approach the topic explicitly from the question of sanction effectiveness. The authors discuss which countries are responsible for sanctions busting based on their political alliances with sender and target countries. In particular, they find that sanctioning countries need the support of the target's major trading partners in order for a sanction to succeed in garnering a policy concession by the target.

Significant contributions to our collective understanding of sanction busting come from various works by Brian Early (2009; 2011; 2015). He distinguishes between sanction busting by black knights due to political incentives of the government (dubbed the realist argument), and commercial sanction busting driven by economic incentives (the liberal argument). With the latter mechanism, he moves private firms to the center of the analysis. Trade happens between economic actors on the sub-national level. To properly analyze sanction busting, these actors should be taken into account by the study of sanction busting, instead of only focusing on the geopolitics of sanctions.

Peksen and Peterson (2016) examine the effect of potential sanction busting on the imposition of sanctions. The contribution of that study is particularly valuable since it takes into account the endogenity of sanction busting with regards to sanction imposition. The authors find that potential busting of sanctions via third countries' markets is indeed associated with a decreased likelihood of sanction imposition. Their analysis is limited to the universe of US Sanctions. Similarly, in the analysis of foreign direct investment during US sanction spells, Lektzian and Biglaiser (2013) find that Foreign Direct Investment (FDI) is substituted by firms from third countries, ultimately undermining the sanction effort.

In summary, the current literature on sanction busting was developed with an eye on the undermining effect of sanction busting. In cases where sanctions are toothless because they are easily circumvented, they will not hurt the target state. In circumstances under which targets are not hurt by the sanctions the rationale to impose those sanctions quickly disappears[7]. Targets that are not hurt by sanctions have no incentive to deviate from their previous behavior, a lack of economic pain necessitates a lack of incentive to comply with the demands of a sanction sender. Naturally this effect of sanction busting is not discrete, but rather continuous. Most sanctions will not be completely toothless due to sanction busting, and hardly any sanction will experience no sanction busting activity at all. Rather, the degree of sanction busting will determine the extent to which the sender's sanction regime will be effective.

The question of how trade flows are redirected in the face of sanctions is obviously relevant to policy makers. First, the design of sanctions should be such that the undermining effect of third party trade is minimized. Second, the issue of enforcement should be focused both on 'black knights' and on commercial sanction busters — which have to be identified first. However, as I argue in this chapter, sanction senders should not only look to a target's allies, but also to states with weak bureaucracies, as potential sanction busters. In an argument running in parallel to mine, DellaVigna and La Ferrara (2010)

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[7]There might still be other rationales to impose sanctions. For instance, political leaders might use them to win over domestic constituents with a special interest in the target (Shain, 1994; Mearsheimer and Walt, 2007) or to distract from other domestic issues (Attia, 2021).

show that illegal arms trade, i.e. arms trade formally under sanctions, is more frequently facilitated by companies headquartered in corrupt countries. These countries are ignoring the illegal activities taking place within their countries, which are undertaken by profit-oriented economic actors. In other words, these countries are so corrupt that they become the territory of commercial sanction busting activity.

The issue of sanction busting is also connected to the topic of sanctions enforcement. Morgan and Bapat (2003) show how the enforcement of sanctions domestically, i.e. by a sender government towards its own firms, is crucial for the effectiveness of sanctions. Bapat and Kwon (2015) build on this work, showing that the relationship between market interdependence and sanction effectiveness is curve linear, due to the willingness of states to enforce their sanctions with regards to their domestic firms. In cases of low economic interdependence, sanctions are unlikely to be successful due to the low costs the sender can impose. In cases of high economic interdependence, sanction effectiveness decreases due to the costs that the sender would incur by enforcing sanctions. Only in a middle range of economic interdependence the likelihood of sanction success is high.

My chapter aims to connect the issue of enforcement and state capacity with that of sanction busting and "black knights". Commercial sanction busters are countries with distinct characteristics, and enforcing sanctions thus requires specifically tailored policy responses.

In the following, I first provide some economic background against which my theory of sanction busting is constructed. From my theoretical argument, I derive two hypotheses; state capacity predicts sanction busting activity and political alignment predicts sanction busting activity. These hypotheses are then tested empirically on a sample of UN, US, and EU sanctions between 1989 and 2014, provided by the EUSANCT dataset (Weber and Schneider, 2020b).

4.2.2 Three economic equilibria

As a starting point of a theory of sanction busting, it is necessary to spell out the economic context within which sanctions and sanction busting actions take place. Sanctions are not imposed into a vacuum, but rather within a preexisting economic equilibrium. Assume that, before any state action, the international economy is already in a trade equilibrium, made up of the different bilateral trade flows between countries. The international trade literature considers the main determinants of international trade to be distance and size of the economy, but factors like preexisting colonial relationship, geographical contiguity, and others will likely also play a role. The specific factors that govern trade are not hugely relevant for the moment, the point is simply that traded goods are already moving according to predetermined factors even before sanctions are instituted. In other words, a substantial volume of trade to be sanctioned is required. For this initial situation to exist, there must be interested economic actors (buyers and sellers, importers and exporters) being active across international borders. These then decide to trade with each other, if it is profitable. Trade sanctions only make sense if trade would be profitable in the absence of sanctions.

As soon as a state, or group of states, decides to institute sanctions, this initial equilibrium is promptly disrupted. Certain paths, which trade flows previously took, are now artificially blocked, artificially in the sense that they would be open to, and traversed by, trade flows in the absence of sanctions. Put differently, just because trade is restricted does not mean that the underlying economic forces, international supply and demand, cease to exist. These, by trade sanctions disrupted, trade flows will then move towards a new equilibrium, determined by the previously mentioned factors plus the added sanction(s). Such a new equilibrium will take some time to develop, international buyers and sellers have to identify what is the most profitable course of action to take. In particular, bilateral trade between the sanction sender and the sanction target is disrupted, causing the former profiteers of this trade to look for alternatives. Importers will look for an alternative source of their product, exporters look for other consumers to sell their

goods to. As soon as this adaption has been accomplished, a new international trade equilibrium is reached.

When a sanction is lifted, the reverse happens. A blockage of trade flows has been removed, and importers and exporters will take advantage of this freedom by trading with previously sanctioned trading partners. Trading decisions that were previously profitable will be rendered suboptimal compared to the new trading opportunities generated by the lifting of sanctions. Does this post-sanction equilibrium look the same as the pre-sanction equilibrium? Not necessarily, and less so the longer the sanction was in place. This is due to the fact that there is an element of path-dependence in trade patterns: when trade relationships are entrenched over a longer period of time, there are additional costs of establishing new trade relations over maintaining remaining ones. By way of an example, consider a marginal economic actor, e.g. an exporter based in the sender country and exporting computer equipment to customers in the target country. In the face of sanctions, this exporter had to reorient his business to export to a non-sanctioned third country. If the sanction is in place for only a few weeks, it would be easy to reactivate the pre-sanction business connection and resume exporting as before. However, if the sanction was live for years or even decades, the exporter might have found new business connections on which to focus while the costs of reestablishing connections in the target state are non-trivial[8]. As an extreme example, consider the lifting of UN and other sanctions on Iran in 2016. While trade flows promptly resumed, no one suggested that this would lead to an immediate return to a pre-sanction steady state growth path in trade or Iranian gross domestic product.

In summary, there are three equilibria that arise around a sanction case: the pre-sanction equilibrium at the initial stage, the sanction-equilibrium that arises as a result of the sanction, and the post-sanction equilibrium that results from the lifting of the sanction. Against this background I now develop a theory of sanction busting.

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[8]Weber and Stępień (2020) provide evidence for this in the form of firm behaviour during Russian sanctions over Ukraine. They show that firms adjust to sanctions in a number of ways, among others funding subsidiaries or outsourcing production to Russia. They argue that even if sanctions are lifted today, instead of reverting to the pre-sanction equilibrium, firms will keep their newly built structures in place.
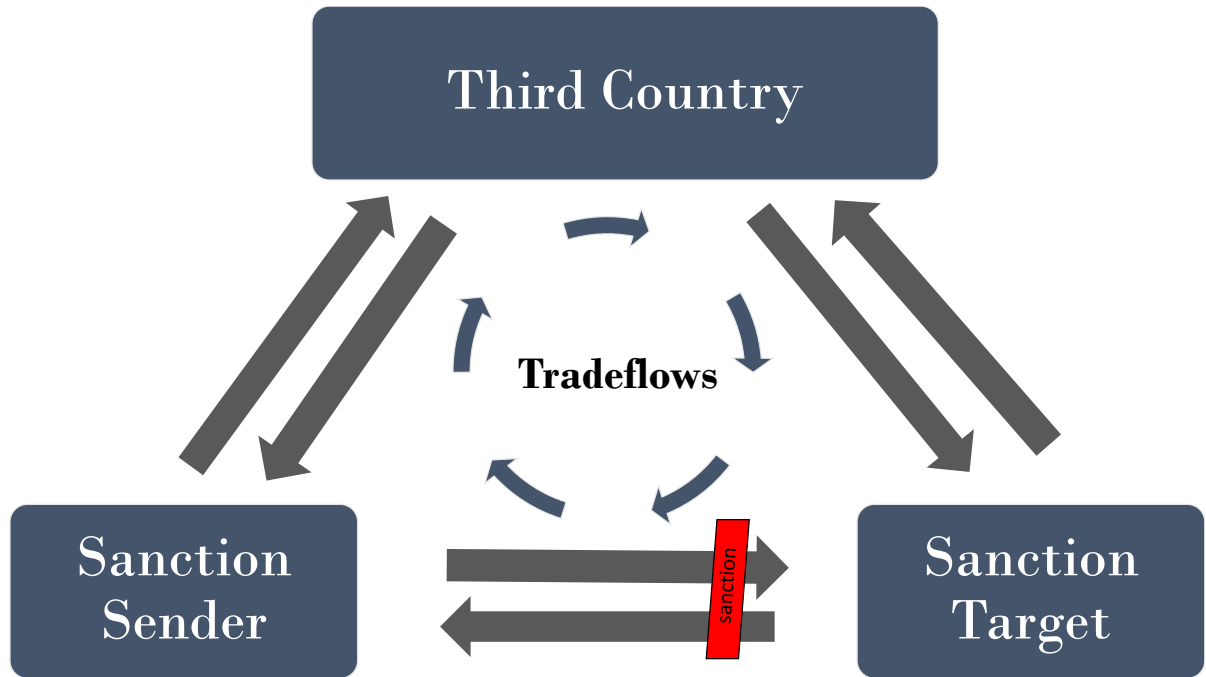
Figure 4.1: Stylized representation of the trade flow structure.

4.2.3 Conceptualizing sanction busting

I conceptualize an instance of sanction busting as a triple relation: a **sender** state (denoted by subscript S from here on) sanctions a **target** state (subscript T). Given such a sanctioning relationship exists, a **third country** (subscript 3) can then serve as a sanction buster. All third countries are potential sanction busters. In the literature, the definition of sanction buster is quite wide, including both countries that *substitute* trade and those that are used to *reroute* it. For instance, when Cuba was sanctioned by the US in 1962, the Soviet Union proceeded to support Fidel Castro's regime with trade and foreign aid. This constitutes a substitution of previous trade flows. US imports to Cuba had disappeared, and the alternative source of finance and resources came from the Soviet Union as a close geopolitical ally. This does not imply that trade that had disappeared from the bilateral US-Cuba relationship was rerouted through the Soviet Union. On the contrary, this is extremely unlikely for both political and geographical reasons.

Consider the alternative of rerouting of trade from Norway to Russia via Belarus, as described in the introduction. For this form of sanction busting to occur, we have to

assume that the trade that is sanctioned was a product of market forces in the first place. The goods (fish) that are produced in the sender country (Norway) are in demand in the target country (Russia), which is why they were exported before the sanctions where in effect. When the trade in demand is disrupted by economic sanctions, companies have an incentive to circumvent those same sanctions, either in legal or in illegal ways. One way of doing so is via third countries (e.g. Belarus). Companies can relocate their headquarters or form a subsidiary there. Alternatively, goods can be imported from the sender to the third country, where they are then reexported to the target country. In the third country, some measure might be taken to obfuscate this chain of trade, for example by transforming non-frozen filet fish into processed fish, or simply relabelling the product. It is this second kind of sanction busting that is largely missing from the literature and which I explore empirically in this chapter[9].

4.2.4   State capacity or state's willingness?

Is it reasonable to expect that state capacity matters? Can we really expect that sanction busting trade occurs without the consent of the third party state?

Consider first that the relevance of state capacity does not preclude the importance of a state's willingness. Even if a state is able to prevent trade from being rerouted through its sovereign territory, it will only do so if the bureaucracy is such instructed by its principal, the government. On the flip side, a policy of sanction enforcement can only be successful if such a bureaucracy exists in the first place. Additionally, this bureaucracy must be adequately staffed and funded, be relatively immune against corruption, and have in its repertoire the legal means of sanction enforcement. In short, the state must exhibit the capacity to prevent sanction busting.

In this analysis of state capacity, corruption plays an ambiguous role. On the one hand, corrupt low-level state bureaucrats represent an obstacle to the proper functioning of a

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[9]It should be noted that the case of Russia sanctions is conceptually instructive without being part of the statistical analysis below. This is due to the simple fact that the sanctions circumvented here originated in Russia, while the EUSANCT data set only included EU, US, and UN sanctions. Nevertheless, the general logic of sanction busting does not change.

state. Thus, the level of corruption is part of state capacity. On the other hand, if states are bribed to bust sanctions they could be considered as unwilling rather than incapable of enforcing sanctions. I solve this ambiguity by distinguishing low-level corruption and leadership corruption. The former can be considered part of a theoretical construction of state capacity, while the latter should not.

Second, recall the logic of international trade: in the modern economy, mercantilist logic does not determine trade flows — instead the rules of supply and demand govern imports and exports. If the demand for foreign goods causes trade in the pre-sanction equilibrium, sanctions will not remove that demand, but merely stem the trade flow itself. Demand for the previously traded goods then switches to a different supplier, either to domestic production or to a third country. Firms in third countries can react to an increase in demand either be increasing production themselves or by importing some of the goods in turn, possibly from the sanction sender itself. The way trade flows react are the product of both market forces and the institutional environment. State level variables, like the capacity to enforce any given sanction, will shape the way sanction busting occurs. Firms in countries that are weak on enforcement will have an easier time reexporting goods to sanctioned states. In the sanction-equilibrium, trade will flow through those countries where it is easiest to sanction bust — countries which are either unable or unwilling to enforce sanctions.

Hence, I expect that states' enforcement capabilities explain a significant part of their sanction busting activity. If we expect firms to be profit oriented, they would always like to take up trade that has been disrupted from its initial path between sender and target. The governments in third countries then both need to have an incentive to comply with international sanctions and the capability to do so. The former matters less and less as the latter declines. I will refer to the capability of states to shape their economies, and especially their foreign trade patterns, according to their preferences as *state capacity*, or simply as *capacity*[10].

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[10]I expand on measuring this variable at the beginning of the empirical section.

Hypothesis 1: The lower the level of third country state capacity, the higher the level of trade flows from the third country to the target state during a sanction dispute.

It would be an oversight to exclude the possibility of political alignment driving trade patterns as well, which is why I also test a second hypothesis:

Hypothesis 2: The higher the level of political alignment between a third country and the target of a sanction, the higher the level of trade flows from the third country to the target state during a sanction dispute.

While hypothesis 1 and 2 are not mutually exclusive, they pick up on an important distinction made by Early (2015).

What he calls the liberal argument is represented by hypothesis 1. Trade is driven by private actors, which seek to maximize their profits. These actors are not driven by geopolitical considerations. As long as sanction busting is cheap and easy they will do so. The cheapest way to sanction bust will be through a country with a weak bureaucracy or administrative state, one which is not able to enforce sanctions, even if it wants to. Early's realist argument is embodied by my hypothesis 2: states trade with sanction targets if it is in accordance with their political interest. Hence, sanction targets should receive their trade from geopolitical allies rather than adversaries[11].

The case of Belorussian salmon does not give clear evidence for one hypothesis over the other. In particular, Minsk and Moscow are in ever closer political alignment. Hence, the argument of the present chapter — that state capacity is relevant for sanction busting rather than political alignment — is not fully supported by this illustrative example.

One country that has been under severe sanctions for years is North Korea. North Korean officials have been especially creative in trying to circumvent UN and other sanctions. As a Danish documentary film has revealed, North Korean military officials attempted

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[11]In both explanations, I do not claim that these variables are monocausal. Rather, I expect the traditional determinants of trade flows, GDP, distance, contiguity and so forth, to explain the majority of trade flow variance.

to sell weapons to Syria via the African states of Uganda and Nigeria (BBC, 2020). In addition, they planned to trade oil via Libya. It is unlikely that these three countries were chosen due to their political alignment. China is North Korea's most important ally and a geographical neighbor, thus the most natural candidate for sanction busting activity. Another candidate would be the Russian federation, which also shares a border with North Korea. While not a traditionally ally of North Korea, Russia is geopolitical opponent of the US — and in international affairs, the enemy of your enemy might become your friend.

