



DIGITAL ACCESS TO
SCHOLARSHIP AT HARVARD
DASH.HARVARD.EDU

HARVARD
LIBRARY



How Commerce Becomes Compromised: Coercion and Credibility in the Age of the Global Economy

Citation

Mangini, Michael-David. 2022. How Commerce Becomes Compromised: Coercion and Credibility in the Age of the Global Economy. Doctoral dissertation, Harvard University Graduate School of Arts and Sciences.

Link

<https://nrs.harvard.edu/URN-3:HUL.INSTREPOS:37372109>

Terms of use

This article was downloaded from Harvard University's DASH repository, and is made available under the terms and conditions applicable to Other Posted Material (LAA), as set forth at

<https://harvardwiki.atlassian.net/wiki/external/NGY5NDE4ZjgzNTc5NDQzMGIzZWZhMGFIOWI2M2EwYTg>

Accessibility

<https://accessibility.huit.harvard.edu/digital-accessibility-policy>

Share Your Story

The Harvard community has made this article openly available.
Please share how this access benefits you. [Submit a story](#)

HARVARD UNIVERSITY
Graduate School of Arts and Sciences



DISSERTATION ACCEPTANCE CERTIFICATE

The undersigned, appointed by the
Department of Political Economy and Government
have examined a dissertation entitled

“Essays on International Finance and Political Economy”

presented by Michael-David Mangini

candidate for the degree of Doctor of Philosophy and hereby
certify that it is worthy of acceptance.

Signature

Handwritten signature of Jeffrey Frieden in black ink, written over a horizontal line.

Typed name: Professor Jeffrey Frieden, Chair

Signature

Handwritten signature of Christina Davis in black ink, written over a horizontal line.

Typed name: Professor Christina Davis

Signature

Handwritten signature of Stephen Chaudoin in black ink, written over a horizontal line.

Typed name: Professor Stephen Chaudoin

Signature

Handwritten signature of Robert Lawrence in black ink, written over a horizontal line.

Typed name: Professor Robert Lawrence

Date: April 28, 2022

How Commerce Becomes Compromised:

Economic Coercion and Credibility in the Age of the Global Economy

A dissertation submitted in partial fulfillment of the requirements for the Doctor of Philosophy in
Political Economy and Government at Harvard University.

Michael-David Mangini

April 2022

©2022 Michael-David Mangini. All rights reserved.

How Commerce Becomes Compromised: Economic Coercion and Credibility in the Age of the
Global Economy

Deeper economic linkages to a wider variety of states mean that opportunities for economic coercion are proliferating even while creating aggregate wealth. Under what circumstances does a mutually beneficial economic relationship transform into a political vulnerability? Using commerce as a political bargaining chip requires the state to convince others that it will follow through on threats to interrupt market access. The three papers of this dissertation explain how this credibility constraint determines the scope, prevalence, and effectiveness of economic coercion. My first paper considers how economic coercion is designed. If the state requires simultaneous compliance in multiple issue areas before granting market access, it maximizes incentives to comply but also makes them brittle — any targeted states that cannot comply in one issue area have no incentive to comply in any. I demonstrate that this trade-off is one example of a more general economic coercion trilemma. Characteristics of the program's domestic constituency, of the issues themselves, and of the international economy are key determinants of how the state positions itself within the trilemma. My second paper argues that states can improve the credibility of both threats to punish noncompliance and assurances that compliance will be rewarded by carefully selecting coalition partners. Choosing partners with different interests can create a mechanism that holds the state accountable. In an application to the Iran deal negotiation, I find that Congressional resolve to maintain sanctions initially stymied progress, but the United States was ultimately able to increase the believability of its commitments by partnering with European states that were more open to removing sanctions. My third and final paper studies credibility and the effectiveness of economic coercion in an empirical setting. The paper overcomes the difficulties of strategic selection by applying a new conceptual approach and shows that beneficiaries of the Generalized System of Preferences, a program of tariff exemptions, change policy to reduce the risk of being threatened with expulsion from the program.

Contents

Title Page	i
Copyright	ii
Abstract	iii
Table of Contents	iv
Front Matter	vii
Acknowledgements	vii
Dedication	xi
List of Figures	xii
List of Tables	xiii
I Three Essays on Economic Coercion	1
1 Introduction	2
1.1 The Concept of Economic Coercion	5
1.2 Contribution	7
2 The Economic Coercion Trilemma	12
2.1 Introduction	12
2.2 A Theory of Economic Coercion Program Design	17

2.3 Applications	31
2.4 Conclusion	39
3 The Limits of Resolve in International Politics: Evidence from the Iran Deal Negotiation	41
3.1 Introduction	41
3.2 Theory: The Two Faces of Resolve	44
3.3 Research Design and Case Background	52
3.4 Independent Variable: Credible Commitment to Coercive Assurances and Coercive Threats	54
3.5 Dependent Variable: Analysis of the Deal and its Characteristics	62
3.6 Conclusion	72
4 How Effective is Trade Conditionality? Economic Coercion in the Generalized System of Preferences	74
4.1 Introduction	74
4.2 Background on the Generalized System of Preferences	77
4.3 Theory and Concepts	79
4.4 Research Design	88
4.5 Results	92
4.6 Conclusion	96
5 Conclusion	98
II Appendix	100
A Economic Coercion Trilemma Appendix	101
A.A Simple Model	101
A.B Proof of Proposition 1	104
A.C Example of the Polarization Result	106
A.D Proof of Proposition 2	111
A.E Extension for Arbitrary Number of Issues	115

B How Effective is Trade Conditionality? Economic Coercion in the Generalized System of Preferences	121
B.A Control Variables	121
B.B Robustness of Main Results	123
6 References	129

Acknowledgements

I received generous help from many people during my time as a graduate student. Describing every act of charity in the detail they deserve would be a book-length endeavor. Although surely inadequate to its purpose, I wish to use this space to acknowledge some of the most important contributions of others to my experience as a graduate student. Due to the limits of memory and space, this is an incomplete accounting of the support I received. Accordingly, I apologize for omissions made inadvertently and omissions made as a necessary concession to brevity.

Almost from the day I arrived on campus, Jeff Frieden has been a phenomenal mentor. He listened with great patience to my jumbled early thoughts and helped me organize them into works of scholarship. I have admired, envied, and tried to imitate his ability to distill complicated topics in political economy to their most fundamental issues. Jeff also showed me great kindness during graduate school, particularly whenever I felt worry or self-doubt. Our time in office hours always included both serious scholarly debate and raucous laughter as we taunted each others' baseball teams or compared eras of *Saturday Night Live*. I am deeply grateful for his generosity of time and spirit.

I am extremely fortunate to have enjoyed tremendous support from my entire committee. Christina Davis gave me excellent guidance on how to develop my work, high quality writing advice, and helped me sharpen the clarity of my ideas. She also gave tremendous professional advice and endless encouragement. Stephen Chaudoin showed faith in my abilities and helped me develop my ideas to their fullest extent. I am grateful to him for endless conversations about the meaning of nationalism, the politics of trade, quantitative analysis, the publication process, and so much more. Both literally and figuratively, Stephen did not merely give me fish; he taught me to fish. Robert Lawrence has been a steadfast supporter ever since he hired me as a teaching assistant. I have learned so much from his scholarship, his experience in policy, our many conversations about political economy, and his great kindness. I could never fully repay the kindness and support I have received from everyone, but I hope to pay it forward one day, at least in part, as an advisor to graduate students myself.

My work has also benefitted from the support, encouragement, and advice of many other professors from outside my committee. I am particularly grateful to Dustin Tingley for pushing me to “think big” at a critical juncture of my development as a scholar, and for years of advice and wonderful conversations. Dani Rodrik took a chance on hiring me as a research assistant even though I was an unproven early stage graduate student. Dani taught me how to think clearly about difficult topics in political economy and inspired me to search for important questions. In Song Kim provided much needed encouragement and feedback at several critical moments. Ken Shepsle has always provided a smile, a willing ear, and some advice whenever needed, all for the low price of a few puns. Frank Diebold tirelessly answered all my questions when I was an enthusiastic undergraduate and encouraged me in my pursuit of a PhD. Alberto Alesina generously shared his vibrant personality and impressive intellect with everyone he encountered. I am grateful for everything I learned from him about political economy, but also about the virtues of passion and mentorship, before his untimely passing.

Many other professors have expanded my intellectual horizons, helped me develop as a scholar, and pushed me forward at critical moments in ways both big and small. In no particular order, I wish to thank Jim Alt, Chris Avery, Pol Antras, Robert Bates, Peter Buisseret, Alison Carnegie, Elhanan Helpman, Michael Hiscox, Torben Iversen, Iain Johnston, Josh Kertzer, Horacio Larreguy, Erez Manela, Mary Anne Madeira, Marc Melitz, Christoph Mikulaschek, Pia Raffler, Dan Smith, Jim Snyder, Yuhua Wang, and Byungwon Woo. I also benefitted from the National Security and Economics seminars organized by Marty Feldstein; may he rest in peace. I am particularly grateful to everyone who contributed to the International Relations and Political Economy seminars that were the heart of our intellectual community and played such an important role in my experience of graduate school.

I learned as much from the experience of teaching as I did from studying for classes. I am deeply grateful to Pinar Dogan, who first hired me as a teaching assistant for API101: Markets and Market Failure, and who taught me by example how to engage students and get them excited about the material. After three semesters as the teaching assistant for API101, I am so grateful to Pinar, Marcella Alsan, David Ellwood, and Janina Matuszeski for all the fond memories and for making me a part of the team.

I am also grateful to Jeff Frieden, Dustin Tingley, Robert Lawrence, Larry Summers, Stephen Chaudoin, and Maciej Kotowski for so many other enriching teaching experiences. Last but certainly not least, I am grateful to the legion of wonderful students from nearly every school at Harvard who made my experience as a teacher so rewarding.

I am equally indebted to many graduate students who have helped me develop personally and as a scholar. Casey Petroff is a brilliant thinker, a wonderful coauthor, and a dear friend. She has gone out of her way many times to give me feedback on my work, to give advice, and to help me think about the world and the academic profession. She and Toby Kearn have shown me unending kindness, thoughtfulness, and friendship. Their support continues to be one of the best benefits of graduate school. Andrew Leber has also been a steadfast friend and supporter endowed with a seemingly inexhaustible supply of great advice. Casey Kearney has been a great friend and colleague as both a student and a teacher – his advice and support are invaluable. Brian Wheaton, another great friend and colleague, organized the Political Economy and Government Cocktail Nights where students gathered to give each other feedback about our projects in a relaxed setting. Many of the papers that eventually became my dissertation benefitted greatly from the feedback of Cocktail Night attendees. Augustin Bergeron and Krishna Dasaratha are highly valued friends who have taught me so much about economics and shared their profound wisdom with me. Andi Zhou has helped me connect with government officials, given me important advice on a key presentation, and engaged me in so many thought provoking conversations.

The list of graduate students who have contributed to my scholarly development is too extensive to enumerate here. Nonetheless, I wish to acknowledge, in no particular order, Marino Auffant, Megan Rose Bailey, Angie Batista-Chavez, A. Patrick Behrer, Ben Boatwright, Liz Davis, Naima Green-Riley, Jordan Howell, Katherine Irajpanah, Austin Jordan, Boram Lee, Kristin McCormack, Pamela Nwakanma, Yon Soo Park, Cresa Pugh, Avery Schmidt, Kevin Troy, and Scott Wieman. My good friends from my undergraduate days have also been generous with their advice and support during my graduate school career. I am eternally grateful for the friendship of Seaver Wang, Kevin Shia, Yingnan Xu, and Andrew Gagne.

Many administrative staff and coordinators helped me enormously to navigate university bureaucracy. I was blessed to have support from Nicole Tateosian, Clare Putnam, and Ann Townes. I also wish to thank Thom Wall, Ashley Davis, Eva Weber, Sarah McLain, and Derya Honca for their support. All of the staff helped make the disruption caused by the COVID-19 pandemic more manageable.

Finally, the help of my family was essential to my work as a graduate student. My wonderful wife Angie has been a true blessing. She gave me the gift of time for work, reviewed endless drafts, and provided so much love and support through the entire process. I have no idea where I would be without her, and I will cherish her love forever. My mom, Lisa Mainiero Mangini, has given me endless support since the day I was born. She has given me so much support over the years that I could never describe it all. Her wisdom as a scholar herself has been incredibly valuable, and her understanding and love as a mother has been essential. I am so excited to join her as a fellow scholar. My dad, David Mangini, has listened to me discuss my work with both interest and zeal. He is the best and most loving father I could ever have ever wished for. My sister, Mariana Mangini, is an awesome person. She sees it as her duty as a younger sister to always make sure that I stay humble, and for that I am grateful. I have been privileged to grow up beside her, and I am so grateful for the many hours of laughs and great fun.

For Angie, Mom, Dad, and Mariana, who bring out the best in me.

List of Figures

2.1	The Economic Coercion Trilemma	15
4.1	Economic Significance of the GSP	78
4.2	Results from main specification.	95
A.1	Examples of Issue Specific Punishment Functions	102
B.1	Plot of Effects at Long Lags	126
B.2	Effects on Alternative Outcomes	127
B.3	Results when limiting to years post 2002.	128

List of Tables

2.1	The target's optimal compliance choices for γ and ϕ .	28
3.1	Congressional Votes on Iranian Sanctions	58
4.1	Value of GSP Membership and Compliance.	93
B.1	Petition as an independent variable	123
B.2	Sensitivity to Covariates	124
B.3	Sensitivity to Covariates	124
B.4	Sensitivity to Differential Trends	125
B.5	Sensitivity to Differential Trends	125
B.6	Drop all states that are ineligible for GSP	126
B.7	Value of GSP Membership and Compliance with Additional Lags.	127

Part I

Three Essays on Economic Coercion

Chapter 1

Introduction

On February 24, 2022, Russia launched a full scale invasion of Ukraine in defiance of international laws and norms. The European Union (EU) and a majority of the international community swiftly imposed powerful economic sanctions against Russia. A huge amount of commerce, the product of at least thirty years of mutually profitable trade globalization, became an instrument of politics. Initially it seemed that the European sanctions had the potential to seriously damage the Russian economy. Russia's need for revenue from oil and gas seemed to be a particularly promising source of leverage. The sanctions severely limited banking services and trade in most goods with Russian entities, but despite its importance the energy sector has thus far remained obstinately unrestricted. The value of Russian oil and gas was so politically significant to European states that it actually shielded the Russian economy from further sanctions rather than being a source of vulnerability.¹ The ambiguous political meaning of interstate economic linkages is not unique to this case. Some trade relationships are so important to both sides that they cannot be stopped even in the event of a major crisis. But even the threat of restricting market access can be a source of political influence in other cases.

Understanding the potential for economic coercion to be embedded in trade flows is crucially

¹The conflict is ongoing at the time of writing and the EU may eventually implement sanctions on the energy sector. Regardless, the EU has already shown its reticence to restrict imports of Russian oil and gas.

important for differentiating stable economic opportunities from political trojan horses. Trade conditionality can be used to advance noble causes like human rights and peace, but it can also erode norms of self-determination and democracy by forcing states to choose between participating in the global economy and defending their sovereignty. These issues only become more crucial as the global economy continues to integrate. Deeper economic linkages to a wider variety of states mean that opportunities for economic coercion are proliferating even while creating aggregate wealth. Under what circumstances does a mutually beneficial economic relationship transform into a political vulnerability? The central organizing question of my dissertation seeks to understand the political consequences of interstate economic relationships.

Existing literature has identified asymmetric dependence as the core determinant of the effectiveness of economic coercion. The idea, introduced by Hirschman (1980) and developed further by Baldwin (2020), is that whichever state has less need for the trade between them can threaten to interrupt it unless certain political concessions are made. The classical theory implies that trade creates political vulnerabilities whenever the gains from trade are distributed unevenly. The logic would suggest that the EU's hesitation to impose energy sector sanctions simply means that the EU needs the Russian oil and gas more than Russia needs the EU's cash. But asymmetric dependence is not a sufficient condition for vulnerability to economic coercion – if it were, economic coercion would occur whenever trade did not generate equal gains. It also does not explain variation in how programs of economic coercion are designed, whether trade in particular products carry more political risk, which types of issues can be linked to trade, or the role of coalitions in economic coercion.

The convertability of an economic relationship as a political bargaining chip is determined in large part by whether a state can convince others that it will follow through on its threats to interrupt commerce despite the costs of enforcement. The likelihood of enforcement depends on the sender's political costs more than the target's economic costs. If the EU had easy access to other sources of oil and gas, or if oil and gas were a less politically significant sector, it would be more able to commit to restricting the Russian energy sector. Credibility also limits the effectiveness of economic coercion. An

intended target who suspects that the coercer's costs are substantial may call the bluff by refusing to comply with the demands. Even if the EU were to impose sanctions on Russian oil and gas it might not end the conflict if Russia expects the sanctions will not last. Anticipating stiffer resistance, states that know they face high costs of enforcement would be less likely to threaten economic coercion in the first place. The three papers of this dissertation explain how this credibility constraint determines the scope, prevalence, and effectiveness of economic coercion.

The credibility of enforcement is profoundly affected by how economic coercion is designed. If the state requires simultaneous compliance in multiple issue areas before granting market access, it maximizes incentives to comply but also makes them brittle – any targeted states that cannot comply in one issue area have no incentive to comply in any. Using a formal model I demonstrate that this trade-off is one example of a more general economic coercion trilemma. Economic coercion can achieve at most two of the following three objectives: 1) secure a broad coalition of domestic political support, 2) the association of meaningful trade value with each policy issue, and 3) assurance that enforcing one political issue will not reduce the target's incentives to comply with conditionality on others. Characteristics of the program's domestic constituency, of the issues themselves, and of the international economy are key determinants of how the state prioritizes the three objectives. The tradeoff embodied by the trilemma explains how programs of economic coercion are designed, their scope, and when they persist as policy.

Economic coercion depends on the credibility of both threats to punish noncompliance and assurances that compliance will not be punished. My second paper describes how some factors that bolster the credibility of threats can simultaneously undermine the credibility of assurances. One way states can communicate their resolve to endure the costs of lost commerce is to make the sanctions difficult to remove, which can undercut the credibility of assurances to remove them as a reward for compliance. The paper argues that states can mitigate the challenge by carefully selecting coalition partners with different interests who can hold them accountable. The paper applies the theory to the Iran deal negotiation and finds that Congressional resolve to maintain sanctions initially stymied progress. The

United States was ultimately able to increase the believability of its commitments by partnering with European states that were more open to removing sanctions.

My third and final paper studies credibility and the effectiveness of economic coercion in an empirical setting. The Generalized System of Preferences (GSP) exemplifies the ways in which international economic linkages can become conduits of political influence. The program offers beneficiary developing countries the opportunity to export a wide variety of goods duty free to the United States, but eligibility is conditional on labor and intellectual property rights protections. How effective are programs like the GSP at causing states to change behavior by raising the risk that market access will be revoked? The challenge of detecting economic coercion in programs like the GSP is identifying the program's influence in states where the conditionality is never enforced because the implicit threat of revoking market access is credible. The paper applies a new conceptual approach to show that GSP beneficiaries change policy to reduce the risk of being threatened with expulsion from the program. An implication of the findings is that the political consequences of economic linkages could be far more widespread than previously thought.

Taken as a whole, these three papers explain why economic coercion is a pertinent concern for some trade relationships but not others. Trade can only be used to extract political concessions by states that can credibly commit to enforcing conditionality. Commitments must be made for every product or service being restricted and for every trade partner. States choose how to design economic coercion to mitigate problems of credible commitment. Due to its importance as a determinant of effectiveness, states will only threaten to use economic coercion when they can make a commitment to enforcement.

1.1 The Concept of Economic Coercion

There are many existing definitions of economic coercion in the literature but they share surprisingly little in common. Therefore, it is necessary to clarify the concept as deployed in this project and its relation to preexisting usage. For the purposes of this dissertation, economic coercion is the use of conditionality where market access is the incentive. Conditionality is any attempt to link the behaviors

of a foreign actor to a reward or punishment. The term “market access” is well defined in the context of international trade in goods, but it can also be construed more broadly to include markets in financial services when appropriate. Many of the results in the three papers apply equally well when the economic incentive is access to credit and other types of financial flows. The definition invites scholars to study whether states choose to take the behavior of foreign states as given when setting trade policy or if they wish to use economic incentives to influence their behavior.

An important advantage – or, for some purposes, limitation – of the definition is that it applies equally well whether market access is being restricted as a punishment or expanded as a reward. I do not claim that rewards and punishments are always politically indistinguishable. On the contrary, punishments and rewards work differently. Baldwin (1971) discusses structural reasons why “positive and negative sanctions” might have different politics. More recently, scholars have acknowledged psychological biases including loss aversion could cause decisionmakers to perceive gains and losses differently (Levy 1997). I do claim that combining rewards and punishments into one category is useful for understanding the role of economic coercion in international politics. Sometimes, denying an expected expansion in market access can be as coercive as unexpectedly restricting market access.² From a welfare perspective, trade that was lost because of noncompliant behavior is equally valuable to trade that never occurred because of that behavior. A marginal analysis of state behavior almost requires that rewards and punishments be considered symmetrically because the marginal incentives of rewards and punishments are identical. In both cases, increases in compliance with the conditionality lead to better outcomes.³

The word “conditionality” in the definition of economic coercion excludes some cases that have been traditionally included in definitions of economic coercion and includes others. To be counted as economic coercion the degree of market access provided by the sender state must depend on the

²This point was first made by Baldwin (2020).

³Both rewards and punishments occur regularly. For example, the World Trade Organization and the European Union both have clear preconditions that must be met by candidates for membership.

behavior of a foreign state. For example, a state that raises barriers to trade for the purpose of protecting domestic industry is not engaged in economic coercion. Under those circumstances, the behavior of foreign states will not change the decision to protect domestic industry. The state is still not engaged in economic coercion if those barriers take the form of “sanctions” on a state with particularly competitive industry. It does not matter whether a trade barrier is formally designated as a coercive program: what matters is whether there is a clear path from the behavior of a foreign state to its degree of market access. Accordingly, a state that declares it will not sign a bilateral trade agreement without preconditions is engaged in economic coercion. In essence, the state is offering to expand access to its markets once the foreign state behaves in a certain way. The term “economic coercion” is not interchangeable with “sanctions,” “embargoes,” “boycotts,” or “trade policy.” Any of these instruments could be used in a way that qualifies as economic coercion if market access varies with the behavior of the foreign state.

The concept of economic coercion is related to but distinct from economic statecraft. Baldwin (2020) defines economic statecraft as the use of economic instruments to influence the behavior of foreign states. Economic coercion is a type of economic statecraft where the policy instrument is conditional market access. Economic statecraft could include unconditional instruments as well. For example, Baldwin is clear that direct and unconditional purchases of factories, land, and other assets can qualify as economic statecraft if they are intended to change behaviors of the foreign state.⁴ To be included in the scope of this project, states must be using conditional market access as an incentive to change the behavior of a foreign state.

1.2 Contribution

There are essentially two competing narratives of trade globalization. The first narrative depicts trade liberalization as the triumph of consumers seeking lower prices over protectionist corporate lobbies that would use tariffs as a shield from foreign competition. According to this narrative, trade is not

⁴Baldwin gives gives the Louisiana Purchase as an example of economic statecraft by purchase.

useful as political leverage because any interruption in international commerce hurts the coercer as well as the intended target. The second narrative depicts trade liberalization as an acknowledgement of dependence on foreign goods. According to this narrative, trade weakens national security by eroding domestic production capacity and allowing a foreign state to cut off supplies of critical resources. There is truth in both narratives. My dissertation is an attempt to clarify what makes a trade relationship vulnerable to coercion as opposed to being relatively safe from political machinations.

The globalization of trade in the late 20th century was initially welcomed by economists with open arms. They believed that declining trade barriers would, through the magic of comparative advantage, allow the best firms in the world to access global markets and lower prices for everyone (Baldwin 1989; Grossman and Helpman 1994; Burtless et al. 2010). Defenders of trade barriers were seen as corporate stooges who were willing to raise prices for all in order to protect the profits of a small number of firms from foreign competition (Bhagwati 1982, 1988). There were some dissenting voices, including Rodrik (1997), that argued trade barriers can also manage the displacement caused by how trade redistributed wealth within states.⁵ The dislocation caused by global migration and trade that was presaged by these earlier works has now stimulated movements to undo globalization in a range of states (Jensen, Quinn, and Weymouth 2017; Colantone and Stanig 2018b, 2018a; Margalit 2019; Rodrik 2018; Broz, Frieden, and Weymouth 2021). Due to their interpretation of trade as a type of technology that raises aggregate productivity, economists are often hesitant to study whether trade relationships can be leveraged as foreign policy. Their reluctance is a natural consequence of the belief that trade generates wealth for everyone. Why would a state be willing to reduce its own national income by interrupting commerce? If a state made such a threat to withhold market access, why should it be believed? Rather than analyze how trade redistributes wealth and power between states, economists seem more motivated to study how trade redistributes wealth within them.

Political scientists who favor the economists' interpretation of trade have studied how so many states came to liberalize their markets at roughly the same time (Milner 1999; Milner and Kubota 2005).

⁵See also Rodrik (2011)

This body of work takes the perspective that the movement to free trade represents a triumph of international cooperation. Helped along by international institutions that monitor compliance and ensure repeated interactions, states were able to remove trade barriers that protected narrow slivers of domestic industry for the good of all (Goldstein and Martin 2000; Rosendorff and Milner 2001). Davis (2004) found that international institutions facilitated the formation of credible linkages between tariff concessions across sectors. Bagwell and Staiger (1999) found that the most-favored-nation clause assist governments to implement free trade agreements.⁶ The scholarship in this space often conceptualizes free trade as a public good (Kindleberger 1973, 1981; Conybeare 1984). As a consequence, economic coercion is rarely considered in this literature as a possible consequence of globalization.

Despite its relative absence from this literature, economic coercion can certainly change the incentives to liberalize trade. There are a few studies suggesting that states manage the risk of economic coercion using trade policy. Carnegie (2014) finds that states limit trade with potential adversaries due to concerns about “political hold-up problems.”⁷ Importantly, her work finds that international institutions are effective at discouraging economic coercion. She proposes that states use membership in the WTO as a way of credibly taking economic coercion off the table. She finds that WTO membership leads states greater increases in trade with political adversaries, presumably because adversaries benefit most from guarantees against coercion. Other work is more ambivalent about the relationship between policy choices and economic coercion. Simmons, Dobbin, and Garrett (2006) articulate coercion as one of four major categories of possible explanation for policy convergence.⁸ But they also claim that evidence is mixed and that many studies do not test the coercion explanation directly. One objective of the dissertation is to specify the conditions under which coercion is a relevant concern for states. In doing so, it may be possible to better identify how states change their behaviors to manage the risk of coercion.

⁶See also Bagwell and Staiger (2004)

⁷See also Carnegie (2015)

⁸See also Dobbin, Simmons, and Garrett (2007)

Some economists dating back to Hirschman (1980) have acknowledged that economic coercion might be possible when states are asymmetrically dependent on trade. Eaton and Engers (1992) formalizes and extends the logic initially proposed by Hirschman. In their model of sanctions, states only threaten to interrupt trade when the target would rather make a political concession than lose the privilege of market access for an extended period. The threat is credible if the sender's value for the political concession exceeds its anticipated costs of lost trade in the event of an interruption. The logic is a partial explanation for vulnerability to economic coercion: it applies to trade that generates uneven gains between states with different political preferences. But asymmetric dependence does little to explain why trade in certain products could be more vulnerable to economic coercion than others. In particular, it says little about the number and types of issues which can be credibly linked to trade. Importantly, it cannot explain why some states might refrain from using economic coercion even when another state depends on access to their markets.

A group of political scientists is grappling with the political consequences of how trade changes the distribution of wealth between states. Their work predominately studies how trade can change the balance of military power (Gowa and Mansfield 1993; Powell 1993). There is a longstanding debate between scholars who believe that economic interdependence reduces the probability of conflict or raises it (Angell 2010; Mearsheimer 1992). Although the costs of conflict between economically linked states are certainly higher, trade could also widen the gap in military power between them (Powell 1991; Copeland 1996; Coe 2015). This literature has focused heavily on the implications of trade for military power. But these studies rarely examine the direct consequences of redistributing wealth among states for the balance of power. This omission matters because economic power is deployed differently from military power. For example, states often sanction their military allies (Drezner 1999).

Finally, there is an extensive literature on economic sanctions. The literature is heavily focused on evaluating the effectiveness of sanctions. One major challenge to this exercise has been accounting for strategic selection in the deployment of sanctions. The problem is that sanctions are only ever observed when the threat of sanctions was insufficient to elicit compliance. Thus, studies which examine only

cases where sanctions are actually imposed are systematically excluding the cases where sanctions were most likely to be successful. Early studies of sanctions neglected the strategic selection problem and typically found that sanctions are ineffective (Hufbauer and Schott 1985; Lindsay 1986; Hufbauer, Schott, and Elliott 1990; Pape 1997, 1998; Elliott 1998). Answering the call of Drezner (2003) and Lacy and Niou (2004) to take strategic selection seriously, Morgan, Bapat, and Kobayashi (2014) produced the Threat and Imposition of Sanctions dataset which includes information about sanctions threats.⁹ My dissertation extends the work on economic sanctions by distinguishing between generalized and specific threats. The distinction allows scholars to account for strategic selection in the issuance of threats when studying the effectiveness of sanctions.