So with these two candidates available, why did the North Koreans choose Uganda, Nigeria, and Libya? They had the hope of going undiscovered because the Ugandan and Nigerian authorities might not have the capacity to effectively enforce sanctions. Moreover, Libya is largely a failed state, without much sanctions enforcement capacity. The North Korean scheme might even have worked, if not for a Danish cook infiltrating their operation[12].

4.3 Empirical implementation

In order to test the stated hypotheses empirically, I first introduce two measures of state capacity, the *International Country Risk Guide bureaucratic quality index (ICRG bq)* and the *Pedalling Peril Index (PPI)*. Then, I discuss the sourcing of additional variables that are used to test both hypotheses. Finally, I discuss the triadic structure of the fully assembled data set.

4.3.1 Measuring state capacity to enforce sanctions

As discussed during the theoretical section, the capacity of states to control their own economy, and thus be susceptible to sanction busting, is key to my analysis. Before applying empirical analysis to the concept of state capacity, a two fold challenge has

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[12]For the full account of this operation see Brügger (2020). The affair had significant political repercussion, beyond mere media attention (BBC, 2020; Ministry of Foreign Affairs of Denmark, 2020).

to be overcome: (1) what exactly does "state capacity " refer to, and (2) how can this concept be measured?

I follow the foundational work of Mann (1984), himself building on work by Weber (1978) and Tilly (1975, 1981). According to this strain of research, state capacity can be defined as "the power of the state to penetrate and centrally co-ordinate [sic] the activities of civil society through its own infrastructure" (Mann, 1984, p. 190). The concept of state capacity has spawned a literature of its own (e.g. a *Journal of Peace Research* special issue on state capacity and civil war in 2010 (Sobek, 2010)). It is thus useful to define which vector of state capacity does the theoretical work in my argument and hypotheses, and how it can be measured empirically. Hendrix (2010) distinguishes between three subgroups that the literature understands as embodying state capacity: (1) military capacity, (2) bureaucratic administrative capacity, (3) quality and coherence of political institutions (Hendrix, 2010, p. 273).

The level of military capacity (1) should play no direct role in the circumvention of sanctions. While the quality and coherence of political institutions (3) is likely relevant for the capacity to prevent sanction busting, the effect should run through the channel of bureaucratic administrative capacity (2). Consequently, I focus on (2) for the construction of empirical variables in the next two sections.

Bureaucratic Quality by ICRG The International Country Risk Guide (ICRG) provides an index of political stability, which includes a variable of 'bureaucratic quality' of 146 countries for the whole sample period of 1989 to 2015 (International Country Risk Guide (ICRG) Researchers, 2013; Howell, 2013) . It scores every country on a scale from 0 to 4, allowing for non-integer values. Higher values denote better bureaucratic quality. Evaluation leads to a mean index of 2.18 and a variance of 1.32 for the sample period[13] .

Hendrix (2010) compares a number of state capacity measures and concludes that together with capacity to tax, bureaucratic quality (bq) is "the most theoretically and

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[13]Data is available on the country-month level at least for some observations. As sanction and trade data as well as some controls are only available on the country-year level, I aggregate the ICRG data accordingly.

empirically justified" measure (Hendrix, 2010, p. 273). While Hendrix is concerned primarily with the effect of state capacity on civil war, some of his arguments provide justification for the present use. One alternative measure of state capacity could be log GDP per capita, which is correlated with bureaucratic quality. From a theoretical point of view, bureaucratic quality is closer to state capacity — it will be one of, if not the main, channel through which GDP is connected to state capacity.

Pedalling Peril Index: A second measure of state capacity is the Pedalling Peril Index (PPI). The PPI is a measure developed by the Institute for Science and International Security (ISIS) think tank in order to "[rank] 200 countries, territories, and entities according to their adoption and implementation of export control" (Albright et al., 2018, p. 5). The advantage of using this measure lies in the fact that it explicitly looks at export controls, albeit in the slightly different context of strategic export controls. The stated mission of ISIS is to document weapons proliferation, be it nuclear, biological or chemical. The capacities needed to control these sorts of exports will be similar to those needed to enforce control of more 'standard' trade that might be used for sanction busting, which is why I use the PPI in my analysis.

At the time of this writing I am not aware of any peer reviewed literature that uses this measure in a similar way that I do. Therefore, it might be helpful to introduce it in a more general way. Thus far, two waves of this index have been released, for 2017 and 2019. Each country is assigned a numerical value to denote their level of strategic export controls, with higher levels being equivalent to stronger control.

The rankings take values from -349 (-205) to 1027 (1019) for the year 2017 (2019). At the top of the rankings are mainly western countries, like the United States and the United Kingdom, but also Singapore. At the bottom there are a number of autocracies and states in unrest, e.g. North Korea, South Sudan, Syria and Iraq. The PPI is not simply a measure for the achieved level of democracy, however. Neither are democracies automatically innocent of sanction busting, with, for instance, the democratic West

Germany facilitating sanction busting trade with South Africa[14] (Early, 2015). According to ISIS, the index summarizes five factors (Albright et al., 2019, p.xvii):

1. International Commitment to preventing strategic commodity trafficking;

2. Legislation in place that regulates and oversees trade in strategic commodities, and criminalizes and aims to prevent strategic commodity trafficking;

3. Ability to Monitor and Detect Strategic Trade;

4. Ability to Prevent Proliferation Financing; and

5. Adequacy of Enforcement against strategic commodity trafficking

The PPI is intended to represent the level of 'strategic export controls'. However, it measures not only the capacity to do so (Mainly points 2, 3, 4 and partly 5) but also incorporates some aspects of willingness (Points 1 and 5).

I focus my analysis on the third element, the ability to monitor and detect. This should most closely represent the theoretical concept of state capacity related to sanctions enforcement. I thus perform my analysis with the 'PPI ability' (short for Ability to Monitor and Detect Strategic Trade) subindex, which serves as one of my key independent variables[15].

An additional critical issue is the PPI's time coverage. Its only available for the years 2017 and 2019. As a widely imperfect proxy, I project the PPI backwards from its 2017 value. This implicitly assumes that PPI-value in 2017 is reasonable predictor of PPI-values of previous years. This assumption becomes less plausible the further back in the sample the PPI is extrapolated.

Both the PPI and the ICRG bq index are prima facie plausible measures of state capacity. Due to the limited time coverage, I will focus on the IRCG bq index primarily, but results for the PPI are included to provide robustness of the empirical results. In addition, I hope this usage of the Pedalling Peril Index can assist future researches in employing this measure, possibly for a task even better suited than the one at hand.

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[14]In the empirical estimations I nevertheless control for regime type.

[15]Using the full PPI instead does not yield significantly different empirical results, as depicted in Appendix C.

4.3.2 Data sources to extract additional variables

In addition to the Pedalling Peril and ICRG indices, I use a number of other variables in my analysis. Data on sanction cases is necessary to identify where sanction busting might take place in the first instance. Trade data constitutes the dependent variable in my analysis. Lastly, some well established control variables from the international trade literature need to be included in any quantitative estimation of trade levels.

Sanction data: I make use of the EUSANCT data set on sanctions by the so-called "liberal senders" between 1989 and 2015 (Weber and Schneider, 2020b). These liberal senders refer to the UN, the EU and the US, which the authors group together as proponents of a broadly understood liberal order in international relations. Their data is exhaustive in sanction regimes threatened or imposed by these senders for the time since the end of the cold war up until 2015. Every observation in my dataset consists of a single possible sanction case between a sender and a target as well as one possible sanction busting third country. Put in slightly different terms, each sanction dyad (sender to target) is expanded to include every possible third country. As will become apparent in the results section, the three senders are not identical, and the sanction busting I measure is slightly different. If the UN is the sender of a sanction, any sanction busting is a violation by what is technically a sender state. This dynamic is due to the sanction being enforced by other states, which cut off trade that is then rerouted through the violator of the sanction regime. For the US and EU sanction cases, on the other hand, I only code states as third countries if they are either not the US or not part of the EU at the time of the sanction.

One further advantage of the EUSANCT dataset is that it includes a variable for 'potential sanction cases', denoting dyads where the threat or imposition of a sanction could reasonably be expected. This cleans the dataset of dyads with many zeros, i.e. observations where sanctions are both highly unlikely and never take place. For instance, it is unreasonable to expect that a sanction between Barbados and San Marino will ever be in

place. Removing such redundant information from the data will increase computability while also basing the analysis on a sample that is more theoretically interesting[16].

I also make use of the V-Dem v2x-polyarchy scores (subsequently shortened as V-Dem) included in the EUSANCT dataset. This index describes the range of electoral democratization on a scale from 0 to 1, with 0 denoting an autocracy and 1 describing a full democracy without any autocratic elements (Coppedge et al., 2020).

Trade data: As a source for the dependent variable, i.e. trade flows, as well as several control variables, I rely on the CEPII dataset on trade flows (Fouquin and Hugot, 2016). It covers both imports and exports as well as the key trade determinants distance and size of the economy, measured in GDP and population. The coverage of this data ends one year before that of the EUSANCT data, in 2014. This leads me to exclude the year 2015 from the analysis.

Furthermore, I include distance and size of the economy as control variables because they are traditionally regarded as the main determinants of international trade (Tinbergen, 1962; Chaney, 2018). In the international trade literature, the metaphor of gravity is used to describe patterns of international trade (Anderson, 1979; Bergstrand, 1985, 1989). Big economies trade more among each other than small ones, and greater distance increases the costs of transportation, thus decreasing the level of international trade[17].

The trade data is not normally distributed and has a large number of zeros. These should not be excluded or coded as missing, as a recorded trade flow of zero is significantly different from a missing value (i.e. a non-recorded observation). To nevertheless standardize the dependent variable and ease interpretability, I transform trade data according to the formula suggested by Gelman (2008) and divide every value by two times

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[16]This kind of sample restriction is also common in the empirical interstate war literature, which refers to politically relevant dyads in this context. See e.g. Lemke and Reed (2001).

[17]Formally, this can be summarized as $Trade_{ij} = \frac{GDP_i^{\alpha} GDP_j^{\beta}}{distance_{ij}^{\gamma}}$. I include these determinants in log-linearized terms in my regression.

the standard deviation of trade:

$$Trade_{ijt}^{\tau} = \frac{Trade_{ijt}}{2 \times sd(Trade_{ijt})} \qquad (4.1)$$

Where i and j are countries, t indicates the year, and the function $sd(x)$ gives the standard deviation of x. This new variable $Trade_{ijt}^{\tau}$ has a mean of 0.04 and a variance of 0.25. It is used instead of unaltered trade flows throughout the analysis.

Political alignment: A variable to measure political alignment is necessary to test hypothesis 2. Consequently, I include a variable of relative foreign policy position of nations as estimated by United Nations General Assembly (UNGA) voting data (Voeten et al., 2009; Bailey et al., 2017a). In particular, I use the absolute difference in estimated ideal points to measure how far apart two nations are on foreign policy[18]. This variable serves as an indicator of international political alignment: the further apart two countries are, the less they are in agreement. Adversaries will on average have high values, while allies will exhibit low values in this variable. In accordance with hypothesis 2, I expect UNGA voting position to be inversely related to trade flows, with allies providing trade even when countries are sanctioned.

Furthermore, a formal measure of alliances is provided by the Correlates of War military formal alliances dataset (Gibler, 2008). Within, four types of alliances are categorized: defensive pacts, neutrality agreements, non-aggression treaties, and entente agreements. I assume that political alignment is strongly correlated with formal alliances. Countries that are formally allied, by any of the four types measured in the CoW dataset, should also be used for sanction busting, as per hypothesis 2. Hence, this data serves as a robustness check for a the political alignment variable throughout.

Data structure: The theoretical argument in section 4.2 takes into consideration three main actors: the sender of a sanction, the target of a sanction, and the third country that

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[18]For the complete description of the data and how this particular variable is constructed, see Bailey et al. (2017b).

Indicator Variables				Main Variables				Controls
Sender	**Target**	**Year**	**3rd Country**	**Sanct**	**Trade**	**Pol. Al.**	**ICRG**	**V-Dem**
US	Afg	1993	Germany	0	0.06	4.2	4	0.2
US	Afg	1994	Italy	0	0.07	3.5	3.5	0.2
US	Afg	1995	France	1	0.09	4.5	3.5	0.3

Table 4.1: Stylized representation of the data structure, list of variables non-exhaustive. Afg stands for the country of Afghanistan.

might be involved in busting such a sanction. Unsurprisingly, the data structure reflects this. A representation is given in table 4.1 and figure 4.1. The **Sender** variable in table 4.1 denotes one of the three possible senders included in the EUSANCT dataset, the EU, the US, and the UN. The **Target**, in this example Afghanistan, was not sanctioned by the US in 1993, but a sanction was in place in 1995. The outcome variable is transformed trade between third country and target, in the first row there is a transformed trade flow of 0.06 going form Germany into Afghanistan. The binary **Sanct** indicator takes the value 1 if a dyad is under sanction (i.e. in the given **Year** the **Sender** sender has an active sanction against the **Target**), and 0 otherwise. The ICRG bureaucratic quality measures (ICRG bq), and political alignment as measured by distance between ideal points on UNGA votes are also visible. For lack of space, the formal alliance indicators as well as the PPI and its subindices are excluded, and so are further controls.

The data takes on a triad-year structure, meaning every observation is uniquely identified by a sanction sender dummy, a sanction target country, and a third country, as well as the corresponding year. Figure 4.1 shows the six trade flows present in the data. The main focus throughout the analysis lies on the flow from Third Country to Sanction Target, with some attention paid to trade from Sender to Target and Sender to Third Country.

For the full sample, this leads to over 1.7 million observations. The availability of some variables is limited. Especially micro states are excluded due to missing values in one of the substantive variables, leaving an effective sample of over 1.5 million observations for the main analyses. When I restrict my sample to 'potential sanction dyads', around $600,000$ observations are left. I discuss the implications of this restriction in the result section where applicable. All robustness checks can be found in appendix C.2.

4.4 Empirical results

This section presents three sets of results. First, I show that bureaucratic is correlated with sanction busting more substantively than political alignment. Second, I conduct subsample analysis differentiating between different sanction senders. Last, I provide evidence that in terms of direct predictive value of sanction busting, bureaucratic quality outperforms political alignment as well.

4.4.1 The impact of bureaucratic quality on sanction busting

The main regressions are run on the whole dataset, including the EU, the US, and the UN as senders, and makes no distinction with regards to 'likely sanction cases'[19]. I run ordinary least squares (OLS) regressions with normalized trade flows from the third country to the sanction target as the primary outcome variable. For instance, the equation to estimate the empirical relationship between sanctions, bureaucratic quality, and sanction busting trade flows, is specified as

$$Flow_{3T} = \beta_0 + \beta_1 sanct_{ST} + \beta_2 bq_3 + \beta_3(sanct_{ST} \times bq_3) + \boldsymbol{\beta x} + \epsilon \qquad (4.2)$$

The main independent variable is a sanction dummy, $sanct_{ST}$, indicating whether in any given sender-target-year there is a sanction against the target by the sender. Additionally, I include the variables for state capacity (PPI enforcement or ICRG bureaucratic quality bq_3) as well as political alignment (difference in voting on important United Nations General Assembly Votes and formal alliances as coded be the Correlates of War project). I am interested in these latter variables for the impact that they might have on the effect of sanctions on trade volumes. Put differently, I investigate whether the effect of sanctions on trade volumes reacts to changes in political capability and political alignment of third countries. To this end, I include interaction effects in my models, between

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[19]These are provided as robustness checks in appendix C.2.

the sanction dummy and one of the variables I use to measure either state capacity or international political alignment. I also include a set of controls: GDP and population of both the third country and the target, a contiguity dummy, distance, and the V-Dem democracy score of the target. All controls are well-founded from a theoretical point of view: size of the economy (measured here both by GDP and population) and distance are well known as the main determinants of trade flows in the international trade literature. Contiguity of two countries can be expected to influence trade flows, as countries with common borders will have an easier time trading. On the other hand, it is not unreasonable to assume that bureaucratic quality and enforcement capabilities, as well as political alignment, will be influenced by relative geographical location. For instance, a country with failed institutions increases the probability for its neighbors also to suffer from failed institutions.

Table 4.2 provides the first set of results[20]. To reiterate, the sample shown here is the full set of sender-target-third-country-years, for the senders US, UN, and EU, and the years 1989 to 2014. All possible targets and all possible third countries, which have an available bureaucratic quality scores by ICRG are included. The rightmost three two columns of table 4.2 include the interaction effects of sanctions with bureaucratic quality and both political alignment measures, respectively. I also report the effect of the presence of sanctions on trade without any interactions, which is negative and statistically significant. Sanctions tend to decrease trade to the sanction target, which is intuitively plausible — sanctioned countries receive less trade overall. If a target is sanctioned, not only do trade flows from sender to target decrease, but the target also experiences a decrease in trade from third countries.

The effect of political alignment is equally unsurprising. Closely aligned third countries and targets have higher trade volumes than those that vote differently in the United States General Assembly, according to the negative coefficient of $UNGA_{3T}$[21]. Countries that are in a formal alliances, in this case measured by the entente variable, also trade

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[20]Subscripts are defined throughout as: T for target, S for sender, 3 for third country.

[21]Recall that $UNGA_{3T}$ is a measure of distance — the higher the value of this variable, the lower political alignment and vice versa.

	Flow$_{3T}$	Flow$_{3T}$	Flow$_{3T}$	Flow$_{3T}$	Flow$_{3T}$	Flow$_{3T}$
			Dependent variable:			
sanct$_{ST}$	−.012***		−.014***	.020***	−.020***	−.007***
	(.001)		(.001)	(.003)	(.002)	(.001)
ICRG bq$_3$		.015***	.015***	.016***	.015***	.015***
		(.0004)	(.0004)	(.0004)	(.0004)	(.0004)
logGDP$_T$	.034***	.039***	.039***	.039***	.039***	.038***
	(.0004)	(.0004)	(.0004)	(.0004)	(.0004)	(.0004)
logGDP$_3$	.037***	.038***	.038***	.038***	.038***	.038***
	(.0004)	(.0004)	(.0004)	(.0004)	(.0004)	(.0004)
Pop$_T$	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Pop$_3$	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
V-Dem$_T$	.058***	.065***	.061***	.061***	.061***	.061***
	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)
Contig$_{3T}$	.401***	.479***	.479***	.479***	.479***	.482***
	(.012)	(.014)	(.014)	(.014)	(.014)	(.014)
UNGA$_{3T}$	−.009***	−.010***	−.010***	−.010***	−.011***	−.010***
	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)
logdistance$_{3T}$	−.029***	−.034***	−.034***	−.034***	−.034***	−.033***
	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)
entente$_{3T}$	.133***	.133***	.133***	.133***	.133***	.152***
	(.005)	(.005)	(.005)	(.005)	(.005)	(.006)
sanct$_{ST}$× ICRG bq$_3$					−.015***	
					(.001)	
sanct$_{ST}$× UNGA$_{3T}$						.005**
						(.002)
sanct$_{ST}$× entente$_{3T}$						−.219***
						(.011)
Constant	−1.394***	−1.532***	−1.529***	−1.532***	−1.529***	−1.530***
	(.019)	(.021)	(.021)	(.021)	(.021)	(.021)
Observations	1,552,089	1,317,045	1,317,045	1,317,045	1,317,045	1,317,045
R^2	.080	.089	.089	.089	.089	.090
Adjusted R^2	.080	.089	.089	.089	.089	.090

Note: *p<0.1; **p<0.05; ***p<0.01

Table 4.2: Effect of sanctions, ICRG bureaucratic quality (bq), political alignment (UNGA votes), and formal alliances on trade flows to sanction targets. Includes year fixed effect, sender fixed effects, and heteroskedasticity-consistent standard errors.
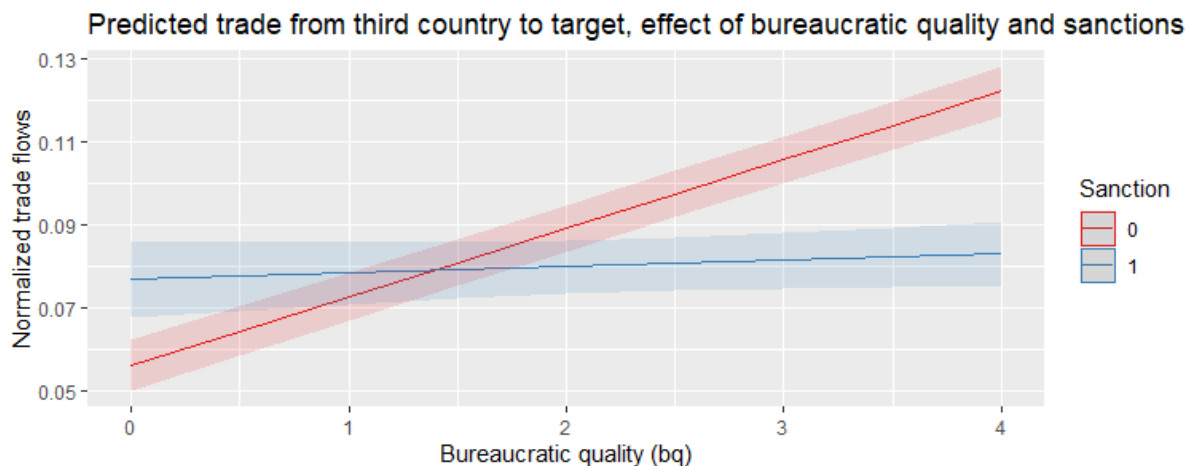
Figure 4.2: Predicted values of (normalized) trade, depending on bureaucratic quality of the third country (potential sanction buster) and the presence or absence of sanctions.

more with each other. Lastly, all control variables also yield coefficients in line with theoretical expectations, e.g. size of the economy is positively related to trade volumes, while greater distance reduces trade volume.

The main results of table 4.2 are the coefficients of the interaction effects, in the rightmost three columns of coefficients. The interaction effect of the sanction dummy with bureaucratic quality is negative and significant. This is consistent with theoretical expectations: if a target is sanctioned, then a higher quality of a third countries bureaucracy decreases trade flows from that country to the target. Reversely, a lower level of bureaucratic quality increases trade flows to a sanctioned country. Figure 4.2 provides an additional visualization of this effect. It shows the level of trade as predicted by bureaucratic quality, separated for sanctioned or unsanctioned targets. The red line maps the effect of bureaucratic quality on the trade flows in the absence of sanctions. For unsanctioned targets, higher bureaucratic quality predicts more trade, a result consistent with the naked (non-interacted) coefficient of bureaucratic quality in table 4.2. This effect is significantly weaker for trade to sanctioned targets (illustrated by the blue line), to the point where there is no statistically significant increase in trade predicted by bureaucratic quality. In other words, a third country without a capable bureaucracy does not decrease its trade in the face of sanctions, whereas a highly capable state does.

Consequently, sanctioned states receive a higher share of trade than non-sanctioned states from low-capacity states — states that are incapable of enforcing sanctions and thus become sanction busters. Thus, hypothesis 1 is confirmed. This result is robust to an analysis of only potential sanction cases, provided in the appendix. The effect of sanction onset, equally provided in the appendix, is even larger and also statistically significant.

The results of table 4.2 and figure 4.2 show that hypothesis 1 is consistent with the data. Countries that lack the administrative capacity to enforce sanctions are more likely to become sanction busters. It is unlikely that this is due to a conscious decision of the sanction buster — state capacity should not proxy willingness to provide sanction busting services. Instead, low levels of state capacity allow economic actors to reroute trade through third countries into target states.

This latter statement is vulnerable to the following challenge: it seems plausible to assume that bureaucratic quality and state capacity is correlated with the willingness of states to bust sanctions. Countries with weak administrative states tend not to be liberal democracies. Equally, sanction targets tend to be autocracies. Consequently, this is at least one vector on which sanction targets and third countries with low bureaucratic quality appear to be similar. It might be that these similar countries are also aligned on the political level. Does bureaucratic quality just proxy political alignment? If yes, the effect observed in figure 4.2 would just be picking up on political will, rather than state capacity, and hypothesis 1 should consequently be rejected in favor of hypothesis 2. In order to resolve this, hypothesis 2 can be tested directly:

$$Flow_{3T} = \gamma_0 + \gamma_1 sanct_{ST} + \gamma_2 bq_3 + \gamma_3(sanct_{ST} \times UNGA_{3T}) + \boldsymbol{\gamma x} + \epsilon \qquad (4.3)$$

According to theory, γ_3 should be negative, as countries should trade more with their allies if they are under sanctions. These results are reported in the last two columns of table 4.2, with the last column substituting an alliance indicator instead of the UNGA vote position.

While the direct effect of political alignment, measured by distance of UNGA voting behaviour, is as expected, the interaction effect is not. The variable UNGA takes higher values for a greater difference in international political behaviour, politically closely aligned third-country-target pairs exhibit lower values. The negative and statistically significant effect of this variable on trade flows is thus as expected, politically aligned countries trading more with each other. The interaction coefficient does not have the expected sign, however. A positive value indicates that in sanction cases the effect of political alignment is weaker, rather than stronger, which had been expected. Furthermore, the coefficient is statistically significant on the 0.05% level, making a statistically artifact unlikely as an explanation. This leads me to reject hypothesis 2, though the result remains puzzling. Notably, this effect is not robust to the exclusion of sender-target pairs that EUSANCT does not code as potential sanctions (see appendix C table with full results). The effect of alliances, in this case ententes, on third country trade is equally puzzling. While the presence of an entente increases trade between two countries, in the presence of a sanction, an alliance partner will export less to the sanction country. This might imply that states are violating the spirit of their alliances in order to abide by international rules.

4.4.2 The impact of strategic export controls on sanction busting

The picture for the second measure of state capacity, the PPI index, looks remarkably similar (figure 4.3, corresponding table C.2 in the appendix). The only change in analysis here is the substitution of the PPI "ability to monitor and detect strategic trade" measure for the ICRG bureaucratic quality index. Control variables as well as the outcome, normalized trade flows, are held constant from table 4.2. For sanctioned targets, represented by the blue line in figure 4.3, the PPI ability index is negatively correlated with trade flows. In the presence of sanctions, trade is more likely to flow from low
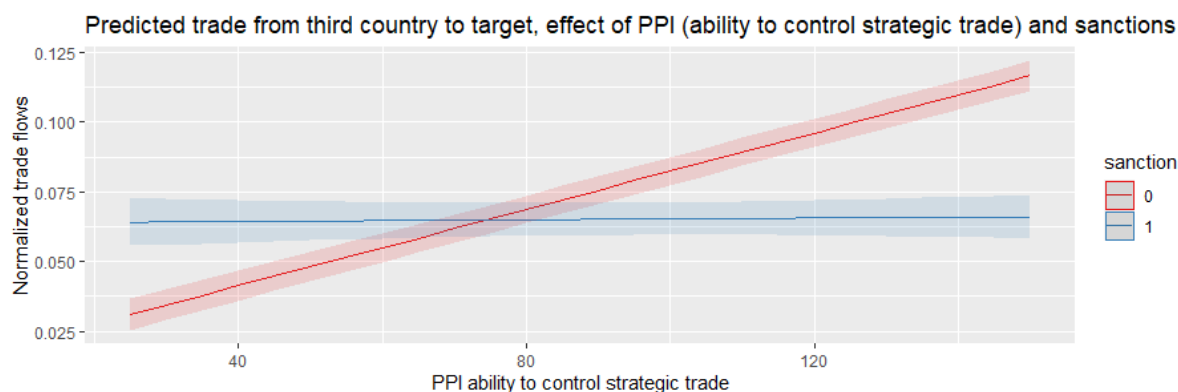
Figure 4.3: Predicted values of (normalized) trade, depending on PPI ability index of the third country (potential sanction buster) and the presence or absence of sanctions.

capacity countries than high capacity countries. In the absence of sanctions, this effect reverses, with high capacity countries exporting more[22].

The upshot of the analysis here is the same as before. As with the ICRG, the PPI measure shows that states with lower state capacity are more likely to become sanction busters and thus contribute a larger share to a sanction target's imports than high capacity countries. All analyses thus concur in providing empirical evidence of hypothesis 1. Empirically, state capacity plays a crucial role in determining which states bust sanctions and which do not. Only states with a functioning democracy, that are able to monitor strategic trade, can enforce sanctions. States with weak administrative apparatuses, on the other hand, become prime jurisdictions for sanction busting.

4.4.3 Sanction busting by sender type

The previous section has provided analysis on the trade flows between third countries and sanction target, as postulated in hypotheses 1 and 2. In addition to these direct tests, the data assembled can provide a richer overall picture by looking at subsamples and other trade flows.

Thus far, all analyses were conducted on the full sample of sanctions, with some additional robustness checks on the sub-sample of potential sanctions. However, the full sample includes three different senders, the US, the EU, and the US. These are not only

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[22]This results is robust to using a different subindex of the PPI, the adequacy of enforcement (see appendix C.2).
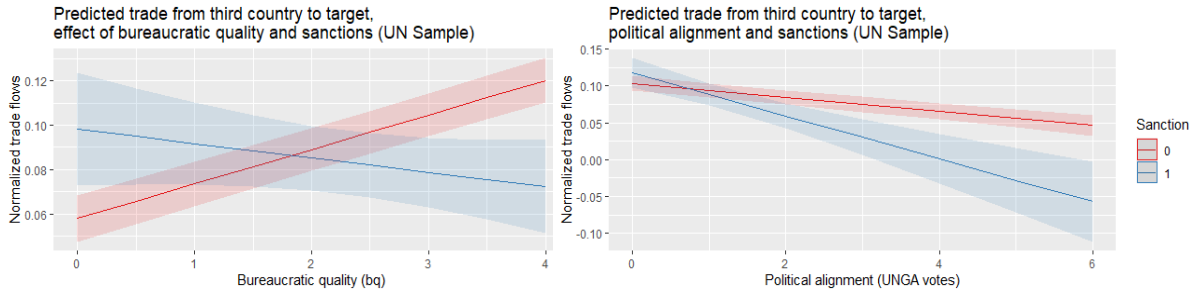
Figure 4.4: Overview of effects of bureaucratic quality and political alignment on sanction busting activity, UN subsample with over 400 000 observations.

distinct, but also qualitatively different entities. The US is a nation state, the EU is a geographically defined supranational union, while the UN is an international organization. Consequently, the default expectation should be that these three 'liberal' senders do behave quite differently, in regards to who they target with sanctions and how these are enforced[23].

In the UN case, the trilateral case reduces down to a bilateral one. Technically, all UN member states are bound by UN sanctions. Hence, every third country is at the same time sender and every country is a potential sanction buster[24]. While this removes some of the features available US and EU data, it enables a more direct comparison of hypotheses 1 and 2[25].

Figure 4.4 provides this comparison[26]. For the case of UN Sanctions, both hypothesis 1 and 2 are supported by the data. The left panel shows the effect of bureaucratic quality of a country and its trade with a sanctioned state. In the absence of sanctions, embodied by the red line, higher bureaucratic quality is associated with more trade. Again, this is unsurprising: better developed countries will both have a better administrative state and more goods and services to trade. In the presence of a UN sanction, however, this effect switches: countries with lower state capacity are more likely to trade with states

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[23]For instance, Weber and Schneider (2020a) show how the decision making mechanism in the EU and the US influences the imposition and effectiveness of economic sanctions.

[24]In this case, a sanction buster is a noncomplier. These two designations are not equivalent in other cases. Consider the case of Belarus: while trade was rerouted through its jurisdiction (i.e. sanction busting took place), Belarus was not itself part of the sanction regime against the Russian Federation. Hence, Belarus was in this case not a noncomplier.

[25]This test of both hypotheses is unlikely to generalize to non-UN sanctions.

[26]The same set of controls as in the previous analysis (e.g. table 4.2) is used here.
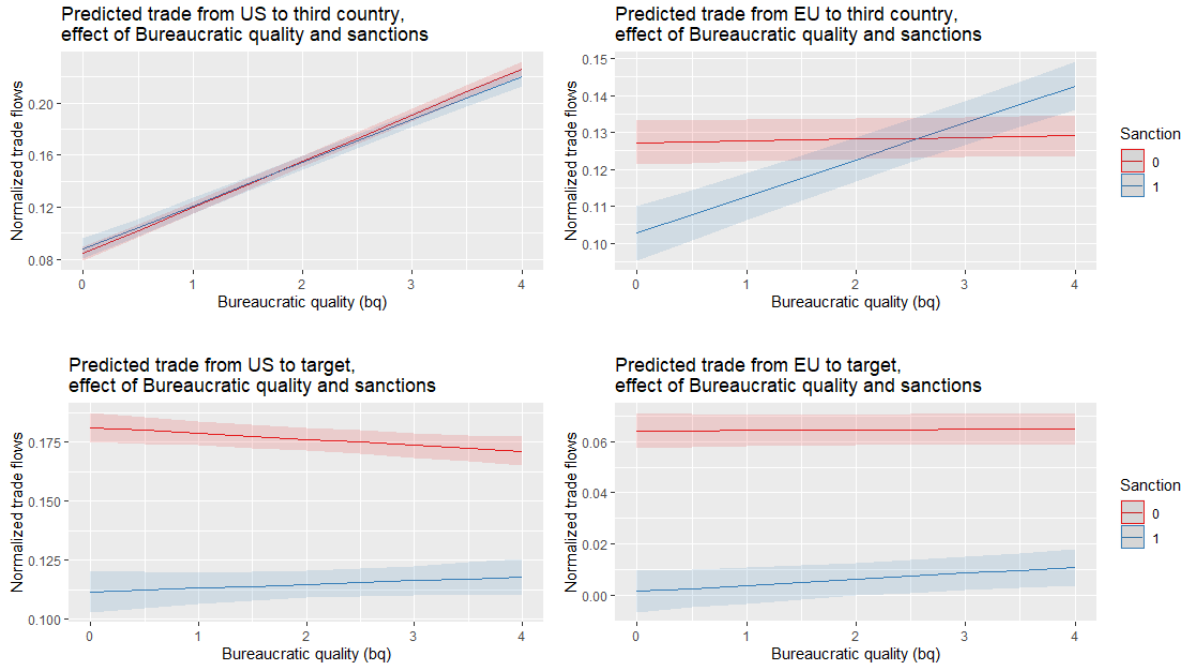
Figure 4.5: Comparison of of EU and US subsamples, effect of bureaucratic quality and sanctions on trade between sender and third countries and trade between sender and target.

under UN sanctions. This result is unsurprising and in line with those in tables 4.2 and figure 4.2, reiterating the validity of hypothesis 1 in the context of UN Sanctions.