⁹See also Morgan, Bapat, and Krustev (2009)

Chapter 2

The Economic Coercion Trilemma

2.1 Introduction

On January 3, 1985, the Generalized System of Preferences (GSP), a United States program which offers steep discounts on tariffs to member developing states, was at serious risk of expiration. Congress was hesitant to renew any program that directly encouraged imports competing with the powerful agricultural and textile lobbies. Labor unions also opposed renewal because they believed the GSP encouraged firms to offshore production. Against the odds, the program's supporters found a clever political strategy to revive its fortunes: create a new constituency for the program by transforming it into an instrument of economic coercion. First, the support of the labor unions was secured by requiring all beneficiary states of the program to respect labor rights. Second, the support of the pharmaceutical and film industries was secured by requiring all beneficiaries to respect intellectual property rights. Bolstered by an unlikely partnership of labor and capital, the GSP was renewed in its modified form.

But the architects of the renewed GSP legislation immediately faced a difficult decision. They had to decide how the value of GSP membership should be leveraged to simultaneously incentivize compliance in multiple issue areas. One option would be to divide the value of the tariff discounts across the two conditionalities. For example, perhaps half of the GSP products could become eligible for duty

free importation after verifying compliance in each issue area. But the division of the trade value across issue areas could deplete the beneficiary's incentives to comply. Also, this design could create conflict between the labor rights and intellectual property rights supporters over how the products should be partitioned across the issues. The second option would be to allow all GSP eligible products to be imported duty free only after verifying compliance in both issue areas. But in this case, expelling a state from membership due to violations in one issue area would remove its incentives to comply in any other area. The labor rights and intellectual property rights lobbies would then be in conflict over which issue should be prioritized for enforcement by the US government.

The tradeoff is not unique to the design of the GSP. It applies whenever states use commerce to simultaneously incentivize compliance in multiple issue areas. These programs are common and include economic sanctions, trade dispute settlement, and the formation of monetary unions, among others. What limits the number and types of issues that can be connected in a program of conditionality? I find that states face an underlying *economic coercion trilemma* constraining the design of any program of conditionality. States can only achieve two of three priorities when designing a program of conditionality: 1) secure a broad coalition of political support for the program, 2) attach meaningful trade value to each policy issue, and 3) ensure that enforcement never reduces the target's incentives to comply with conditionality on other policy issues.¹

The optimal balance between the three objectives depends on the degree of economic dependence, the types of issues being bundled, and domestic politics. Generally, choosing a program that divides the available commerce among multiple issues raises the chances of compliance but decreases the degree of compliance on each issue. However, there are exceptions where full compliance can be achieved without division. Targets which are highly dependent on market access would be willing to comply in two or more different areas to guarantee their economic future. Moreover, certain types of

¹In this paper economic coercion is defined as the use of commercial or financial incentives as leverage in a program of conditionality. While the literature typically considers instances of economic coercion separately by instrument, the framework developed in this article enables the comparison of different economic coercion programs on the basis of their design.

issues which are *compatible* can be productively bundled even without requiring extreme dependence. If a target would be unlikely to simultaneously violate conditionality in two or more issue areas then simultaneous compliance can be required without raising the risk of encountering difficult enforcement decisions. The analysis points to an overlooked dimension of power in the international economy: states that can more efficiently convert economic value into political influence by using the same dollar of commerce as leverage in multiple issue areas.

The logic of the trilemma can be illustrated with reference to the GSP program as an example. The three rectangles in Figure 2.1 represent different ways of tying the economic leverage of GSP membership to two issues. Programs that partition the economic value among the conditionalities, as shown by the upper right rectangle, receive support from each interest group benefitting from compliance. These designs also ensure that enforcement of one condition never undermines the incentives in other issue areas. These programs can be called *leverage limited* because leverage is scarce: it is always possible to increase the incentives for the target's compliance in every issue area by increasing the reward associated with compliance. Programs that condition the entire economic value on compliance in multiple issues, as represented by the upper left rectangle, always maximize the leverage assigned to each issue area. However, these programs are *enforcement limited* because enforcing the conditionality in one issue area also reduces incentives to comply in another. The only way to achieve both the objectives of consistent enforcement and maximum leverage is to attach just one issue to the conditionality as shown in the bottom rectangle. Programs are called *support limited* if they depend on a single interest group for political support.

This paper contributes a new mechanism by which asymmetric dependence can transmit political influence. A long tradition of literature has described how states leverage asymmetric dependence for political influence (Hirschman 1980; Baldwin 1985; Eaton and Engers 1992; Martin 1993; Smith 1995; Drezner 2003; Carnegie 2014). The logic is that whichever state values trade more highly would potentially be willing to offer political concessions to ensure its continuation. The theory has been productively applied to the study of economic sanctions (Hufbauer, Schott, and Elliott 1990; Pape 1997;

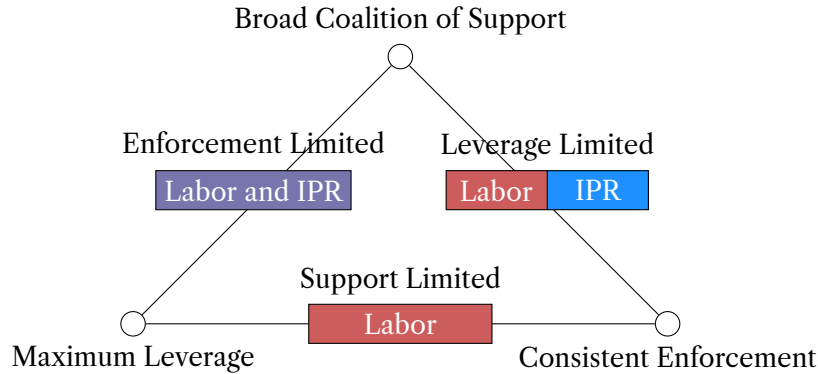


Figure 2.1: The economic coercion trilemma. Each rectangle represents a different possible assignment of issues to economic value. The available economic value is represented by the width of the rectangle. Either the entire value can be conditioned on compliance in multiple issues (enforcement limited), part of the value can be conditioned on each issue (leverage limited), or the entire value can be conditioned on a single issue (support limited). In leverage limited programs the domestic interest groups must bargain over the division of the economic value among the issues. In enforcement limited programs the interest groups must bargain over the right to enforce the conditionality.

Krustev and Morgan 2011; Morgan, Bapat, and Kobayashi 2014; Early 2015), aid conditionality (Svensson 2000; Carnegie and Marinov 2017), conditional lending from the World Bank and the International Monetary Fund (Vreeland 2006; Dreher, Sturm, and Vreeland 2009), and more. Recent work has studied asymmetric dependence induced by the position of states in networks (Farrell and Newman 2019; Drezner, Farrell, and Newman 2021). The literature has typically investigated whether asymmetric dependence was sufficient to extract concessions on a particular issue without analyzing how different political demands can interact. In particular, the question of whether asymmetric dependence can create linkages between economic and non-economic issues is unanswered. The economic coercion trilemma explains how the number and types of issues relates to the required degree of dependence needed to exert influence.

The theory of the economic coercion trilemma explains how issues are credibly linked in the context of coercion. The literature emphasizes how issue linkage facilitates cooperation by expanding the set of potential gains in bargaining (Sebenius 1983; Eichengreen and Frieden 1993; Huelshoff 1994; Lohmann 1997; Davis 2004, 2012; Dobbin, Simmons, and Garrett 2007; McKibben 2010; Dür and

Elsig 2015; Lee 2021).² While one strand of the literature has suggested that linkage politics potentially enhance credibility, another argues that linking issues hampers credibility. Issue linkage has most often been studied in this context as a mechanism for reducing the risk of bargaining failure – Poast (2012) even defined issue linkage a special case of “side-payments.” But other authors have expressed skepticism. Morrow (1992) argued that linkages signal a lack of resolve and Moravcsik (1998) believed distributional consequences would render linkages impotent and merely symbolic. Tinbergen (1952) argued that distinct policy goals should be targeted by a dedicated policy instrument. Applied to the context of economic coercion, the Tinbergen Rule would imply that each program target only a single political issue. The economic coercion trilemma explains that, generally, tying multiple issues to a single trade volume creates conflicting enforcement incentives. This result echoes the concerns of Moravcsik (1998). But the theory also reveals cases where a foreign state can be simultaneously influenced in multiple issue areas, showing how the conventional wisdom about successful issue linkage extends to coercive contexts. If the trade volume is sufficiently valuable to the target, or if issues are compatible in the sense that the target is unlikely to be noncompliant in more than one area at a time, then influence in multiple areas is possible.

Finally, the trilemma reveals the scope of economic coercion as a dimension of power in the theory of international bargaining. Traditionally the literature has explained bargaining outcomes as a function of relative resolve, or the willingness of a state to endure the costs of negotiation (Schelling 1980; Mo 1995; Fearon 1998; Powell 2002; Tarar 2005; Leventoglu and Tarar 2005; McKibben 2013, 2015; Kertzer 2016). The literature has put special emphasis on the role of international institutions in enhancing the credibility of linkages by creating structures that “tie the hands” of the state, ensuring the linkage is enforced regardless of any future temptations to neglect it (Putnam 1988). The economic coercion trilemma shows how domestic interest groups can overstretch the state’s influence by competing for the

²See also Fearon (1995) on issue indivisibility. Davis (2004) studied how international institutions facilitated credible linkages between tariff reductions in agricultural and non-agricultural sectors that led to the success of the Uruguay Round. Other scholars have explored whether policy convergence across states can be explained by the deeper integration of trade agreements (Dobbin, Simmons, and Garrett 2007; Dür, Baccini, and Elsig 2014; Jinnah and Lindsay 2016). Scholars have also studied issue linkage in the realm of international security (Wiegand 2009; Poast 2012, 2013a, 2013b). This literature is also interested in understanding how issue linkage can serve as a commitment device.

right to link their issues to commerce and for the right to enforce those linkages. When a state demands more than it can justify its credibility can be threatened. A state that can “double dip” by using the same trade volume to exert influence in multiple issue areas is extracting influence from dependence more efficiently. States whose strategic circumstances facilitate multiple linkages can use economic coercion effectively even if they do not have large markets.

Section 2.3 illustrates how the economic coercion trilemma can be used to explain the institutions of issue linkage. The examples are drawn from sanctions, trade agreement negotiations, and dispute settlement. As discussed above, the GSP program as implemented by the United States exemplifies the enforcement limited programs. The leverage limited programs are well illustrated by most economic coercion programs that commit to reciprocity.

2.2 A Theory of Economic Coercion Program Design

The theory is divided into two sections. The first section explores the “technology” of economic coercion: the policies states can use to transform value from economic relationships into political influence.³ It establishes that the economic coercion trilemma is a tradeoff between program designs having different properties. States might prioritize different properties depending on their circumstances and preferences, but no program can have all properties simultaneously. The results of the first section are therefore independent of preferences. The second section studies how states choose which design properties to prioritize. It shows how the strategic interaction of the sender’s and target’s preferences determine the optimal program design. The results of the second section are useful for making predictions about how states choose between support limited, enforcement limited, and leverage limited designs. The first section will begin with a discussion of the three design properties and then introduce a model representing them.

³The definition of “technology” invoked here is imported from economics. A technology is the process of transforming inputs into outputs.

2.2.1 The Technology of Economic Coercion

Like all tradeoffs, the economic coercion trilemma is driven by scarcity. No state can withdraw more than 100% of possible trade. It is simply impossible to withdraw trade that never would have occurred even in a world without trade barriers. The limited commercial volume creates a scarcity of political influence which ultimately must be divided among the interest groups vying to link their issues to trade. The state can choose whether this constraint will manifest as a competition for leverage or a competition for enforcement, but there is no way to escape the tradeoff completely. This “budget constraint” is also the source of the trilemma’s broad applicability: it constrains even the richest states.

2.2.1.1 Broad Coalition of Support

A program of economic coercion is supported by a broad coalition if multiple groups sustain the policy’s political support. Interest groups support economic coercion through conditionality when it advances their agenda. These interest groups could be organized lobbies in a democratic society or simply a group of elites desiring to use conditionality to enrich themselves in a non-democracy.⁴ Policies that are supported by a broad coalition comprising multiple groups are more stable. Some programs can survive with the support of just one group if that group is politically powerful, such as a large and well organized lobby in a democracy or an autocrat in a consolidated dictatorship.

Programs of conditionality have few natural allies. The distributional consequences of international commerce, especially trade policy, guarantee that conditionality will always displease at least one group. Importers will generally wish for conditionality to be replaced with free trade while import competitors will generally wish to replace it with autarky.⁵ One efficient way of forming a coalition that

⁴Democracies are accountable through electoral mechanisms, while autocrats must satisfy a selectorate when making policy. Different regime types would have different policy priorities and would assign different importance to the public interest. See De Mesquita et al. (2005) for details.

⁵For example, import competing firms may prefer that human rights violators continue to be sanctioned even if respect for rights improves because they benefit from trade protection. Firms that depend on imports may prefer free trade even if human rights violations continue unabated. The distributional consequences of trade policy are extensively analyzed in Stolper and Samuelson (1941), Dixit and Norman (1980), Rodrik (1995), and many others. The political implications of the

sustains trade conditionality is to offer interest groups the opportunity to link their issues to it. For example, if trade is made conditional on the protection of labor rights then representatives of the labor movement (especially the unions) have an interest in defending the policy despite its economic disadvantages.

A broad coalition of support raises the chances that trade conditionality will survive as policy. Conditionality is politically vulnerable when interests groups that previously supported the policy evolve new priorities. The process is natural and inevitable – all political coalitions evolve as the interests of their constituent groups evolve. For example, a policy of promoting labor rights through trade conditionality might be more attractive to labor rights activists when the labor share of traded goods and services is relatively high. If the support of labor rights activists for conditionality weakens then the program will come under pressure unless support can be buttressed with resources from another interest group. A diversified coalition has a better chance of withstanding these fluctuations. Programs of conditionality are more likely to endure when their coalition of support is broad because the policy's continuation is not predicated on the support of any one group.

The breadth of the coalition is relatively less important to the program's longevity when support is deep or stable over time. Here, the "depth" of support means the political weight of the interest groups, measured both in the number of people they represent and the intensity of their interests. These criteria are more likely to be met for issues that affect the interests of the entire society such as national security. Other issues are far more difficult to sustain in a program of conditionality without broadening the coalition of support. A strategy of keeping all tariffs high unless a trading partner lowers tariffs on fertilizer would benefit farmers but few others. Even if there is enough support from farmers to sustain the strategy in the short run, it will likely be discarded in the future unless the issues of other interest groups are incorporated into the program.

The model in the main text will focus on either one or two issues and it will take the number as

distributional consequences of trade have been explored by Rogowski (1989), Hiscox (2001), Broz, Frieden, and Weymouth (2019), and many others.

given. Each issue represents a different interest group having an interest in the conditionality. The role of a broad coalition in the economic coercion trilemma can be demonstrated by comparing programs with one issue to programs with two. The version of the model in Appendix A.E contains a more general framework that can accommodate an arbitrary number of issues.

2.2.1.2 Maximum Leverage

Interest groups can maximize their leverage by connecting as much trade as possible to the compliance of foreign states in their issue areas of concern. The objective behind seeking leverage is clear: better compliance can be achieved with better incentives. Interest groups are always more motivated to link their issue to a commercial volume worth one hundred million dollars than to a volume worth one million dollars. Indeed, the amount of leverage determines both demand for issue linkage and the compliance of the target. Ultimately, in leverage limited programs the domestic interest groups must compete for the right to link their issue to any given dollar of commerce.

Although the behavior of the interest groups occurs outside the model, it is still important to discuss their incentives and explain why they would find maximum leverage to be desirable. Interest groups have little reason to be satisfied with linkages to only a fraction of the available commerce. Of course it is possible to demand too much – sometimes the target might only be willing to fulfill a more modest demand. But unless additional demands would cause the target to reject all compliance, an interest group would always wish to maximize the commercial volume tied to their issue. An interest group may not be willing to reduce its demands even if they are rejected by the target. Why should the interest group reduce their leverage, and not some other interest group whose issues are also tied to conditionality? No group wants to be the one that must reduce their demands to elicit the target's compliance.

Competition among interest groups for leverage is a core characteristic of any leverage limited program. In a leverage limited program no dollar of commercial value can be tied to more than one issue. Therefore, interest groups compete to add additional value to their conditionality. Competition for leverage generally occurs at the moment of the program's design when the punishments for noncompliance are being specified. In the case of international trade, interest groups are often competing for

the right to withdraw market access for specific products as punishment for noncompliance. Interest groups succeed by influencing the policymakers who decide how products and issues will be paired. Thus, the competition occurs in the legislating institutions that govern program design. Interest groups with influence in the legislation process would favor this form of competition.

2.2.1.3 Consistent Enforcement

The property of consistent enforcement describes the cross-issue spillovers from decreases in compliance. Enforcement is consistent unless reducing compliance in some issue area also reduces the leverage applied to some other issue area. The property is desirable in two circumstances. First, if economic coercion is consistently enforceable then a target's inability to satisfy one condition will not undermine their incentives to comply in other issue areas. Second, consistent enforcement removes the sender's incentives to selectively enforce the conditionality. For example, the sender might hesitate to enforce conditionality on an issue if doing so would remove the target's incentives to comply in some other more important issue area.

It is important to note that inconsistent enforcement only becomes a problem when the conditionality needs to be enforced. Even when facing inconsistent enforcement, targets may choose to comply in both issue areas depending on their preferences. The problem with inconsistent enforcement is that it creates a conflict of interest at the enforcement stage. The reason why a state would hesitate to enforce conditionality on some issue is because it might sabotage its influence on another issue.

Consistent enforcement and the sender state's reputation for credibility are intricately linked. All programs of economic coercion represent a double commitment – a promise to reward compliant behavior and a threat to punish noncompliant behavior. Enforcement limited programs create temptations to selectively enforce these commitments because states can sometimes preserve influence on one issue by refusing to enforce conditionality on another. States that succumb to the temptation of selective enforcement are violating a prior commitment and potentially damaging their reputation for following through on commitments. The importance of credibility to relative power in international bargaining is well established in the literature (Powell 2002; Kertzer 2016). Bargaining is only possible when com-

commitments are believable, so states that can more easily make believable commitments are negotiating from a stronger position (Putnam 1988; Fearon 1994, 1995).

It is not necessarily the case that all enforcement limited programs will threaten the state's reputation. Some states have institutional arrangements which bolster their ability to resist the temptation to abrogate their commitments. For example, Fearon (1994) discusses how audience costs in democracies can increase the credibility of their commitments because their leaders are electorally accountable for any reversals. It is possible that states endowed with legal and political institutions that facilitate credible commitments will embrace enforcement limited programs because they can commit to fully enforcing the conditionality. In that case, inconsistent enforcement does not threaten the state's credibility, but it does threaten the efficacy of the economic coercion program.

The strategic interaction between domestic interest groups depends on the program's location within the economic coercion trilemma. Interest groups compete for the right to enforce their conditionality when a program design is enforcement limited. By punishing a state for noncompliance on one issue, the program surrenders the opportunity to reward states for compliance on other issues. For example, the enforcement of intellectual property rights conditionality under the GSP removes the incentive to comply with labor rights conditionality. In general, interest groups compete to ensure that their issue's conditionality is the one which is being enforced. This competition occurs *ex post* at the moment of enforcement rather than *ex ante* at the moment of program design. Different interest groups could be better situated to compete at the enforcement stage – for example, some interest groups might have better access to the bureaucracy (You 2017). Competition over enforcement rights is continuous because the right to enforce must be contested whenever noncompliance is detected.

2.2.1.4 The Trilemma

I employ a formal model to explore the tradeoffs of the economic coercion trilemma.⁶ A sender state wishes to influence the policy choices of a target state in each of two issue areas. The game is a single stage in which the sender and target simultaneously announce their actions. The target chooses policies α_j which are set in the unit interval and chosen separately for each issue $j \in \{1, 2\}$.

Both the target and the sender have preferences over the target's choice of policy. The ideal points for the target and the sender are $\alpha_j = 0$ and $\alpha_j = 1$ respectively for all issues j . Thus, the target is choosing its degree of compliance with the sender's wishes. To encourage the target to comply with their preferred policy choices the sender state can punish the target by interrupting commerce between them. Both states value the gains from trade – exports and imports create economic value for both the target and sender, but the two states may value the gains differently, allowing for different degrees of asymmetric dependence. The target state will always choose $\alpha_j = 0$ unless doing so would result in too much lost economic value. An example utility function would be $U_k(\alpha_1, \alpha_2; h) = K\alpha_1^2 + K\alpha_2^2 - h(\alpha_1, \alpha_2)^2$ where K is a positive constant for senders and a negative constant for targets and h is a function representing how much trade has been withdrawn by the sender.

The sender state chooses issue specific punishment functions, which represent how much economic value will be withheld as a function of the target's compliance with conditionality. Let $\phi_j(\alpha_j) : [0, 1] \rightarrow [0, 1]$ be an **issue specific punishment function** for issue $j \in \{1, 2\}$ and compliance level α_j . Issue specific punishment functions ϕ_j are chosen by the sender state and compliance levels $\alpha_j \in [0, 1]$ are chosen by the target state. They must be nonincreasing (more compliance cannot result in more punishment). The **total punishment function**, which is the amount of economic value

⁶While two issues is sufficient to convey most of the model's intuition, the results can usually be extended to far more general circumstances. Readers interested in a version of the model that covers an arbitrary number of issues and significantly more general functional forms should consult Appendix A.E.

actually withheld, is defined as

$$\phi(\alpha_1, \alpha_2) = \min \{ \phi_1(\alpha_1) + \phi_2(\alpha_2), 1 \}$$

which is a simple sum of the punishment for the target's choice of compliance on each issue until all commerce is withheld, at which point the function takes its maximum value of 1.

The issue specific punishment function is a highly flexible representation of trade conditionality reflecting the wide variety of program designs employed by states. A brief comparison of the US GSP program and an analogous EU program can illustrate how real programs can be represented in the framework. As described in the Introduction, the US excludes states from program eligibility which do not take sufficient measures to protect intellectual property and labor rights. The analogous EU program, however, is limited to the protection of human rights. States can also be excluded from the EU's more generous GSP+ program if they violate conditionality on either human rights or on environmental protection. The issue specific punishment functions reflecting the US conditionality program could be $\phi_j(\alpha_j) = 0$ if $\alpha_j = 1$ and $\phi_j = 1$ if $\alpha_j < 1$ for $j \in \{1, 2\}$. These functions each remove all trade under the GSP for any amount of noncompliance on either issue. The EU's issue specific punishment function representing conditionality on environmental rights could be $\phi_1(\alpha_1) = 0$ if $\alpha_1 = 1$ and $\phi_1(\alpha_1) = k$ if $\alpha_1 < 1$ reflecting how beneficiaries lose k percent of their trade benefit by losing access to GSP+ if they do not fully comply with environmental protection. The function for EU conditionality on human rights could be $\phi_2(\alpha_2) = 0$ if $\alpha_2 = 1$, $\phi_2(\alpha_2) = k$ if $\rho < \alpha_2 < 1$, and $\phi_2(\alpha_2) = 1$ if $\alpha_2 < \rho$. The two steps in this function reflect how states which choose an intermediate level of compliance can be excluded from GSP+ while maintaining eligibility in the less generous basic GSP program. Some other possible issue specific punishment functions are depicted in Appendix Figure A.1.

An issue specific punishment function regarding a particular issue j exhibits **maximum leverage** if $\max_{\alpha_j} \phi_j(\alpha_j) - \min_{\alpha_j} \phi_j(\alpha_j) = 1$. In other words, an issue specific punishment function exhibits

maximum leverage if and only if the maximum possible economic value is tied to compliance.⁷ For example, the issue specific punishment function $\phi_j(\alpha_j) = 1 - \alpha_j/2$ does not exhibit maximum leverage. We see that $\phi_j(0) = 1$ and $\phi_j(1) = 1/2$, thus $\phi_j(0) - \phi_j(1) < 1$. By contrast the issue specific punishment function $\phi_j(\alpha_j) = 1 - \alpha_j$ does exhibit maximum leverage because $\phi_j(0) = 1$ and $\phi_j(1) = 0$. In more casual language, maximum leverage means that the sender is creating the maximum possible incentive for compliance on a particular issue.⁸

A total punishment function exhibits **consistent enforcement** if and only if, for all issues j , $\max_{\alpha_j} \phi(\alpha_1, \alpha_2) - \min_{\alpha_j} \phi(\alpha_1, \alpha_2)$ is not increasing in α_i where $i \neq j$. In more casual language, enforcement is consistent unless reducing compliance in some issue area also reduces the leverage applied to some other issue area. For example, the total punishment function $\phi(\alpha_1, \alpha_2) = \min\{2 - \frac{\alpha_1}{2} - \alpha_2, 1\}$ does not exhibit consistent enforcement.⁹ Inconsistent enforcement means that the target might be able to reduce its costs of noncompliance on issue j by choosing to reduce its compliance on some issue i (unless the sender chooses not to enforce conditionality on issue i). For example, expelling a state that violates labor rights from the GSP would remove its incentive to protect intellectual property rights.

Finally, a program is said to have a *broad coalition of support* if there are at least two issues associ-

⁷Note that the definition has a useful alternate representation: because α_j is restricted to the unit interval and ϕ_j must be nonincreasing, the maximum must be attained at $\alpha_j = 0$ and the minimum must be attained at $\alpha_j = 1$. Therefore, an equivalent formulation is $\phi_j(0) - \phi_j(1) = 1$. In words, this formulation says that 0% compliance is punished with a full withdrawal of economic value and 100% compliance is rewarded with full access to the economic volume.

⁸See Appendix A.A.2 for a discussion on the approach to the analysis of marginal incentives in this model.

⁹A short calculation illustrates the point. From the definition for $j = 1$:

$$\begin{aligned} \max_{\alpha_1} \phi(\alpha_1, \alpha_2) - \min_{\alpha_1} \phi(\alpha_1, \alpha_2) &= \max_{\alpha_1} \left(\min \left\{ 2 - \frac{\alpha_1}{2} - \alpha_2, 1 \right\} \right) - \min_{\alpha_1} \left(\min \left\{ 2 - \frac{\alpha_1}{2} - \alpha_2, 1 \right\} \right) \\ &= \min\{3/2 - \alpha_2, 1\} - \min\{1 - \alpha_2, 1\} \\ &= \begin{cases} 1/2 & \text{if } \alpha_2 > 1/2 \\ \alpha_2 & \text{if } \alpha_2 \leq 1/2 \end{cases} \end{aligned}$$

which is an increasing function of α_2 over a subset of its domain ($\alpha_2 \leq 1/2$).

ated with conditionality, or $J > 1$.¹⁰ At this point it is possible to formally establish the economic coercion trilemma. The formal statement is given in Theorem 1 and the proof is found in Appendix A.A.3. The theorem describes the precise sense in which maximum leverage and consistent enforcement are incompatible – unless only one issue is tied to the conditionality, achieving one objective precludes the achievement of the other. The trilemma is a consequence of the fixed volume of commerce available to the sender acting as a “budget constraint” of political influence on the target. The remainder of this section explores what conditions would cause a sender state to prioritize one objective over another. There are two main factors: the degree of asymmetric dependence and issue compatibility.

Theorem 1 (Economic Coercion Trilemma) *Every issue specific punishment function which exhibits maximum leverage is also part of an inconsistently enforced total punishment function unless there is only one issue tied to conditionality.*

2.2.2 The Behavior of States: Making Tradeoffs Under the Trilemma

2.2.2.1 Complementarities in Noncompliance

How do states choose between leverage and enforcement limited designs? Inconsistent enforcement potentially creates problems by potentially allowing the target to reduce its costs of noncompliance on issue j by reducing its compliance on some other issue i . But there can be advantages to enforcement limited strategies as well. Targets which are especially averse to the costs of punishment might choose a higher degree of compliance when more economic value is tied to conditionality. Thus, the inconsistent enforcement property is polarizing in the sense that 1) targets might be less inclined to comply when confronted with these incentives and 2) targets that do comply will provide a higher degree of compliance.

¹⁰The behavior of the domestic interest groups is outside the scope of the model. Extending the model to account for strategic behavior of domestic interest groups would be an interesting area for future work.

Proposition 1 *If the total punishment function is not consistently enforceable and the target's utility function is additively separable then the target's optimum level of compliance on issue i is an increasing function of its compliance on other issues j .*

The precise statement is contained in Proposition 1. The proof, which explores the total punishment function through the lens of submodularity, is provided in Appendix A.B.¹¹ The intuition of the result is that inconsistent enforcement creates complementarities in noncompliance that encourage the target to choose either full compliance on all issues or zero compliance on all issues. In other words, inconsistent enforcement polarizes the compliance of the target.

The following example illustrates the core properties of consistent enforcement more concretely for specific functional forms. Consider two total punishment functions shown in (2.1) and (2.2). Note that ϕ and γ differ only in the fraction of trade that can be used to incentivize compliance on issue 1. And yet ϕ is consistently enforceable over the entire domain while γ is not consistently enforceable for $\{\alpha_1, \alpha_2 : \alpha_1/2 + \alpha_2/2 < 1/2\}$. Consider a target state having utility $U_t(\alpha_1, \alpha_2; h) = -\frac{a_1}{4}\alpha_1^2 - \frac{a_2}{4}\alpha_2^2 - h(\alpha_1, \alpha_2)^2$ where $h \in \{\phi, \gamma\}$ and a_i are positive real coefficients determining the weights on the two issues relative to the pain of lost economic surplus (coefficient 1 on h).¹²

$$\phi = \min \left\{ \frac{1}{2} - \frac{\alpha_1}{2} + \frac{1}{2} - \frac{\alpha_2}{2}, 1 \right\} = \min \left\{ 1 - \frac{\alpha_1}{2} - \frac{\alpha_2}{2}, 1 \right\} \quad (2.1)$$

$$\gamma = \min \left\{ 1 - \frac{\alpha_1}{2} + \frac{1}{2} - \frac{\alpha_2}{2}, 1 \right\} = \min \left\{ \frac{3}{2} - \frac{\alpha_1}{2} - \frac{\alpha_2}{2}, 1 \right\} \quad (2.2)$$

How will such a target respond to the incentives of the program of economic coercion? The target will choose α_1 and α_2 to maximize their utility given the consequences of being punished according to

¹¹The general strategy of the proof is to show that 1) the total punishment function is strictly submodular wherever the sum of the issue specific punishment functions is greater than one, 2) subject to some assumptions, the target's utility function is supermodular over that domain, and 3) by the Topkis theorem there are cross-issue complementarities in compliance where the target's utility function is supermodular.