The structure of both the US and the EU sample provide further avenues for analysis, although some additional transformations are necessary. While the US is a unitary sender, imposing and implementing sanctions within one government, the EU member states are responsible for implementing sanctions that were imposed on the EU level. Hence, I replace every EU-target-third-country observation with five member-target-third-country observations. I choose the five EU member states Germany, France, Italy, Spain, and the United Kingdom because they are original members and also represent the bulk of economic power. Lastly, it would be computationally prohibitive to analyze the full set of EU countries at the same time. Even so, the EU sample consists of over 1 million observations.

For both the EU and the US samples, it is the possible to analyse trade between sanction senders and third countries, as well as between senders and sanction targets. Figure 4.5 provides an overview of US (left) and EU Sanctions (right).
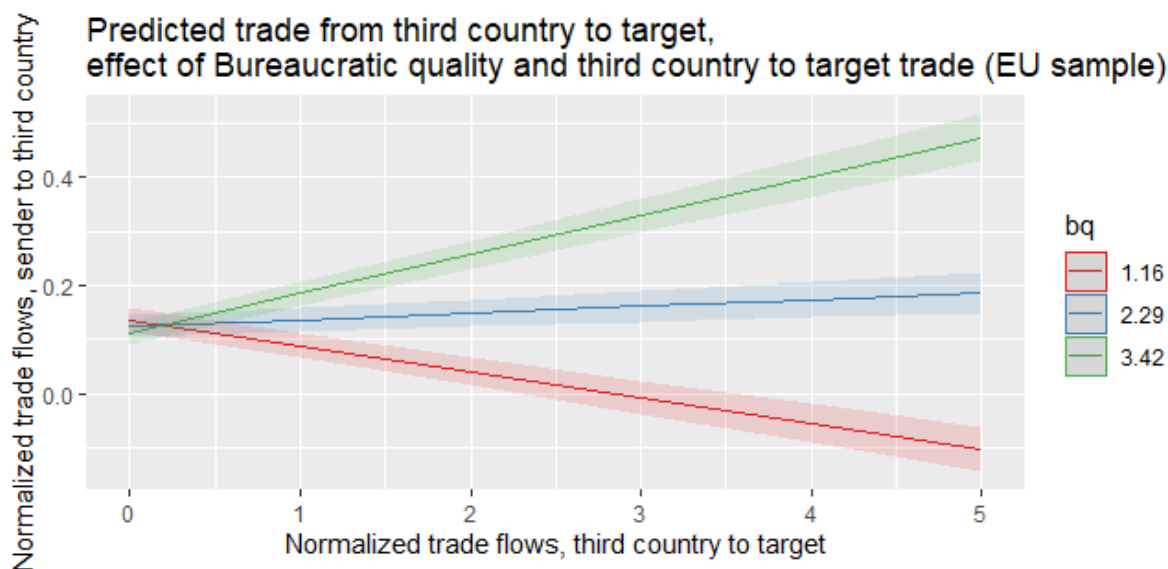
Figure 4.6: Relationship of bureaucratic quality and trade flows of third countries in the presence of sanction cases.

The results depicted in the bottom row are straightforward. The absolute amount of trade between sanction sender and sanction target reduces in the presence of sanctions. This effect is not moderated by the bureaucratic qualities of any third countries, and its presence would in any case be hard to explain by theory. This null results is nevertheless still helpful: it serves as a pseudo-placebo test. A placebo test is usually conducted in causal inference settings by estimating the effect of the treatment on an outcome that is known to be unaffected by the treatment (Athey and Imbens, 2017, p. 17). As the bureaucratic quality of a third country should not impact trade flows between a sender and a target state, seeing this null effect in the data lends credibility to all other results as well.

The top row of figure 4.5 does not show clear results. When considering the effect of bureaucratic quality on the trade between sanction sender and third countries, no straightforward theoretical prediction presents itself. On the one hand, countries with low bureaucratic quality will be used to reroute trade, which should increase the flows into these same countries. On the other hand, sanction sender will seek to hinder exactly this kind of activity, which would lead to the opposite result of reducing trade between senders and low state capacity third countries. The net of these two effects is not determined a priori. In practice, the case of US sanction shows basically a null effect. EU

sanctions, by contrast, point towards a decrease of trade to low state capacity countries during sanction spells. This is further confirmed in figure 4.6, which shows the effect of export from third countries into sanction targets on third countries' imports, for three exemplary levels of third country bureaucratic quality.

Figure 4.6 shows the relationship between third country exports to sanction targets and their imports from EU members. Low state capacity states, the red line, import less from the EU the more they trade with sanction targets. On the flip side, high state capacity states import more from the EU, even if they export a high volume of goods to a sanction target. One possible conjecture is that EU sanction senders anticipate sanction busting and thus are more careful about exporting to low state capacity third countries if they perceive them as sanction busters.

4.4.4 Predicting sanction busting activity

In addition to the regression results presented in the preceding section, I also present evidence on the value of including state capacity indicators in prediction sanction busting activity using supervised machine learning algorithms.

The reasons for this are twofold. On the methodological side, coefficients are significant for almost all variables included in the regressions above (see e.g. table 4.2). This is likely due to the high number of observations, which is in inflated by the triadic structure of the underlying data. Evaluating the predictive value enables me to show the contribution of state capacity in a different way. Instead of focusing on the estimated regression coefficient ($\hat{\beta}$ in standard econometric parlance) and its difference from zero, I look instead at the difference between predicted and actual levels of trade flows between third countries and sanction targets (i.e. $y - \hat{y}$).

On the substantive side, this approach allows policy implications to arise more immediately. Policy makers might conceivably care less about deep causal questions, but instead about how they can evaluate the chances of sanctions success. If sanctions success is dependent on (the absence of) sanction busting, it follows that predicting sanction busting
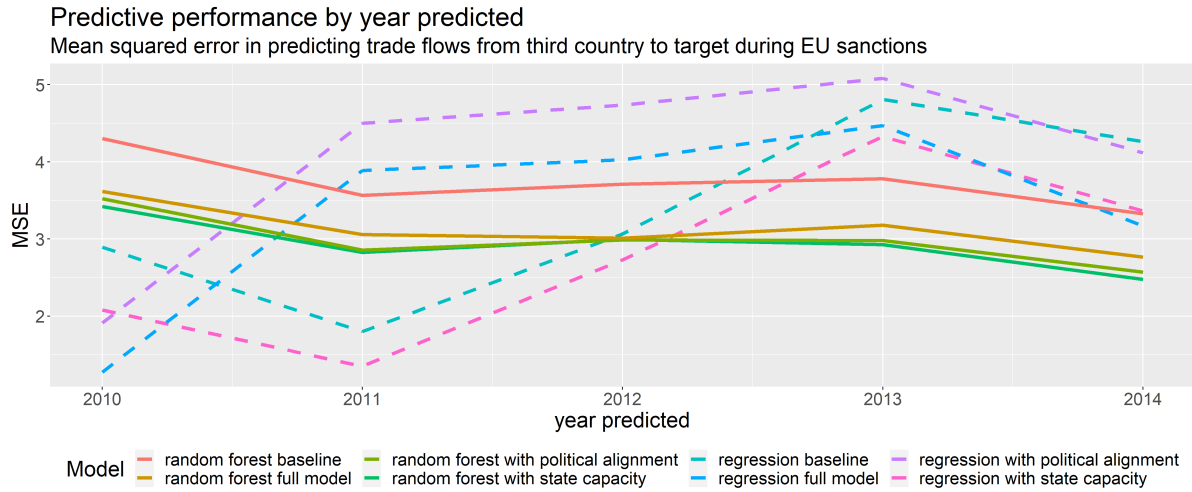
Figure 4.7: Relative predictive performance for EU sanctions.

is highly relevant to anticipating the success of sanctions ex-ante. State capacity, and its empirical manifestation as bureaucratic quality, are relatively slow moving variables. Consequently, showing that bureaucratic quality is predictive of sanction busting trade flows allows policy makers to better judge possible roadblocks of sanction success. Furthermore, this approach allows them to anticipate where enforcement activity might be optimally focused.

I employ two algorithms for prediction, linear regressions and random forest regressions. Linear regressions have the advantage that they are more easily interpretable, while random forests are explicitly built for predictive tasks. The drawback of random forests, on the other hand, is the danger of overfitting, especially with smaller datasets where linear regressions can generally be expected to perform better.

In order to make results comparable, I take the following approach with both algorithms: first, I use a training dataset (e.g. all data points from 1989 to 2009), to fit an initial model. Then, I use this model to predict trade flows between third countries and sanctions targets for a testing dataset (e.g. the year 2010). I use this approach to make one step ahead predictions for the years 2010 through 2014. I then compare the predictive accuracy of a baseline[27] model to a model, which includes either state capacity, political alignment, or both.

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[27]This model includes the control variables from section 4.4.1 only as predictors, excluding fixed effects.

Figure 4.7 shows the results of this approach for the EU sample[28]. The x-axis denotes the year predicted, starting on the very left, where the models predict sanction busting trade flows for the year 2010 based on data from the year 2009. The y-axis reports the mean squared error (MSE) of the prediction each model provided for a given year. The MSE is calculated as

$$MSE = \frac{\sum_{i=1}^{n}(y_i - \hat{y}_i)^2}{n} \tag{4.4}$$

with i denoting individual of n observations. A perfect model would reach an MSE of 0, while higher values indicated worse model performance. The dashed lines in figure 8 show the performance of the standard regression models while the solid lines indicate the performance of random forest models. Perhaps surprisingly, the random forest models do not perform consistently better than the linear regressions. However, for both the regression and the random forest models, the inclusion of state capacity reduces MSEs over the baseline models on all four years. Compare for instance the performance of the regression model with state capacity but without political alignment to that with political alignment but without state capacity: the model with political alignment performs only slightly better for 2010 but significantly worse in all other years. The comparison of the random forest models yields similar results, with the state capacity models never being worse and often being slightly better in their predictive performance.

The predictive results complement the discussion in sections 4.4.1 to 4.4.3, showing that not only is state capacity a statistically significant correlate of sanction busting, it can also help to predict where sanction busting will take place. The preceding analysis also shows that any policy initiative regarding sanction busting and sanction enforcement should take into account state capacity to identify possible roadblocks to success. Countries that are allied with a sanction target will always be the first to fall under suspicion of sanction busting activity. Problematically, this might remove attention from the commercial sanction buster that are active in jurisdictions with weak bureaucratic states,

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[28]US and UN samples are included in the appendix. The results do not diverge significantly for the comparison between the inclusion of state capacity compared to the inclusion of political alignment.

where they can more easily facilitate trade that is under sanction. Whether policy practitioners aim to identify sanction busters qualitatively or quantitatively, they should learn to take state capacity into account.

4.5 Conclusion

In this chapter, I evaluated the impact of state capacity on sanction busting. As postulated in hypothesis 1, the trade flowing from third countries with low state capacity to sanction targets increased in the face of sanctions. Less clear cut is the effect of state capacity on trade between sender and third countries, but some evidence points to a reduction in exports to sanction busters. Finally, there is no effect on the trade between sanctions sender and target. This null results is also in line with theory, serving as a useful placebo test.

Sanctions busting as a phenomenon has been understudied relative to its importance. In this chapter I contribute to the literature by emphasizing one aspect of commercial sanction busting that has not been properly understood previously: the relevance of state capacity. If states do not have the necessary preconditions to enforce sanctions, or at least prevent circumvention of those sanctions, then their willingness to do so becomes secondary. While states do in general reduce trade with sanctioned countries, these reductions in trade are dependent on the capacity of the government: a capable administrative state ensures that no sanction busting can take place. If these capabilities are not in place, for instance because the bureaucracy of a state is of low quality or easily corrupted, then private companies will aim to exploit this. Weak enforcement will make it easier for economic actors that are affected by sanctions to profit from the rerouting of trade through third countries to sanction targets.

The present analysis provides empirical evidence of this phenomenon. Lower bureaucratic quality, while generally associated with less trade, leads to an increase in trade during sanction disputes. This is true even if political alignment is controlled for. Furthermore, the role of political alignment itself can not be unambiguously confirmed by

the data. This chapter thus suggests that sanction policy should reorient itself. As the predictive models in section 4.4.4 have shown, policy makers should design sanctions, and sanction enforcement in a way that focuses on countries with weak administrative states. While "black knights" are not irrelevant, this chapter suggest that an additional focus on commercial sanction busting can not be neglected if sanctions are to be successful.

Researchers and policy makers should be aware of this dynamic when consulting on or designing sanction policy. For instance, secondary sanctions have become more popular with regards to North Korea in previous years (Marquardt, 2017). If the problem of sanctions enforcement lies in the capacity, rather than states' willingness to enforce, then a shift from threatening third countries with secondary sanctions towards training of enforcement agencies might be a more promising way forward. The relevance of state capacity might also explain US sanction policies that are specifically targeted at firms in third countries, like the fines levied on Deutsche Bank for their financial activities in multiple sanctioned states, particularly Iran and Russia (Deutsche Welle, 2020). In this case, the third country lacking the state capacity to enforce is Germany, which has recently sought to address exactly this problem by passing updated anti-money laundering laws in 2017.

5

Conclusions: Trade Policy as Foreign Policy

The previous three chapters have provided an in-depth look at different aspects of economic statecraft. As highlighted in the introduction, I intend the present work to be of practical relevance. Thus, section 5.1 draws out some concrete lessons that policy makers can apply today. Afterwards, I proceed to summarize my theoretical and empirical contributions in section 5.2 and expand on limitations as well as possible extensions in section 5.3.

5.1 Economic statecraft for the 21st century

In the introduction of this dissertation, especially section 1.3, I drew attention to the tension between scientific rigour and policy relevance. After the scientific content of chapters 2 through 4, the present section serves to pivot back to policy. In particular, I draw out practical implications of my research.

Decoupling: Advocates of 'decoupling'[1] should think carefully about what exactly they prescribe. As discussed in chapter 2, a decrease of trade interdependence will have ambivalent effects. The overall aim ought to be to increase economic leverage instead of decoupling economies. As the formal analysis in chapter 2 has shown, the ability of a country to inflict economic pain for low costs to its domestic economy is decisive. This does not straightforwardly translate into a prescription to reduce imports and/or exports. Rather, policy makers should identify which trade flows their, and their potential adversaries', economies vitally rely on.

The Covid-19 pandemic has further spurred such discussions. For example, European politicans have become painfully aware of their reliance on medical supply imports from China (Reuters, 2021a). These medical supply chains constitute substantial leverage of China over the EU. But not all trade flows have such a clear cut relationship to economic

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[1]The most influential formulation of the case for decoupling can be found in the 2017 US National Security Strategy (United States, 2017). See also Lowrey (2018); Mann (2007).

leverage. Decoupling in terms of medical supply chains is a reasonable policy objective, but it does not follow that unilateral protectionism constitutes effective foreign policy.

Instead, effective foreign policy should focus on increasing economic leverage. As follows from the formal model in chapter 2, if Western states can increase their economic leverage towards China, this gives them a second avenue next to military pressure in future confrontations. In addition, as chapter 3 has demonstrated, the presence of economic leverage leads to a decreased likelihood of military conflict. Thus, full decoupling might lead to more violence in the future.

Nord Stream 2: Consider the example of Nord Stream 2, discussed in the first two chapters. Much of the discussion over this pipeline revolves around the alleged leverage Russia would have in some future (non-military) conflict with the EU. To assess this question, let's assume for the sake of the argument that in 2026 Nord Stream 2 has delivered gas for five years. Assume further that then a foreign policy disagreement arises, e.g. over the territorial integrity of Ukraine. In such a situation, who — the European Union or the Russian Federation — has an edge in economic leverage? The answer depends on how reliant European energy markets will be on Russian gas, and on whether the Russian economy will manage to diversify away from natural resource exports until then. The more reliant European energy markets are on Russian gas, the less likely the EU would be to confront Russia. On the other hand, if the EU will have managed to significantly decarbonize its economy while Russia continues to rely on Nord Stream 2 for crucial exports, the EU itself could use Nord Stream 2 to urge Russia into concessions.

Which of these two forces is stronger, the reliance of the EU on Russia or vice versa, determines who profits from the commissioning of the Nord Stream 2 pipeline in geopolitical terms[2,3]. The analysis in chapter 2 has given decision makers a concrete analytical

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[2]Theo Sommer, a German columnist, implicitly makes such an argument in (Sommer, 2021), although without providing empirical evidence for his claim that Nord Stream 2 would increase the EU's leverage over Russia, rather than the other way around. Assumptions over who will gain leverage are crucial. Using these assumptions without any justification, as Sommer does, will not resolve this debate.

[3]For an extended discussion of the Nord Stream 2 issue, see chapter 2, especially section 2.5.2 and citations therein.

model with which to think through the issue of Nord Stream 2, and similar issues that
might come up in the future.