¹²The division by 4 simplifies the arithmetic but has no effects on the analysis beyond rescaling the units.

Sender choice	Target response α_1^*	Target choice α_2^*
ϕ	$\frac{2}{3a_1}H(1, a_1, a_2)$	$\frac{2}{3a_2}H(1, a_1, a_2)$
γ	$\frac{1}{a_1}H(1, a_1, a_2)$	$\frac{1}{a_2}H(1, a_1, a_2)$

Table 2.1: The target's optimal compliance choices for γ and ϕ .

ϕ or γ . The target's optimal compliance choices when facing ϕ and γ are calculated in Appendices A.C.1 and A.C.2 and the results are given by the results in Table 2.1. where H is the harmonic mean. Recall that the harmonic mean is equal to the weighted arithmetic mean with weights $(1/x_i)/(\sum_j 1/x_j)$. In other words, when facing ϕ the optimal level of compliance is about 2/3 of the harmonic average of the weights on each component of the utility function. Also, compliance is decreasing in the weight associated to that issue. Note that the optimal choice of compliance on one issue is decreasing in the compliance of the other. The target effectively has a "budget constraint" of economic value defined by ϕ which is divided across compliance on two issues. The target chooses the optimal compliance vector by shifting along this negatively sloped budget constraint.

As discussed previously, the target will never choose full noncompliance on both issues when the total punishment function is ϕ . Some positive amount of compliance is always preferred because there is always a marginal incentive to comply for both issues. However, when the total punishment function is γ this is no longer true. After a certain point the sender has exhausted all its leverage and it cannot withdraw any more economic value. At this point the marginal incentive to continue complying has evaporated and the target will cease to comply. As shown analytically in Appendix A.C.2, the target chooses total noncompliance on both issues for values of a_1 and a_2 satisfying $4/3 < H(1, a_1, a_2) < 2$. In this region it is feasible for the target to choose the interior solution, but the target can get more utility from exploiting the complementarities of noncompliance. For $4/3 > H(1, a_1, a_2)$ the target chooses the interior solution, meaning that they prefer to comply some amount on both issues. When they do choose compliance on both issues, the target chooses more compliance under γ than they would have under ϕ . Finally, when $H(1, a_1, a_2) > 2$ the target is at a boundary solution and chooses zero compliance because the needed compliance vector is not in the feasible set.

Of course, we would not expect the sender to actually use a punishment function resulting in full noncompliance. Doing so would mean accepting the costs of sanctions without receiving any concessions. Therefore, the function γ would never be observed as a strategy if the target would choose zero compliance. But γ might be chosen if the sender could choose to “look the other way” and ignore noncompliance in one issue area to maintain its leverage on other issues. To other states, this behavior would amount to hypocrisy where the sender state says they care about an issue at one time period but then abandon it later for strategic reasons. While Krasner (1999) has argued hypocrisy can communicate power by demonstrating that the state is above international norms, it could also undercut power by reducing credibility.

2.2.2.2 Asymmetric Dependence

This subsection identifies a sufficient condition for the existence of an enforcement limited strategy that elicits full compliance under conditions of asymmetric dependence. Put simply, it will be possible to extract full compliance using an enforcement limited strategy if the target values the economic relationship significantly more than it values its policy autonomy. Strictly speaking, the condition describes absolute dependence rather than asymmetric dependence because the sender’s utility does not come into play.¹³ The proof appears in Appendix A.D.

Proposition 2 (Asymmetric Dependence) *Let $\bar{U} = \max_{\alpha_1, \alpha_2} U_t(\alpha_1, \alpha_2; \phi)$ s.t. $\phi(\alpha_1, \alpha_2) = 1$ be the highest utility the target can attain given the maximum possible punishment. Also, let $\underline{U} = \max_{\alpha_1, \alpha_2} U_t$ s.t. $\phi(\alpha_1, \alpha_2) = 0$ be the highest utility the target can attain given minimum possible punishment. If $\bar{U} < \underline{U}$ then there exists a leverage limited strategy that elicits full compliance.*

The proposition confirms that a target who values market access enough to clear a certain threshold would comply fully with an enforcement limited program of coercion. The threshold, which is sufficient but not necessary, is that the target must be willing to make full concessions on both policies

¹³That being said, the sender’s utility function would be important in a model where the credibility of their commitment to the punishment function were not assumed. The sender must stand to gain more than the target from “winning” the negotiation in order for threats to be credible. See Eaton and Engers (1992) for a detailed analysis.

to avoid a total loss of market access. Such a target would never risk the loss of its foreign markets to achieve a better outcome in one policy domain. Importantly, it does not matter what preferences the target has over other all other compliance choices and punishments. In particular, the rate at which the target is willing to substitute compliance for market access does not matter as long as the above condition holds. The result partially explains why states that depend heavily on the global economy are vulnerable to coercion. In addition to having more ability to pressure the target into making concessions on a single issue, the target's dependence on trade also helps the sender avoid the paradox of self-defeating success.

2.2.2.3 Issue Compatibility

Two issues are called compatible if a target which is noncompliant on one issue is unlikely to be noncompliant on the other. Issue compatibility minimizes the costs of inconsistent enforcement. Inconsistent enforcement is only a problem when the sender must enforce the conditionality in two separate issue areas simultaneously, which is unlikely to happen when issues are compatible. For example, consider a hypothetical program to combat climate change by financing the construction of nuclear power plants. The program might remove its funding from states that either 1) fail to build enough capacity to reduce their dependence on fossil fuels or 2) use the technology to pursue a nuclear weapons capability. These conditions are compatible because it is unlikely that a target would violate both simultaneously. If the target wishes to use the technology to surreptitiously enrich uranium they would need to be building the reactors. Thus, all the funding can be withdrawn if either condition is not satisfied without creating any strategic dilemma. Punishing the target for noncompliance on one issue does not reduce the target's incentives to continue compliance on the other.

Issues might be compatible for a variety of reasons. It could be that the target needs to choose noncompliance on one of two issues but it could choose either. For example, it could be that the target state is subject to multiple domestic pressures, one encouraging compliance on both issues and one preferring noncompliance, and the state wishes to take the middle ground. Or it could be that the type of state which might prefer noncompliance on one issue is predisposed to compliance on another. For

example, the states that produce greenhouse gas emitting products such as oil and coal tend not to be the ones that consume them. Thus, the issues of oil/coal consumption and production are probably compatible and can be conditioned on the same commercial volume.

To illustrate how issue compatibility can play a role in facilitating enforcement limited strategies I return to the example from the previous section with one modification: now we assume that the weights a_1 and a_2 are random variables drawn from the known joint distribution $F(a_1, a_2)$. This setup could be interpreted to mean that the sender is attempting to influence an entire population of targets using one program of economic coercion, or that the sender does not know the weights for a particular target. Appendix A.D.1 analyzes the case where a target having utility function $U_t = -\frac{a_1}{4}\alpha_1^2 - \frac{a_2}{4}\alpha_2^2 - h(\alpha_1, \alpha_2)^2$ faces the enforcement limited total punishment function $h = \gamma$ chosen by the sender. The analysis demonstrates how the probability of the target choosing full compliance is decreasing in the correlation of a_1 and a_2 .

The concept of issue compatibility presents a criterion for evaluating which political issues can be bundled. Compatible issues are less likely to trigger the paradox of self-defeating success when bundled in a program of economic coercion. The literature has previously said relatively little about why some issues are more likely to be linked than others. Compatible issues are easier to bundle credibly because the sender is unlikely to need to choose between enforcing one or the other.

2.3 Applications

This section will use empirical illustrations to show how the trilemma illuminates the politics of economic coercion. In each of these cases a fixed amount of economic value is conditioned on the simultaneous fulfillment of multiple criteria. The objective of these cases is to illustrate how the economic coercion trilemma has been managed by actors in various strategic and institutional contexts.

2.3.1 The Credibility Hazard of Enforcement Limited Designs

Enforcement limited designs occur commonly. For example, when she ran for President in 2020 Senator Elizabeth Warren (D-MA) proposed that the United States refuse to sign trade agreements with any state that did not meet a list of nine pre-conditions.¹⁴ Also, in its 2018 report under Section 301 of the Trade Act of 1974 the US Trade Representative listed four issues that required Chinese compliance before sanctions could be ended.¹⁵ Enforcing the conditionality with respect to any one condition would remove incentives to comply with the other stipulations. The requirement of simultaneous compliance as a precondition for achieving lower tariffs makes both of these cases examples of enforcement limited strategies.

Sometimes these enforcement limited strategies can backfire. The Maastricht Treaty lists four convergence criteria that states must fulfill before they can join the Eurozone: states must have a stable exchange rate and sufficiently low inflation, low government debt burdens, and low long-term interest rates (European Union 1992, Article 109j). Its insistence on simultaneous compliance makes it another example of an enforcement limited strategy. As such, there are conflicting incentives to enforcing the conditionality: the treaty calls for states to be left outside the Eurozone if they violate even one condition, but punishing a state for one violation could undermine its incentives to comply in other areas.

In 2004 this hypothetical dilemma became real. It was revealed that Greece had misrepresented its economic data sufficiently seriously to call its compliance with the Maastricht Treaty into question. Two of the four provisions were considered to have been affected (Carassava 2004). The situation called

¹⁴Senator Warren's proposal would have required that all trade agreements be signed with states that recognize and enforce the core rights of the International Labor Organization, uphold internationally recognized human rights, uphold religious freedom, comply with the Trafficking Victims Protection Act, be a party to the Paris Agreement, eliminate domestic fuel subsidies, ratify the Convention on Combating Bribery of Foreign Public Officials in International Business Transactions, comply with tax treaties signed with the US, and not appear on the Department of Treasury's monitoring list for currency manipulation (Warren 2019).

¹⁵The issues were the forced transfer of intellectual property to Chinese firms, non-market pricing for technology products, government direction of Chinese technology exports, and Chinese government support of cyberattacks (Office of the United States Trade Representative 2018).

on the existing Eurozone members to enforce the conditionality, but expelling Greece from membership could undermine all the progress which Greece had made in the other areas and reducing its chances of becoming a member again in the future. The European Commission chose not to expel Greece from the Eurozone in spite of the revelations. Greece later became a major vulnerability for the Union's financial health during the Euro Crisis.¹⁶

2.3.2 The Generalized System of Preferences: Enforcement Limited Designs and Issue Compatibility

As discussed in the Introduction, the economic coercion trilemma has shaped the development of the GSP throughout its history. Initially, the GSP was not conditional on beneficiaries' policies at all, but the program encountered resistance from import competing industries.¹⁷ Additional support was secured by conditioning program membership on compliance with labor and intellectual property rights conditions.¹⁸ Ultimately, the program required that compliance in both issue areas was necessary to maintain membership. What are the political consequences of that decision? And why did politicians decide to make simultaneous compliance necessary?

It was possible to require simultaneous compliance in labor and intellectual property rights protections because of issue compatibility. The issues are compatible particularly when considering the correlation of severe violations. The most consequential intellectual property rights states occur in the

¹⁶The link between the original decision not to punish the deception and the eventual crisis is not necessarily straightforward, but the need to simultaneously fulfill multiple criteria before accession may have contributed to the situation. See Pisani-Ferry (2011) for a discussion of the link.

¹⁷The history of the GSP labor rights amendment is given by Congressman Don Pease (D-OH), the congressman who led the legislative effort, in Pease and Goold (1985). One explanation for why the unions were willing to support trade liberalization under the GSP program is that their concerns about jobs being offshored to low wage markets were somewhat mitigated by the workers' rights conditionality.

¹⁸Drahos and Braithwaite (2002) describe in Chapter 6 how pharmaceutical firms organized themselves to pressure the US government to make trade conditional on robust intellectual property enforcement. They argue that adding the intellectual property issue was crucial to renewing the GSP authorizing statute over the objections of protectionist interests.

GSP beneficiaries with the largest markets. There is also a strong negative correlation between per capita GDP and labor rights violations. Thus, there are relatively few states being prioritized for compliance monitoring by both the labor and intellectual property rights interest groups. As a consequence, the Subcommittee generally only needs to consider arguments from one interest group when deciding any particular case. Thus, the enforcement limited strategy enables both interest groups to promote their interests using the maximum possible trade volume without getting in each other's way too often.

2.3.3 Dispute Settlement Mechanisms: Leverage Limited Strategies

Many bilateral trade agreements feature dispute settlement mechanisms as a last recourse if one partner violates the agreement. These clauses declare the conditions under which one state will cease compliance with all or part of the agreement. They are also punishment functions because they determine how much trade can be interrupted as a function of how the agreement was violated. The trilemma applies to dispute settlement mechanisms because there is only a fixed economic value available to incentivize compliance: the value of the sender's concessions to the target.

Most dispute settlement mechanisms specify that the economic value of retaliation cannot exceed the economic value of the violation. See, for example, the following typical text:

If there is no agreement in accordance with paragraph 1 within 20 days after receipt of the request mentioned in paragraph 1, *the complaining Party may suspend the application of benefits of equivalent effect to the responding Party* if the arbitral panel decides the responding Party does not implement the recommendations contained in the final report to bring the inconsistent measure into conformity within the reasonable period of time established in accordance with Article 92. (China-Chile PTA, Article 93, Paragraph 2 (emphasis added))

The phrase "equivalent effect" appears commonly in dispute settlement mechanisms. The reciprocal nature of this punishment locks in a leverage limited strategy because the aggrieved party cannot withdraw more trade than they were denied. By contrast, an enforcement limited strategy would allow for punishments to exceed the value of the violation.

The nearly ubiquitous reciprocity of dispute settlement mechanisms can be understood through

the lens of the trilemma. The mechanism can only be effective at resolving a dispute if both sides are certain the specified punishment will actually be applied. Leverage limited strategies minimize the sender's credibility problem because they ensure that the enforcement of conditionality in one issue area never undermines incentives to comply in other areas. For example, consider whether China would follow through on a threat to entirely withdraw from the agreement on finding any instance of Chilean noncompliance. If China withdraws then Chile would probably also withdraw from its commitments, thereby revoking any other concessions valued by China.

2.3.4 Bilateral Trade Agreement Negotiations and Red Lines

The trilemma constrains the strategies that trade negotiators can deploy to secure concessions. Trade agreements consist of contingent concessions – each state offers tariff concessions conditional on receiving certain concessions from the other state. Although the choice to engage in negotiations is typically considered a form of cooperative politics, the actual negotiation is an example of trade conditionality to the extent that negotiators attempt to use market access as leverage to extract concessions. This section will interpret trade agreement negotiations as an example of trade conditionality through the lens of the trilemma.

The literature traditionally understands preferential trade agreements as examples of interstate cooperation – states choosing to put aside their protectionist inclinations and lower their trade barriers so they can enjoy the mutual gains from trade (Mansfield, Milner, and Rosendorff 2002; Mansfield, Milner, and Pevehouse 2005; Dür, Baccini, and Elsig 2014; Dür and Elsig 2015). While the choice to enter into negotiations might be described as cooperative, the negotiation itself is a bargaining process. Negotiators use market access as leverage by offering to lower trade barriers on some products in exchange for lower barriers on other products.¹⁹ Even more starkly, negotiators may threaten to abrogate an agreement unless the partner agrees to implement certain regulations on issues which may or may not be

¹⁹For an illuminating account highlighting the role of bargaining during negotiations from a trade negotiator, see Grozoubski (2018).

trade-related. Implicitly, negotiators are conditioning the opening of their markets on the compliance of their partner on either a trade or non-trade related issue. While states do sign trade agreements willingly, the division of the gains is still subject to bargaining.

The negotiation tactic that exemplifies an enforcement limited strategy is a “red line”. Negotiators sometimes specify certain conditions they consider to be necessary to any deal. For example, the EU’s Chief Brexit negotiator Michael Barnier was quite explicit about two red lines in February 2020: “The trade deal will be associated with a fisheries agreement and a level playing field, otherwise there won’t be any agreement at all” (Morris 2020). The use of red lines qualifies as an enforcement limited strategy: enforcing the red line takes the entire economic value of the agreement off the table, thereby removing incentives for the target to make other concessions. The alternative to the use of red lines would be a “tit-for-tat” approach that exchanges one concession for another. This approach would be leverage limited because failure to win a single concession would not jeopardize the entire deal.

2.3.5 Multilateral Trade Agreement Negotiations

The Uruguay Round negotiations are an important example that shows how international institutions can change the tradeoff between enforcement and leverage limited strategies. Unlike previous negotiations, the Uruguay Round was formally considered to be a *single undertaking*, meaning that all concessions had to be jointly approved or rejected. As shown by Davis (2004), the institutionalized rule made it possible for Japan and the EU to make concessions in the agricultural sector by linking concessions in agricultural and non-agricultural sectors.²⁰ Seen through the lens of the economic coercion trilemma, the single undertaking forced states to pursue an enforcement limited negotiation strategy. The leverage of agricultural concessions alone was insufficient to motivate Japan and the EU to make agricultural concessions – progress required the addition of non-agricultural concessions to the agenda.

²⁰Japan and the EU valued the non-agricultural concessions highly enough that they were willing to make concessions in the agricultural sector to avoid losing the agreement. Without the single undertaking Japan and the EU could have carved the agricultural sector out of the agreement as they had done in previous multilateral negotiations. See Davis (2004) for additional details.

As an institutionalized rule of the negotiation, the single undertaking ensured that no state could defect from an enforcement limited strategy in the service of other objectives, ensuring that Japan and the EU were put under maximum pressure to liberalize.

Why did the single undertaking in the Uruguay Round not undermine the credibility of cross-sectoral linkages? The economic coercion trilemma would predict that a state pursuing an enforcement limited design might have limited credibility. By contrast, Davis (2004) argues that the single undertaking at the Uruguay Round negotiations enhanced the credibility of cross-sectoral linkages by preventing states from decoupling sectors. These two theories are reconciled because Japan and the EU had a high value for the agreement. In this example, Japan and the EU were willing to make concessions in the agricultural sector in order to preserve the agreement and the concessions of other states in non-agricultural sectors.

An implication of this analysis is that the single undertaking could undermine the credibility of cross-sectoral linkages when trade liberalization is less valuable. In fact, the economic coercion trilemma may have contributed to the failure of the Doha Round negotiations. After the success of the single undertaking in the Uruguay Round, the subsequent Doha Round was also designed to be a single undertaking. And yet the Doha Round has failed to produce any meaningful agreements after nearly two decades of negotiations. While many factors which contributed to the ultimate failure of the negotiations, most analysts blame the agenda's inclusion of the Singapore issues (Evenett 2007). These issues, which covered how trade should be regulated with respect to government procurement, facilitation, competition, and investment, were prioritized by developed states.

Why were the possible gains from additional trade liberalization insufficient to overcome the resistance to tackling the Singapore issues? In the Uruguay Round, the single undertaking ensured that Japan and the EU could not access tariff reductions in non-agricultural sectors without making concessions in their agricultural sectors. In the Doha Round, average tariffs were significantly lower at the start of the negotiations. Thus, the potential gains from liberalization for developed states were smaller. They were arguably too small to overcome resistance to additional concessions without settling thornier

points such as the Singapore issues.

While Japan and the EU found it worthwhile to make concessions in the agricultural sector in order to preserve the Uruguay Round agreement, the same is not true of the Doha Round. The developed states resisted liberalizing agricultural sectors because the gains from liberalization in non-agricultural sectors are no longer sufficiently enticing.²¹ The substantial concessions made in the Uruguay Round mean that the available gains from lowering tariffs are smaller. Thus, there are smaller incentives to the developed states to address thornier areas such as the Singapore issues in the Doha Round.

Without the single undertaking, perhaps it would have been possible to carve the difficult issues out of the agreement. In the language of the trilemma, the negotiators could have converted to leverage limited rather than enforcement limited strategies. But the strongly institutionalized nature of the single undertaking within the Doha Round negotiation framework prevented this course of action. Instead, states have turned to preferential trade agreements to liberalize non-agricultural sectors on a bilateral or plurilateral basis while the Doha Round, where the difficult issues are inexorably linked to the areas where progress is possible, has languished.

2.3.6 Iran Deal Negotiation and Leverage Limited Strategies

The US domestic politics of the Iran Deal negotiation illustrates how the trilemma affects the incentives of interest groups. The US participated in a multilateral effort to use sanctions to pressure Iran to end its nuclear program.²² But the US had preexisting sanctions against Iran that were nominally intended to improve human rights. Once Iran's nuclear program was revealed it was necessary to make a decision. The US could choose an enforcement limited strategy by requiring both human rights protections and

²¹For a thorough analysis of the challenges facing the Doha Round see Baldwin (2016). Baldwin develops the idea, among other arguments, that developing states had insufficiently large markets to incentivize further liberalization from the developed states.

²²For detailed information about the negotiations, see Alcaro (2014), Davenport (2015), Rogin (2015), US Department of Treasury and US Department of State (2016), Schumer (2015), McCain and Graham (2015), Fabius (2016), Alcaro (2018), and Davenport (2018).

the end of the nuclear program before sanctions would be terminated. The alternative would be to pursue a leverage limited strategy by dividing the sanctions between the issues.

Hawks in the United States understood that ending the sanctions as a way to reward Iran for the nuclear deal would undermine influence on the human rights issues. Therefore, they had no appetite for enforcement limited strategies. Ultimately, US sanctions were divided. The existing sanctions regime targeting human rights was largely untouched during the negotiations. Instead of opening its markets directly, the US offered to waive its secondary sanctions if Iran terminated its nuclear program. The secondary sanctions were sanctions on firms outside the US that continued to do business in Iran. This leverage limited strategy could be credibly offered by the US because it did not threaten to undermine the US's interests in promoting human rights.

2.4 Conclusion

Although the use of economic coercion is commonplace, states have chosen to implement conditionality using a wide variety of program designs. Some programs, such as the US GSP, condition market access on simultaneous compliance with conditionality in multiple policy areas. Others, including most trade negotiations, attach only a fraction of the market value to each issue area subject to conditionality. This paper explains the diversity of program designs as a consequence of how different sender states choose to navigate an underlying economic coercion trilemma. No program of economic coercion can simultaneously 1) secure a broad coalition of support for conditionality from multiple interest groups whose issues are linked to trade, 2) tie the maximum trade value possible to each issue, and 3) guarantee the program's consistent enforcement across issues. States with different institutions, preferences, and political environments will make the tradeoff differently, leading to the wide variety of program designs. The "budget constraint" that generates the trilemma is the fixed economic value available as a bargaining chip to the sender state.

What factors determine how sender states navigate the trilemma? I find that states which are willing to accept less compliance from the target in return for less fragile influence are more likely to

prioritize consistent enforcement. I also find that consistent enforcement is relatively less important for states whose targets are highly dependent on trade. Finally, I find that compatible issues, or issues chosen so that the target is unlikely to simultaneously violate conditionality in multiple areas, can be bundled more effectively. Applying the economic coercion trilemma to real applications enables a deeper analysis of the strategic situation of sender states. Taken as a whole, these results illustrate why some states can induce more compliance for every dollar of commerce tied to a political issue.

The economic coercion trilemma illuminates a new dimension of power in international politics. In general, states cannot tie the same dollar of commerce to multiple political issues without raising the possibility of inconsistent enforcement. However, in specific circumstances some sender states do not need to be concerned about the consequences of inconsistent enforcement. States that are risk-tolerant, that wish to bundle compatible issues, or whose targets are more dependent on international commerce are able to “double dip” by conditioning the same commercial volume on compliance in multiple issue areas.

Chapter 3

The Limits of Resolve in International Politics: Evidence from the Iran Deal Negotiation

3.1 Introduction

On July 14, 2015 negotiators representing the five permanent members of the UN Security Council (UNSC), Germany, and Iran announced that they had reached agreement on the Joint Comprehensive Plan of Action (JCPOA). The Iran Deal, as the agreement is commonly known, was the culmination of over 9 years of negotiations on the issue of Iran's nuclear program. The terms of the agreement are complicated but the central premise is simple: Iran agreed to halt its nuclear program and open the country to inspections from the independent International Atomic Energy Agency (IAEA) while the P5+1 (the five permanent UNSC members plus Germany) agreed to lift sanctions on Iran. Exchanges such as this create incentives to defect from the agreement for both sides. From the perspective of the sanctioning coalition, these incentives come in two varieties: 1) a temptation to continue trading if the target is intransigent and 2) a temptation to continue sanctions if the target is compliant. In the case of the

Iran deal, the P5+1 needed to convince Iran that ending their nuclear program would be rewarded with sanctions relief while also credibly threatening continued sanctions if the program continued. What instruments can states deploy to make credible promises without undermining the credibility of their threats?

In this paper I propose a theory describing how the credibility of threats and assurances interact. The theory makes two main contributions to the literature. First, the theory explains the role of coercive assurances in diplomacy, focusing especially on economic sanctions, and why some states have difficulty making them credibly. Although the literature has emphasized the importance of resolve to bear costs during crisis bargaining, the theory of coercive assurances demonstrates that resolve can sometimes be counterproductive. In particular, some actions intended to signal the credibility of coercive threats can undermine the credibility of coercive assurances and therefore reduce bargaining leverage. Second, the theory explains how states can bolster the credibility of coercive assurances by issuing them in cooperation with other carefully chosen states as part of a coalition. This section contributes to the literature by explaining how coalitions can sometimes exert more than the sum of their bargaining power. By holding each other accountable to their threats and assurances, coalitions composed of partners with different interests can collectively make credible commitments that individual members could not.

A careful study of the Iran Deal negotiation reveals that the US could only credibly commit to reducing sanctions on Iran as part of a coalition with the EU. Although the literature emphasizes insufficient resolve to bear the costs of sanctions as the chief obstacle to successful bargaining, there is ample evidence that the US had no difficulty demonstrating the seriousness of its threats. In fact, the United States was constrained to apply an aggressive sanctions program whether or not Iran pursued a nuclear program due to its strategic interests in the Middle East and its history with Iran. The problem was that the US was so resolved to endure the costs of sanctions that it could not credibly commit to lifting sanctions if Iran really did terminate its nuclear program. In stark contrast to the US, the EU was only able to begin serious sanctions on Iran after overcoming objections from businesses that had meaningful commercial interests in the Islamic Republic. It was possible for the EU to guarantee its sanctions would

be removed if Iran ended its nuclear program because its own firms would demand their termination. Although the EU's economic ties to Iran made sanctions more costly, it was precisely these costs which enabled it to credibly commit to removing sanctions when necessary to make the deal.

Why might a sanctioning state persist at applying costly sanctions any longer than necessary? The US would surely gain economically from reducing its sanctions if Iran ended its nuclear program. In general, there is always an economic incentive to terminate costly sanctions as soon as possible. Yet there are at least three potential challenges to the credibility of promises of sanctions relief. First, some punishments that have clear economic costs also have political benefits. Sanctions can have political inertia if domestic firms threatened by import competition choose to resist the end of sanctions even if the target complies. Second, actions taken by the sender to signal their resolve to impose sanctions can create obstacles to their future removal. For example, codifying the sanctions in law could increase the certainty of their enforcement by insulating them from transient political whims, but this also means the sanctions cannot be removed without a legislative majority. Finally, the target may be unsure if the sender is sanctioning in good faith. For example, some sender states could be using sanctions as a pretense to raise protective tariffs, in which case the sender would most likely respond to increased compliance with ever more onerous demands. These obstacles played a role in the course of the negotiation.

The Iran Deal negotiation demonstrates how coalitions can sometimes make credible commitments which could not have been made by the partners individually. There are at least two mechanisms at work. If a coalition partner fails to remove sanctions when the target becomes compliant, but the rest of the coalition follows through on the commitment, the target still benefits. The target's reward for compliance is amplified because sanctions are more effective when implemented by a coalition. Second, the target can infer the sincerity of a particular sender state from other sender states' willingness to join it in coalition. In the Iran Deal negotiation, the EU provided a guarantee that Iran could benefit economically from ending its nuclear program, and the US was able to promise not to interfere with EU business in Iran using secondary sanctions.

Ultimately, an analysis of the Iran Deal negotiation reveals that stronger resolve to sustain the costs of sanctions does not always translate directly into superior outcomes. In fact, excessive demonstrations of resolve can hinder the negotiation process if they lead the target to believe that the sanctions can never be removed. Successful coercive diplomacy requires the sender to be capable of changing policy in response to the target's behavior even if it means upsetting an existing political equilibrium. Not all states can achieve this balance effectively in all circumstances. Over a period of decades the US interest groups that opposed Iran had successfully codified the sanctions in laws that could not be changed without Congressional action, making it very difficult for the US to remove sanctions under any circumstances. The EU's institutions gave it the legislative authority to change sanctions policy more freely, making it more effective during the negotiation.