Thinking in institutions: Chapters 2 and 3 emphasize the role of economic state-
craft as a substitute for military statecraft. Policy makers can learn both substantial
and institutional lessons from the insight that these are indeed substitutes. On the in-
stitutional level, many advanced countries have nowadays separated trade from foreign
policy strategy. This made sense as long as technocratic solutions could be found in the
WTO settlement mechanism and regional equivalents. With issue linkage on the rise,
today states cannot principally rely on the WTO to resolve their trade disagreements. In
Plutarch's biography of the Roman triumvir Pompey, Pompey says[4] "Stop quoting laws,
we carry weapons!" when confronted by citizens complaining about his lack of jurisdic-
tion. Consequently, Western states should not quote the law of international commerce
in the face of Chinese and Russian economic weapons. If they do, they run the risk of
being ignored or even exploited.

But even non-adversarial relationships are pivoting from WTO settlement to direct bi-
lateral negotiations. A contemporary example is provided by the recently settled dispute
between the EU and the US over Airbus and Boeing. The long running disagreement
was resolved through a bilateral understanding, while WTO-based attempts at reaching
a settlement had been previously unsuccessful (Financial Times, 2021). In the end, po-
litical calculations over confronting China might have been the impetus that brought the
EU and the US closer together. But regardless, power politics instead of international
trade law was decisive. In a multipolar world, this will be the new standard process. The
WTO is not equipped to handle an increasing amount of sanction disputes and trade
wars. These will be decided bilaterally, not with swords, but with blockades, sanctions,
and tariffs.

Chapter 2 showed how economic coercion should be thought of as a weapon of high
politics, rather than solely a trade issue. Consequently, decision makers on trade and

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[4]In the original: «'Οὐ παύσεσθε,' εἶπεν, 'ἡμῖν ὑπεζωσμένοις ξίφη νόμους ἀναγινώσκοντες'».

their counterparts in foreign policy should work together today more closely than ever before.

Anti-coercion: At the moment the European Comission is debating the design and implementation of an Anti-Coercion Instrument[5]. If such an instrument relies on the WTO in cases where the EU comes under economic pressure from, for instance, China, a timely settlement is unlikely. If a sanctions dispute between China and the EU should arise in the future, fast foreign policy making is required instead of slow and technocratic trade policy. Thus, Western countries should seek to closely integrate their trade and foreign policy making bodies. Closer cooperation on daily tasks performed by the rank and file of the responsible agencies and departments will be vital to meet integrated foreign policy and trade policy challenges. Therefore, the EU should see economic pressure from China not solely as a trade issue, but first and foremost as a foreign policy challenge.

The strategic Shiraz reserve: In addition to these institutional policy recommendations, my dissertation speaks to some substantial questions of trade and foreign policy during multipolar times. In particular, I provide policy makers with a framework to think about economic leverage and how to reduce it.

For instance, in 2020, Australia called for an independent investigation into the origins of the Covid-19 pandemic. China, the biggest Australian trading partner[6], retaliated by restricting imports of Australian goods to China, especially wine and other food products. This illustrates the immense economic power China has over the comparably small Australian economy. But there are ways to reduce Chinese economic leverage. One specific suggestion (Schneider and Jiang, 2021) that has been floated are guarantees by the US and other Australian allies to buy certain goods if Australia comes under Chinese import restrictions[7]. This would compensate the impacted firms and thus reduce the

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[5]See e.g. European Commission (2021); Hackenbroich and Zerka (2021).

[6]According to the Australian government, its trade with China accounts for 26% of all trade in 2020. Of all goods exported by Australia in the same year, 33% went to China (DFAT, 2021).

[7]One of the goods under Chinese sanctions was Shiraz wine. This has led some commentators to call this proposal the "strategic shiraz reserve" (Schneider and Jiang, 2021).

Australian costs of Chinese economic statecraft — and therefore reduce Chinese leverage over Australia. The proposal also illustrates the role of allies and alliances, a topic that remains beyond the scope of this dissertation.

The discussion on the theoretical (section 2.4) and empirical (section 3.4) definition of economic leverage enables policy makers to think analytically about how to combat foreign economic coercion, be it the example of Chinese pressure on Australia or future cases.

Efficient enforcement   Finally, chapter 4 provides some concrete suggestions for the implementation and monitoring of sanctions. In general, there is broad agreement that sanction busting is detrimental to sanction success. If sanctions are busted, they cannot fulfill the goals of the sanction sender. Consequently, policy makers, which desire effective sanctions, should seek to minimize sanction busting. Enforcement is often costly, requiring skilled civil servants and law enforcement personnel to spend time and money, hunting down sanction busters and eliminating legal loopholes.

Who should these enforcers focus their efforts on? Crucially, the allies of the sanction target may not be the ideal choice. Instead, territories with incomplete legal frameworks and weak state bureaucracies are rife with sanction busting activity. As a consequence, the most cost effective sanctions enforcement activity might be providing willing but incapable governments with the means of sanction enforcement. For example, making financial resources and technical expertise available can help weaker states catch up on their enforcement requirements. This is likely to be more (cost) effective than seeking to shame or pressure the target's allies into compliance. In addition, helping third countries to fight corruption will not only enable them to enforce sanctions, but at the same time be beneficial to their own economic growth. This might provide sanction senders with both new allies and more effective sanctions.

The case of North Korean attempts to bust sanctions serves to illustrate this point. As a Danish documentary has revealed, the North Korean regime attempted to sell weapons to Syria via the African nations of Uganda and Namibia (BBC, 2020). In addition, oil was to

be delivered to North Korean via Lybia. Why exactly these countries? Traditionally, the closest ally of North Korea has been China. But both Uganda and Nambibia a relatively stable states with weak bureaucracies[8], rather than North Korean allies. Lybia, on the other hand, is far from a stable country, in addition to heaving low levels of state capacity. The North Korean government, and its foreign partners in sanction busting, were not looking for friendly jurisdictions to set up their operations. Instead, they were looking for a country in which they could keep their activities hidden from law enforcement — countries with weak administrative states.

These are some of the policy lessons my dissertation provides. But above and beyond specific policy recommendations, I hope this thesis provides a vocabulary[9] to think about foreign policy and trade policy in one coherent way. Such a vocabulary is general enough that it can then be applied to more challenges in foreign policy making than those mentioned here.

5.2 Assessing economic statecraft research

While the preceding section formulated some concrete policy implications, I will now focus on the scientific upshot of this dissertation. To this end, I discuss how each of my chapters has contributed to filling the gaps in our understanding of economic statecraft.

Chapter 2 showed how the strategic calculus of states can lead to war if they squander their economic leverage. In a situation where one state wants to induce another to change its policies, this state has two options (besides doing nothing): either threatening violence or inducing economic costs that make maintaining the current policy costly for the opponent. In general, both approaches can work, but the distribution of economic power between both sides determines whether economic coercion is a realistic option. If not, then military action becomes more likely whenever states disagree, as (the threat of) war is the only remaining approach.

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[8]They both exhibit ICRG scores of 2 for the year 2016. Lybia scores 1.5 in the same year.

[9]Vocabulary is here meant in the Rortyan sense; a set of redescriptions that help us make sense of the world (Rorty, 1989).

Chapter 3 argued that this phenomenon is observable in the data (section 3.5). Specifically, trade flow asymmetries predict whether an opponent will declare a military war or a trade war. States that have trade leverage will often substitute military action with economic coercion. This finding extends the theoretical argument of chapter 2 and provides more evidence of the theoretical and practical relevance of trade leverage in particular.

Together, chapters 2 and 3 establish an argument as to what economic leverage is and how it relates to foreign policy making. Economic leverage is a function of the relative vulnerability of states against each other (section 2.4.1). Trade leverage in particular can be calculated by differentiating trade exposure two countries have towards each other and their respective trading partners (section 3.4.3). As the international state system becomes multipolar, the conclusions of these chapters emphasize that further research into the role of trade in foreign policy will be of increasing relevance over time.

In addition to this, Chapters 2 and 3 shine new light on some classical questions of international relations. Previously, modellers of interstate crisis bargaining lacked a unified theory of economic coercion and military threats. This theory was provided in chapter 2, especially section 2.4.2. I supplement this with a novel case-study on the influence of economic leverage in the Balkans on the eve of World War I (section 2.3).

For a long time, international relations scholarship has split along the liberal-realist divide. My empirical contribution in chapter 3 synthesises the positions taken from both schools of thought on the trade-conflict nexus (section 3.5). This synthesis is realist in the sense that asymmetric trade can be a tool of power, which is a relative gains argument, and that trade can nevertheless lead us to peace, which is a liberal argument. The key to this conclusion was the robust account of economic leverage that chapters 2 and 3 are explicitly built on.

One tool of economic statecraft is the imposition of economic sanctions. Sanctions, next to trade wars, are one of the instruments that will gain enhanced usage in the years and decades ahead.

Chapter 4 discussed what happens after sanctions — a subset of economic coercion measures — are instituted. Specifically, what determines sanction busting and, by extension, what should be the sanction senders' optimal enforcement strategy? I present the novel finding that sanction busting trade is often routed through jurisdictions that have a low level of state capacity (section 4.4). Thus, in order to be successful, sanction senders should focus their enforcement not merely on allies of the target, but also on states with weak state bureaucracy (section 4.5). The latter ones do not have the capability of enforcing sanctions, regardless of their willingness to do so.

Chapter 4 furthermore introduced a novel datasource: the Peddling Peril Index. To my knowledge, this is the first time the index was used in a scientific study beyond its initial launch. In order to make the PPI usable for future researchers[10], I have shown its feasibility in the analysis conducted in section 4.4.2.

Above all, the methodological approach of this dissertation is a pragmatic one. The mechanisms in the formal model of section 2.4 are not easy to test empirically. Consequently, a historical case study (section 2.3) illustrates the point — that economic coercion could substitute for military threats in certain cases. The methodological approach in chapter 3, on the other hand, is based on large-N statistical analysis, including some up to date modelling innovations (section 3.5.3). Unfortunately, no natural experiments could be found that would help identify clear causal effects. As I will discuss in the next section, this leaves a major opening for future research. However, even with the data available I derive some insights in chapter 3. Lastly, chapter 4 relies both on classical regression analysis (sections 4.4.1 - 4.4.3) and a comparably newer machine learning approach (section 4.4.4). Combining methods in this manner increases the robustness of my results, and thus supports the theoretical argument — that state capacity is a major predictor of sanction busting — more than each method could on its own.

Many of the issues discussed in the preceding chapters were framed by discussions of international relations realism and liberalism (see especially sections 3.1. and 3.2). At the same time, the conclusions I draw do not neatly fall into one of these schools of

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[10]I have also provided a machine-reable version of the index with subgroups on my github page, `https://git.io/JMRtV`. Previously, the index was only available across multiple pdf documents.

thought. This is by design. While schools of thought might be helpful in categorizing certain research agendas and assumptions, a modern social science should not rely on such strict divisions. Schools of thought often talk past each other, instead of exchanging their ideas. Especially in an empirical field like international relations, scholars should seek to collaborate to formulate hypotheses and subsequently test them. In my own work, references to realism and liberalism are thus largely historical. They frame the current work with reference to previous writings, but future work should seek to do away with these distinctions wherever possible.

5.3   Sketching a research agenda on economic statecraft

Whenever a research question is answered, a new area of inquiry presents itself. While chapter 2 integrates threats of war and economic coercion into one singular bargaining model, some natural avenues for further research pop up.

For example, asymmetric information did not play a crucial role in deriving my results in chapter 2. In order to model informational asymmetries accurately, future research should define different types along at least two dimensions: their costs from lost trade and their military strength (i.e., uncertainty over who would win a violent conflict). The upshot of such an analysis is not immediately obvious, and thus might contain novel or even surprising insights. One aspect of my game-theoretical model that future research can improve upon is its modelling of stocks and flows. In my model, I do not distinguish between the two, considering flow variables, like trade, and stock variables, like policy issues on the same level. While the trade variable can be understood as the sum of discounted future trade flows, a more sophisticated economic model might be able to more directly deal with this issue. Modern Dynamic Stochastic General Equilibrium (DSGE) models might be a prime candidate for application to this problem (see e.g. Caiani et al., 2016).

Chapter 3 investigated the role of trade leverage, which I consider a sub set of economic leverage. Consequently, further research into other types of economic leverage, e.g. FDI-leverage, financial leverage, or currency leverage, is necessary to complete a thorough picture of economic leverage as a whole. This would also expand other work, like Drezner et al. (2021) on financial leverage, as well as my own research presented here.

In addition to different kinds of leverage, future research should seek to integrate positive incentives (Dorussen, 2001). Chapter 2 exclusively discussed negative incentives, i.e. economic coercion and military threats. In order to consider the full toolbox of foreign policy, future work should incorporate other levers like development aid, IMF assistance, WTO Most Favored Nation status, etc. These tools should play a role both in theoretical modelling and in empirical work, in order to provide a complete account of foreign policy behaviour.

Neither chapter 2 nor chapter 3 has centered on the role of alliances. Future work should complete the models and approaches discussed in this dissertation by analyzing the role of allies when employing the means of economic statecraft. Can allies help to reduce economic vulnerability and thus decrease an opponent's leverage? When considering whether to deploy means of economic statecraft, can their efficacy be increased by combining with allies, and by how much? Previous work relating to this topic can also be found in, e.g., Peksen and Peterson (2016).

Chapter 4 provides a list of sanction-busting predictors, with an emphasis on state capacity. This was based on the liberal understanding of sanction busting: companies seek profits, and the circumvention of sanctions is a profit-making opportunity. Sanction busting is thus driven by private companies. Further research should look at these firms directly, instead of aggregate trade flows, in the vein of e.g. Weber and Stępień (2020). If companies with a presence in bureaucratically weak states profit from sanctions, this should be visible in financial markets, especially stock prices.

Finally, to strengthen the conclusions presented within this dissertation, future work should seek to establish the reliability of the empirical results by applying other methodologies. For instance, modern methods of causal inference should be employed to identify

causality. In addition, consulting different paradigmatic cases and extended samples will strengthen the validity of the results and refine them to include additional contextual factors.

5.4   Concluding remarks

In summary, much work still remains, for scholars of international relations broadly and economic statecraft narrowly. This work should be conducted not only because it is interesting in its own right, but because the policy stakes are real.

It is my hope that my analysis has provided policy makers and researchers with novel ways of considering the problems of economic statecraft in multipolar times — those of today and those of tomorrow.

Abgrenzung

Die gesamte Arbeit wurde ohne die Mitarbeit anderer Autoren angefertigt.

The full dissertation was written without the help of any outside authors.

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Appendix

A

Appendix of Chapter Two

A.1 Full information one-shot

If there are no informational asymmetries and there is only one stage, the game can be solved straightforwardly with backwards induction. This leads to a full list of conditions for every outcome. I list first all equilibria and the associated outcomes. Table A1 then charts all necessary and sufficient conditions for each equilibrium. I derive the equilibria discussed in the paper in some length, the others follow straightforwardly from backwards induction. In this section I derive the conditions for the equilibria $\{D, D; C\}$ and $\{D, C; C\}$, as those are the substantively interesting equilibria discussed in the main section of chapter 2. All other equilibria can be derived in a similar manner, and all conditions are summarized in table A.1.

The possible equilibria and associated outcomes can be listed as:

- $\{D, D; D\}$: Conflict
- $\{D, D; C\}$: Defender concedes (CT condition)
- $\{D, C; D\}$: Challenger defeated
- $\{C, D; D\}$: SQ
- $\{D, C; C\}$: Defender concedes (EC condition)
- $\{C, D; C\}$: SQ
- $\{C, C; D\}$: SQ
- $\{C; C; C\}$: SQ

Credible threats In the final decision node, challenger has to decide between conflict and concession. She will decide to got to war and choose the option conflict, if the utility from doing so is higher than the utility from backing off:

$$- \delta e_C < -e_C - c + (1 - q)z_C \tag{A.1}$$

	Condition 1	Condition 2	Condition 3	Outcome
(D, D), (D)	$e_C + c < (1-q)z_C$	$(1-\delta^2)e_D + c < qz_D$	$-\delta e_C < -e_C - c + (1-q)z_C$	Conflict
(D, D), (C)	$\delta^2 e_C < z_C$	$(1-\delta^2)e_D + c > qz_D$	$-\delta e_C < -e_C - c + (1-q)z_C$	Defender Concedes (CT)
(D, C), (D)	never: $(-\delta e_C > 0)$	$z_D > (\delta - \delta^2)e_D$	$-\delta e_C > -e_C - c + (1-q)z_C$	Challenger Defeated
(C, D), (D)	$e_C + c > (1-q)z_C$	$(1-\delta^2)e_D + c < qz_D$	$-\delta e_C < -e_C - c + (1-q)z_C$	SQ
(D, C), (C)	$\delta^2 e_C < z_C$	$(\delta - \delta^2)e_D > z_D$	$-\delta e_C > -e_C - c + (1-q)z_C$	Defender Concedes (EC)
(C, D), (C)	$\delta^2 e_C > z_C$	$(1-\delta^2)e_D + c > qz_D$	$-\delta e_C < -e_C - c + (1-q)z_C$	SQ
(C, C), (D)	$0 > -\delta e_C$	$z_D > (\delta - \delta^2)e_D$	$-\delta e_C > -e_C - c + (1-q)z_C$	SQ
(C, C), (C)	$\delta^2 e_C > z_C$	$\delta(1-\delta)e_D > z_D$	$-\delta e_C > -e_C - c + (1-q)z_C$	SQ

Table A.1: Overview of conditions, equilibria, and outcomes in one shot game.