3.2 Theory: The Two Faces of Resolve

3.2.1 The Concept of Coercive Assurance

Successful economic coercion requires a sender state to make a double credible commitment. First, the sender state must credibly commit to punishment if the target's behavior is not favorable. Second, but no less importantly, the sender state must credibly commit to refraining from punishment if the target's behavior is acceptable. Both commitments are necessary to influence the target's behavior. The essential importance of the two commitment problems to coercive diplomacy has been noted before. The earliest discussion of the double commitment problem known to this author appears in Schelling (1966) during a discussion of deterrent and compellent threats:

The need for assurances – not just verbal but fully credible – emerges clearly as part of "deterrence" in discussions of surprise attack and "preemptive war." An enemy belief that we are about to attack anyway, not after he does but possibly before, merely raises his incentive to do what we wanted to deter and to do it even more quickly. [Schelling 2008 arms, 75]

Although he uses different language because he is discussing violence instead of economic conflict,

Schelling clearly articulates the two commitment problems.¹ Furthermore, Schelling also acknowledges that establishing credibility of one commitment does not automatically confer credibility to the other. Although Schelling's passage anticipates the problem studied in this article, the literature has focused on a different meaning of the threat/assurance nexus: the attempt to persuade another state of its benign intentions (Hoffman 2002; Keohane 2003; Rathbun 2009; Kydd 2018).²

The vast majority of the literature on conflict and crisis bargaining has focused on how states establish the credibility of coercive threats. The typical argument is that resolve enhances bargaining power because states can credibly threaten to spurn an agreement only if they are relatively better able to bear the costs of a failed agreement.³ Thus, the literature has focused on how states can communicate their resolve to endure the costs of delay (Powell 1987; Morrow 1989, 1992; Morgan 1990; Banks 1990; Eaton and Engers 1992, 1999; Drezner 2003; Weeks 2008; Tarar and Leventoglu 2009; Wolford 2014; Debs and Weiss 2016; Dafoe, Zwetsloot, and Cebul 2021). The upshot of this literature is that states succeed at economic coercion when they can demonstrate they are relatively less dependent on the economic relationship being used as leverage. The argument in this paper highlights an important limitation of the standard logic: some attempts to signal resolve to bear the costs of sanctions operate by raising the costs of removing sanctions. After all, only a state that would not suffer from sanctions would voluntar-

¹Deterrent and compellent threats are differentiated in this passage because Schelling argues that assurances are easier to make credible in the case of deterrence. In the context of deterrence, where the sender threatens punishment if the target takes an action, the sender need only maintain the status quo if the target backs down. However, in the case of compellence, where the sender threatens punishment unless the target takes an action, the sender usually must credibly commit to withdrawing the punishment if the target does indeed comply. This is one of several reasons that Schelling gives when concluding that compellence is more difficult than deterrence. Others, including Jervis (1979), are skeptical of the finding.

²The second usage appears to originate with Jervis (1978) in a discussion of how states can maximize the chances of cooperation under the security dilemma (page 180). For Jervis, assurance is the attempt of a cooperative state to persuade a foreign state of its benign intentions. By contrast, Schelling's concept of assurance is the guarantee of a coercive state that a foreign state will not be harmed as long as its behavior is deemed acceptable. While Jervis's concept is meaningful – as he discusses, a state making large military investments must assure others of their defensive purpose to avoid a conflict – this article studies the Schelling concept of assurance.

³The logic has been described using a game theoretical model of conflict known as a war of attrition. The idea was originally developed by Smith (1974) to study conflict among non-human animals but has since proven useful as a model of bargaining. Examples of its application to political economy include Alesina and Drazen (1991), Fearon (1994), Smith (1996), and Dorussen and Mo (2001) among others.

ily make them harder to remove. But raising the costs of removing sanctions can also make it harder to remove sanctions if the target chooses compliance, thus undermining the target's incentives to comply. States can bolster the credibility of both commitments by choosing coalition partners carefully.

Another literature has focused on studying assurances made in cooperative contexts (Stein 1990; Keohane 2003; Raustiala and Slaughter 2002; Knopf 2012). This literature has focused on issues of trust, reputation, and perceived credibility. In large part it finds that states can Although the literature on economic coercion has articulated a clear theory of credible coercive threats (Morrow 1989; Morgan 1990; Powell 2002; Leventoğlu and Tarar 2008; Chapman and Wolford 2010; Fey and Ramsay 2011), the issue of credible coercive assurances has been addressed only indirectly.

There are a few papers that discuss assurances in coercive contexts. Christensen (1992) considers whether coalition forces could have convinced Mao Zedong to refrain from entering the Korean War by either 1) offering assurances that the United States had no intentions of invading China or 2) by directly threatening China if they launched a counteroffensive on the Korean Peninsula. Davis (2000) proposes that states might choose to emphasize the coercive threat instead of the coercive assurance when the target exhibits loss aversion and Kydd and McManus (2017) explains when states would issue explicit assurances and threats during crisis bargaining. These three articles conceptualize assurance and coercion as separate instruments rather than as a double commitment problem intrinsic to economic coercion. In recent work, and most closely related to the present article, Cebul, Dafoe, and Monteiro (2021) study both credible threats and assurances in a survey experiment focusing on perceptions of credibility. The argument presented here differs by 1) studying how the credibility of one commitment impacts the other 2) by giving attention to the role of coalitions in making both commitments credible, and 3) studying institutional and other structural factors that can threaten or bolster credibility.

3.2.2 Credibility of Coercive Assurances

Before discussing the role of coalitions in establishing credible coercive assurances it is necessary to consider why assurances might not be credible in the first place. Some scholars and policymakers

believe that the credibility of coercive assurances is automatic due to two misconceptions. First, some scholars may assume that coercive assurance is unimportant before a punishment is actually applied. Second, many scholars assume that the punishment is costly to the sender and therefore can be easily reversed if the target complies.

First, the credibility of coercive assurances must be established before punishment because the risk of punishment is what determines the target's incentives. If perfectly acceptable behavior cannot guarantee the target will escape punishment then unacceptable behavior becomes more tempting. For example, the United States has threatened many states with sanctions if they do not protect human rights. Why would the target continue to protect human rights if sanctions were likely to be applied anyway for other reasons? Thus, it matters little whether the target state is currently subject to some punishment – what matters is the risk of being punished even when behaving acceptably.

Second, scholars who assume that punishments are costly might naturally also assume that the sender would always prefer to punish the target as little as possible, and therefore would have no difficulty refraining from punishing compliant targets. Many possible punishments, including economic sanctions, war, and simply drawing out diplomatic negotiations, are indeed costly to the sender (Fearon 1995; Farmer 2000; Dorussen and Mo 2001; McGillivray and Stam 2004; Allen 2008; Early 2015). All else equal, in each case the sender would prefer to minimize costs even if the target's costs were higher.

Despite these common assumptions, sender states regularly find the termination process to be a struggle. There are several possible reasons for difficulties. First, punishments that create economic costs might also create political benefits. Second, there is a possibility that the sender is insincere about the stated conditionality and intends to demand increasingly onerous compliance rather than remove the punishment. Third, attempts to increase the credibility of a coercive threat by signaling resolve to bear the costs of punishment could undermine the credibility of coercive assurances.

First, punishments that incur clear economic costs do not always incur clear political costs and may in fact actually create benefits. Economic sanctions are a good example. While sanctions do erode the gains from trade, the interruption of trade also has distributional consequences that could benefit certain

groups (Stolper and Samuelson 1941; Rogowski 1987). Protectionists who profited from the restriction of trade may lobby the government for its continuation. Even war might have political advantages for leaders who benefit from the rally 'round the flag effect (Baker and O'Neal 2001; Baum 2002).⁴ There may be circumstances where the policy cannot be changed simply because a foreign entity became compliant – unless the political balance between competing interest groups also changes to support the new selection.

Second, the target state may suspect that the sender is insincere. Sender states that are not negotiating in good faith could be trying to use international politics as an excuse to rationalize a change in policy. If a government, needing to boost its support, decides it must raise tariffs to protect a particular domestic industry then it may wish to hide its true motivations from other constituents who will pay higher prices. One way of achieving that goal is to claim that the new tariffs are actually “sanctions” put in place to “apply pressure” to some foreign actor. States commonly attempt to manipulate domestic politics through their international relations. For example, Vreeland (1999) argues that states seek funding from the International Monetary Fund (IMF) even when the funding is unnecessary because the conditionality gives reformers bargaining leverage against conservative interests.⁵ Target states should not attempt to meet any demands from an insincere sender state. Even if the target successfully met the conditions they may find that the sender simply demands yet more concessions. A sender state which is not negotiating in good faith may continue adding to the demands until they can justify “punishing” the target because the “punishment” is actually politically desirable for the sender. Ambiguity about the sender state’s type – whether the sender state politicians would benefit politically from the threatened punishment or not – could undermine the target state’s motivation to comply.

Third, attempts to signal resolve to punish noncompliant targets can undermine the credibility of coercive assurance. To establish the credibility of a coercive threat, sender states must communi-

⁴For a concrete example, Fearon (1995) explains that the leaders who choose to go to war might not pay the costs of war in a brief section discussing non-unitary actor explanations.

⁵For other examples see Gourevitch (1978); and Putnam (1988)

cate their willingness to endure the costs of punishment as long as the target remains noncompliant. A sender who bluffs by making threats which it is not prepared to carry out would either decline to punish a noncompliant target or end the punishment after a very short period. States can employ costly signaling to demonstrate their resolve to sustain these costs. States have demonstrated this resolve by removing their ability to reverse sanctions, building a reputation of being quick to issue sanctions, and then building a reputation for rarely backing down once the sanctions are in place.

One way that sender states can communicate their willingness to impose punishments like sanctions is by removing their ability to reverse them. Hand-tying, or the act of voluntarily removing policy options for the purpose of credibly committing to certain actions, is a common theme in international bargaining (Schelling 1980; Putnam 1988; Fearon 1994; Fuhrmann and Sechser 2014). In this context, sender states might demonstrate their resolve by removing their ability to quickly withdraw sanctions once they are imposed.⁶ For example, the United States has several laws which stipulate how various transgressions must be punished with sanctions⁷. This is a credible signal of the sender's intentions: if the sender were bluffing it would be very costly to threaten sanctions without the ability to quickly withdraw them when necessary. However, this same act also reduces the state's ability to guarantee that a compliant target will not be punished. If the target increases its compliance, but in such a way that meets the spirit but not the letter of the laws that define compliance, then there is no room for discretion to remove the sanctions.

Targets can draw inferences about the seriousness of a sender's threats by referring to the sender's reputation. Some states might attempt to signal their resolve to sustain costs by issuing sanctions for even minor violations of the conditionality. This policy does credibly signal a willingness to sanction

⁶Kertzer (2016) considers whether the concept of resolve is adequately captured by a state's tolerance for costs. He divides the literature's conception of resolve into two paradigms. The behavioral paradigm understands resolve as a quality or trait of a state's leaders and citizens, while the situational paradigm focuses on resolve as a function of the magnitude of the costs facing the state. Kertzer proposes an "interactionist" paradigm as a synthesis of the two approaches. The concept of resolve employed in this article falls into the situationalist category to better reflect the institutional and strategic elements of the theory.

⁷See, for example, the Omnibus Foreign Trade and Investment Act of 1988, which stipulates that the US Trade Representative withdraw from trade agreements if actions by another state impinge US market access (19 USC §2411).

because a bluffing sender would hesitate before punishing. However, having a hair-trigger punishment strategy might mean punishing mildly noncompliant target states. If states believe there is a risk they could be punished even if they achieve a high level of compliance with conditionality then they have little reason to maintain it. Some policymakers and scholars have argued that if the United States were to end sanctions on a particular target it would harm the US reputation for resolve to continue sanctioning other states (Peterson 2014). But what about the US reputation for not punishing states that behave well? If the US never removes sanctions from states that become compliant over time then a target state might fear that the US cannot restrain itself from punishing compliant targets.

3.2.3 Coalition Composition and the Double Commitment

What options are available to states that struggle to credibly commit to either a coercive threat or a coercive assurance? Certainly, the particular tools available will depend on the strategic context. Some states could find themselves without any options and therefore choose to forego using economic coercion entirely. But it is also possible that sender states might be able to bolster their credibility by working with carefully selected coalition partners. A sender state can signal its own credibility by using the coalition as a commitment device – if the sender state fails to follow through on its commitments then the other coalition partners could be unwilling to continue the cooperation.

Additional coalition members can confer or undermine credibility depending on their composition. Sanctions are commonly implemented by coalitions for a simple reason: an individual state's economic sanctions are more meaningful if the target cannot simply increase exports to alternative markets (Martin 1993; Drezner 1999). Thus, states often cooperate to sanction a particular target simultaneously.⁸ Certainly, there are obstacles to sanctions cooperation. The chief problem is that coalition members might be interested in taking advantage of an opportunity to get better prices on products that are sanctioned by the rest of the coalition.⁹ States may hesitate to expand a sanctioning coalition

⁸In practice, sanctions are frequently organized through the United Nations Security Council.

⁹Martin (1993) studies how states are able to cooperate when applying sanctions to a common target.

because the addition of insufficiently committed coalition partners could undermine the credibility of the entire group. The relevance of this concern depends on the coalition's composition and the ability of its members to make the necessary double commitment. If all the members are tempted to "defect" from sanctions to gain better prices then additional partners will likely undercut compliance. In this scenario, all the coalition is unable to commit to punishing a noncompliant target.¹⁰ However, if all the coalition members are unable to commit to removing the sanctions on a compliant target then the sanctions will also be ineffective. The coalition must be carefully chosen so that its assurances and threats as a whole can be perceived as credible. Either 1) most of the members can successfully make the necessary double commitment or 2) states that can make one commitment but not the other can pressure other coalition partners to cooperate.

Coalitions can serve as a commitment device for states that need to bolster the credibility of their coercive threats and assurances. Indeed, the coalition as a whole might be able to make commitments that no individual sender state would be able to make credibly. For example, consider a sender state that has steep domestic political costs to ceasing punishment, even when the target is compliant. Such a state may be able to commit to a coercive threat but could struggle to commit to a coercive assurance. Consider what happens if that state enters a coalition with other states that can credibly commit to a coercive assurance. When the target is noncompliant the coalition is able to exert greater economic pressure than any individual state would have managed on its own. There are two possibilities when this coalition confronts a compliant target. First, if the state fails to follow through on the coercive assurance then it has also failed in its obligations to its coalition partners. This failure triggers multiple types of audience costs for the sender state – it damages both domestic and international support. The coalition could dissolve and the target would no longer be subject to punishment from the coalition as a whole. Because coordinated punishments from a coalition are more potent than punishments from a single state, then the dissolution of the coalition represents a major reduction in pressure on the target, even if the errant sender state continues its sanctions. Second, if the state does follow through on the

¹⁰For more on collective action problems in international politics see Olson and Zeckhauser (1966) and Olson (1989).

coercive assurance then a compliant target would also escape punishment. Either way, the target is assured that it will face a much lower punishment when it can achieve compliance.

It is also possible that states can signal their commitment to a coercive assurance through their choice of coalition partners. One reason that a target state may doubt the assurances issued by a sender is asymmetric information about the sender's domestic political situation. For example, the target may doubt that the sender is issuing the conditionality in good faith. But the sender's coalition partners, being on friendlier terms with the sender state, might have more information about the sender's sincerity. If they are choosing to cooperate with the sender state then it is likely the sender really is sincere about enforcing the stated conditionality. Why would the coalition partners voluntarily suffer the costs of sanctions along with a sender that has no intention of ever ending them? Thus, the partnership itself might create a credible signal.

International institutions can also create legal mechanisms that administer sanctions in ways that are more compatible with credible coercive assurances. Most states automatically incorporate sanctions that are passed by the UN Security Council into domestic law. They also automatically remove UNSC sanctions when they are ended by the Security Council. Thus, the target can have confidence that UNSC sanctions will be removed if the UNSC decides to remove them. There is a measure of transparency in this process for the target: as long as the target can meet a compliance threshold that satisfies the Security Council the sanctions will be removed. There is no requirement that any state needs to change its laws before sanctions can be removed.

3.3 Research Design and Case Background

The empirical section of this paper will apply the theory to the Iran Deal negotiation. This negotiation enables a comparative analysis of US and EU contributions to the eventual deal, as well as an analysis of the US and EU as partners in a coalition. The analysis will correlate the possibility of making a credible double commitment in each sender state with the progress of the negotiations and the character of the eventual deal. It will also explore how cooperation between the US and the EU changed the

strategic environment to facilitate the agreement. Three hypotheses can be tested from the theory: * **H1:** The deal can only be finalized once the double commitment can be credibly made by the sender coalition. * **H2:** The Iranians would perceive European promises to remove sanctions as more credible than American promises. * **H3:** The final text will more closely represent the interests of parties that can make effective double commitments.

There are a number of advantages to studying this particular negotiation. First, the long duration of the negotiations means that the evolving relationship between the three major actors can be studied in detail. For a significant amount of time, the United States simply refused to directly negotiate with Iran and the EU was unwilling to implement strict sanctions. Later in the negotiation, the EU strengthened its sanctions regime and began cooperating with the US to design a solution. Second, a research design comparing the experiences of two senders within a single negotiation with a single target makes it possible to rule out some alternative explanations for the outcome variables. In general, it is difficult to determine whether a concession in an international agreement is made because of the sender's strengths or because of the target's weaknesses.¹¹

Because the theory and research design are oriented towards the strategies of sender states the bulk of the analysis will emphasize politics in the US and the EU. However, a brief discussion of the Iranian interests is necessary to properly define the strategic environment. Iran's nuclear program was revealed to the world in August 2002 when a separatist group unveiled the existence of two previously undisclosed nuclear facilities at Natanz and Arak. In December the United States declared that Iran was pursuing a nuclear weapon. On September 12, 2003 the IAEA adopted a resolution calling for Iran to suspend its attempts at enriching uranium and to cooperate with IAEA inspectors (IAEA 2003).¹² It is not known when Iran's nuclear program began, but it is known that Iran had contact with the A. Q. Khan proliferation network in the 1980s (Chubin 2010, 7). The resources invested in the program and

¹¹In this case the US and the EU are negotiating with Iran simultaneously, which means that they both face the same Iranian political climate. Although this comparison does not completely solve the inferential problem it may help.

¹²For an extremely detailed and useful timeline of the negotiations see Davenport (2018). For resources on specific proposals during the negotiations see Davenport (2015).

its progress towards a weapon have developed in fits and starts, with the most intense activity occurring in the late 1990s and early 2000s.

Why might Iran seek a nuclear weapon? There is no consensus on Iran's precise objectives and they have undoubtedly evolved over time. Iran's official justification for their investments in nuclear technology is to develop nuclear power to diversify their energy sources. Many Western analysts point to Iran's security concerns in an unstable political region.¹³ But there is some consensus that domestic political factors have played an important role. Iranian officials have frequently referenced the nuclear program in domestic political campaigns as an indication that Iran was modernizing under their regime. In fact, Chubin (2010) argues that Iran's nuclear program can be at least partly understood as an attempt by the regime to foment nationalism and bolster its legitimacy. Public sentiment has reliably supported the nuclear program, a potential indication that the public desires for Iran to become a global leader in technology (Chubin and Litwak 2003; Bahgat 2006; Dehghani et al. 2009; Chubin 2010). Security considerations likely played an important role in Iran's initial decision to pursue a weapon, but over time the issue also became a political instrument for Iranian politicians.

3.4 Independent Variable: Credible Commitment to Coercive Assurances and Coercive Threats

3.4.1 United States

The United States had no difficulty demonstrating its willingness to impose sanctions on Iran. However, the US had great difficulty credibly committing to a coercive assurance. There are many reasons, but perhaps chief among them is the history of acrimonious interactions between the states. US-Iran relations have been characterized by a deep mutual antipathy since the Iranian Revolution of 1979. In

¹³In particular, Israeli politicians have expressed concerns that an Iranian nuclear weapon could imperil their state and destabilize the region.

addition, the US strategic position in the Middle East encouraged hostility towards Iran. Finally, the US institutions responsible for administering sanctions contain many veto points which make it difficult to roll them back (Tsebelis 2002).

3.4.1.1 US Sanctions were Politically Advantageous

American policymakers have historically faced public pressure to be tough on Iran which undercuts their ability to terminate Iranian sanctions. The sources of that hostility are no secret. In 1953 the Central Intelligence Agency (CIA) orchestrated a coup against Iranian Prime Minister Mohammad Mossadegh in partnership with the United Kingdom's Secret Intelligence Service.¹⁴ The brazen interference by Western powers culminating in the removal of a democratically elected government became the basis for future Iranian hostility towards the United States. Following the establishment of the Islamic Republic in 1979, its leader Ayatollah Ruhollah Khomeini stoked Iranian nationalism by promulgating a virulent anti-American ideology.¹⁵ The sentiment was brought home to the US public when the US became directly involved in Iranian politics. From November 1979 to January 1981 Iranian students supported by the government held 52 Americans hostage inside the embassy in Tehran. The negative attitudes towards Iran never disappeared and were actually exacerbated as the US grew closer to Israel and Saudi Arabia.¹⁶ Thus, the US public was skeptical about any cooperative interaction with Iran. The public hostility towards Iran increased public support for sanctions, which made it more difficult to remove them even if Iran ended the nuclear program.

There were also strategic incentives for the US to oppose Iran, especially during the George W.

¹⁴For a detailed treatment of the 1953 coup and the 1979 Iranian Revolution see Abrahamian (1982). Historians differ in their analysis of US motivations to conduct the 1953 coup. One tradition, exemplified by Abrahamian (2001), argues that the US was on imperialist quest for control over oil. Another tradition including Gasiorowski (1987) maintains that the Eisenhower administration believed Prime Minister Mossadegh's nationalization of the oil industry was too big a victory for the communist elements of Iran's politics.

¹⁵Canonical histories of the Iranian Revolution include Skocpol (1982), Sick (1985), and Keddie and Richard (2006). See Abrahamian (1993) for a discussion of Khomeinism and in particular Chapter 4 for how anti-Western attitudes were crucial to the movement's ideology.

¹⁶See Zanotti (2016) and Council on Foreign Relations (2018) for historical background on US strategic alliances in the Middle East.

Bush administration, which was inclined to oppose Iran because of the 2003 Iraq War. These strategic incentives further undercut US willingness to ease sanctions on Iran. Bush needed allies in the Middle East during the Iraq and Afghanistan wars and thus turned to Israel and Saudi Arabia, which had both become steadfast allies. While neither country was eager to participate in the Iraq conflict, they were also unwilling to directly criticize American behavior. It was not in Bush's interests to jeopardize the strategic neutrality of either Israel or Saudi Arabia by thawing relations with Iran, particularly as both countries were providing support for the Global War on Terror.¹⁷ Therefore, it should not be surprising that Bush included Iran as one third of the infamous "Axis of Evil" alongside Iraq and North Korea (Bush 2002).

However, by the time Barack Obama was inaugurated as President the strategic environment had shifted. President Obama pursued a different strategy on the Iran nuclear issue because his administration had new foreign policy goals in a world after the Iraq War. Among the Obama administration's first priorities in office was to reduce US commitments in Iraq and Afghanistan. One consequence of reduced engagement in the Middle East was less dependence on Israeli and Saudi Arabian support. With the war winding down and US foreign policy goals shifting elsewhere the existing alliances in the Middle East became less essential. In addition, the Obama administration intentionally increased its emphasis on foreign policy in Asia. While not officially formulated until 2011, the "Pivot to Asia" policy could also be dated to the establishment of the US-China Strategic and Economic Dialogue in 2009 (Clinton 2011). The administration emphasized that the new policy should not reduce resources in the Middle East, but clearly the emphasis of America's foreign policy had departed.¹⁸ Thus, Obama's desire to move resources into Asia would be more easily attained if existing crises in the Middle East, such as Iran's nuclear weapons program, could be managed.

¹⁷Saudi cooperation in the War on Terror was both crucial and fragile, which might have additionally disincentivized any rapprochement with Iran. See Byman (2016) for details.

¹⁸For a contemporary account, see Cohen and Ward (2013).

3.4.1.2 Evidence of US Commitment to Sanctions

The rising anti-Iranian feeling in the US eventually manifested in the presence of Iran hawks in government, particularly in Congress, who worked to formally codify their hostility in policy and legislation. The first sanctions had been imposed during the hostage crisis and were quickly ended soon after the hostages were released. Iran was added to the State Department's list of state sponsors of terrorism in 1984 which automatically imposed sanctions on Iran. Subsequent sanctions were imposed under the 1992 Iran-Iraq Arms Nonproliferation Act and the 1996 Libya-Iran Sanctions Act. These bills all substantially restrict trade with Iran in certain products, particularly weapons.¹⁹ Since the 1979 revolution a number of executive orders have also been issued, most of which remain in effect, further restricting trade with Iran.

Politicians in the United States capitalized on this undercurrent of anti-Iranian sentiment for political purposes. Indeed, congressional representatives were eager to vote for more sanctions on Iran at each and every opportunity. Table 3.1 shows the results of every vote on bills introducing Iranian sanctions. In every case, the vote was overwhelmingly in favor of increasing pressure on Iran. The bipartisan consensus is especially notable in the context of Congressional polarization. The political rewards that were evidently available to politicians for opposing Iran indicates that the sanctions did more than generate economic costs. The US would have a difficult time promising that sanctions would be removed when opposition to Iran was so popular with voters. The universal support for sanctions and the steady drumbeat of new sanctions laws could have made Iran suspicious that the sanctions were merely a way for Congress to build electoral support and not actually an attempt to persuade Iran to behave differently.

¹⁹For a full list of US sanctions related to Iran, including the executive orders, see <https://home.treasury.gov/policy-issues/financial-sanctions/sanctions-programs-and-country-information/iran-sanctions>. The Office of Foreign Assets Control (OFAC) also provides guidance to businesses describing what the sanctions cover on this page.

Year	Title	House	Senate
1996	Iran and Libya Sanctions Act	416-0	unanimous
2000	Iran Nonproliferation Act	420-0	98-0
2001	ILSA Extension	409-6	unanimous
2005	Iran Nonproliferation Amendments Act	voice vote	voice vote
2006	Iran Freedom Support Act	voice vote	unanimous
2010	Comprehensive Iran Sanctions, Accountability, and Divestment Act	408-8	99-0
2012	Iran Threat Reduction and Syria Human Rights Act	410-11	voice vote
2012	Countering Iran in the Western Hemisphere Act	386-6	voice vote

Table 3.1: Congressional Votes on Iranian Sanctions

3.4.1.3 US Signals of Resolve Undermined Credibility of Assurances

The US Constitution delegates the authority to negotiate treaties to the President but delegates the authority to regulate commerce to Congress. Obama, a president unusually open to engagement with Iran, did not have the authority to invalidate the sanctions which had previously been implemented by Congress. He did have the authority under that legislation to waive secondary sanctions – in essence he had the authority to promise not to interfere with European commerce in Iran. His negotiators could not have credibly committed to removing sanctions in exchange for Iran’s cessation of its nuclear program because they never had that authority.

The US institutions drew primarily on Congressional authority to implement the sanctions. There are many veto players who can stop a bill from becoming a law in the United States. To be sure, this is part of the explanation for why Congress decided to legislate the Iran sanctions – to ensure that the US commitment to the sanctions was perceived as credible. However, this also meant that the sanctions could not be removed without additional legislation, which undermined the credibility of any coercive assurance.

3.4.2 European Union

The EU's strategic position created fewer obstacles to making credible coercive assurances. In Europe the pro-sanctions block was primarily composed of the UK, Germany, and France. These countries had relatively few economic interests in Iran yet also had interests in the stability of the Middle East. They were also among the most likely European states to bear the brunt of a refugee influx caused by conflict in the region. The pro-trade group within the EU was primarily made up of Greece, Spain, and especially Italy. These countries were relatively more reliant on Iranian oil. Their dependence on Iranian oil imports was exacerbated by the fragility of their economies during the Euro Crisis. The competing European interests ensured that there was always a bloc that would benefit from ending sanctions.

3.4.2.1 Sanctions Were Costly to Europe

Certain EU countries had significant economic interests in Iran (especially oil imports) which affected their positions on sanctions. EU countries collectively accounted for 20% of Iran's oil exports before sanctions (Fassihi and Biers 2012). In 2011 (immediately before the oil embargo) Iran was Spain's fourth largest supplier of crude oil, Italy's third largest supplier, and Greece's top supplier.²⁰ Moreover, Greece was permitted to purchase Iranian oil using unusually generous credit lines (Payne and Farge 2012). These three countries had a substantial stake in the economic relationship with Iran. This link was made more salient because all three countries experienced economic downturns during the Euro Crisis. Moreover, Iran was also an important export market for several European countries. The EU collectively was Iran's primary trading partner before the sanctions. To some extent France and Germany also had export interests in Iran. It is probably true that Iran was asymmetrically dependent on European trade. However, interruptions in that trade were not at all painless for the Europeans.

Among the EU countries Italy had perhaps the most extensive economic interests in Iran. ENI,

²⁰Author's calculations from COMTRADE data. Crude oil imports are measured as product HS2709 which is Oils; petroleum oils and oils obtained from bituminous minerals, crude.

Italy's largest energy company, had been involved in Iranian oil markets since the 1950s and continued to pursue ventures there throughout the 2000s. Italian trade with Iran exceeded Germany's in 2003 (Alcaro 2018, 108–9). The two countries also share a somewhat unique diplomatic relationship (Alcaro 2014). Italy became the first Western country to receive an Iranian leader since the 1979 Revolution when President Mohammad Khatami visited in 1999 (Gerenmayah 2015). Given its relatively strong economic ties Italy was consistently opposed to sanctions on Iran and advocated that the EU pursue a purely diplomatic approach. Alcaro documents multiple attempts by Italian diplomats to become directly involved in the EU negotiations with Iran (Alcaro 2018, 109). The UK, France, and Germany consistently excluded Italy from directly participating in the negotiations because they each preferred the EU to take a harder line against Iran. However, Italy's approval was necessary for the EU to impose sanctions because the EU's institutions require unanimous consent before issuing EU Council Decisions.

The significant costs of Iranian sanctions for Italy, Greece, and Spain meant that there were substantial benefits to removing the sanctions. These costs have the effect of weakening the EU resolve to impose sanctions on Iran. Indeed, the most significant EU sanctions were not issued until 2012. However, these costs also made it easier for the EU to credibly promise sanctions would be removed once Iran really did end the nuclear program.

3.4.2.2 The Role of European Security Concerns

While the US and EU were both concerned about the threat of an Iranian nuclear weapon to security in the Middle East, the EU policies were especially sensitive to this concern. Unlike the US, which had few business prospects in Iran, the EU balanced both security and economic interests when setting policy on Iran. The security concerns were generally not direct threats – there is little evidence that European states were concerned about military conflict between Europe and Iran (Alcaro 2018, 100). Most EU members had important indirect security concerns. Chief among them was the possibility of a war between Israel and Iran. Israel clearly indicated that it would use military means to prevent Iran from acquiring a nuclear weapon if necessary. Israel was loathe to accept a nuclear Iran because it would mean a dramatic increase in Iranian regional power, which they perceived as a direct threat to

their state.²¹

European politicians were concerned that a nuclear Iran could become more aggressive in its dealings with Israel. It could, for example, increase its support for groups like Hezbollah without fearing Israeli recriminations because it would be better able to defend itself in a confrontation.²² The chief European concern was the possibility that Iran's nuclear weapon could cause an Israeli military strike which might start a war in the Middle East. However, even if the Iranian weapon did not cause a war it would certainly increase Iran's military capabilities, which might enable it to pursue a more bold foreign policy in the region. There was an additional risk that an Iranian nuclear weapon might also incentivize further proliferation throughout the Middle East, especially in Saudi Arabia. Further proliferation might also cause the region to destabilize as regional powers may rush to develop their won nuclear weapons capabilities (Fabius 2016; Alcaro 2018).

European countries were concerned about regional stability in the Middle East because conflict there could have spillovers on European security and political interests. Several European countries (especially the United Kingdom) maintained troops in the Middle East during this period who could have become entangled in a larger conflict (Alcaro 2018, 101). European politicians also could have anticipated that refugees from the Middle East tend to spike during crises. In particular, Italy, Greece, Hungary, and Germany have been shown to be particularly susceptible to refugee influxes from the Syrian Civil War. Presumably, these same countries would be primary destinations for refugees from other Middle Eastern crises. Evidence of the fear of an Israeli preventive strike abounds, especially later in the period. The French Foreign Minister Laurent Fabius who took office in 2012 wrote in his memoir, "the objective refocused to prevent an Israeli strike rather than on solving the basic problem of Iranian nuclear capacity" (Fabius 2016, 9). Alcaro in his book cites an unnamed official from an E3 country who cited regional stability in the Middle East as the primary concern (Alcaro 2018, 100).

²¹See Netanyahu (2012) for the full speech by Israeli Prime Minister Benjamin Netanyahu before the UN General Assembly articulating his concerns about Iran's progress towards a weapon.

²²The combination of a shifting balance of power and difficulties of credible commitment have long been invoked as a cause of conflict. See Fearon (1995), Powell (2006), Allison (2017) for typical applications of the logic in the literature.

Iran had few reasons to doubt that the EU's sanctions were sincere. The EU had clear reasons to implement sanctions – the security concerns of a conflict in the Middle East were significant. Thus, it was relatively unlikely that the EU was simply issuing sanctions to protect domestic industry. The EU's stated objectives were concrete, realistic, and clearly tied to security, lending additional credibility to their sincerity.

3.4.2.3 EU Institutions Enabled Sanctions Reversal

The EU had access to its powerful European Commission Regulation and Decision policy instruments. These tools could set sanctions policy without ratification by constituent member states. EU sanctions were relatively more flexible because a relatively small number of veto players were involved in the decision. Circumventing national legislatures meant that the decision was insulated from domestic interest groups which might have opposed the deal (Tsebelis 2002). As a consequence, the EU negotiators could commit to removing sanctions as long as they had assurances from their respective representatives at the European Council. The institutional flexibility for setting sanctions in the EU increased its ability to commit to removing sanctions if Iran ended its nuclear program.

3.5 Dependent Variable: Analysis of the Deal and its Characteristics

An agreement was eventually made possible because the EU could credibly make the necessary double commitment. The EU could credibly commit to imposing sanctions if Iran continued its nuclear program because the security implications of a nuclear Iran could stimulate a crisis that would directly affect Europe. The EU could also commit to lowering sanctions if Iran ended the program because its firms had significant economic interests in the area. The United States was not able to make a similar commitment because of its entrenched anti-Iranian interests and the hollowing out of any commercial interests in Iran after decades of sanctions.

Although the EU's commitment to the coercive assurance was necessary for the deal's success, the US presence in the coalition was still important. By promising to waive secondary sanctions the US increased the value of European trade with Iran, creating bigger incentives for Iran to end its program. The US and the EU succeeded as a coalition. Iran could expect sanctions on its nuclear program due to US pressure on its EU partners to take a hard line. Iran could also expect sanctions relief after ending the program because of EU pressure the US not to enforce its secondary sanctions and interfere with EU business in Iran.

3.5.1 The Timing of the Deal

A brief chronology of the negotiations highlighting their difficulties is essential to understanding why they finally reached a resolution in 2015. After receiving incomplete cooperation from Iran for three years the IAEA referred the issue to the UN Security Council in 2006. The five permanent members of the Security Council, working with Germany, initiated formal negotiations with Iran for the first time with a proposal of economic incentives in exchange for cooperation from Iran on the nuclear issue on June 6, 2006 (P5+1 2006). Slow progress during Iranian President Mahmoud Ahmadinejad's first term led to a series of multilateral sanctions of increasing intensity.²³ In the pivotal election years of 2008 and 2009, Barack Obama was elected US President and Mahmoud Ahmadinejad won his second term amid reports of election fraud (Addis 2009). The Obama administration quickly pursued a more open approach to Iranian relations while Ahmadinejad faced domestic protests over his election.

Stalled progress at the negotiation table led to UNSC Resolution 1929 in 2010 which significantly extended the previous sanctions regime (UNSC 2010). In addition, it imposed travel restrictions on individuals, froze the assets of some Iranian political organizations, and imposed sanctions on Iran's shipping industry. Resolution 1929, which represents the most significant sanctions imposed by the international community, was a harbinger of even more intense unilateral sanctions. The US Congress

²³The UN sanctions were implemented by Resolutions 1696, 1737, 1747, 1803, and 1835 which were all adopted between 2006 and 2008 (UNSC 2006a, 2006b, 2007, 2008a, 2008b). The multilateral sanctions at this time restricted financial flows and arms transfers, but the US had already restricted trade in most products from before the nuclear crisis.

passed the Comprehensive Iran Sanctions, Accountability, and Divestment Act, which created new sanctions against Iran's energy sector. Up to this point European states were directly involved in the negotiations but had only imposed sanctions on Iran indirectly through the UNSC Resolutions. At this point the EU imposed additional sanctions against Iran in the energy, financial services, and transportation sectors (Council of the European Union 2010). In 2012 the EU also banned all its members from importing Iranian oil (Council of the European Union 2012; Fassihi and Biers 2012).²⁴

Negotiations were conducted in relative secrecy making it difficult to ascertain a historical account of the process at the time of writing. Nonetheless, it is clear that progress was much more rapid after Ahmadinejad left office. His elected successor, Hassan Rouhani, was a former Iranian nuclear negotiator and relative political moderate. The first negotiations held by the new Iranian administration were immediately more productive.²⁵ The pace of the negotiations hastened as multiple rounds occurred in 2013. The IAEA certified Iran's compliance for the first time in early 2014 (IAEA 2014). Productive negotiations consistently occurred during 2014 and finally in 2015 the JCPOA was agreed.

The rising stakes of the negotiation from 2010-2013 clarified the EU's position on sanctions. The EU chose to follow through on its coercive threat and impose its most serious sanctions on Iran. Before that moment, the EU had hesitated to impose any significant unilateral sanctions on Iran because of the risk of damage to EU industries (especially oil). As Iran's nuclear program began to threaten regional stability and Israel's threats to take military action against Iran's nuclear facilities grew increasingly serious the uncertainty about whether EU firms could access those commercial interests increased. If a war broke out then EU firms with interests in Iran would not be able to do business whether or not there were sanctions. Also, the EU states which had been pressing for sanctions to protect national security could make a more persuasive argument as the situation grew more dire. Finally, EU institutions did

²⁴On September 27, 2012 Israeli Prime Minister Binyamin Netanyahu threatened military strikes against Iran if it acquired enough enriched uranium for one nuclear weapon. The timing suggests a connection between the threat of an Israeli-Iranian conflict and European willingness to impose sanctions.

²⁵Encouraged by the progress, Obama and Rouhani spoke on the phone in September 2013, marking the first time an American president spoke with an Iranian president since the Revolution (Roberts and Borger 2013).

not permit firms to directly lobby for policy, which may have isolated them from commercial pressure and enabled policymakers to implement stronger sanctions. However, those commercial interests continued to exist, which gave the EU policymakers a reason to remove sanctions as soon as Iran ceased its program.

Thus, the EU suddenly became capable of making a credible double commitment during this period. The EU was resolved to bear the costs of sanctions if Iran pursued a nuclear weapon because its politicians judged the geopolitical consequences to be serious. Furthermore, the EU could credibly commit to removing sanctions if Iran ended the program because there would be pressure from industry groups to do so. The EU's decision to remove opposition to stringent multilateral sanctions and to impose unilateral sanctions immediately preceded the successful end of negotiations.²⁶

The United States took few actions which could explain the sudden resolution of the dispute in 2014-2015. While the Obama administration was much more open to a deal, this openness alone could not account for the timing of the resolution. In particular, the Obama administration could not credibly promise to remove sanctions on Iran because most of the US sanctions by this time were codified in law and would require Congressional action to reverse. Congress showed no interest in removing sanctions even when negotiations were progressing. On the contrary, Congress actively worked to undermine the fledgling deal and preserve the sanctions regime. On March 9, 2015 Senator Tom Cotton (R-AR) sent an open letter signed by 46 members of Congress to the Iranian Parliament which ominously declared that any deal which is not endorsed by the American legislature could be unwound by a future US President (Rogin 2015). Senator Bob Corker (R-TN) introduced the Iran Nuclear Agreement Review Act of 2015 which required the President to submit the deal for Congressional review before it could be implemented. The Act also prohibited the President from removing sanctions on Iran during the review period. In an indication of the Congressional stance on Iran, Corker's bill passed both chambers with veto proof majorities, in the Senate by a vote of 98 – 1 and in the House by a vote of 400 – 25. The US

²⁶It is not possible to determine the impact of Rouhani's election on the timing of the agreement without better access to the classified documentation of the negotiation. Rouhani's election is an important confounder in the analysis in the sense that the effect of his election on the timing of the deal's finalization cannot be determined at this time.

was evidently resolved to continue bearing the costs of sanctions. But there was no credible promise that sanctions could be removed when the nuclear program was ended.

3.5.2 Iranian Perceptions of US and EU Commitments

The theory expects that credible assurances from the EU were an important factor contributing to the success of the negotiation. Ideally, this hypothesis could be tested by examining the beliefs and expectations of the Iranian negotiators themselves. The historical record of the perceptions of Iranian negotiators is unfortunately quite sparse. However, in August 2021 the former Iranian Foreign Minister Mohammad Javad Zarif and coauthors published a detailed account of the negotiations from their perspective (Zarif et al. 2021). Although the work does not necessarily represent all Iranian perspectives, it does serve as a useful primary source.

The most stark evidence that Iranians did not believe the US could meaningfully remove its own sanctions comes from the book's account of an exchange between Zarif and US Secretary of State John Kerry in Vienna on July 27, 2015. Zarif is recorded as having said (edited for length): ²⁷

It seems that you have no intention of seriously lifting the sanctions. Based on these preliminaries, I would like to make it clear to you that our current problem is not the maneuvering space of the negotiating team of the Islamic Republic of Iran. The problem is obvious and it is nothing but "your intent"... With this approach, can you tell us honestly that you are seeking the lifting of sanctions? pay attention; I do not mean sanctions imposed under false pretenses such as terrorism and human rights. I am well aware that you have created such a spider web of sanctions that even you are trapped in it. My view is entirely on the same nuclear-related sanctions.

Zarif's words indicate that he and his colleagues did not believe the United States was capable of unwinding the "spider web" of sanctions under any circumstances. This speech was given very late in the

²⁷Quoted from "Dark Nature, Stubborn Understanding" Translated from the original:
ین به نظر می آید که شما اصلاً قصدی ندارید به طور جدی تحریم ها را بردارید. براساس همین مقدمات برای شما به دقت روشن می کنم، مشکل کنونی ما فضای مانور هیئت مذاکراتی جمهوری اسلامی ایران نیست. مشکل عیان است و آن چیزی نیست مگر «نیت شما»... با این رویکرد آمده ای که ما بگوییم صادقانه به دنبال لغو تحریم ها هستیم؟ دقت کنید؛ منظور من تحریم های وضع شده به بهانه های واهی مانند تروریسم و حقوق بشر نیست. به دقت آگاه هستید، آنچنان شبک تار عنکبوتی از تحریم ها ایجاد کرده ای که حتی خودتان هم درون آن گرفتار شده ای. نظرم کاملاً معطوف به همین تحریم های مرتبط با هسته ای است.

negotiation process and there is little time for attitudes to change before the JCPOA's implementation. Thus, the quote indicates that the Iranians were not expecting significant concessions from the United States on the eve of the negotiation's successful conclusion. Evidently, the US concessions were not crucial to the agreement.

By contrast, the Iranians believed that European markets would be opened to them after the deal was concluded. For example, the book recalls an attempt by the Deputy High Representative of the European Union Helga Schmidt to persuade the Iranian delegation that "after the suspension of EU sanctions, European companies will flock to Iran for business." The book records that the Iranian response to these assertions was that "The flow of European businessmen and companies to Iran may increase, but they will not start serious business with Iran until the implementation of secondary US sanctions is stopped."²⁸ This response indicates the Iranians perceived European firms as potentially important business partners. But they also understood that the potential windfall was limited by American secondary sanctions. Indeed, the book records that the Iranians received assurances that the Europeans lobbied the US government to ensure the integrity of the deal.²⁹

The book openly acknowledges that securing access to EU oil markets was one of Iran's primary objectives. Quoting an internal memo from Zarif, the West had imposed restrictions on Iranian oil imports "knowing that economic issues were influential."³⁰ The US did not import Iranian oil, so

²⁸Quoted from section "Early Suspension of Sanctions". Translated from the original:

خانم اشمیدی که با این استدلال و منطق متین مواجه شده بود، کوشید به اقلناع هیئت ایرانی بپردازد. وی با ابراز این بیان معمول که «پس از تعلیق تحریم های اتحادی اروپا شرکت های اروپایی برای کار تجارتی به ایران سررازی خواهند شد»، عزم خود را برای شرح و بسط آینه ای نامشخص نشان داد. پیش از تفصیلی و تبیین آن افق، مسئولان ایرانی مورد اشاره به وی تذکر دادند: ممکن است رفت و آمد تجار و شرکت های اروپایی به ایران تشدید شود، ولی تا زمانی که اجرای تحریم های ثانوی آمریکای متوقف نشود، این شرکت ها کار جدی با ایران شروع نخواهند کرد.

²⁹Translated from the original:

این اظهار عجز گروه مذاکراتی آمریکای فشار سنگین جمهوری خواهان بر دولت دموکرات آقای اوباما منحصراً به این اظهارات نبوده. پیش از ورود وزیر خارجه، خانم شرمن هم طی سخنران خود در چند مقطع به شرایط حاد سیاسی در آمریکای ارجاع داده بود. به رغم این گونه اظهارات، وی تا پیش از سخنران آقای کری با استناد به سخنرانی رئیس جمهور کشورش که بیان داشته بود: «تحریم های جدی را وتو خواهد کرد»، ابراز امیدواری می کرد که توافق پیش از اخذ تصمیمات سخت کنگره حاصل خواهد شد. معاون وزیر خارج آمریکای همچنین به ابتکارات اروپایی ها برای تأثیرگذاری بر کنگره و به خصوص مقال مشترک وزرای خارج سه کشور آلمان، انگلیس و فرانسه به همراه خانم موگرینی در روزنام واشنگتن پست اشاره کرده و می گوید آنها هم فعال شده اند تا جلوی کنگره را بگیرند.

³⁰Quoted from section "Fuel exchange with 'nations'". Translated from the original:

this section of the book must be referring to the EU oil embargo. This evidence bolsters the case that Iranians were particularly responsive to the EU oil embargo which was only enacted once EU security concerns had reached a breaking point. Thus, it stands to reason that Iran would not have accepted the JCPOA if it did not believe that its access to European oil markets could be restored.

The documentary evidence demonstrates that Iranian negotiators perceived the EU promises to remove the sanctions as credible. However, they did not believe that the US was capable of significantly rolling the sanctions back. Zarif made his skepticism of US sincerity known right before signing the JCPOA, an indication that US credibility was not important to finalizing a deal. But they also understood that EU markets would only be meaningful if the US did not enforce its secondary sanctions. They expected European pressure on the Americans to waive the secondary sanctions to give them an opportunity to do business.

3.5.3 The Content of the Deal

The JCPOA established strict limits on the enrichment of plutonium and uranium in Iran, set up a monitoring system managed by the IAEA, and specified the sanctions relief provided by the P5+1. Since the negotiations themselves were held in secret, it may never be possible to observe which entreaties and tactics were rejected and which were successful. However, the structure of the agreement itself combined with information about the economic context represents a wealth of information about exactly how far each side was willing to trust the other and why.

The EU's willingness to remove nearly all their sanctions in an agreement narrowly focused on Iran's nuclear program reflects how they were primarily motivated by the security implications of nuclear proliferation. The EU committed to remove its sanctions on shipping, trade, oil, gold and other

متمن این تحلیل پس نتیجه می گرفت که دنیای غرب پس از حصول اطمینان از اینکه نفت و درآمدهای حاصل از صادرات آن به درون زندگی مردم وارد شده، اعمال محدودیت بر بهره مندی از درآمدهای نفتی را، با علم به اینکه مسائیل اقتصادی از اثرگذاری زیادی برخوردارند، به طور جدی در برنامه خود قرار داده است. از آنجایی که نفت در اقتصاد ایران نقشی تعیین کننده داشته و این نقش در دولت نهم و دهم افزایش چشمگیری یافته بود، اقتصاددانان مشارکت کننده در تدوین گزارش به توضیحی مختصر در مورد تحولات این بخش در فرایند تحریم پرداختند.

precious metals, and finance (European Union External Action 2016).³¹ These sanctions represented the vast majority of sanctions that had been imposed on Iran during the negotiations. The European fixation on security bolstered their ability to make a credible assurance – Iran could believe that ending its nuclear program would be rewarded with sanctions relief from Europe.

The commitments of the United States under the JCPOA are substantially more modest. The US committed to remove most of the financial and banking sanctions and to waive its secondary sanctions in the automotive, shipping, insurance, gold and precious metals sectors (US Department of Treasury and US Department of State 2016). Notably, nearly all restrictions on American businesses are untouched by the JCPOA, meaning that the JCPOA does not provide Iran with any additional market access to the United States (Samore et al. 2015). The central concession that the US makes is the removal of the secondary sanctions that would have been applied to any non-American entities doing business in Iran.³² The secondary sanctions applied by the US had the potential to undermine the trade relationship between Iran and the EU. While Iran was a profitable market to European firms, the American market is crucial. If American secondary sanctions were applied aggressively then a sufficient number of European firms might have abstained from business in Iran to make Iran's value of sanctions relief fall below its value of a nuclear weapon.

The EU was willing to withdraw nearly all sanctions if Iran ended its nuclear program, but the US was unprepared to follow suit without further Iranian concessions. In fact, the primary concern of the American opponents of the JCPOA is that the deal does not address Iranian behavior more broadly.

³¹This was accomplished in the EU using European Council Decision (CFSP) 1863/2015 and European Council Regulation (EU) 1861/2015 which were both adopted on October 18, 2015. Note that both Decision (CFSP) 1863 and Regulation (EU) 1861 were themselves implemented using subsequent Implementing Decisions and Regulations. Also, Decision (CFSP) 2017/974 and Regulation (EU) 2017/964 were needed to circumvent some legal technicalities for implementing certain clauses of the JCPOA.

³²In the JCPOA's most straightforward commitment, the P5+1 also agree to pause all of the UNSC Resolutions imposing sanctions on Iran while Iran is in compliance with the JCPOA. The requirement was implemented with the subsequent UNSC Resolution 2231 which was passed on July 20, 2015. The resolution additionally specifies the "snapback" provision, which is the legal instrument needed to reintroduce sanctions in the event that the IAEA finds Iran noncompliant. The US and EU implemented similar snapback provisions to guarantee a legal commitment to reimpose sanctions if Iran does not comply (Samore et al. 2015).

There was strong domestic opposition to the deal from both Congressional Democrats and Republicans. Then Chairman of the Democratic Senatorial Campaign Committee and future Majority Leader Chuck Schumer (D-NY) decided to vote against the deal partly because of what he called “non-nuclear” components of the agreement, and he was not alone. On September 11, 2015 the 244 House Republicans were joined by 25 Democrats to defeat HR3461, which would have granted Congressional approval to the Iran Deal. Ultimately, the administration’s failure to negotiate a deal which could earn the support of their own party is evidence that the United States could not have successfully concluded the negotiations alone.

The role of the US-EU coalition was essential to the successful conclusion of the Iran Deal negotiations. As evidenced by the reaction of the US politicians to the JCPOA, there was no path to the removal of US sanctions even if Iran ended its nuclear program. However, the EU was able to remove the bulk of its sanctions primarily because its sanctions policy was only politically sustainable if Iran continued its nuclear program. The EU’s ability to make coercive assurances to Iran made a deal possible even though the US could not make similar assurances. However, the US presence at the negotiations was probably also essential because President Obama needed to waive secondary sanctions in order for the European concessions to be meaningful to Iran. By promising not to interfere with the EU-Iran trade, the US was able to increase the value of EU concessions to Iran. The US promises to waive the secondary sanctions were credible because of pressure from their coalition partners.

Why were US promises to waive secondary sanctions more credible than its promises to end the primary sanctions? In short, the US negotiators could use their European allies as a commitment device. First, US firms have more at stake in secondary sanctions. If an American firm loses its access to the Iranian market it could lose some profit, but if the same firm loses access to the European market it could face bankruptcy. The prominence of supply chains ensure that interruptions in transatlantic trade are not to be contemplated lightly. Thus, US firms would oppose secondary sanctions more strongly. European firms may choose to defy the US secondary sanctions knowing that their business partners in the US would seek exemptions or directly oppose the enforcement of secondary sanctions. Second, the EU

had committed to removing its sanctions and understood that these concessions were only meaningful if the US did not enforce its secondary sanctions. Thus, the US could risk incurring European wrath if it attempted to interfere. By raising the costs of enforcing the secondary sanctions the US is able to credibly commit (Putnam 1988).

It should be noted that Iran must have been aware of the possibility that the Obama administration could be replaced by a future Republican administration hostile to the deal. The disposition of the American president matters for institutional reasons. Under the law, the US president has the authority to waive secondary sanctions. It is also the case that many of the secondary sanctions were initially imposed as executive orders, which can be revoked or reintroduced solely at the discretion of the chief executive. The possibility of a hostile future administration could dampen the value of the American promises to remove secondary sanctions. However, the reimposition of secondary sanctions would generate the same backlash from industry no matter which president gives the order. Firms may even be relatively more successful at receiving special exemptions from secondary sanctions under a Republican administration, meaning that they could have a better chance at undermining sanctions. That being said, the possibility that the US would reimpose secondary sanctions in the future could potentially cause European firms to hesitate before making long term investments in Iran. But this is only possible if those firms believed that a new US presidential administration's hostility towards Iran could outweigh the value of their trade with American firms. Regardless of the preferred policy of a future administration, Iran could be confident in the US's commitment to the JCPOA for at least the duration of Obama's presidency.

Domestic US and EU institutions had a major effect on the final agreement. Crucially, the US institutions gave the President enough power to waive the secondary sanctions but not enough to substantially roll back most of the US sanctions regime. Therefore, the American sanctions relief was meaningful, but only to the extent that it increased the value of the Iranian market to European (not American) firms. The sanctions were ended using EU Decisions and Regulations, which are legal instruments automatically applying to all members of the EU and do not need to be ratified by domestic legislative bodies

(Consolidated Version of the Treaty on the Functioning of the European Union, n.d.).³³ The availability of EU Decisions and Regulations for both imposing and removing sanctions greatly reduced the difficulty of amending the sanctions regime. The flexibility of the legal instruments made their coercive assurances more credible.

3.6 Conclusion

In the United States some analysts have argued that American resolve to maintain its hard line position against Iran has the potential to weaken the Iranian regime and eventually lead to its collapse. These analysts argue that the JCPOA represents a wavering of American resolve which will reduce American influence. In an op-ed titled “To Stop Iran’s Bomb, Bomb Iran” for the *New York Times*, future National Security Advisor John Bolton wrote in March 2015:

The inescapable conclusion is that Iran will not negotiate away its nuclear program. Nor will sanctions block its building a broad and deep weapons infrastructure. The inconvenient truth is that only military action like Israel’s 1981 attack on Saddam Hussein’s Osirak reactor in Iraq or its 2007 destruction of a Syrian reactor, designed and built by North Korea, can accomplish what is required. Time is terribly short, but a strike can still succeed.

Rendering inoperable the Natanz and Fordow uranium-enrichment installations and the Arak heavy-water production facility and reactor would be priorities. So, too, would be the little-noticed but critical uranium-conversion facility at Isfahan. An attack need not destroy all of Iran’s nuclear infrastructure, but by breaking key links in the nuclear-fuel cycle, it could set back its program by three to five years. The United States could do a thorough job of destruction, but Israel alone can do what’s necessary. Such action should be combined with vigorous American support for Iran’s opposition, aimed at regime change in Tehran. (Bolton 2015)

In stark contrast to Bolton’s conclusion, the analysis of the negotiation of the JCPOA in this article demonstrates how excessive American resolve has the potential to perversely reduce American influence. The US inability to offer credible coercive assurances is precisely what undermined its own effectiveness in the negotiation process. The implication is that if the United States really does wish to

³³For a discussion of the legitimacy of EU secondary legislation including descriptive information about its prevalence see Voermans, Hartmann, and Kaeding (2014).

exert influence over Iranian policy then its strategic commitment to unwavering hostility may actually be counterproductive.

By contrast, the EU's political situation encouraged the credibility of its assurances. European security interests made sanctions against Iran's nuclear program mandatory. At the same time, European business interests made sanctions relief mandatory when Iran halts its nuclear program. The Iranian government decided that the potential business relationship with Europe was worth more than its pursuit of weapons. Finally, the US-EU coalition was necessary to negotiate the deal. The role of the US was to guarantee that it would not attempt to interfere with European businesses interested in Iranian markets.

Chapter 4

How Effective is Trade Conditionality?

Economic Coercion in the Generalized System of Preferences

4.1 Introduction

In an address at the Minneapolis Fair in 1901, then Vice President Theodore Roosevelt deployed an aphorism to describe his foreign policy vision: “Speak softly and carry a big stick.” Roosevelt meant that powerful states are better served by making threats quietly than by publicly and haphazardly issuing ultimatums. Applied to the domain of economic coercion, the principle suggests that states may prefer to make it known that their trading partners must adhere to certain criteria before they threaten any particular state with economic sanctions. An example of this is the United States’ Generalized System of Preferences (GSP), which offers beneficiary developing states the opportunity to export thousands of products duty free to the US as long as they protect labor and intellectual property rights. How effective are programs of economic coercion like the GSP at causing states to change political behavior by raising the risk that market access will be revoked?

The article finds that the GSP is effective at promoting rights protections in states that are neither formally reviewed due to noncompliance nor expelled from membership. To reach this conclusion, the paper develops a conceptual framework that distinguishes between general threats to revoke market access from any noncompliant state and immediate threats to revoke market access from a particular noncompliant state. Acknowledging both types of threats is important because states typically only receive immediate threats after violating a general threat. This study constructs a research design representing the GSP as a general threat: a commitment to expel from membership any developing state which cannot demonstrate sufficient rights protections. The results of the empirical analysis suggest that the program causes states to change behavior even before being directly threatened, which could mean that trade conditionality is far more effective than previously thought.

The core challenge of studying the effectiveness of the GSP is similar to a well known difficulty in the study of economic sanctions. Many scholars of economic sanctions have reckoned with the difficulty of strategic selection, or the idea that sanctions are only ever imposed when the threat of sanctions was ineffective at changing behavior (Nooruddin 2002; Drezner 2003; Bapat and Kwon 2015). Strategic selection also affects the GSP because states are only expelled from the program if the threat of expulsion was not enough to motivate compliance. This article contends that the strategic selection problem in both cases is not a methodological challenge at all but actually a theoretical one. More specifically, strategic selection is an artifact of how economic coercion has been studied as a series of episodic events. Datasets that define observations as either definite threats to revoke market access or as the actual imposition of sanctions are necessarily incomplete. They definitionally exclude cases where states might increase compliance to reduce the risk of losing access to important markets. In other words, these datasets necessarily miss the cases where states take steps to meet the softly spoken conditionality of a state wielding its markets as a big stick.