The defender knows which choice the challenger will make. Assume that the challenger would choose conflict in decision node 3, i.e. that A.1 is fulfilled. If the second part of the Relevance condition holds, then defender would rather concede than go to war:

$$(1 - \delta^2)e_D + c > qz_D \tag{A.2}$$

Challenger knows that if A.1 and A.2 hold, challenger will play D in the third node and defender will play C in the second node. The condition for challenger to defect is then the first part of the relevance condition, capturing whether challenger prefers SQ or CD. She does defect if:

$$\delta^2 e_C < z_C \tag{A.3}$$

Hence, A.1, A.2, A.3 are necessary and sufficient conditions for the the equilibrium $\{D, D; C\}$. If these inequalities hold, then the challenger can successfully use economic coercion to achieve her policy objective.

Economic coercion   Economic coercion may or may not include a credible threat, i.e. it is irrelevant whether A.1 holds or not. The interesting case arises, however, if the challenger would not go to war over the policy issue, i.e. if

$$-\delta e_C > -e_C - c + (1-q)z_C \tag{A.4}$$

If the defender knows that A.4 holds, then she is not choosing between the conflict outcome and the defender concedes outcome, as above, but between the conflict outcome and the challenger defeated outcome. She will never the less choose to concede if:

$$(\delta - \delta^2)e_D > z_D \tag{A.5}$$

Note that A.5 corresponds to EC in the main text. The final condition of this equilibirum is that challenger does indeed defect from the status quo in the first node. This is again ensured by A.3.

Hence, A.4, A.5, and A.3 ensure the equilibirum $\{D, C; C\}$ with outcome defender concedes.

A.2 Comperative statics

The partial derivatives

$$\frac{\partial \bar{z}_C(e_c, c, q, \delta)}{\partial e_C} > 0 \text{ and } \frac{\partial \bar{z}_C(e_c, c, q, \delta)}{\partial c} \geq 0 \tag{A.6}$$

can be derived by taking the function

$$\bar{z}_C = \begin{cases} \delta^2 e_C, & \text{if } EC \\ \frac{(1-\delta)e_C + c}{(1-q)} & \text{if } R(2) \\ min\{\delta^2 e_C, \frac{(1-\delta)e_C + c}{(1-q)}\} & \text{if } EC \wedge R(2) \end{cases} \tag{A.7}$$

step by step. If EC holds, then the partial derivative of $\bar{z}_C$ w.r.t e_C is simply δ^2 which is positive by construction. If R(2) holds, then the partial derivative of $\bar{z}_C$ w.r.t e_C is

$\frac{(1-\delta^2)}{1-q}$. Recall that $0 < \delta < 1$ and $0 < q < 1$. Hence, both $1 - \delta^2$ and $1 - q$ are positive, and $\frac{\partial \bar{z}_C(e_C, c, q, \delta)}{\partial e_C} > 0$.

For the partial derivative w.r.t c, we can proceed accordingly. If EC holds, then $\frac{\partial \bar{z}_C}{\partial c} = 0$, but if R(2) holds then $\frac{\partial \bar{z}_C}{\partial c} = \frac{1}{1-q} > 0$.

In order to formulate partial derivatives over the condition, these have to reformulated as functions. E.g. for the Economic Coercion condition, we can reformulate:

$$(\delta - \delta^2)e_D > z_D \iff \frac{(\delta - \delta^2)e_D}{z_D} > 1 \tag{A.8}$$

$$EC = \begin{cases} 1 \text{ if } \frac{(\delta - \delta^2)e_D}{z_D} > 1 \\ 0 \text{ else} \end{cases} \tag{A.9}$$

A.3 Iterated, two-shot

In terms of overall utility, call the utility of the challenger in period $t = 1$ $U_C^{t=1}$, and similarly for the defender and other periods t.

The variable z_C is drawn every period t from a probability distribution. Define $E[z_C] = \hat{z}_C$ for all periods, i.e. $\hat{z}_C^{t=1} = \hat{z}_C^{t=2}$. Then, from the perspective of t, the evaluation of the policy issue in $t+1$ by a risk neutral challenger is $\pi \hat{z}_C$. The same holds for the defender and $\hat{z}_D$.

As $0 < \pi < 1$, $\pi \neq 0$. To analyze low discount factors (call this case 1), assume

$$\lim_{\pi \to 0}(U_C^{t=1} + \pi U_C^{t=2}) = U_C^{t=1} + \epsilon \simeq U_C^{t=1} \tag{A.10}$$

i.e. a very low discount factor leads to utilities that are so small to be insignificant in period $t = 2$.

	Condition 1	Condition 2	Condition 3	Outcome
(D, D), (D)	$e_C^{t=1} + c < (1-q)z_C^{t=1}$	$(1-\delta^2)e_D^{t=1} + c < qz_D^{t=1}$	$-\delta e_C^{t=1} < -e_C^{t=1} - c + (1-q)z_C^{t=1}$	Conflict
(D, D), (C)	$\delta^2 e_C^{t=1} < z_C^{t=1}$	$(1-\delta^2)e_D^{t=1} + c > qz_D^{t=1}$	$-\delta e_C^{t=1} < -e_C^{t=1} - c + (1-q)z_C^{t=1}$	Defender Concedes (CT)
(D, C), (D)	never: $(-\delta e_C^{t=1} > 0)$	$z_D^{t=1} > (\delta - \delta^2)e_D^{t=1}$	$-\delta e_C^{t=1} > -e_C^{t=1} - c + (1-q)z_C^{t=1}$	Challenger Defeated
(C, D), (D)	$e_C^{t=1} + c > (1-q)z_C^{t=1}$	$(1-\delta^2)e_D^{t=1} + c < qz_D^{t=1}$	$-\delta e_C^{t=1} < -e_C^{t=1} - c + (1-q)z_C^{t=1}$	SQ
(D, C), (C)	$\delta^2 e_C^{t=1} < z_C^{t=1}$	$(\delta - \delta^2)e_D^{t=1} > z_D^{t=1}$	$-\delta e_C^{t=1} > -e_C^{t=1} - c + (1-q)z_C^{t=1}$	Defender Concedes (EC)
(C, D), (C)	$\delta^2 e_C^{t=1} > z_C^{t=1}$	$(1-\delta^2)e_D^{t=1} + c > qz_D^{t=1}$	$-\delta e_C^{t=1} < -e_C^{t=1} - c + (1-q)z_C^{t=1}$	SQ
(C, C), (D)	$0 > -\delta e_C^{t=1}$	$z_D^{t=1} > (\delta - \delta^2)e_D^{t=1}$	$-\delta e_C^{t=1} > -e_C^{t=1} - c + (1-q)z_C^{t=1}$	SQ
(C, C), (C)	$\delta^2 e_C^{t=1} > z_C^{t=1}$	$\delta(1-\delta)e_D^{t=1} > z_D^{t=1}$	$-\delta e_C^{t=1} > -e_C^{t=1} - c + (1-q)z_C^{t=1}$	SQ

Table A.2: Overview of conditions, equilibria, and outcomes in two-shot at $t = 1$.

In cases with such low discount factors, actors will decide as if they were blind to the future, i.e. the< do not take into consideration the consequences of their actions beyond the iteration they are in.

In that case, the analysis of the one-shot game applies to each stage. The difference lies in the changing economic costs of defection, i.e. $e_C^{t=2}$ depends on the outcome of the game in $t = 1$.

The outcome and equilibrium conditions are then equivalent to those in the one-shot game. For $t = 1$, this is depicted in table A.2.

The only variables that change between $t = 1$ and $t = 2$ are z_C, z_D, e_C, e_D. As discussed, z_C, z_D are random draws of which the players know expected values.

The values of $e_C^{t=2}$ and $e_D^{t=2}$ depend of the outcome of the game in $t = 1$. These are abbreviated as SQ for status quo, DC for defender concedes, and CD for challenger defeated. Specifically:

$$e_C^{t=2} = \begin{cases} e_C^{t=1} & \text{if } SQ^{t=1} \\ \delta e_C^{t=1} & \text{if } DC^{t=1} \\ \delta^2 e_C^{t=1} & \text{if } CD^{t=1} \\ 0 & \text{else} \end{cases} \tag{A.11}$$

and

$$e_D^{t=2} = \begin{cases} e_D^{t=1} \text{ if } SQ^{t=1} \\ \\ \delta e_D^{t=1} \text{ if } DC^{t=1} \\ \\ \delta^2 e_D^{t=1} \text{ if } CD^{t=1} \\ \\ 0 \text{ else} \end{cases} \tag{A.12}$$

In case 1, with very low discount factors, what is the effect of the challenger using economic leverage to achieve their policy goals?

From equation (A.12), it follows that a deviation from the status quo leads to a lowered $e_D^{t=2}$ compared to $e_D^{t=1}$. From this, in combination with equation 2.4 from chapter 2, it follows that: If, in iteration t, the outcome of the game is DC, then $EC^t \geq EC^{t+1}$.

In case 2, $\pi \simeq 1$, i.e. the players do not discount the future. In that case, defection becomes more expensive, as the losses of trade are sticky by construction, although future losses are discounted by π. The higher π, the more stable the status quo.

B

Appendix of Chapter Three

B.1 Properties of trade leverage

- Without loss of generality, assume $lev_{ij} = x/y$.

- As previously stated, $lev_{ji} = (lev_{ij})^{-1}$.

- Consequently, $log(lev_{ji}) = log(lev_{ij}^{-1}) = -log(lev_{ij})$.

- In order for both countries to have equal trade leverage over each other, the situation must be symmetric, i.e. $x = y$. From this, $lev_{ij} = x/y = 1$.

- Taking the log, this leads to $log(lev_{ij}) = log(1) = 0$.

Thus, logging the trade leverage variable provides for the desiderata laid out in section 3.3, a variable symmetric around 0, negative values giving the edge to j and positive values indicating a relative strength of i.

B.2 Descriptive statistics

Table B.1: Summary Statistics

Variable	N	Mean	Std. Dev.	Min	Pctl. 25	Pctl. 75	Max
tw_{ij}	1117412	0.288	0.453	0	0	1	1
$leverage$	841340	56.057	1765.032	0	0.117	8.714	1493791.517
$onset$	1138841	0.004	0.061	0	0	0	1
$logGDP_i$	1087033	22.68	2.439	14.997	20.936	24.379	29.997
$Flow_i$	1138841	133199.099	1835952.801	0	0	4830.084	283660386.304
$UNGAd_{ij}$	931203	-0.002	0.209	-3.535	-0.102	0.1	3.431
$logdistance_{ij}$	1118931	8.679	0.77	4.881	8.294	9.235	9.892
$cinc_i$	1033392	0.008	0.025	0	0	0.006	0.384
$polity2_i$	1024006	1.838	7.401	-10	-7	9	10
$Contig$	1138841	0.026	0.158	0	0	0	1
$alliance$	1138841	0.06	0.237	0	0	0	1

Trade changes in 2009
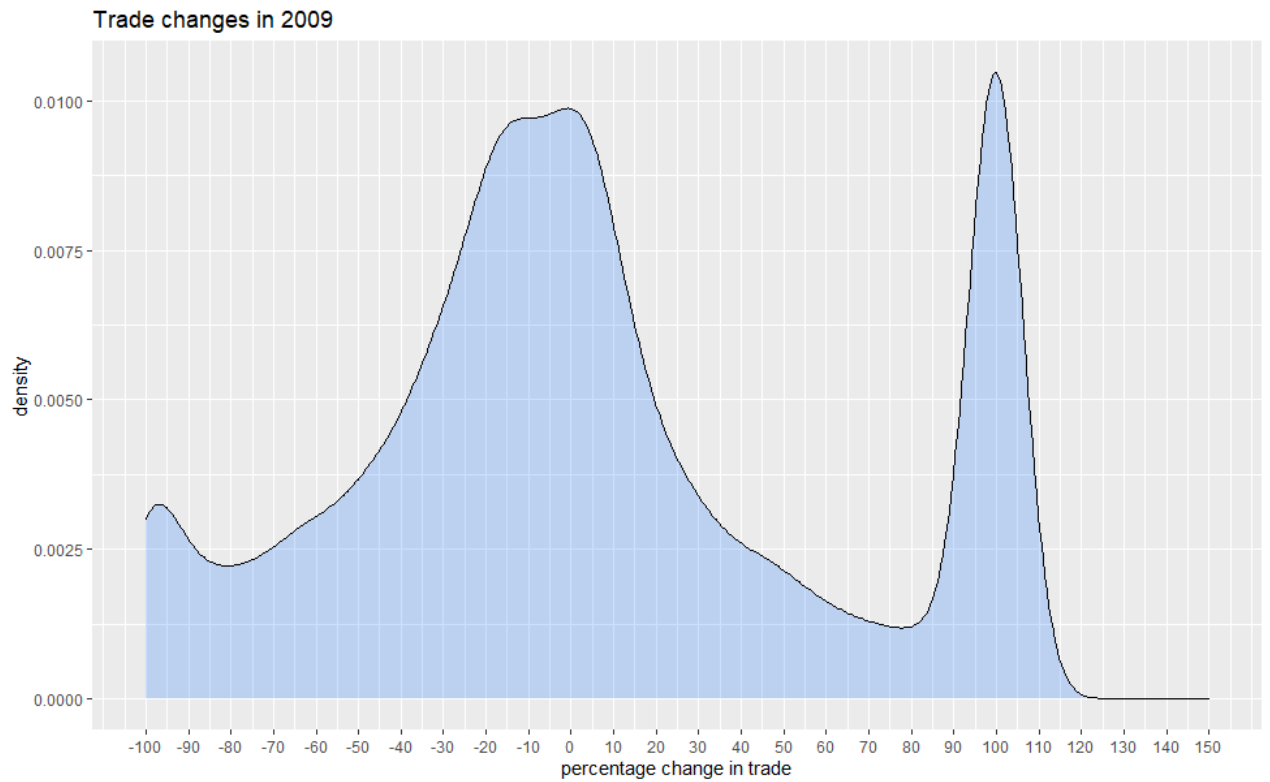
Figure B.1: Distribution of Δtrade in 2009, percentage to previous year.

B.3 Robustness

	EC_{ij}	EC_{ij}	EC_{ij}	EC_{ij}	EC_{ij}	EC_{ij}
	Dependent variable:					
	OLS	OLS	*panel linear*	*panel linear*	*panel linear*	*logistic*
leverage	0.00000**	.00001***	0.00000***	0.00000***	0.00000	.00002
	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(0.00000)	(.00002)
logGDP$_i$		−.008***	−.018***	−.014***	−.014***	−.211***
		(.0002)	(.0002)	(.001)	(.001)	(.003)
logGDP$_j$		−.008***	−.018***	−.013***	−.013***	−.209***
		(.0002)	(.0002)	(.001)	(.001)	(.003)
UNGAd$_{ij}$		−.008***	−.0002	.001	.001	.045***
		(.0005)	(.0005)	(.001)	(.001)	(.006)
logdistance$_{ij}$		.030***	.031***			.423***
		(.001)	(.001)			(.007)
cinc$_i$		−.550***	−.122***	−.395***	−.387***	−5.701***
		(.018)	(.019)	(.070)	(.070)	(.344)
cinc$_j$		−.538***	−.118***	−.394***	−.395***	−5.544***
		(.018)	(.019)	(.070)	(.070)	(.341)
polity2$_i$		−.002***	−.001***	−.001***	−.001***	−.021***
		(.0001)	(.0001)	(.0001)	(.0001)	(.001)
polity2$_j$		−.002***	−.001***	−.001***	−.001***	−.021***
		(.0001)	(.0001)	(.0001)	(.0001)	(.001)
alliance		−.013***	−.007***	−.007**	−.007**	−.139***
		(.002)	(.002)	(.003)	(.003)	(.020)
Contig		−.015***	−.013***			−.220***
		(.002)	(.002)			(.034)
UNGAd$_{ij}$× leverage					0.00000**	0.00000
					(0.00000)	(.00001)
Constant	.109***	.241***				3.195***
	(.0003)	(.008)				(.248)
Year FE	No	No	Yes	Yes	Yes	Yes
Dyad FE	No	No	No	Yes	Yes	Yes
Observations	831,222	616,871	616,871	616,871	616,871	616,871

Note: *p<0.1; **p<0.05; ***p<0.01

Table B.2: Effect of trade leverage on economic coercion, relative measure of economic coercion.

	Dependent variable:		
	$ECij$	EC_{ij}	EC_{ij}
leverage	.00003***	.0001***	.0001***
	(0.00000)	(.00001)	(.00001)
$\log\text{GDP}_i$		$-.030$***	$-.046$***
		(.001)	(.002)
$\log\text{GDP}_j$		$-.026$***	$-.042$***
		(.001)	(.002)
UNGAd_{ij}		.108***	.124***
		(.003)	(.003)
$\log\text{distance}_{ij}$		.143***	.138***
		(.004)	(.004)
cinc_i		-3.069***	-2.452***
		(.138)	(.143)
cinc_j		-2.994***	-2.409***
		(.137)	(.142)
polity2_i		$-.005$***	$-.003$***
		(.0004)	(.0004)
polity2_j		$-.005$***	$-.003$***
		(.0004)	(.0004)
alliance		$-.054$***	$-.052$***
		(.011)	(.011)
Contig		$-.083$***	$-.084$***
		(.018)	(.018)
$\text{UNGAd}_{ij} \times$ leverage			$-.00001$*
			(.00001)
Constant	$-.660$***	$-.624$***	$-.086$
	(.002)	(.055)	(.150)
Year FE	No	No	Yes
Dyad FE	No	No	No
Observations	831,222	616,871	616,871

Note: *p<0.1; **p<0.05; ***p<0.01

Table B.3: BRGLM models, effect of leverage on economic coercion.