The research design in this article is capable of estimating the effect of the GSP on states that are never directly threatened with expulsion. Estimating the effectiveness of the GSP in this group means comparing the compliance of state-years that benefitted more from GSP membership with those that

benefitted less. For a source of exogenous variation in the value of GSP membership the study relies on changes in the GSP preference margin following multilateral trade negotiations in the early and mid 1990s (Martin, Winters, and Winters 1996; Finger, Ingco, and Reincke 1996; Hathaway, Ingco, and others 1996; Harrison, Rutherford, and Tarr 1997). As tariffs fall the benefits to GSP membership also fall (Alexandraki and Lankes 2004; Francois, Hoekman, and Manchin 2006; Amiti and Romalis 2007). The exogeneity of this measure depends on product level variation in the depth of tariff cuts at multilateral negotiations. By comparing states that trade in products that faced steeper cuts with those that did not it is possible to estimate plausibly exogenous variation in the value of GSP membership (Angrist and Lavy 1999; Angrist and Pischke 2008, 2010).

While the GSP has been previously studied as a tool for promoting development, relatively few studies have examined its ability to change the behavior of its beneficiary states.¹ The most closely related paper is Hafner-Burton, Mosley, and Galantucci (2018). The authors find that the United States enforces its conditionality sincerely, but stop short of asking whether the program changes the behavior of beneficiaries. Virtually the entire quantitative literature on sanctions defines observations as episodes but a few scholars studying economic coercion outside of sanctions have taken other approaches. Carnegie (2014) searches for evidence of “political hold-up problems” by examining trade flows at the dyadic level. The paper whose methodology comes closest to following the protocol developed in this paper is Carnegie and Marinov (2017), which uses quasi-experimental variation in the European Union’s development aid allocations to identify its effect on human rights and democracy promotion. This paper advances the literature by using a case study of the GSP to study how states react to the risk of economic coercion even before being directly threatened.

¹Shushanik Hakobyan has done the most systematic work analyzing the program’s general effectiveness, finding that beneficiary states export significantly more under the program and that the program is most valuable when the preference margin and the share of value added in output are high (Hakobyan 2015, 2017; Blanchard and Hakobyan 2015). Blanchard and Matschke (2015) provide evidence that the GSP also stimulates offshoring and increased trade through foreign direct investment.

4.2 Background on the Generalized System of Preferences

The remainder of this article will demonstrate the value and feasibility of the above protocol with an application to the United States's Generalized System of Preferences (GSP). More than 130 states are eligible for the US GSP which has been conditional on policy choices since 1984.² Thousands of products can be imported tariff free from eligible beneficiary states. Many developing states depend on the program for access to US markets while others benefit relatively little. The left panel of Figure 4.1 shows that there is always a significant number of states exporting more than 30% of their total exports to the US under the GSP. The right panel of Figure 4.1 illustrates the number of states exporting whose GSP exports to the US account for meaningful fractions of their gross domestic product. These numbers can be significant because even small percentages of GDP can be very politically important depending on the degree of industry concentration. Even while the GSP is a small fraction of total US imports it is likely that certain industries face stiff import competition under the program.³

If a state fails to meet the conditionality requirements it is not immediately removed from the GSP. Watchdog groups like the AFL-CIO can file a petition with the USTR alleging the noncompliance of a specific beneficiary. If the USTR accepts the petition a review process evaluating the compliance of the beneficiary will begin. This review process involves public hearings where representatives from the petitioner and the beneficiary argue their respective cases before the GSP Subcommittee, which is the policymaking authority for the program. The GSP Subcommittee, which is an interagency group with representatives from multiple departments, will make a recommendation to the USTR regarding the beneficiary's continued GSP eligibility. The USTR then relays the recommendation to the President

²The program has been authorized since the late 1970s but it has only been conditional on respect for both labor and intellectual property rights since 1984. For more details on the history and administration of the program see Office of the United States Trade Representative (2017), United Nations Conference on Trade and Development (2016), Stamberger (2003), and Compa and Vogt (2000).

³A US manufacturer of sleeping bags lobbied then Senator Jeff Sessions in 2010 to remove from eligibility certain sleeping bags from Bangladesh because of import competition faced by their firm. The entire program was temporarily suspended over the issue in 2011.

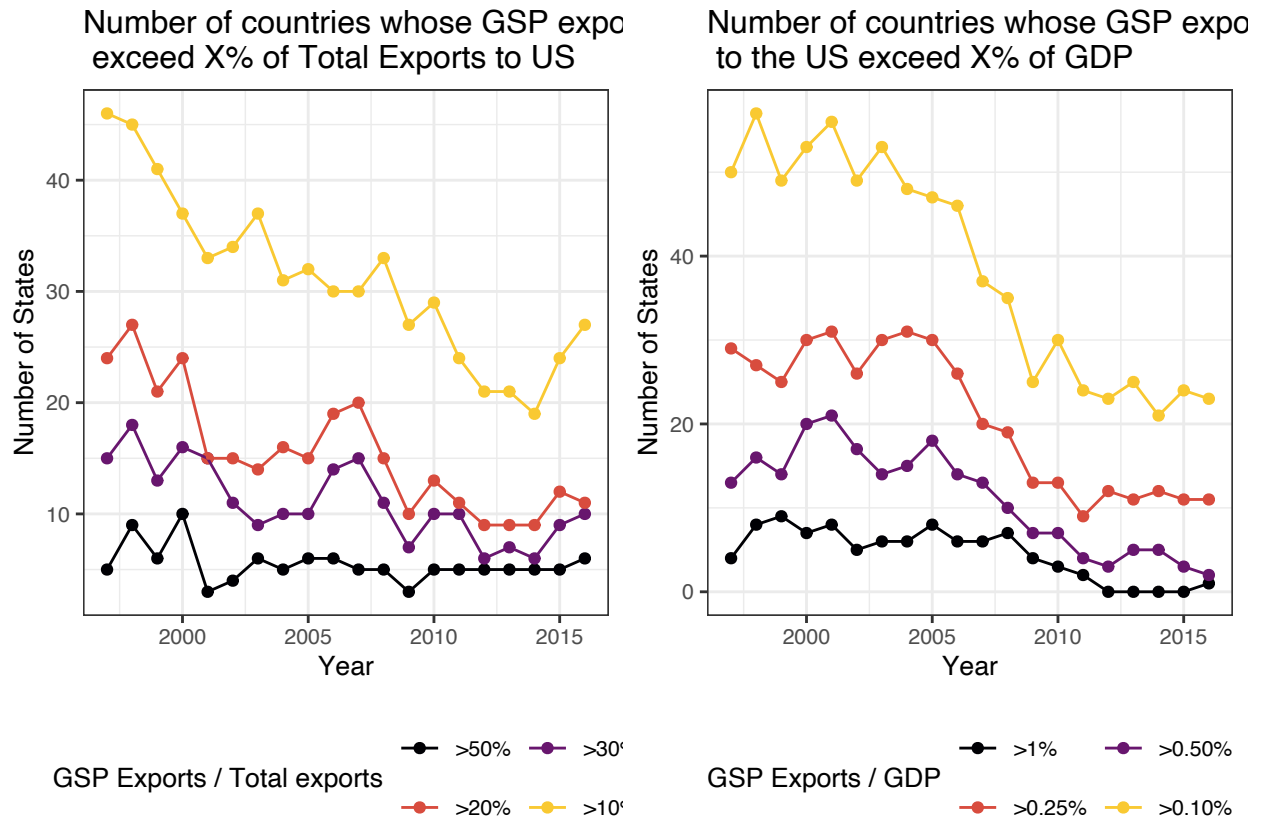


Figure 4.1: Data from Schott. Left panel: Note the logarithmic scale. The fraction of total US imports covered by the GSP is consistently small. Right panel: The number of states exporting at least a certain fraction of their total exports to the US under the GSP is shown over time. For example, in 2000 there were 30 states for which at least 10% of their total exports to the US crossed the border under the program.

for final approval. Only in the rarest of cases does the recommendation of the GSP Subcommittee not ultimately become policy.

4.3 Theory and Concepts

The core challenge to evaluating the effectiveness of the GSP is strategic selection: the states that are expelled from the GSP are precisely those that were indifferent to the threat of expulsion. Even if states rarely increase compliance after expulsion from membership the program could still be quite effective at motivating current members to maintain strong compliance. Any states that are motivated to change political behavior by the GSP would probably take steps to increase compliance if faced with a formal review. Indeed, the challenge of strategic selection also applies to the threat stage: states that maintain rights protections because of the GSP incentives might never be formally reviewed. These issues are not unique to the GSP. In fact, the literature on sanctions has engaged with similar strategic selection problems. This section will develop a conceptual framework that properly accounts for strategic selection at the threat and enforcement stages. The framework can be applied to trade conditionality programs like the GSP as well as programs of economic sanctions.

Strategic selection is the specter lurking beneath virtually all studies of economic coercion. The problem is that punishments are only observable when the *threat* of punishment did not produce the desired outcome. Thus, datasets of sanctions include only the cases where the target is least likely to make concessions. Cases where concessions are made after punishment must be interpreted in a completely different strategic context. For example, the target state might have decided to force the sender to prove their resolve to impose sanctions due to poor initial information about the sender's intentions. Under that model, punishments actually applied are best understood as a consequence of asymmetric information about the relative resolve of the states to endure the costs of punishment. Understanding the strategic context of economic coercion is absolutely essential to understanding its role in the globalized economy.

The strategic selection problem is well known in the literature (Baldwin 1985; Martin 1994; Mor-

gan and Miers 1999; Drezner 2003; Lacy and Niou 2004; Bapat and Morgan 2009; Morgan, Bapat, and Krustev 2009; Morgan, Bapat, and Kobayashi 2014) Strategic selection and its consequences for inference in the context of sanctions was first formalized by Eaton and Engers (1992) and Smith (1995) but were also recognized by Baldwin (1985). Early studies were not as careful about the problem and interpreted evidence that sanctions were unable to achieve their goals as evidence that sanctions were ineffective or effective only under narrow conditions (Hufbauer and Schott 1985; Lindsay 1986; Hufbauer, Schott, and Elliott 1990; Pape 1997, 1998; Elliott 1998). Drezner (2003) and Lacy and Niou (2004) called on scholars to mitigate the problem by studying threats to impose sanctions. The call was answered by Morgan, Bapat, and Krustev (2009) and Morgan, Bapat, and Kobayashi (2014) who produced the Threat and Imposition of Economic Sanctions (TIES) dataset which has served as the most important resource for sanctions studies ever since. Perhaps the culmination of this research program is represented by Whang, McLean, and Kuberski (2013) which combines a model similar to that of Lacy and Niou (2004) with the TIES data to structurally estimate the importance of the sanctions threat stage.⁴

I propose that the strategic selection effect is not inherent to the nature of economic coercion but rather a consequence of research design choices. Specifically, it is an artifact of how economic coercion is conceptualized as an episodic phenomenon. Regardless of whether episodes are defined to begin with the threat or the punishment itself, datasets of sanctions episodes are a necessarily incomplete picture of the sanctions process. No reasonable definition of a sanctions episode could include cases where states changed behavior because of the risk of economic coercion, which is the origin of the selection problem. This section first introduces the concepts of general and immediate sanctions threats and explains how they relate to the selection problem. Then, it stipulates how studies can sidestep issues of strategic selection by accounting for general sanctions threats.

⁴Other important studies using the TIES data to account for immediate sanctions threats include Bapat et al. (2013), Bapat and Kwon (2015), Grauvogel, Licht, and Soest (2017), and Morgan and Kobayashi (2021).

4.3.1 General and Immediate Sanctions Threats

Strategic selection problems, while particularly problematic to the study of economic coercion, are not unique to this domain. Fearon (2002) studied strategic selection in the context of general and immediate deterrent military threats.⁵ His analysis describes an interaction between general deterrent threats, or the threat to attack any state that violates the status quo, and immediate deterrent threats, or the specific threat issued to a particular state following a challenge to the status quo. He argued that immediate deterrent threats would be more likely to fail precisely when they are credible. Fearon's argument begins with the observation that the only states receiving immediate deterrent threats are states that were undeterred by the general threat. These states are likely to be highly motivated to challenge the status quo and are therefore relatively unlikely to be deterred by an immediate threat. Thus, the states that choose to issue an immediate threat anyway are doing so credibly because they anticipate conflict but prefer it to backing down. The reason for this surprising result is strategic selection: the states that receive immediate threats are least likely to be deterred. Importantly for the literature on deterrence, Fearon's argument implies that the risk of war could be constantly shaping state behavior even if most credible deterrent threats fail to change the behavior of the target.

A direct application of Fearon (2002) to the logic of economic coercion reveals the importance of general and immediate threats in this context as well. An immediate corollary is that evidence on the effectiveness of immediate sanctions threats has little bearing on the effectiveness of general sanctions threats. Although the literature is aware of strategic selection in sanctions cases, it has not grappled with strategic selection in immediate threats. Many studies of economic coercion are vulnerable to this criticism even if they are about mechanisms rather than overall effectiveness. For example, many studies find that multilateral sanctions are more effective while others find that unilateral sanctions are more effective (Drezner 2000; Miers and Morgan 2002; Bapat and Morgan 2009; McLean and Whang 2010).

⁵It is worth noting that the puzzle of war itself as studied by Fearon (1995) also exhibits strategic selection. Every war implies an antecedent failure to bargain peaceably. Thus, empirical analysis of the effectiveness of diplomacy and bargaining at achieving their aims is also subject to a strategic selection effect.

Both of these conclusions are unsupportable without data acknowledging general threats. Evidence from threatened or imposed sanctions that supports one type's relative effectiveness could mean that it really is more effective. But it could also mean that general threats of the other type are so successful they rarely enter the dataset, thus creating an illusion of an effectiveness advantage only among the observed cases.

Existing literature rarely if ever considers the possibility that general threats could reverse the direction of the results. The neglect of general threats is highly consequential for the literature. A number of existing papers on multilateral sanctions, including Kaempfer and Lowenberg (1999), Drezner (2000), and Miers and Morgan (2002) are premised on a particular interpretation of the direction of most empirical results. The problem also affects the TIES dataset created by Morgan, Bapat, and Kobayashi (2014), the most significant attempt to study strategic selection in the context of sanctions, which supplements existing datasets on the imposition of sanctions with data about sanctions threats. Their effort, while representing a major step forward in the literature, includes only immediate threats. The acknowledgement of immediate threats alone does not construct the proper strategic context for sanctions because the states that receive immediate threats are the least likely to be responsive to economic incentives. In Fearon's words: "Selection effects introduce systematic bias, so that relationships that may be true for general deterrence will appear exactly reversed for immediate deterrence" (Fearon 2002, 7).

The choice to issue a general threat could be quite different from the choice to issue an immediate threat. General sanctions threats deliberately avoid targeting any particular state and instead identify behaviors to incentivize. Issuing a general threat sends a clear message that the sender state is more concerned about the behavior than about which state is the perpetrator. For example, if the United States threatens additional sanctions on North Korea for internet censorship, the North Korean government may wonder whether they have been singled out for a reason. But if the United States makes it clear that it intends to sanction any state that censors the internet then North Korea may take immediate threats more seriously. States with large markets may promote a reputation of benevolence by issuing general threats disincentivizing negative behaviors rather than by issuing immediate threats to particular states.

There are other reasons why states might prefer general sanctions threats. This design is logical if the sender state cannot predict which states might violate the conditionality. General threats provide the sender state with more flexibility. There could also be uncertainty about which targets would be most responsive to economic coercion. The general threat enables states to exert economic power in target states where they may have underestimated their influence.

The issuance of immediate and general threats may also create strategic spillovers. For example, when a sender issues an immediate sanctions threat other potential targets may infer that they could be next if they behave similarly. In this way, an immediate sanctions threat could establish a more general threat. However, it could also be that immediate sanctions threats are perceived as applying narrowly to only the targeted state. The reputation of the sender could influence whether states perceive immediate sanctions threats as narrow or as evidence of a more general threat.

Studies of general sanctions threats could reveal that economic coercion is far more consequential than previously thought. Because general sanctions threats could incentivize many states simultaneously they can potentially change the behavior of more countries. Furthermore, economic coercion should be most effective in states that change behavior without ever receiving an immediate sanctions threat. As international economic linkages become deeper the opportunities for general sanctions threats to affect state behavior continue to multiply.

4.3.2 Varieties of Threats and the Unit of Analysis

Without exception, the existing large-N sanctions literature studies economic coercion using datasets of sanctions episodes. The roots of this concept in the literature are very deep. Older literature on economic sanctions focused on just one or two prominent cases and generally concluded that sanctions were ineffective (Galtung 1967; Baer 1973; Schreiber 1973; Olson 1979; Von Amerongen 1980). In the 1980s scholars became concerned that studies of individual cases were not painting a representative picture of the phenomenon. Hufbauer, Schott, and Elliott (1990) addressed the problem by collecting information from a large number of cases into a dataset that could be processed with statistical anal-

ysis. Quantitative scholarship on sanctions since then has proceeded by augmenting their work. The choice to study economic coercion as a series of cases is attractive because it enables scholars to draw conclusions that transcend the particulars of any individual event by using information from different institutions, times, and places.

However, episodes are not the right unit of analysis for studying the most important questions in the literature. Many scholars are interested in understanding whether and under what circumstances sanctions can motivate states to change behavior, which is surely an important objective worthy of study. Notice that this question is fundamentally about a counterfactual: would the target have behaved differently in the absence of economic coercion? The standard approach to answering this question in the literature has been to 1) identify occasions where sanctions were either threatened or imposed and 2) count the cases where the sender's stated objectives were achieved. There are two main reasons why this design cannot answer the question posed. First, the dataset of sanctions episodes contains no information about how states behave when economic coercion is unlikely, making it impossible to construct a proper control group. Second, datasets of sanctions episodes also omit general sanctions threats, making it impossible to interpret results in the correct strategic context.

Answering the question requires a comparison of what happened under sanctions with what might have happened without sanctions. But the typical design never attempts to construct the target's behavior in the absence of sanctions.⁶ Statistical inference about how states might have behaved in the absence of conditionality can be made by constructing a control group of states not subject to the conditionality. Of course, constructing a control group alone is not sufficient. It is important to take steps to ensure that the two groups are actually comparable – for example, the research design might need to account for policy differences due to wealth if the states that are likely to be targeted with economic coercion are relatively less wealthy. But a sophisticated statistics literature exists to provide methods which can control for observed and unobserved confounding variables. Without information about how states behave in the absence of conditionality it is impossible to infer how the conditionality changed

⁶It is worth pointing out that the empirical section of Fearon (2002) also makes no attempt to construct counterfactuals.

behavior.

Second, sanctions episodes introduce strategic selection by omitting general sanctions threats. Unlike the control group above, this group includes states that perceive a risk of economic coercion without being immediately threatened. As discussed above, excluding states that might react to economic coercion creates the strategic selection problem. Resolving the problem means including all states that could potentially react to the sanctions threat. This is impossible to do using sanctions episodes, which require that a state be immediately threatened with sanctions or that sanctions be imposed.

If the sanctions episode is not the right unit of analysis, what would be better? First, consider the nature of the dependent variable: the target state's behavior. Sanctions target a wide variety of behaviors including human rights violations, intellectual property rights protections, security investments, and more. Although these behaviors are quite different from each other they are all functions of policies chosen by states at particular times. Thus, the best unit of analysis is not the sanctions episode but the state-year. This analysis unveils a second way in which the datasets of sanctions episodes are inadequate: they contain information about the dependent variable only for the duration of the sanctions episode. The absence of information about the average variability of these choices limits the ability of scholars to determine whether any observed policy changes during a sanctions episode were consistent with normal variation or were a consequence of the sanctions. By contrast, data on the dependent variable at the state-year level provide rich information about how state behavior changes over time. It enables scholars to use within-state variation to test hypotheses about sanctions, a critical advantage because of how idiosyncratic state level characteristics could affect the results.

Choosing the state-year as the unit of analysis leaves an important question unanswered: How should sanctions be conceptualized if not as episodes? Sanctions are a commitment of a sender state to conditional punishment. In other words, a sanction is both 1) a commitment to punish a target state that does not fulfill particular criteria and 2) a commitment not to punish a target state that complies. The sender is not necessarily targeting any particular state with these commitments. For example, sanctions could be a general statement that "we will not trade with any state that violates human rights." What

matters for the target's incentives is whether the sender has committed to conditional punishment that could apply to them at a given time.

4.3.3 From Concepts to Research Design

Reconceptualization of sanctions as commitments to conditionality suggests how scholars can account for the strategic context of general threats. Scholars should focus attention on attempts to commit to conditionality. A commitment to withhold trade from any state that does not meet prespecified criteria is a clear example of a general sanctions threat. By identifying the general threat at the outset scholars can study the set of states that are potentially subject to the general threat and the subset of states that challenge it. The strategic context of the general threat is reflected in the dataset because all states that are *potentially* affected are included. The dataset can then identify the effect of economic coercion separately for states that never challenge the general threat, states that challenge the general threat but then back down after an immediate threat, and states that are ultimately sanctioned. This procedure effectively studies economic coercion by studying the case studies of individual sanctions programs.

There are advantages and disadvantages to studying sanctions programs individually. The primary advantage is a clear sense of what general sanctions threat is being studied and which states are potentially affected. There are ancillary benefits as well. One major challenge facing previous studies has been finding a research design that can convincingly compare compliance across a wide range of issue domains. Choosing a single sanctions program ensures a degree of uniformity in the outcome measures because few sanctions programs frequently change their objectives. Another benefit is an opportunity to hold the sender state constant. It is easier to identify whether variation in compliance is attributable to characteristics of the target or the sender if one of these is fixed in the data.

The main disadvantage of studying sanctions programs individually beginning with a general threat is that the approach is not always available. There are certainly cases where an immediate sanctions threat was issued without a clear general sanctions threat. Because declaring a general sanctions threat is itself a choice there is now a new strategic selection effect: senders might issue general sanctions

threats only under special circumstances. A cynic could complain that this research design merely replaces one strategic selection effect with another. But there are reasons to prefer this form of strategic selection. A research design that neglects the distinction between general and immediate sanctions threats risks misinterpreting the sign of the results and underestimates the effectiveness of economic coercion. These are both serious challenges that threaten the ability of the study to answer the central question. Selection in the decision to issue a general sanctions threat does not clearly cause either of these problems. Furthermore, this selection effect would affect external validity of the studies but not internal validity. Thus, the results could still be valuable for understanding particular sanctions programs.⁷

The final ingredient for the research design is a source of exogenous variation appropriate for constructing a counterfactual. The research question calls on researchers to evaluate a causal claim: did economic coercion cause target states to change their behavior? Questions about causality are particularly difficult to answer because counterfactuals are fundamentally unobservable – it is impossible to know with certainty how any particular state would have behaved in the absence of economic coercion. However, it might be reasonable to infer how states could have behaved on average using information about other states and times that were less affected by economic coercion. Research over the last thirty years on statistical identification has concluded that average counterfactual behavior can be inferred using exogenous variation in the independent variable – that is, variation that can only be correlated with the dependent variable through the hypothesized channel. In the context of economic coercion it is necessary to identify a source of variation that can only effect the behavior of target states by varying their exposure to sanctions. This variation can be used to compare average outcomes for groups of states that differ only in their incentives to comply.

The strategic selection effect that has caused much consternation in the literature on economic

⁷A second disadvantage is the loss of the broad perspective that Hufbauer, Schott, and Elliott (1990) originally sought when they collected a cross-case dataset. This is a regrettable loss that cannot be readily remedied. The vital cross-case perspective could be recovered by meta analysis of multiple studies on sanctions, each of which focus on a particular general threat. But it will take time for the literature to accumulate the necessary body of work.

coercion is not one of the ineffable inference problems in social science. It is a consequence of research design choices and it can be remedied by making different choices. Designs using data describing whether the imposition of sanctions or immediate threats to impose sanctions achieved their stated objectives will always be subject to a pernicious strategic selection effect because they never include cases where general sanctions threats were successful. Designs adhering to the following protocol are not subject to that criticism:

1. Identify a general sanctions threat, meaning an attempt to commit to conditionally withholding trade from states not behaving in a certain way.
2. Identify the set of potential target states.
3. Measure outcome variables at the state-year level.
4. Identify a source of variation in the incentive to comply that is exogenous to the outcome variable except through sanctions.
5. Use the exogenous variation to estimate how states would have behaved in the absence of sanctions.

This protocol is immune to the classic strategic selection problem because of the first two steps. By including all states that might be affected by a particular general sanctions threat the dataset includes information about states that might have complied before an immediate threat needed to be issued. Measurement at the state-year level ensures that variation in the outcome variable is treated appropriately. The use of exogenous variation in sanctions incentives enables researchers to construct counterfactuals that are appropriate to answering a fundamentally causal question.

4.4 Research Design

The GSP offers a general sanctions threat for developing states. Although not directed towards any one particular state, most developing states are eligible for the program as long as they respect the

conditionality. Thus, the set of potentially affected states includes most developing states.⁸ Some GSP beneficiary states also experience immediate sanctions threats in the form of a GSP review. Thus, the GSP offers an opportunity to compare general and immediate sanctions threats.

What is an appropriate outcome variable to measure compliance with the conditionality? Interviews with GSP Subcommittee members in December 2018 illuminated the process by which the Subcommittee evaluates the compliance of a beneficiary state. The Subcommittee has no formal criteria and always considers issues on a case-by-case basis. Nonetheless, two criteria are informally prioritized: First, has the beneficiary implemented a law that would prohibit the alleged conduct? Second, is the law consistently enforced? The outcome measures are selected to approximate the US perception of compliance along these two dimensions to the extent possible. The GSP applies conditionality in two issue areas: labor rights and intellectual property rights.

The protocol requires that outcome variables be measured at the state-year level, but there are few sources of panel data on these issues. The US State Department issues an annual report on human and labor rights which has previously been coded by researchers studying human rights. A general measure of labor rights was compiled by Cingranelli, Richard, and Clay (2014) from the State Department Human Rights Reports. This measure is coarse and only measures rights protections on a three point scale. Recently, Cordell et al. (2019) has used machine learning and text analysis to detect evidence of rights violations in the Human Rights Reports.⁹ Their measure is coded as `rights_violations` in the analysis.

Intellectual property rights protections are measured using data on software piracy. A variable called `piracy_rate` is supplied by the BSA | Software Alliance, which is an advocacy organization representing the software industry. The alliance calculates piracy values and rates by comparing software usage figures from consumer surveys with proprietary sales figures drawn from the data of its members.

⁸Some states, including China, have been excluded by statute from eligibility since the beginning of the program. Other states can lose their eligibility when their incomes rise enough. Finally, states that have signed a trade agreement with the United States are not eligible. All three groups of states are not considered potential beneficiaries.

⁹See also Cordell et al. (2020).

They produce these data on an annual basis at the state level. Presumably, states that enforce their intellectual property rights laws more stringently have lower piracy rates.

Finally, the protocol calls for a source of plausibly exogenous variation that can be used to estimate how states would have behaved without the incentives of conditionality. In the case of the GSP, this amounts to finding a variable that affects the value of GSP membership but not labor rights and intellectual property rights protections through any other channel. The benefit of GSP membership is having access to US markets without needing to pay tariffs, meaning that the value of membership is smaller when US tariffs are low. The US reduced its tariffs dramatically throughout the 1990s and early 2000s due to multilateral trade negotiations including the Tokyo Round and the Uruguay Round. Thus, the value of GSP membership fell dramatically as these tariff declines were phased in.¹⁰ The research design will test whether actual compliance fell as the GSP's incentives to comply declined.

More specifically, the following variable was constructed to measure changes in the value of GSP membership. First, for each state-year, the mean tariff among products actually exported by the state in that year was calculated. The benefit of membership in that year was found by subtracting the mean tariff if the state were a member of the GSP and faced zero tariffs on GSP eligible products. Finally, to capture the total meaning of the tariffs for each state, the value of exports in GSP eligible products for each state were multiplied by the difference in tariffs. Economic theory would imply that this value is a lower bound for the value of GSP membership because it does not account for the behavioral effects of lowering tariffs.

Is it possible that the tariff declines are correlated with labor rights and intellectual property rights compliance through channels other than the value of GSP membership? Because tariffs fell during this period as a result of complex negotiations, scholars may worry that the GSP beneficiary states more likely to protect rights would somehow also be less resistant to tariff decreases. Alternatively, scholars may worry that falling tariffs could reduce rights protections by some mechanism outside the GSP, e.g. by

¹⁰The decline in the value of preference programs due to multilateral trade negotiations has attracted some attention in the economic development literature where the phenomenon is called "preference erosion." To the author's knowledge, the implications of preference erosion for compliance with conditionality have not previously been studied.

exacerbating a race to the bottom in rights protections. The nature of the negotiation process makes it likely that the variation is exogenous to rights protections in target states. There are two major reasons to believe this variation is unrelated to rights protections in target states: the exogeneity of pre-negotiation tariff rates and the dominance of developed states during negotiations.

The pre-negotiation tariff rates are unlikely to be correlated with rights protections abroad. The initial tariff rates are an important determinant of the tariff declines because no tariff can decline below zero. Thus, tariffs that begin relatively low cannot have large declines. But these initial values are unlikely to be correlated with rights protections. Before the multilateral negotiations US tariffs were determined either as a result of trade agreements or tariff bills. As described by Schattschneider (1935), these the rates in tariff bills were heavily influenced by log rolling in Congress. Representatives traded support for tariffs that protected industries in each others' districts. They were mostly responsive to domestic pressures and thus unlikely to have any relationship to rights protections abroad.

Second, the developing states that were eligible for the GSP had little influence over the determination of the tariff declines during negotiations in this period. A positive relationship between tariffs and rights protections could occur if the states most likely to protect rights were also somehow better able than other states to keep tariffs high on GSP eligible products important to their economies. However, this selection mechanism is unlikely for the simple reason that the multilateral negotiations mostly reflected the interests of wealthy states. Indeed, the influence of the wealthy states was much lamented by developing states at the time. Ultimately, the Doha Development Round was a concession by the WTO that the interests of developing states were not always reflected in the results of previous agreements. The influence of developing states in the multilateral negotiations undercuts the chances that the pattern of tariff declines reflects any pattern of rights protections in developing states.

The main results are estimated from a two way fixed effects regression of each outcome variable on the measure of GSP program value. This estimator is commonly employed to estimate average treatment effects in designs where treated and control units can be assumed to follow parallel trends (ANGRIST AND LAVY). In this context, the "treated" units are states whose benefits of GSP member-

ship eroded relatively more. “Control” units consist of two types: 1) GSP eligible states whose benefits declined by less and 2) states that were not eligible for the GSP for various reasons. The most common reason a state might not be eligible for the program is wealth – as a trade for development program high income states are graduated out of eligibility.

Specifically, the regression being fit is

$$DV_{it} = \alpha_i + \gamma_t + \tau(\text{GSP Value})_{it-k} + X_{it}\beta + u_{it}$$

where DV_{it} is a measure of rights violations, α_i and γ_t are state and year fixed effects, GSP Value is the measure of the value of GSP membership (which might be lagged by k periods), X_{it} is a matrix of control variables, and u_{it} is an error term. Crucially, the control variables included in X_{it} are not necessary to identify the causal effect of program membership because the measure is chosen to be exogenous. Their primary purpose is to decrease variability in the dependent variables.

The coefficient of interest is τ and it should be negative under the hypothesis that the GSP program conditionality meaningfully increases rights protections. The coefficient τ can be interpreted as a causal estimate because of the exogeneity of the GSP Value measure. However, the measure does not include all possible sources of economic value from the program by design. For example, economic theory would expect that lowering tariffs would increase the trade volume, which would increase the value of the relationship. By focusing on aspects of the GSP value that are directly related to the tariffs the research design increases the plausibility of exogeneity at the cost of understating the true value of the program. This choice potentially attenuates the measured effect of the program.

4.5 Results

The main results are reported in Table 4.1 and show support for the theory. The analysis indicates that each \$1 million of GSP value causes personal integrity rights violations to decrease by about 0.26 for an average state-year. Importantly, this estimate is likely smaller than the true value because the inde-

Table 4.1: Value of GSP Membership and Compliance.

	<i>Dependent variable:</i>			
	Rights Violations		Piracy Rate	
	(1)	(2)	(3)	(4)
Value of GSP Membership (lag=8)	−0.214*** (0.067)	−0.264*** (0.100)	−0.0005*** (0.0001)	−0.0005*** (0.0001)
State Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Year * Any GSP Fixed Effects	No	Yes	No	Yes
Covariates	No	Yes	No	Yes
Observations	2,295	1,314	821	775

Note:

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

pendent variable does not include all possible benefits of GSP membership. Nonetheless, the results are statistically significant using standard errors clustered by year and state. Clustering is important to account for potential correlation in the error terms at the state and year levels (e.g. changes in the outcome due to an idiosyncratic event affecting one state that persist for multiple years). As described above, covariates are unnecessary to include for purposes of identification but may improve the estimation properties of the regressions.¹¹ As shown in Table 4.1, including covariates changes very little about the results. The direction and significance of the results support the hypothesis that the GSP’s general threats affect state behavior.

The impact of the GSP’s general threats appears to occur after a fairly long time. The results in Table 4.1 show the results where the value of GSP membership has been lagged by 8 years. Results for other lags are shown in Figure 4.2, which indicates that the effects are similar in size and statistical significance in neighboring periods. These results are suggestive about how the general risk of economic coercion shapes the behavior of states. In the absence of an immediate threat of GSP exclusion, states may not immediately change policies protecting rights when the benefits of GSP membership fall. The first order effect of reducing the benefits of GSP membership is to undercut the influence of rights

¹¹Detailed information about these covariates are available in Appendix B.A.

advocates in GSP eligible states. As their influence wanes, rights violations become less likely to be prioritized by the state. It could be years before the gradual erosion of preferences has accumulated enough to create rights violations that would be observable in a cross national dataset.

There are other possible explanations for the long delay before the effects become measurable. There is a possibility that rights protections in GSP-eligible states are following a different trend than rights protections in states that are not eligible for the program. If rights protections tend to fall over time in states that are eligible for the GSP at a faster rate than others the analysis could produce a statistically significant negative coefficient over a long horizon. If the results are explained by differential trends then it is less clear that rights protections are actually changing in response to the GSP's incentives rather than following their previous trends. However, the results are robust to the inclusion of fixed effects at the GSP eligibility-year level. Including these group-time fixed effects is a highly flexible way of accounting for potentially differential trends in a two way fixed effects regression (Wooldridge 2021). Results from specifications including these extra fixed effects are also reported in Table 4.1. Because controls for differential trends do not explain the results, it is more likely that the effects take a long time to manifest because of political reasons.

The structure of the GSP makes it possible to directly observe the benefits of studying general sanctions threats relative to immediate sanctions threats. States are rarely excluded from GSP eligibility but some are threatened with exclusion during a formal review. As described above, a review is initiated when a petition from an interest group in the United States is accepted by the USTR. Table B.1 shows the results when using petitions – a measure of immediate sanctions threats – as the independent variable. The results are not precisely estimated and the coefficients have the wrong sign. Because relatively few states are ever named in a petition it is difficult to conclude that the petitions cause no changes in state behavior from this evidence alone. Even if the estimates were more precise it is possible that petitions and rights violations might still be positively correlated. States that receive petitions must have tolerated rights violations which were known to potentially lead to expulsion from the GSP. Thus, the states that eventually receive petitions might be precisely those which are already inclined to surrender

GSP eligibility.

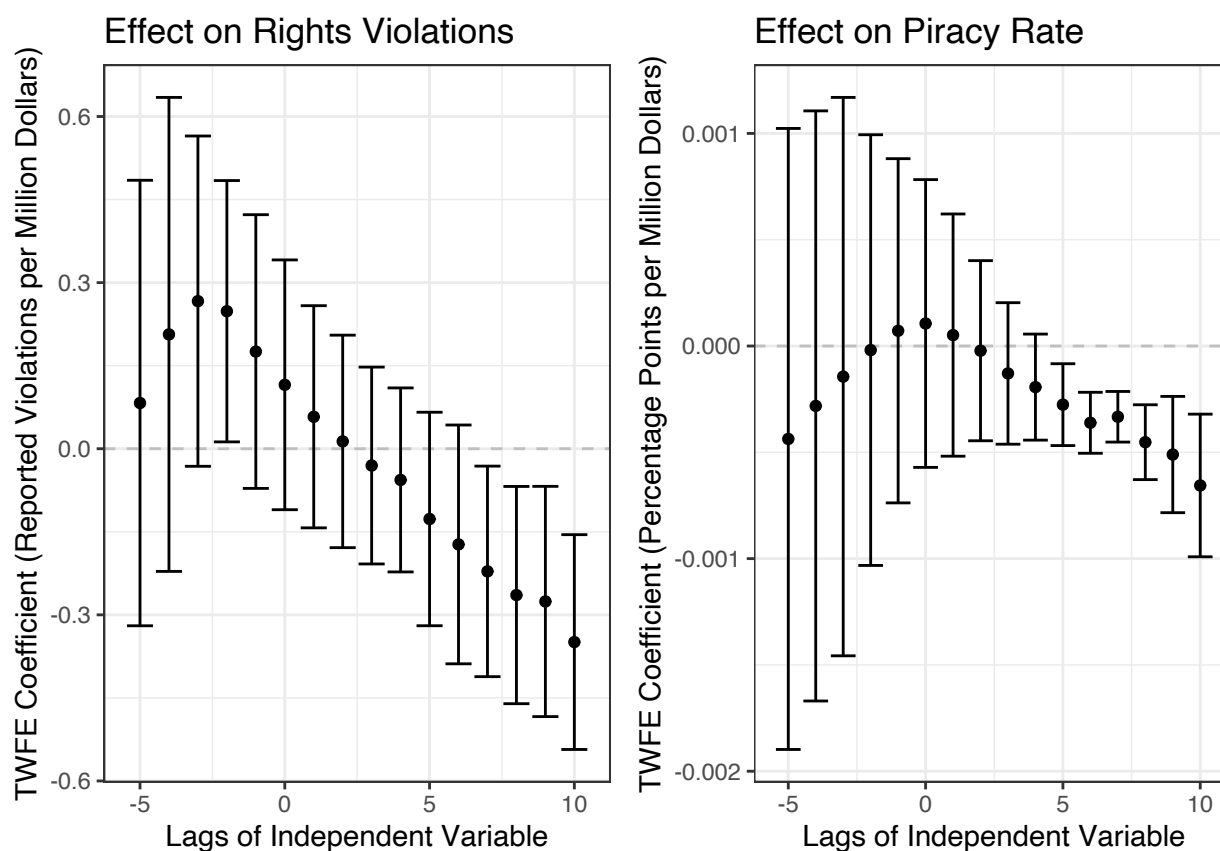


Figure 4.2: Results from main specification.

4.5.1 Robustness of the Results

A number of robustness checks intended to rule out specific confounders and inference problems are included in the Appendix. Tables B.2 and B.3 add covariates one at a time to demonstrate that the results are not sensitive to the inclusion of any single covariate. To rule out the possibility of post treatment bias, Table B.7 reproduces the main results but also lags all covariates by two additional periods. Figure B.2 analyzes two alternative measures of the dependent variables to demonstrate that the results are not contingent on particular measures. Most of the declines in tariff rates in GSP eligible products occurs in the first few years of the sample. To ensure the results are not being driven by this unusual decline, Table B.3 reproduces the analysis after limiting to observations after 2002. Finally, the main results are reproduced after dropping all non-GSP eligible states in Table B.6 to allay concerns that the effects are

a consequence of pooling GSP eligible and ineligible states in the control group.

More robustness on differential trends is also available. Tables B.4 and B.5 shows the results when controlling for possibly differential trends among various groupings of states by other measures. Table B.7 adds fixed effects allowing for even more flexibility in controlling for differential trends that may additionally differ by the control variables. To further confirm that the results are not driven by pre-trends, Figure 4.2 is reproduced with additional leads of the independent variable in Figure B.1.

4.6 Conclusion

This article proposes a reconceptualization of economic sanctions that both acknowledges the possibility of general sanctions threats and completely eliminates the challenge of inference under strategic selection. The central proposition is that sanctions are commitments to conditional market access. Unlike the standard concept of “sanctions episodes”, this definition includes general sanctions threats that may or may not target a particular state and refuses to constrain the analysis to a fixed target and time period. The theory constructs a five step protocol drawing on the revised definition of sanctions that will produce research immune to the strategic selection concerns.

The article demonstrates how this conceptual approach shapes empirical research by deploying the protocol to estimate the importance of implied threats in the context of the GSP. The results demonstrate that beneficiary states of the US Generalized System of Preferences (GSP) do react to the program’s conditionality even without being directly confronted. It would not be possible to reach this conclusion by studying the cases of states being “sanctioned” by being threatened with immediate exclusion from the program. Datasets that define observations as either definite threats to impose sanctions or as the actual imposition of sanctions are necessarily incomplete. They definitionally exclude cases where states might increase compliance to reduce the risk of losing access to important markets. In other words, these datasets necessarily miss the cases where states take steps to meet the softly spoken conditionality of a state wielding its markets as a big stick.

Although the empirical results are from the GSP as a single case study, the evidence presented here has broader implications for the literature on economic coercion. Previously, scholars have studied instances of applied or threatened economic coercion. The framework developed by this paper illuminates the importance of distinguishing between general and immediate sanctions threats. It is likely that many existing estimates of the effectiveness of economic coercion are attenuated because they examine only immediate sanctions threats. Future research designed using the protocol outlined in the theory can determine the extent to which previous scholarship has understated the importance of economic coercion.

Chapter 5

Conclusion

The central argument of this dissertation is that the risk of any given economic relationship being used as a political bargaining chip depends on a credibility constraint. States are usually only willing to threaten to interrupt commerce when they are in a position to follow through. Their ability to follow through depends on how the program of conditionality was designed and whether they can both threaten to punish noncompliance and reassure that compliance will not be punished. The first two papers explore these issues and contribute some empirical examples. Taking strategic selection in threats seriously in empirical studies reveals that economic coercion is more effective than generally supposed. The third paper demonstrates an empirical analysis that accounts for strategic selection in threats with application to the Generalized System of Preferences.

I will conclude with a brief discussion of the past, present, and future of economic coercion. States have always competed for power and prestige, but for most of history they have chosen to deploy military instruments instead of economic ones. Certainly, states have always used economic coercion, often to great effect, but the primary domain of competition has been military. More recently, interstate great power war has declined dramatically.¹ In the post-war era, great power relations have been

¹While there is considerable debate about trends in war over time, Braumoeller (2021) is clear that evidence for a decline in “lethal, system-wide great power war” is “undeniable” (page 272).

characterized by growing economic integration. The growth in economic linkages is often interpreted as reinforcing the decline in interstate conflict because states have more to lose from war.

However, we must also consider whether trade relationships themselves could become the primary instruments of great power conflict. Indeed, as the technology of warfare becomes ever more lethal, it seems likely that states will seek to exert influence through other channels. The growth in global trade, even while discouraging war by raising the costs of military conflict, also increases the potency of economic coercion. Would that raise the willingness of states to deploy economic coercion? It depends – to find out, scholars need to understand which economic relationships are useful as political bargaining chips and which are not. The primary goal of this dissertation is to understand the difference.

The recent globalization backlash could be interpreted as an indication that economic integration, and the associated potency of economic coercion, will slow or decline in the future. Would that trend result in less willingness to deploy economic coercion? The research in this dissertation can provide answers. The key determinant of whether an economic relationship is a useful bargaining chip is whether states credibly commit to conditionality. The presence of a domestic lobby that is pushing to reverse globalization could increase the credibility of threats to interrupt trade. It could also undermine the credibility of assurances to reward compliance with increased market access. Future programs of economic coercion may require broader coalitions of support to counterbalance the objections of the anti-globalization group. These forces would tend to make economic coercion a less effective instrument. But if the movement wishes to reform rather than terminate globalization, the effect could be reversed. In fact, the anti-globalization movement may support more economic coercion to promote their vision of the global economy.

Part II

Appendix

Appendix A

Economic Coercion Trilemma Appendix

A.A Simple Model

A.A.1 Issue Specific Punishment Function Examples

Example Issue Specific Punishment Functions

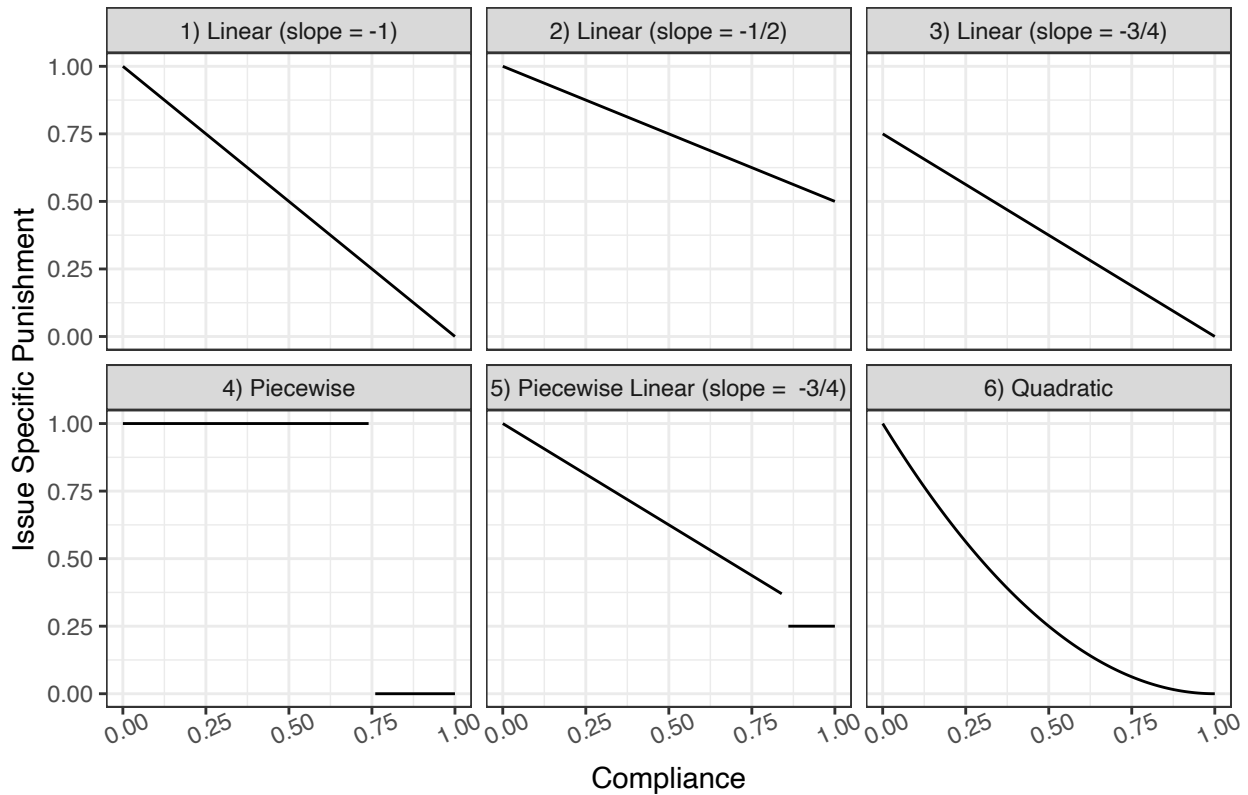


Figure A.1: The only requirements on the issue specific punishment functions $\phi_j(\alpha_j)$ is that the functions must 1) be nonincreasing in compliance and 2) map to the unit interval. Functions 1, 2, and 3 illustrate linear punishment functions where the total amount of trade tied to the issue varies. Function 1 rewards compliant behavior with full access to trade and punishes noncompliant behavior with zero trade. Functions 2 and 3 have different amounts associated with fully noncompliant and compliant behavior. In each of these cases less compliant targets are always punished more. Functions 4 and 5 illustrate discontinuities in the punishment schedule which correspond to strategies where trade is interrupted suddenly when the target crosses a compliance threshold. Function 6 illustrates a valid non-linear punishment schedule.

A.A.2 Discussion of Approach to Marginal Incentives

My focus on “leverage,” defined as the economic value attached to conditionality, might at first glance appear neglectful of the target’s incentives at the margin. Initial intuition from the literature might presume that the degree of compliance should depend on marginal incentives, i.e. the economic losses resulting from an infinitesimal decrease in compliance. I do not dispute that the target will respond to marginal incentives. But in this interaction the marginal incentives are not always well defined because of potential discontinuities in the total punishment function ϕ . For example, derivatives of the issue specific punishment function

$$\phi_j = \begin{cases} 0 & \text{if } \alpha_j < 1 \\ 1 & \text{if } \alpha_j = 1 \end{cases}$$

would be completely uninformative about the target’s incentives where they exist. Instead of studying the marginal incentives, which frequently do not exist in many real world examples of conditionality, the analysis focuses on an upper bound of the marginal incentives: the total economic value tied to the issue. An increase in compliance cannot be rewarded with more economic value than would result from unrestricted commerce. Thus, the marginal incentives are bounded above by the total economic volume attached to conditionality on a particular issue. And this is why the maximum leverage property matters: issue specific punishment functions that exhibit maximum leverage have no artificial restrictions on the marginal incentives that can be used to encourage compliance from the target.

A.A.3 Proof of Theorem 1

Let ϕ be a consistently enforced total punishment function having one maximum leverage issue specific punishment function (ϕ_1 without loss of generality). By the consistent enforcement of ϕ it must be that

$\max_{\alpha_1} \phi(\alpha_1, \alpha_2) - \min_{\alpha_1} \phi(\alpha_1, \alpha_2)$ cannot be an increasing function of α_2 . Simplifying the expression

$$\begin{aligned} \max_{\alpha_1} \phi(\alpha_1, \alpha_2) - \min_{\alpha_1} \phi(\alpha_1, \alpha_2) &= \max_{\alpha_1} (\min \{\phi_1(\alpha_1) + \phi_2(\alpha_2), 1\}) - \min_{\alpha_1} (\min \{\phi_1(\alpha_1) + \phi_2(\alpha_2), 1\}) \\ &= \min \{1 + \phi_2(\alpha_2), 1\} - \min \{\phi_2(\alpha_2), 1\} \\ &= 1 - \phi_2(\alpha_2) \end{aligned}$$

where the second line uses the property that $\phi_1(0) = 1$ and $\phi_1(1) = 0$ which is implied by the maximum leverage of ϕ_1 . Note that because ϕ_2 is nonincreasing over its domain by assumption it must be that $1 - \phi_2(\alpha_2)$ is an increasing function of α_2 . The only way to avoid this difficulty is to tie only one issue to conditionality.

A.B Proof of Proposition 1

The proof proceeds by first establishing the submodularity of the total punishment function and then studying its implications for the behavior of the target. Unlike the other proofs in this section, the proof here is immediately extended to an arbitrary number of issues because the extension is straightforward from the main proof. It is necessary to use the submodularity of the total punishment function because of possible discontinuities and consequent nondifferentiability.

Lemma 1 (Submodularity of the total punishment function) *The total punishment function is submodular. It is strictly submodular over the domain Υ where $\Upsilon := \{\alpha : \sum_{j \in \Upsilon} \phi_j(\alpha_j) > 1\}$.*

Proof: by construction. For ease of notation, let $\sum_k \phi_k(\alpha_k) = \psi(\alpha)$ where $\alpha = [\alpha_1, \dots, \alpha_k, \dots, \alpha_K]$. By definition, ϕ is submodular if and only if, for all x and y ,

$$\begin{aligned} \phi(x \uparrow y) + \phi(x \downarrow y) &\leq \phi(x) + \phi(y) \\ \min \{\psi(x \uparrow y), 1\} + \min \{\psi(x \downarrow y), 1\} &\leq \min \{\psi(x), 1\} + \min \{\psi(y), 1\} \end{aligned} \quad (\text{A.1})$$

where $x \uparrow y = [\max\{x_1, y_1\}, \dots, \max\{x_k, y_k\}, \dots, \max\{x_K, y_K\}]$ denotes the componentwise max-

imum and $x \downarrow y = [\min\{x_1, y_1\}, \dots, \min\{x_k, y_k\}, \dots, \min\{x_K, y_K\}]$ denotes the componentwise minimum.

We proceed by considering cases describing the relationship between ϕ and ψ . First, note that if $\phi(x \downarrow y) < 1$ then it must be that $\phi(x \uparrow y) < 1$, $\phi(x) < 1$, and $\phi(y) < 1$. Thus, Definition (A.1) simplifies as follows:

$$\begin{aligned} \min\{\psi(x \uparrow y), 1\} + \min\{\psi(x \downarrow y), 1\} &\leq \min\{\psi(x), 1\} + \min\{\psi(y), 1\} \\ \psi(x \uparrow y) + \psi(x \downarrow y) &\leq \psi(x) + \psi(y) \end{aligned}$$

Observe that the final line above must hold with equality $\psi(x \uparrow y) + \psi(x \downarrow y) = \psi(x) + \psi(y)$ because the left hand side is just a rearrangement of the terms on the right hand side. Every element appearing in x or y also appears in either $x \uparrow y$ or $x \downarrow y$.

Now consider the case where $\phi(x \downarrow y) = 1$, $\phi(x \uparrow y) < 1$, $\phi(x) < 1$, and $\phi(y) < 1$. In this case Definition (A.1) reduces to

$$\psi(x \uparrow y) + 1 \leq \psi(x) + \psi(y)$$

This line must hold true because in this case $\psi(x \downarrow y) \geq 1$ and, as shown above, $\psi(x \uparrow y) + \psi(x \downarrow y) = \psi(x) + \psi(y)$. Thus, $\psi(x \uparrow y) + 1 \leq \psi(x \uparrow y) + \psi(x \downarrow y) = \psi(x) + \psi(y)$.

Now consider the case where either $\phi(x) = 1$ or $\phi(y) = 1$. These cases imply that $\phi(x \downarrow y) = 1$ because $\psi(x \downarrow y) \geq \psi(x) \geq 1$. Definition (A.1) reduces to

$$\begin{aligned} \psi(x \uparrow y) + 1 &\leq \psi(x) + 1 \\ \psi(x \uparrow y) &\leq \psi(x) \end{aligned}$$

The above line must be true because the punishment functions are nonincreasing in their arguments and \uparrow is a componentwise maximum.

The final case is $\phi(x) = 1$ and $\phi(y) = 1$. These cases immediately imply that $\phi(x \downarrow y) = 1$ since ϕ is nonincreasing and $x \downarrow y$ is a componentwise minimum. Since $\phi(x \uparrow y) \leq 1$ it must be that Definition (A.1) must be satisfied. ■

Now it is possible to prove the proposition. Let the target's utility be given by $U_t(\alpha; \phi)$. Assume that there exists a monotonic transformation of U_t that can be written as $U_t = au(\alpha) - b\phi(\alpha)$ where $a, b > 0$. It is well known that linear combinations of supermodular functions with nonnegative coefficients are also supermodular. By definition, $-\phi$ is supermodular because ϕ is submodular by Lemma 1. Thus, U_t is supermodular if u is supermodular. A well known sufficient condition for the supermodularity of u is that $\partial^2 u / \partial \alpha_i \alpha_j \geq 0$ for all issues i and j . Thus, the target's problem will be $\max_{\alpha} U_t$ where U_t is supermodular. Applying the result of Topkis (1978) it must be that $\alpha_i^*(\alpha_{-i}) = \arg \max_{\alpha} U_t$ must be a nondecreasing function of α_{-i} . It will be a strictly increasing function when U_T is strictly supermodular, which will occur when ϕ is strictly submodular, which in turn occurs when $\psi(\alpha) > 1$. ■

The interpretation of the proposition is that inconsistent enforcement (i.e. choices of ψ that allow $\psi(\alpha) > 1$ for some α) creates complementarities in noncompliance (i.e. $\alpha_i^*(\alpha_{-i})$ increases in the elements of α_{-i}). These complementarities encourage the target to choose either full or zero compliance on all issues.

A.C Example of the Polarization Result

A.C.1 Optimal Response to Consistent Enforcement

First, consider the program ϕ . Because the program is consistently enforceable, ϕ can be simplified as $\phi = 1 - \frac{\alpha_1}{2} - \frac{\alpha_2}{2}$. The target's optimal response is characterized by

$$\max_{\alpha_1, \alpha_2 \in [0,1]} U_t(\alpha_1, \alpha_2; \phi(\alpha_1, \alpha_2))$$

$$\max_{\alpha_1, \alpha_2 \in [0,1]} -\frac{a_1}{4}\alpha_1^2 - \frac{a_2}{4}\alpha_2^2 - \left(1 - \frac{\alpha_1}{2} - \frac{\alpha_2}{2}\right)^2$$

Solving this for optimal compliance:

$$\frac{\partial U_t}{\partial \alpha_1} = -\frac{a_1 \alpha_1}{2} - 2 \left(1 - \frac{\alpha_1}{2} - \frac{\alpha_2}{2}\right) \left(-\frac{1}{2}\right) = 0$$

$$0 = -\frac{a_1 \alpha_1}{2} + \left(1 - \frac{\alpha_1}{2} - \frac{\alpha_2}{2}\right)$$

$$\alpha_1 = \frac{2 - \alpha_2}{a_1 + 1}$$

$$\alpha_2 = \frac{2 - \alpha_1}{a_2 + 1}$$

which writes α_2 using symmetry. Plugging in to get α_1^* in terms of parameters:

$$\alpha_1 = \frac{2 - \frac{2 - \alpha_1}{a_2 + 1}}{a_1 + 1}$$

$$\alpha_1(a_1 + 1) = 2 - \frac{2 - \alpha_1}{a_2 + 1}$$

$$\alpha_1(a_1 + 1)(a_2 + 1) = 2(a_2 + 1) - 2 + \alpha_1$$

$$\alpha_1((a_1 + 1)(a_2 + 1) - 1) = 2a_2$$

$$\alpha_1 = \frac{2a_2}{(a_1 + 1)(a_2 + 1) - 1}$$

$$\alpha_1^* = \frac{2a_2}{a_1 a_2 + a_1 + a_2}$$

$$\alpha_2^* = \frac{2a_1}{a_1 a_2 + a_1 + a_2}$$

which again uses symmetry to find α_2^* . Rewriting the expression:

$$\begin{aligned}\alpha_1^* &= \frac{2a_2}{a_1a_2 + a_1 + a_2} \\ \alpha_1^* &= \frac{2\frac{1}{a_1}}{1 + \frac{1}{a_1} + \frac{1}{a_2}} \\ \alpha_1^* &= \frac{2}{3a_1} \frac{3}{1 + \frac{1}{a_1} + \frac{1}{a_2}} \\ \alpha_1^* &= \frac{2}{3a_1} H(1, a_1, a_2) \\ \alpha_2^* &= \frac{2}{3a_2} H(1, a_1, a_2)\end{aligned}$$

where H is the harmonic mean. Recall that the harmonic mean is equal to the weighted arithmetic mean with weights $(1/x_i)/(\sum_j 1/x_j)$. In other words, the optimal level of compliance is about 2/3 of the harmonic average of the weights on each component of the utility function. Also, compliance is decreasing in the weight associated to that issue.