	Dependent variable:		
	EC_{ij}	EC_{ij}	EC_{ij}
leverage	0.00000	.0001***	.00002
	(0.00000)	(.00001)	(.00001)
logGDP$_i$		−.081***	−.211***
		(.002)	(.003)
logGDP$_j$		−.078***	−.209***
		(.002)	(.003)
UNGAd$_{ij}$		−.076***	.045***
		(.006)	(.006)
logdistance$_{ij}$		.354***	.423***
		(.007)	(.007)
cinc$_i$		−13.876***	−5.689***
		(.420)	(.344)
cinc$_j$		−13.499***	−5.533***
		(.416)	(.341)
polity2$_i$		−.018***	−.021***
		(.001)	(.001)
polity2$_j$		−.018***	−.021***
		(.001)	(.001)
alliance		−.236***	−.139***
		(.020)	(.020)
Contig		−.284***	−.219***
		(.034)	(.034)
UNGAd$_{ij}\times$ leverage			.00001
			(.00001)
Constant	−2.102***	−1.192***	3.215***
	(.004)	(.087)	(.246)
Year FE	No	No	Yes
Dyad FE	No	No	No
Observations	831,222	616,871	616,871
Note:			*p<0.1; **p<0.05; ***p<0.01

Table B.4: BRGLM models, effect of leverage on economic coercion, relative measure of economic coercion.

B.4 Full AME results

Effect of leverage on EC, no interaction effect

```
    Regression coefficients:

                     pmean    psd  z-stat p-val

    intercept        -0.508 0.019 -26.724 0.000

    logGDP_i.row     -0.009 0.001  -9.630 0.000

    cinc_i.row        0.050 0.187   0.268 0.789

    polity2_i.row    -0.002 0.000  -8.157 0.000

    logPop_i.row      0.011 0.001   9.947 0.000

    logGDP_j.col      0.001 0.001   1.487 0.137

    cinc_j.col        0.246 0.076   3.259 0.001

    polity2_j.col    -0.002 0.000 -12.230 0.000

    logPop_j.col     -0.002 0.001  -2.075 0.038

    leverage.dyad     0.000 0.000   7.228 0.000

    UNGAd.dyad        0.055 0.009   6.179 0.000

    logdistance.dyad  0.014 0.000  28.750 0.000

    alliance.dyad    -0.105 0.014  -7.404 0.000

    Contig.dyad      -0.116 0.016  -7.074 0.000


Variance parameters:

      pmean    psd

va   0.016 0.002

cab  0.009 0.001

vb   0.015 0.002

rho  0.009 0.002

ve   1.000 0.000
```

Effect of leverage on EC, with interaction effect

```
    Regression coefficients:

                   pmean   psd   z-stat p-val

intercept         -0.504 0.018 -27.581 0.000

logGDP_i.row      -0.009 0.001 -15.420 0.000

cinc_i.row        -0.016 0.047  -0.334 0.739

polity2_i.row     -0.002 0.000 -18.098 0.000

logPop_i.row       0.011 0.001  13.543 0.000

logGDP_j.col       0.001 0.001   1.513 0.130

cinc_j.col         0.300 0.079   3.801 0.000

polity2_j.col     -0.002 0.000 -10.303 0.000

logPop_j.col      -0.003 0.001  -2.312 0.021

leverage.dyad      0.000 0.000   2.798 0.005

UNGAd.dyad         0.054 0.007   7.703 0.000

UNGAxlev.dyad      0.000 0.000   1.335 0.182

logdistance.dyad   0.016 0.000  37.418 0.000

alliance.dyad     -0.095 0.012  -7.866 0.000

Contig.dyad       -0.119 0.018  -6.485 0.000


Variance parameters:

    pmean   psd

va  0.016 0.002

cab 0.009 0.002

vb  0.015 0.002

rho 0.010 0.004

ve  1.000 0.000
```

Effect of leverage on MID initiation, no interaction effect

```
    Regression coefficients:

                  pmean   psd  z-stat p-val
intercept         0.021 0.010   1.990 0.047

logGDP_i.row      0.001 0.001   2.027 0.043

cinc_i.row        0.128 0.046   2.798 0.005

polity2_i.row     0.000 0.000  -0.717 0.474

logPop_i.row     -0.003 0.001  -3.299 0.001

logGDP_j.col      0.000 0.001   0.122 0.903

cinc_j.col        0.043 0.137   0.310 0.757

polity2_j.col    -0.001 0.000  -2.317 0.020

logPop_j.col     -0.003 0.001  -3.713 0.000

leverage.dyad     0.000 0.000  -0.080 0.936

UNGAd.dyad        0.031 0.010   3.108 0.002

logdistance.dyad -0.227 0.021 -10.869 0.000

alliance.dyad    -0.206 0.018 -11.338 0.000

Contig.dyad       0.143 0.088   1.623 0.105


Variance parameters:

    pmean   psd
va  0.010 0.001

cab 0.002 0.002

vb  0.010 0.002

rho 0.006 0.002

ve  1.000 0.000
```

Effect of leverage on MID initiation, with interaction effect

```
    Regression coefficients:

                     pmean    psd  z-stat p-val

intercept            0.022  0.010   2.110 0.035

logGDP_i.row         0.003  0.001   2.962 0.003

cinc_i.row          -0.330  0.081  -4.079 0.000

polity2_i.row        0.000  0.000  -2.218 0.027

logPop_i.row        -0.005  0.001  -4.027 0.000

logGDP_j.col        -0.005  0.002  -3.037 0.002

cinc_j.col           0.050  0.037   1.359 0.174

polity2_j.col        0.000  0.000   0.414 0.679

logPop_j.col         0.004  0.002   2.156 0.031

leverage.dyad        0.000  0.000   0.790 0.430

UNGAd.dyad           0.028  0.008   3.573 0.000

UNGAxlev.dyad        0.000  0.000  -0.604 0.546

logdistance.dyad    -0.228  0.021 -10.958 0.000

alliance.dyad       -0.196  0.021  -9.236 0.000

Contig.dyad          0.143  0.089   1.609 0.108


Variance parameters:

    pmean    psd

va  0.011 0.001

cab 0.003 0.002

vb  0.010 0.002

rho 0.011 0.006

ve  1.000 0.000
```

C

Appendix of Chapter Four

C.1 Descriptive statistics

Table C.1: Summary Statistics

Variable	N	Mean	Std. Dev.	Min	Pctl. 25	Pctl. 75	Max
$Flow_{3T}$	1774146	0.046	0.5	0	0	0.003	52.444
$Flow_{T3}$	1774146	0.044	0.5	0	0	0.003	50.447
$sanct$	1774146	0.107	0.309	0	0	0	1
bq	1501767	2.247	1.159	0	1	3	4
$ability\_trade$	1773279	90.701	29.417	26	68	117	149
$UNGA_{T3}$	1690725	1.114	0.848	0	0.411	1.647	6.255
$logGDP_T$	1734366	23.678	2.197	17.803	22.041	25.314	29.997
$logPop_T$	1774146	16.097	1.668	12.214	15.102	17.187	21.034
$v2x\_polyarchy$	1696254	0.542	0.271	0.016	0.299	0.822	0.949
$Contig$	1774146	0.026	0.159	0	0	0	1
$logdistance_{T3}$	1770063	8.643	0.785	4.881	8.244	9.214	9.892
$entente_{3T}$	1774146	0.037	0.19	0	0	0	1
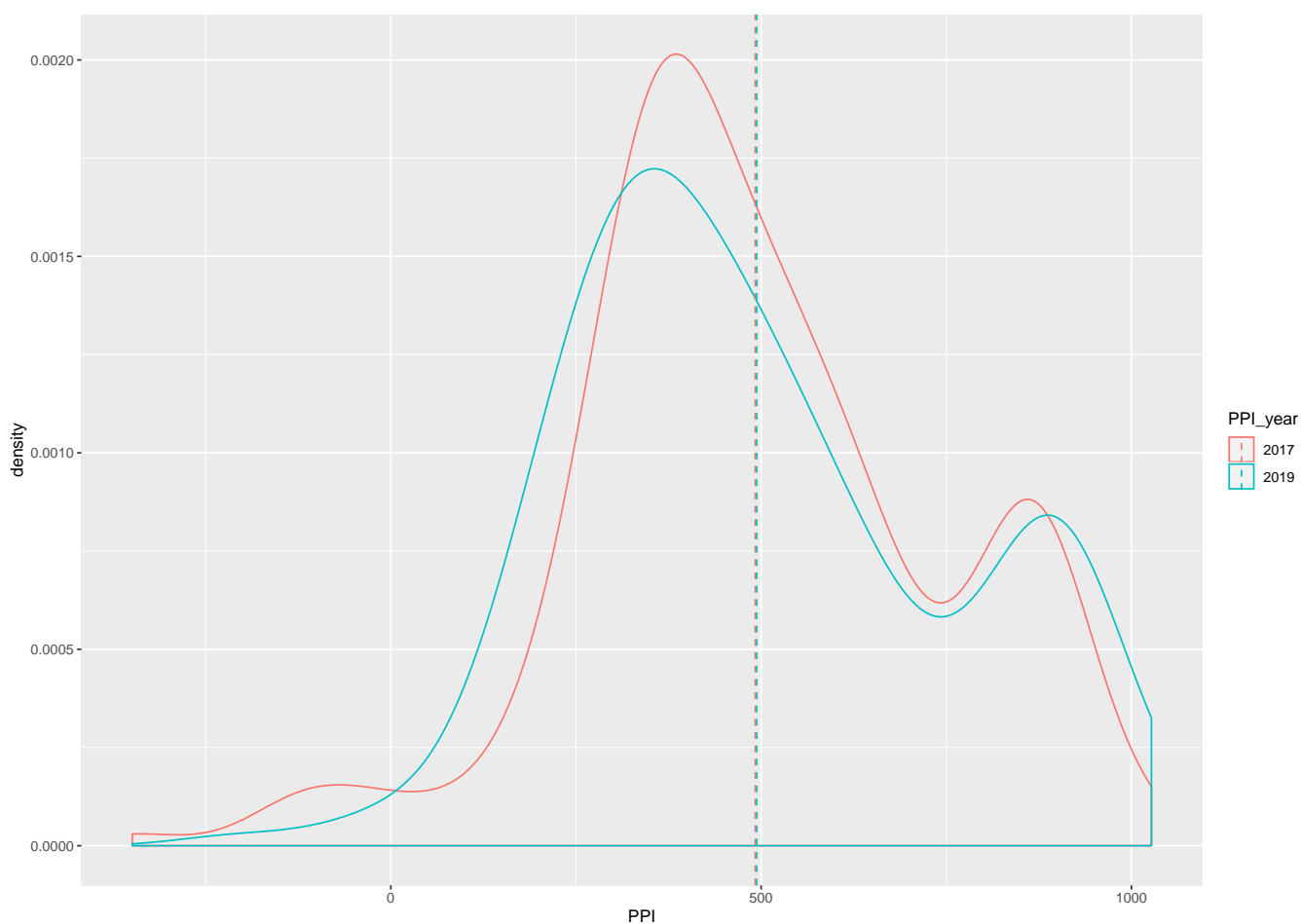
Figure C.1: Density plots of Pedalling Peril Index, waves 2017 and 2019 with mean values.
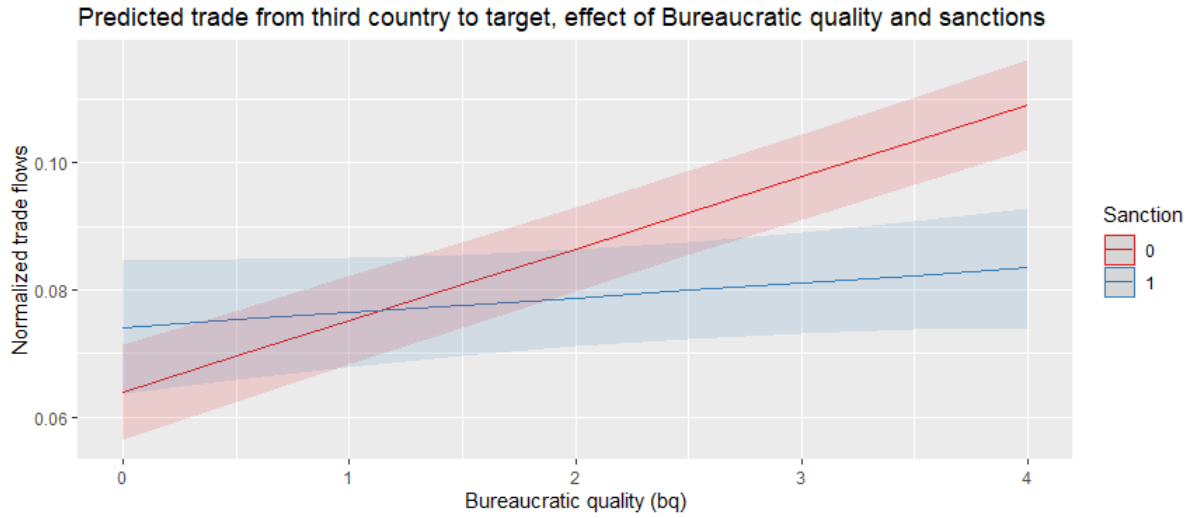
Figure C.2: Predicted values of (normalized) trade, depending on Bureaucratic quality of the third country (potential sanction buster) and the presence or absence of sanctions. Sample restricted to potential sanctions according to the EUSANCT dataset.

Figure C.3: Predicted values of (normalized) trade, depending on PPI enforcement index of the third country (potential sanction buster) and the presence or absence of sanctions.

C.2 Robustness

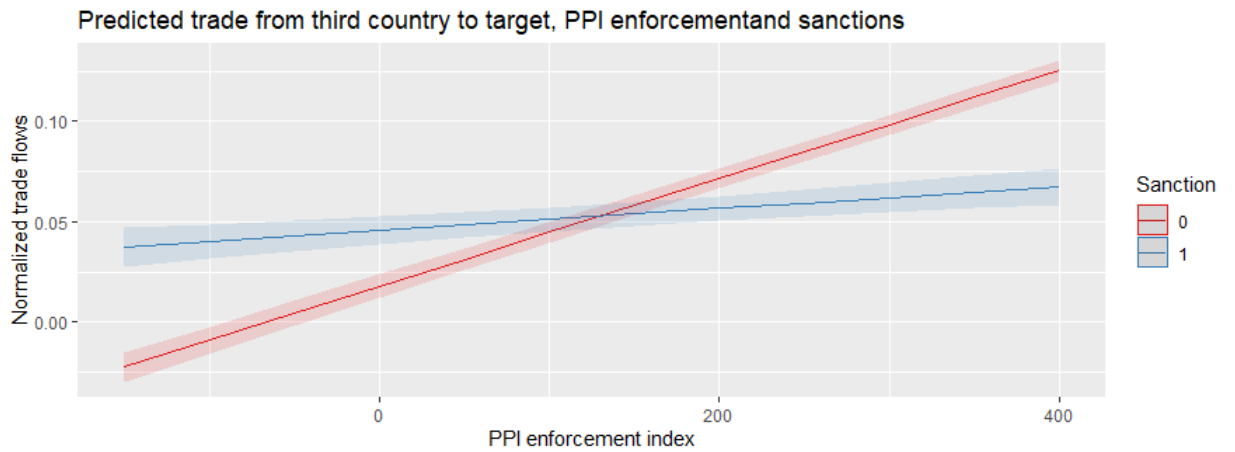|	Flow$_{3T}$	Flow$_{3T}$	Flow$_{3T}$	Flow$_{3T}$	Flow$_{3T}$	Flow$_{3T}$
			Dependent variable:			
sanct$_{ST}$	−.012***		−.012***	.050***	−.022***	−.005***
	(.001)		(.001)	(.004)	(.002)	(.001)
PPI ability		.001***	.001***	.001***		
		(.00001)	(.00001)	(.00001)		
logGDP$_T$	.034***	.034***	.034***	.034***	.034***	.032***
	(.0004)	(.0004)	(.0004)	(.0004)	(.0004)	(.0003)
logGDP$_3$	.037***	.031***	.031***	.031***	.037***	.035***
	(.0004)	(.0004)	(.0004)	(.0004)	(.0004)	(.0004)
Pop$_T$	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Pop$_3$	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
V-Dem$_T$	.058***	.061***	.057***	.058***	.058***	.056***
	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)
Contig$_{3T}$	.401***	.405***	.405***	.405***	.401***	.395***
	(.012)	(.012)	(.012)	(.012)	(.012)	(.012)
UNGA$_{3T}$	−.009***	−.010***	−.010***	−.010***	−.010***	
	(.001)	(.001)	(.001)	(.001)	(.001)	
logdistance$_{T3}$	−.029***	−.028***	−.028***	−.028***	−.029***	−.031***
	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)
entente$_{3T}$	.133***	.136***	.136***	.136***	.133***	.156***
	(.005)	(.005)	(.005)	(.005)	(.005)	(.005)
sanct$_{ST}$× PPI ability				−.001***		
				(.00005)		
sanct$_{ST}$× UNGA$_{3T}$					.009***	
					(.002)	
sanct$_{ST}$× entente$_{3T}$						−.214***
						(.009)
Constant	−1.394***	−1.345***	−1.342***	−1.348***	−1.393***	−1.315***
	(.019)	(.018)	(.018)	(.019)	(.019)	(.018)
Observations	1,552,089	1,552,089	1,552,089	1,552,089	1,552,089	1,617,708
R^2	.080	.081	.081	.081	.080	.080
Adjusted R^2	.080	.081	.081	.081	.080	.080

Note: *p<0.1; **p<0.05; ***p<0.01

Table C.2: Effect of sanctions, PPI ability to enforce export controls, political alignment (UNGA votes), and formal alliances on trade flows to sanction targets. Includes year fixed effect, sender fixed effects, and heteroskedasticity-consistent standard errors.

	Dependent variable:				
	$Flow_{3T}$	$Flow_{3T}$	$Flow_{3T}$	$Flow_{3T}$	$Flow_{3T}$
sanction	−.006***		−.008***	−.010**	−.056***
	(.001)		(.002)	(.005)	(.006)
ICRG bq		.017***	.017***	.017***	.017***
		(.0004)	(.0004)	(.0004)	(.0004)
logGDP$_3$	.034***	.039***	.039***	.039***	.039***
	(.0004)	(.0004)	(.0004)	(.0004)	(.0004)
logGDP$_T$	.039***	.040***	.040***	.040***	.040***
	(.0004)	(.0005)	(.0005)	(.0005)	(.0005)
Pop$_3$	0.000***	0.000***	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Pop$_T$	0.000***	0.000***	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
V-Dem	.028***	.030***	.028***	.028***	.032***
	(.001)	(.001)	(.001)	(.001)	(.001)
Contig	.380***	.451***	.451***	.451***	.451***
	(.012)	(.014)	(.014)	(.014)	(.014)
UNGA	−.011***	−.012***	−.012***	−.012***	−.017***
	(.001)	(.001)	(.001)	(.001)	(.001)
logdistance	−.037***	−.042***	−.042***	−.042***	−.042***
	(.001)	(.001)	(.001)	(.001)	(.001)
sanction × ICRG bq				.001	
				(.003)	
sanction × UNGA					.041***
					(.006)
Constant	−1.362***	−1.492***	−1.490***	−1.490***	−1.485***
	(.019)	(.021)	(.021)	(.021)	(.021)
Observations	1,538,835	1,305,462	1,305,462	1,305,462	1,305,462
R^2	.074	.083	.083	.083	.084
Adjusted R^2	.074	.083	.083	.083	.084
Note:				*p<0.1; **p<0.05; ***p<0.01	

Table C.3: Imports instead of exports.

	Dependent variable:				
	Flow$_{3T}$	Flow$_{3T}$	Flow$_{3T}$	Flow$_{3T}$	Flow$_{3T}$
sanction	−.009***		−.010***	.010***	−.012***
	(.001)		(.001)	(.003)	(.003)
ICRG bq		.010***	.010***	.011***	.010***
		(.001)	(.001)	(.001)	(.001)
logGDP$_3$	.030***	.034***	.034***	.034***	.034***
	(.0005)	(.001)	(.001)	(.001)	(.001)
logGDP$_T$	.032***	.034***	.034***	.034***	.034***
	(.001)	(.001)	(.001)	(.001)	(.001)
Pop$_3$	0.000***	0.000***	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Pop$_T$	0.000***	0.000***	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
V-Dem	.108***	.131***	.128***	.128***	.128***
	(.004)	(.005)	(.005)	(.005)	(.004)
Contig	.216***	.277***	.277***	.277***	.277***
	(.014)	(.017)	(.017)	(.017)	(.017)
UNGA	.0002	−.002	−.001	−.001	−.002
	(.002)	(.002)	(.002)	(.002)	(.002)
logdistance	−.040***	−.046***	−.046***	−.046***	−.046***
	(.001)	(.001)	(.001)	(.001)	(.001)
sanction × ICRG bq				−.009***	
				(.002)	
sanction × UNGA					.001
					(.003)
Constant	−1.119***	−1.229***	−1.227***	−1.230***	−1.227***
	(.023)	(.025)	(.025)	(.025)	(.025)
Observations	776,451	663,375	663,375	663,375	663,375
R^2	.062	.069	.069	.069	.069
Adjusted R^2	.062	.069	.069	.069	.069

Note: *p<0.1; **p<0.05; ***p<0.01

Table C.4: Subsample of potential sanctions.

	Dependent variable:				
	Flow$_{3T}$	Flow$_{3T}$	Flow$_{3T}$	Flow$_{3T}$	Flow$_{3T}$
sanction	$-.012^{***}$		$-.002^{**}$	$.028^{***}$	$-.021^{***}$
	(.001)		(.001)	(.001)	(.002)
PPI enforcement		$.0002^{***}$	$.0002^{***}$	$.0003^{***}$	
		(0.00000)	(0.00000)	(0.00000)	
logGDP$_3$	$.035^{***}$	$.032^{***}$	$.032^{***}$	$.031^{***}$	$.040^{***}$
	(.0004)	(.0003)	(.0003)	(.0003)	(.0004)
logGDP$_T$	$.037^{***}$	$.037^{***}$	$.037^{***}$	$.037^{***}$	$.038^{***}$
	(.0004)	(.0004)	(.0004)	(.0004)	(.0004)
Pop$_3$	0.000^{***}	0.000^{***}	0.000^{***}	0.000^{***}	0.000^{***}
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Pop$_T$	0.000^{***}	0.000^{***}	0.000^{***}	0.000^{***}	0.000^{***}
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
V-Dem	$.052^{***}$	$.006^{***}$	$.005^{***}$	$.004^{***}$	$.056^{***}$
	(.001)	(.001)	(.001)	(.001)	(.001)
Contig	$.379^{***}$	$.383^{***}$	$.383^{***}$	$.383^{***}$	$.451^{***}$
	(.012)	(.012)	(.012)	(.012)	(.014)
bq					$.013^{***}$
					(.0004)
UNGA	$-.011^{***}$	$-.011^{***}$	$-.011^{***}$	$-.012^{***}$	$-.012^{***}$
	(.001)	(.001)	(.001)	(.001)	(.001)
logdistance	$-.038^{***}$	$-.036^{***}$	$-.036^{***}$	$-.036^{***}$	$-.043^{***}$
	(.001)	(.001)	(.001)	(.001)	(.001)
sanction × PPI enforcement				$-.0002^{***}$	
				(.00001)	
sanction × UNGA					$.006^{**}$
					(.002)
Constant	-1.335^{***}	-1.312^{***}	-1.312^{***}	-1.307^{***}	-1.472^{***}
	(.018)	(.018)	(.018)	(.018)	(.020)
Observations	1,538,835	1,538,835	1,538,835	1,538,835	1,305,462
R^2	.074	.075	.075	.075	.083
Adjusted R^2	.074	.075	.075	.075	.083

Note: *p<0.1; **p<0.05; ***p<0.01

Table C.5: PPI enforcement instead of ability.

	Dependent variable:			
	$Flow_{3T}$	$Flow_{3T}$	$Flow_{3T}$	$Flow_{3T}$
sanct	−.004***	−.011	−.005***	−.005*
	(.001)		(.001)	(.003)
all_def$_{3T}$	.179***			
all_neut$_{3T}$		−.144		
all_nonaggr$_{3T}$			.109	
all_entente$_{3T}$				.156***
				(.005)
logGDP$_T$	.033***	.033***	.033***	.032***
	(.0004)	(.0004)	(.0004)	(.0004)
logGDP$_3$	.035***	.036***	.035***	.035***
	(.0004)	(.0004)	(.0004)	(.0004)
Pop$_T$	0.000***	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Pop$_3$	0.000	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
v2x_polyarchy	.053***	.059***	.058***	.056***
	(.001)	(.001)	(.001)	(.001)
Contig	.386***	.404***	.396***	.395***
	(.012)	(.014)	(.014)	(.014)
logdistance$_{T3}$	−.029***	−.038***	−.034***	−.031***
	(.001)	(.001)	(.001)	(.001)
sanct × all_def$_{3T}$	−.199***			
sanct × all_neut$_{3T}$		.0004		
sanct × all_nonaggr$_{3T}$			−.185	
sanct × all_entente$_{3T}$				−.214
Constant	−1.356***	−1.283***	−1.307***	−1.315***
	(.019)	(.021)	(.021)	(.021)
Observations	1,617,708	1,617,708	1,617,708	1,617,708
R^2	.081	.078	.079	.080
Adjusted R^2	.081	.078	.079	.080

Note: *p<0.1; **p<0.05; ***p<0.01

Table C.6: Different alliance measures.

	$Flow_{3T}$	$Flow_{3T}$	$Flow_{3T}$	$Flow_{3T}$	$Flow_{3T}$	$Flow_{3T}$
			Dependent variable:			
first_sanct	−.009***		−.011***	.052***	.002	−.0003
	(.001)		(.002)	(.003)	(.002)	(.001)
bq		.015***	.015***	.015***		
		(.0004)	(.0004)	(.0004)		
all_def$_{3T}$						.163***
						(.005)
logGDP$_T$	.034***	.039***	.039***	.039***	.034***	.033***
	(.0004)	(.0004)	(.0004)	(.0004)	(.0004)	(.0004)
logGDP$_3$	.037***	.038***	.038***	.038***	.037***	.035***
	(.0004)	(.0004)	(.0004)	(.0004)	(.0004)	(.0004)
Pop$_T$	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Pop$_3$	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
v2x_polyarchy	.061***	.065***	.065***	.065***	.061***	.056***
	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)
Contig	.400***	.479***	.479***	.479***	.400***	.384***
	(.012)	(.014)	(.014)	(.014)	(.012)	(.011)
absidealimportantdiff$_{T3}$	−.009***	−.010***	−.010***	−.010***	−.009***	
	(.001)	(.001)	(.001)	(.001)	(.001)	
logdistance$_{T3}$	−.029***	−.034***	−.034***	−.034***	−.029***	−.029***
	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)
all_entente$_{3T}$	.133***	.133***	.133***	.133***	.133***	
	(.005)	(.005)	(.005)	(.005)	(.005)	
bq × first_sanct				−.028***		
				(.001)		
first_sanct × absidealimportantdiff$_{T3}$					−.011***	
					(.002)	
first_sanct × all_def$_{3T}$						−.185***
						(.017)
Constant	−1.396***	−1.532***	−1.532***	−1.533***	−1.397***	−1.361***
	(.019)	(.021)	(.021)	(.021)	(.019)	(.019)
Observations	1,552,089	1,317,045	1,317,045	1,317,045	1,552,089	1,617,708
R^2	.080	.089	.089	.089	.080	.081
Adjusted R^2	.080	.089	.089	.089	.080	.081

Note: *p<0.1; **p<0.05; ***p<0.01

Table C.7: Sanction onset as dependent variable, effect of state capacity and political alignment.
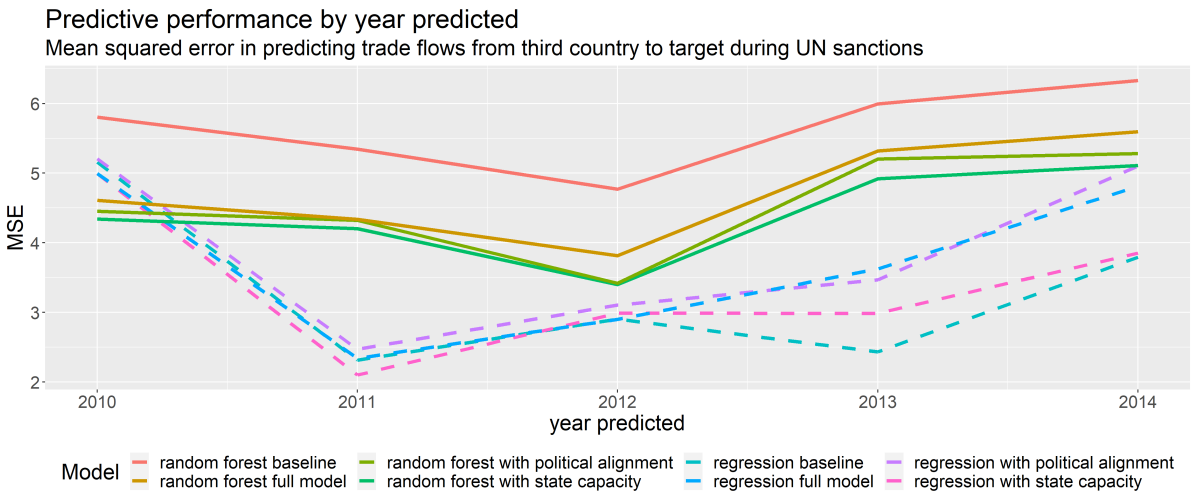
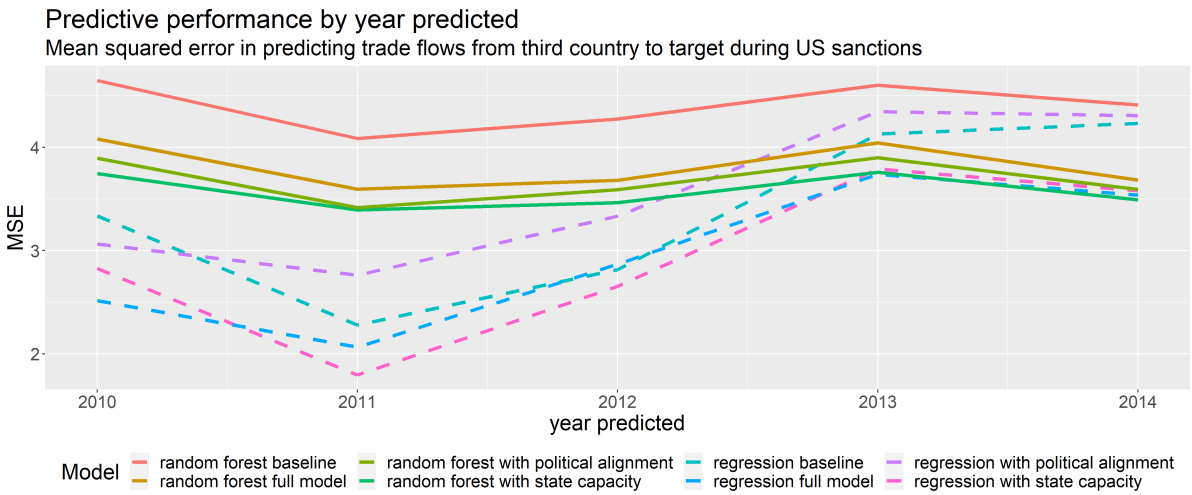**Figure C.4:** Relative predictive performance, UN sanctions.

Figure C.5: Relative predictive performance, US sanctions.
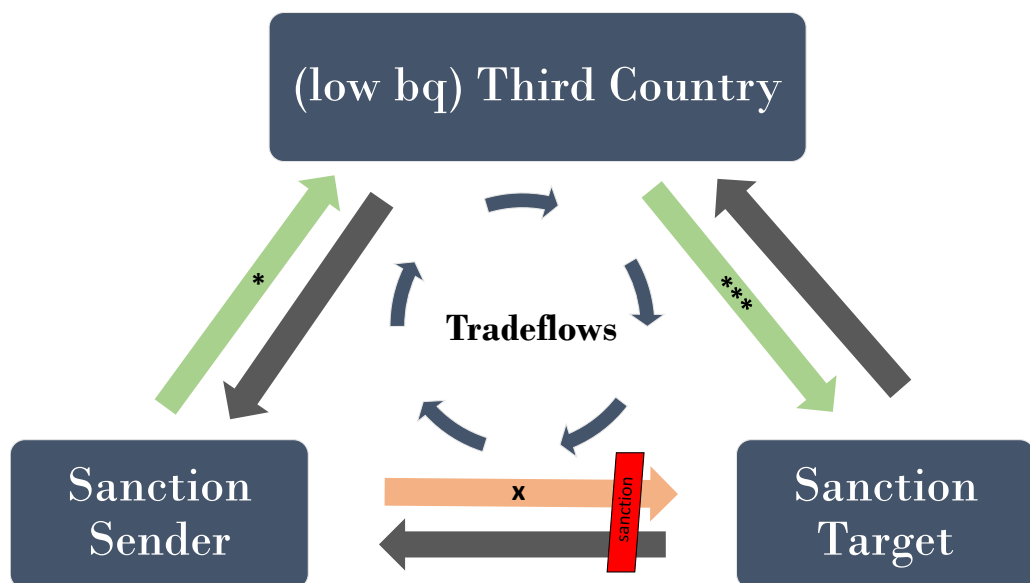
Figure C.6: Overview of trade flow structure, with significant results in green and null results in orange. Grey flows were not tested. bq is short for bureaucratic quality.