A.C.2 Optimal Response to Maximum Leverage

Now consider the other function γ which is not consistently enforceable but does exhibit maximum leverage. In this case the target's utility function is

$$U_t = \begin{cases} -\frac{a_1}{4}\alpha_1^2 - \frac{a_2}{4}\alpha_2^2 - \left(\frac{3}{2} - \frac{\alpha_1}{2} - \frac{\alpha_2}{2}\right)^2 & \text{if } \frac{3}{2} - \frac{\alpha_1}{2} - \frac{\alpha_2}{2} < 1 \\ -\frac{a_1}{4}\alpha_1^2 - \frac{a_2}{4}\alpha_2^2 - 1 & \text{if } \frac{3}{2} - \frac{\alpha_1}{2} - \frac{\alpha_2}{2} > 1 \end{cases}$$

The target's problem can be written

$$\max \left\{ \max_{\{\alpha_1, \alpha_2: \frac{3}{2} - \frac{\alpha_1}{2} - \frac{\alpha_2}{2} < 1\}} U_t, \max_{\{\alpha_1, \alpha_2: \frac{3}{2} - \frac{\alpha_1}{2} - \frac{\alpha_2}{2} > 1\}} U_t \right\}$$

First considering the case where $\frac{3}{2} - \frac{\alpha_1}{2} - \frac{\alpha_2}{2} > 1$, it is clear that the target cannot reduce the punishment with any amount of compliance. Thus, the optimal choice is $\alpha_1 = \alpha_2 = 0$ and the utility will be

$U_t(0, 0, \gamma(0, 0)) = -1$. Now consider the case where $\frac{3}{2} - \frac{\alpha_1}{2} - \frac{\alpha_2}{2} < 1$. Solving again for optimal compliance:

$$\begin{aligned}\frac{\partial U_t}{\partial \alpha_1} &= -\frac{a_1 \alpha_1}{2} - 2 \left(\frac{3}{2} - \frac{\alpha_1}{2} - \frac{\alpha_2}{2} \right) \left(-\frac{1}{2} \right) = 0 \\ 0 &= -\frac{a_1 \alpha_1}{2} + \left(\frac{3}{2} - \frac{\alpha_1}{2} - \frac{\alpha_2}{2} \right) \\ \alpha_1 &= \frac{3 - \alpha_2}{a_1 + 1} \\ \alpha_2 &= \frac{3 - \alpha_1}{a_2 + 1}\end{aligned}$$

where the final line follows from symmetry. By a similar procedure to the above, the final optimal compliance vector in terms of parameters is

$$\begin{aligned}\alpha_1^* &= \frac{3a_2}{a_1 a_2 + a_1 + a_2} \\ \alpha_2^* &= \frac{3a_1}{a_1 a_2 + a_1 + a_2}\end{aligned}$$

These values can also be rewritten in terms of the harmonic mean:

$$\begin{aligned}\alpha_1^* &= \frac{3a_2}{a_1 a_2 + a_1 + a_2} \\ \alpha_1^* &= \frac{3 \frac{1}{a_1}}{1 + \frac{1}{a_1} + \frac{1}{a_2}} \\ \alpha_1^* &= \frac{1}{a_1} H(1, a_1, a_2) \\ \alpha_2^* &= \frac{1}{a_2} H(1, a_1, a_2)\end{aligned}$$

Note that compliance is strictly greater under γ when the target chooses α_1^* and α_2^* than it was under ϕ .

However, recall that these formulae are only valid for $\frac{3}{2} - \alpha_1/2 - \alpha_2/2 < 1$ or $1 < \alpha_1 + \alpha_2$.

Thus, the formulae are only valid when:

$$\begin{aligned}
1 &< \frac{3a_2}{a_1a_2 + a_1 + a_2} + \frac{3a_1}{a_1a_2 + a_1 + a_2} \\
\frac{1}{3} &< \frac{a_2 + a_1}{a_1a_2 + a_1 + a_2} \\
1 - \frac{1}{3} &> 1 - \frac{a_2 + a_1}{a_1a_2 + a_1 + a_2} \\
\frac{2}{3} &> \frac{a_1a_2}{a_1a_2 + a_1 + a_2} \\
\frac{2}{3} &> \frac{1}{1 + \frac{1}{a_1} + \frac{1}{a_2}} \\
\frac{2}{3} &> \frac{1}{3}H(1, a_1, a_2) \\
2 &> H(1, a_1, a_2)
\end{aligned}$$

When valid, the utility received from the interior solution is

$$\begin{aligned}
U_t(\alpha_1^*, \alpha_2^*; \gamma) &= -\frac{a_1}{4} \left(\frac{3a_2}{a_1a_2 + a_1 + a_2} \right)^2 - \frac{a_2}{4} \left(\frac{3a_1}{a_1a_2 + a_1 + a_2} \right)^2 \\
&\quad - \left(\frac{3}{2} - \frac{3}{2} \frac{a_2}{a_1a_2 + a_1 + a_2} - \frac{3}{2} \frac{a_1}{a_1a_2 + a_1 + a_2} \right)^2 \\
&= -\frac{9}{4} \frac{a_1a_2^2}{(a_1a_2 + a_1 + a_2)^2} - \frac{9}{4} \frac{a_1^2a_2}{(a_1a_2 + a_1 + a_2)^2} - \left(\frac{3}{2} \left(1 - \frac{a_1 + a_2}{a_1a_2 + a_1 + a_2} \right) \right)^2 \\
&= -\frac{9}{4} \frac{a_1a_2^2 + a_1^2a_2}{(a_1a_2 + a_1 + a_2)^2} - \frac{9}{4} \frac{a_1^2a_2^2}{(a_1a_2 + a_1 + a_2)^2} \\
&= -\frac{9}{4} \frac{a_1a_2^2 + a_1^2a_2 + a_1^2a_2^2}{(a_1a_2 + a_1 + a_2)^2} \\
&= -\frac{9}{4} \frac{a_1a_2}{a_1a_2 + a_1 + a_2}
\end{aligned}$$

The target will choose full noncompliance on both issues when $U_t(0, 0; \gamma) > U_t(\alpha_1^*, \alpha_2^*; \gamma)$. Both

quantities are now established in terms of parameters. The target chooses full noncompliance when

$$-1 > -\frac{9}{4} \frac{a_1 a_2}{a_1 a_2 + a_1 + a_2}$$

$$\frac{4}{9} < \frac{a_1 a_2}{a_1 a_2 + a_1 + a_2}$$

Rewriting the above in terms of the harmonic mean:

$$\frac{4}{9} < \frac{1}{1 + \frac{1}{a_1} + \frac{1}{a_2}}$$

$$\frac{4}{9} < \frac{1}{3} H(1, a_1, a_2)$$

$$\frac{4}{3} < H(1, a_1, a_2)$$

A.D Proof of Proposition 2

Let ϕ be the enforcement limited total punishment function where its component ϕ_j are defined

$$\phi_j = \begin{cases} 1 & \text{if } \alpha_j < 1 \\ 0 & \text{if } \alpha_j = 1 \end{cases}$$

In other words, this strategy calls for the sender to withdraw all trade for any infraction on the conditionality. It is immediately clear that the target must either comply on all issues or no issues because noncompliance on one issue reduces the cost of noncompliance on all other issues to zero. We now partition the compliance space into points where $\phi = 1$ and points where $\phi = 0$. The best that the target can do under maximum punishment (i.e. where $\phi = 1$) is $\alpha_1 = \alpha_2 = 0$. The best that the target can do under minimum punishment (i.e. where $\phi = 0$) is to choose $\alpha_1 = \alpha_2 = 1$ because only this choice confers minimum punishment. If the target chooses to comply on all issues their utility will be \underline{U} and if they choose to noncompliance on all issues their utility will be \bar{U} . By the proposition we know $\bar{U} < \underline{U}$, so the target will choose full compliance.

Furthermore, note that an enforcement limited strategy is not guaranteed to elicit full compliance. Modify the total punishment function such that

$$\phi_j = \begin{cases} b_j & \text{if } \alpha_j < 1 \\ 0 & \text{if } \alpha_j = 1 \end{cases}$$

where $\sum_j b_j = 1$ and $b_j > 0$. The total punishment function is no longer enforcement limited, but it is leverage limited because $b_j \neq 1$ for any issue j . Now it is no longer the case that noncompliance on one issue reduces the costs of noncompliance to zero on all other issues. Therefore, the target may find it beneficial to comply on some issues but not others. It may be the case, for example, that $U_t(1, 0; \phi(1, 0) = b_2) > U_t(1, 1; \phi(1, 1) = 0) > U_t(0, 0; \phi(0, 0) = 1)$. In this case, partial compliance would be expected.

A.D.1 Example of Issue Compatibility

As before, the target will choose the interior solution when facing the total punishment function γ if

$$\begin{aligned} \frac{a_1 a_2}{a_1 a_2 + a_1 + a_2} &< \frac{4}{9} \\ a_1 a_2 &< \frac{4}{9}(a_1 a_2 + a_1 + a_2) \\ \frac{5}{9} a_1 a_2 &< \frac{4}{9}(a_1 + a_2) \\ \frac{5}{4} &< \frac{a_1 + a_2}{a_1 a_2} \\ \frac{5}{4} &< \frac{1}{a_2} + \frac{1}{a_1} \\ \frac{4}{5} &> \frac{1}{\frac{1}{a_2} + \frac{1}{a_1}} \\ \frac{8}{5} &> \frac{2}{\frac{1}{a_2} + \frac{1}{a_1}} \\ \frac{8}{5} &> H(a_1, a_2) \end{aligned}$$

where H is the harmonic mean (which is well defined because the weights must be positive by definition). This expression interprets the weights a_j as ratios measuring how much the target values noncompliance relative to how much it values potential lost economic surplus (recall lost economic surplus has weight 1). The target will choose some amount of compliance as long as the average ratio is sufficiently small – targets that weight economic surplus relatively more will be inclined towards compliance. Note that the harmonic mean has the following property:

$$\lim_{a_1 \rightarrow \infty} \frac{2}{\frac{1}{a_2} + \frac{1}{a_1}} = \lim_{a_1 \rightarrow \infty} \frac{2a_1 a_2}{a_1 + a_2} = 2a_2$$

$$\lim_{a_2 \rightarrow \infty} \frac{2}{\frac{1}{a_2} + \frac{1}{a_1}} = \lim_{a_2 \rightarrow \infty} \frac{2a_1 a_2}{a_1 + a_2} = 2a_1$$

Because both limits must hold true simultaneously, and because these functions approach the limit monotonically from below, it must be that $H(a_1, a_2) \leq 2a_1$ and $H(a_1, a_2) \leq 2a_2$. These two inequalities can be written more compactly as $H(a_1, a_2) \leq 2 \min\{a_1, a_2\}$. This result forms an upper bound on the harmonic mean of the two weights. Indeed, it directly implies that the harmonic mean is decreasing in the correlation of its inputs. Negative correlation means that there is a higher chance of having one low and one high value. Positive correlation between the inputs is the only way to raise the expectation of the minimum value of the two random variables. Thus, we can already conclude that the probability of the target choosing the interior solution is decreasing in the correlation of the two variables.¹ More formally, we can say that a sufficient condition for the target to choose the interior solution is

$$\frac{8}{5} > 2 \min\{a_1, a_2\} \geq H(a_1, a_2)$$

$$\frac{4}{5} > \min\{a_1, a_2\}$$

¹The monotonicity of the function ensures that the harmonic mean decreases at every point when its minimum input decreases.

When seeing the weights as random variables drawn from $F(a_1, a_2)$, the probability of meeting this constraint is

$$\begin{aligned}
P(\min\{a_1, a_2\} < 4/5) &= P(a_1 < 4/5 \cup a_2 < 4/5) \\
&= P(a_1 < 4/5) + P(a_2 < 4/5) - P(a_1 < 4/5, a_2 < 4/5) \\
&= F_{a_1}(4/5) + F_{a_2}(4/5) - F(4/5, 4/5)
\end{aligned}$$

where $F_{a_j}(x) = \lim_{a_i \rightarrow \infty} F(x, a_i)$ is the marginal distribution of a_j . Let I_{a_1} and I_{a_2} be indicator variables for the events $A : a_1 < 4/5$ and $B : a_2 < 4/5$, respectively. Note that $\text{Var}(I_{a_1}) = \mathbb{E}[I_{a_1}^2] - \mathbb{E}[I_{a_1}]^2 = P(A) - P(A)^2 = P(A)(1 - P(A))$. For ease of notation, let $\sqrt{\text{Var}(I_{a_1})} = \sigma_{a_1}$. Then:

$$\begin{aligned}
\text{Cov}(I_{a_1}, I_{a_2}) &= \mathbb{E}[I_{a_1} I_{a_2}] - \mathbb{E}[I_{a_1}]\mathbb{E}[I_{a_2}] \\
\text{Cov}(I_{a_1}, I_{a_2}) &= P(A \cap B) - P(A)P(B) \\
\text{Cov}(I_{a_1}, I_{a_2}) + P(A)P(B) &= P(A \cap B) \\
\text{Cov}(I_{a_1}, I_{a_2}) + P(A)P(B) - P(A) - P(B) &= P(A \cap B) - P(A) - P(B) \\
-\text{Cov}(I_{a_1}, I_{a_2}) - P(A)P(B) + P(A) + P(B) &= -P(A \cap B) + P(A) + P(B) \\
-\text{Cov}(I_{a_1}, I_{a_2}) - P(A)P(B) + P(A) + P(B) &= P(A \cup B) \\
\sigma_{a_1} \sigma_{a_2} \left(-\frac{\text{Cov}(I_{a_1}, I_{a_2})}{\sigma_{a_1} \sigma_{a_2}} + \frac{-P(A)P(B) + P(A) + P(B)}{\sigma_{a_1} \sigma_{a_2}} \right) &= P(A \cup B) \\
\sigma_{a_1} \sigma_{a_2} \left(-\rho_{I_{a_1} I_{a_2}} + \frac{-P(A)P(B) + P(A) + P(B)}{\sigma_{a_1} \sigma_{a_2}} \right) &= P(A \cup B)
\end{aligned}$$

This final line indicates that the probability of a target meeting the condition for an interior solution $P(A \cup B) = P(a_1 < 4/5 \cup a_2 < 4/5)$ is decreasing in the correlation coefficient $\rho_{I_{a_1} I_{a_2}}$. In other words, when the issue weights are anti-correlated there is a better chance of an enforcement limited strategy ultimately proving successful. This is true regardless of the underlying joint distribution of weights on compliance (so long as its moments exist).

To summarize, this section claimed that enforcement limited strategies are more successful when seeking to influence two compatible issues. Two issues are compatible if the target is unlikely to choose noncompliance on both issues simultaneously. In an extension of the previous model I showed that, when faced with the enforcement limited strategy $\gamma, 1$) the target will choose nonzero compliance when the harmonic mean of the weights a_1 and a_2 is less than $8/5$, 2) an upper bound on the harmonic mean is $2 \min\{a_1, a_2\}$, 3) the probability that $\min\{a_1, a_2\} < 4/5$ is decreasing in the correlation of the two events $a_1 < 4/5$ and $a_2 < 4/5$. This last statement illustrates the conclusion that an enforcement limited strategy has a better chance of success when the two issues are compatible, meaning that the correlation between a_1 and a_2 is negative (more precisely, when the correlation in the two events $a_1 < 4/5$ and $a_2 < 4/5$ is negative).

A.E Extension for Arbitrary Number of Issues

This section of the appendix extends the simple model to account for an arbitrary number of issues. The purpose of this extension is to illustrate that the model can accommodate real world applications such as trade agreements where it is common for many issues to be linked to a program of economic coercion.

A few notational changes need to be made to accommodate an arbitrary number of issues. The vector $\alpha = [\alpha_1, \dots, \alpha_J]$ is the **compliance vector** representing the target's compliance on each issue. The issue specific punishment functions are still normally tied to a single issue, but now the total punishment function takes a compliance vector as its argument.

A.E.1 Proof of Theorem 1 for Arbitrary Number of Issues

First we need to show the following two lemmas. Under what conditions is the total punishment function ϕ consistently enforceable?

A.E.1.1 Lemma 2

Lemma 2 *The total punishment function ϕ is consistently enforceable if $\sum_j \phi_j(\alpha_j) \leq 1$ for all α_j . Equivalently, the function is consistently enforceable if no dollar of trade is conditioned on more than one issue.*

Proof of Lemma 2: The proof is by construction. Rewriting the total leverage with respect to an arbitrary issue j :

$$\begin{aligned} \max_{\alpha_j} \phi(\alpha) - \min_{\alpha_j} \phi(\alpha) &= \max_{\alpha_j} \left(\min \left\{ \sum_t \phi_t(\alpha_t), 1 \right\} \right) - \min_{\alpha_j} \left(\min \left\{ \sum_t \phi_t(\alpha_t), 1 \right\} \right) \\ &= \max_{\alpha_j} \left(\min \left\{ \phi_j(\alpha_j) + \sum_{t \neq j} \phi_t(\alpha_t), 1 \right\} \right) \\ &\quad - \min_{\alpha_j} \left(\min \left\{ \phi_j(\alpha_j) + \sum_{t \neq j} \phi_t(\alpha_t), 1 \right\} \right) \end{aligned}$$

Now we invoke the lemma's condition that $\sum_k \phi_k(\alpha_k) \leq 1$. Then:

$$\begin{aligned} \max_{\alpha_j} \phi(\alpha) - \min_{\alpha_j} \phi(\alpha) &= \max_{\alpha_j} \left(\min \left\{ \phi_j(\alpha_j) + \sum_{t \neq j} \phi_t(\alpha_t), 1 \right\} \right) \\ &\quad - \min_{\alpha_j} \left(\min \left\{ \phi_j(\alpha_j) + \sum_{t \neq j} \phi_t(\alpha_t), 1 \right\} \right) \\ &= \max_{\alpha_j} \left(\phi_j(\alpha_j) + \sum_{t \neq j} \phi_t(\alpha_t) \right) - \min_{\alpha_j} \left(\phi_j(\alpha_j) + \sum_{t \neq j} \phi_t(\alpha_t) \right) \\ &= \phi_j(0) + \sum_{t \neq j} \phi_t(\alpha_t) - \phi_j(1) - \sum_{t \neq j} \phi_t(\alpha_t) \\ &= \phi_j(0) - \phi_j(1) \end{aligned}$$

The above expression is not a function of any compliance level except for α_j , so the total punishment function is consistently enforced. ■

A.E.1.2 Proof Extension – Generalized Punishment Functions

Note that a slightly limited version of the above proof can be extended to an even more general class of punishment functions. Let an issue specific punishment function be defined as $\phi_j : \mathbb{R}^J \rightarrow \mathbb{R}$ which is a nondecreasing function in all its arguments. This issue specific punishment function can also include cases where the compliance levels are not separable. For example, the issue specific punishment function $\phi_1(\alpha_1, \alpha_2) = 1 - \alpha_1 - \alpha_2 - \alpha_1\alpha_2$ is now permitted.

Let $\sum_k \phi_k(\alpha_k) = \xi_j(\alpha) + \xi_{-j}(\alpha)$ be a partition of the total punishment function where ξ_j is the sum of all issue specific punishment functions where the issue j appears and ξ_{-j} is the sum of issue specific punishment functions where it does not. Rewriting the total leverage with respect to an arbitrary issue j :

$$\begin{aligned} \max_{\alpha_j} \phi(\alpha) - \min_{\alpha_j} \phi(\alpha) &= \max_{\alpha_j} \left(\min \left\{ \sum_t \phi_t(\alpha_t), 1 \right\} \right) - \min_{\alpha_j} \left(\min \left\{ \sum_t \phi_t(\alpha_t), 1 \right\} \right) \\ &= \max_{\alpha_j} \left(\min \{ \xi_j(\alpha) + \xi_{-j}(\alpha), 1 \} \right) - \min_{\alpha_j} \left(\min \{ \xi_j(\alpha) + \xi_{-j}(\alpha), 1 \} \right) \\ &= \min \{ \xi_j(0, \alpha_{-j}) + \xi_{-j}(\alpha), 1 \} - \min \{ \xi_j(1, \alpha_{-j}) + \xi_{-j}(\alpha), 1 \} \end{aligned}$$

There are two cases. First, let $\sum_k \phi_k(\alpha_k) > 1$ for some α . In that case there exists a compliance vector α such that $\xi_j(0, \alpha_{-j}) + \xi_{-j}(\alpha) > 1$. In that case:

$$\min \{ \xi_j(0, \alpha_{-j}) + \xi_{-j}(\alpha), 1 \} - \min \{ \xi_j(1, \alpha_{-j}) + \xi_{-j}(\alpha), 1 \} = 1 - \xi_j(1, \alpha_{-j}) - \xi_{-j}(\alpha)$$

Thus, the total leverage is absolutely a function of compliance on issues other than j because $-\xi_{-j}$ appears in the expression. This term, unless it is empty, will ensure that the total leverage is increasing in compliance on other issues.

Second, consider the case that $\sum_k \phi_k(\alpha_k) \leq 1$. Then:

$$\begin{aligned}
& \min \{ \xi_j(0, \alpha_{-j}) + \xi_{-j}(\alpha), 1 \} - \min \{ \xi_j(1, \alpha_{-j}) + \xi_{-j}(\alpha), 1 \} \\
&= \xi_j(0, \alpha_{-j}) + \xi_{-j}(\alpha) - \xi_j(1, \alpha_{-j}) - \xi_{-j}(\alpha) \\
&= \xi_j(0, \alpha_{-j}) - \xi_j(1, \alpha_{-j})
\end{aligned}$$

The above expression is potentially increasing in variables other than α_j . However, we know that each term in $\xi_j(\alpha_j, \alpha_{-j})$ is nonincreasing in α_{-j} . Thus, the only way that the expression is increasing in compliance of issues other than j is when $\xi_j(0, \alpha_{-j})$ is decreasing in its arguments faster than $\xi(1, \alpha_{-j}$. More precisely, the function is not consistently enforceable in this case if, for all α_{-j} and α'_{-j} such that α'_{-j} is strictly greater in at least one component, $\xi_j(0, \alpha_{-j}) - \xi_j(0, \alpha'_{-j}) > \xi_j(1, \alpha_{-j}) - \xi_j(1, \alpha'_{-j})$. In all other cases the function is consistently enforceable. ■

A.E.1.3 Lemma 3

Now we must investigate the other direction of the implication. Does a consistently enforced total punishment function necessarily require $\sum_k \phi_k(\alpha_k) \leq 1$ for all α_k ?

Lemma 3 *If the total punishment function ϕ is consistently enforceable then it must be that $\sum_j \phi_j(\alpha_j) \leq 1$ for all α_j .*

Proof of Lemma 3:

Suppose not. Then there must exist some $\alpha_j = \bar{\alpha}$ such that $\phi_j(\bar{\alpha}) + \sum_{t \neq j} \phi_t(\alpha_t) > 1$ where the issue specific punishment functions ϕ_j are part of a consistently enforceable total punishment function.

Because we know that $\phi_j(\bar{\alpha}) + \sum_{t \neq j} \phi_t(\alpha_t) > 1$ we can conclude that

$$\max_{\alpha_j} \left(\phi_j(\alpha_j) + \sum_{t \neq j} \phi_t(\alpha_t) \right) > 1$$

At this point there are two cases. If $\min_{\alpha_j} \left(\phi_j(\alpha_j) + \sum_{t \neq j} \phi_t(\alpha_t) \right) < 1$ then the total leverage with

respect to the issue j is

$$\begin{aligned}\max_{\alpha_j} \phi(\alpha) - \min_{\alpha_j} \phi(\alpha) &= \max_{\alpha_j} \left(\min \left\{ \sum_t \phi_t(\alpha_t), 1 \right\} \right) - \min_{\alpha_j} \left(\min \left\{ \sum_t \phi_t(\alpha_t), 1 \right\} \right) \\ &= 1 - \phi_j(1) - \sum_t \phi_t(\alpha_t)\end{aligned}$$

which is a contradiction because the total leverage with respect to issue j depends on compliance with the other issues and thus is not consistently enforceable.

In the second case we have that $\min_{\alpha_j} (\phi_j(\alpha_j) + \sum_{t \neq j} \phi_t(\alpha_t)) \geq 1$. In this case the total leverage is always zero because $\sum_{t \neq j} \phi_t(\alpha_t) > 1$. But this means that the total leverage is indeed a function of some other compliance value, since it is always possible to reduce at least one compliance value such that $\sum_{t \neq j} \phi_t(\alpha_t) < 1$. ■

The interpretation of Lemmas 2 and 3 is that a total punishment function is consistently enforceable if and only if no dollar of trade is conditioned on more than one issue. The intuition is that interrupting a dollar of trade as a penalty for noncompliance on one issue means that dollar cannot be interrupted as a penalty for noncompliance on other issues. If the punishment function does not allow any trade to be tied to more than one issue then the enforcement of conditionality on one issue cannot undermine leverage over other issues.

Proof of Theorem 1 Suppose not. Let the issue specific punishment function ϕ_i exhibit maximum leverage and be a component of the total punishment function ϕ which is consistently enforceable. By definition of maximum leverage it must be that $\phi_i(0) - \phi_i(1) = 1$. Since all issue specific punishment functions are bounded on the unit interval it must be that $\phi_i(0) = 1$ and $\phi_i(1) = 0$. By Lemma 2 the total punishment function is consistently enforceable if and only if $\sum_t \phi_t(\alpha_t) \leq 1$ for all α_t . But since $\phi_i(0) = 1$ then there must exist a compliance vector such that $\phi_i(0) + \sum_{t \neq i} \phi_t(\alpha_t) = 1 + \sum_{t \neq i} \phi_t(\alpha_t) \geq 1$. If the inequality holds with equality then $\sum_{t \neq i} \phi_t(\alpha_t) = 0$ for all α_t where $\alpha_i = 0$. If $\phi_t = 0$ for all t and α_t with $t \neq i$ then the sender is only exerting influence on issue i . Therefore, unless i is the only issue tied to conditionality, there is a contradiction because ϕ must not

be consistently enforceable. ■

A.E.2 Proof of Proposition 3

Enforcement limited program designs are effective when trade is very important to the target. If the target always prefers no punishment (free trade) to full punishment (no trade) regardless of its chosen compliance on every issue then there will exist a total punishment function consisting only of maximum leverage issue specific punishment functions that elicits full compliance. The formal statement is given in Proposition 3. The target complies because it is so dependent on trade that no amount of noncompliance can overcome the costs of punishment.

Proposition 3 *Let $U_t(\alpha; \phi(\alpha))$ be the target's utility function such that $U_t(\alpha; \phi(\alpha) = 1) < U_t(\tilde{\alpha}; \phi(\tilde{\alpha}) = 0)$ for all α and $\tilde{\alpha}$. Then there exists an enforcement limited total punishment function ϕ consisting only of maximum leverage strategies which elicits full compliance from the target.*

Proof: Suppose not. Then every total punishment function ϕ consisting of all maximum leverage functions ϕ_j does not elicit full compliance from the target on at least one issue. Let this issue be denoted i such that the target's optimum choice of $\alpha_i < 1$. Issue specific punishment functions are nonincreasing, which means that $\phi_i(\alpha_i) \geq 0$. Therefore, the total punishment must be $\phi(\alpha) \geq 0$ where α_i is a component of α . Because every issue has the maximum leverage property it is possible to choose α_i and a vector α_{-i} such that $\phi_i(\alpha_i) = 0$. Since $U_t(\alpha; \phi = 1) < U_t(\tilde{\alpha}; \phi = 0)$ it must be that α_i is not optimal since choosing 1 instead of α_i on issue i in combination with the compliance vector α_{-i} would have yielded higher utility. Note that the total punishment function ϕ is not consistently enforceable by Lemma 2. ■

Appendix B

How Effective is Trade Conditionality?

Economic Coercion in the Generalized

System of Preferences

B.A Control Variables

variable	description	Source	Purpose
pts_stdpt	State Department Terror Index	Hafner-Burton, Mosely, and Galantucci (2018)	Control for GWOT significance
polity	Polity	Hafner-Burton, Mosely, and Galantucci (2018)	Control for regime type
totalimportslog	Total Value of US Exports (log)	Hafner-Burton, Mosely, and Galantucci (2018)	Control for general trade importance
any_export	Number of Exported Products	Schott Data	Control for breadth of trade
log(gdp)	GDP (log)	World Bank	Control for economy size
military.deployment	US Military Deployment	Kane (2006, 2016)	Control for US strategic interest

B.B Robustness of Main Results

Table B.1: Petition as an independent variable

	<i>Dependent variable:</i>			
	Rights Violations		Piracy Rate	
	(1)	(2)	(3)	(4)
Petition in Last 3 Years	0.675 (3.204)	1.543 (2.975)	-0.004 (0.011)	-0.007 (0.009)
State Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Year * Any GSP Fixed Effects	No	Yes	No	Yes
Covariates	No	Yes	No	Yes
Observations	2,872	2,184	1,486	1,395

Note:

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

Table B.2: Sensitivity to Covariates

	<i>Dependent variable:</i>						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Value of GSP Membership (lag-8)	-0.291** (0.113)	-0.291*** (0.104)	-0.305*** (0.107)	-0.289*** (0.109)	-0.294*** (0.104)	-0.290*** (0.105)	-0.264*** (0.100)
State Department Terror Index	6.469*** (1.457)						6.842*** (1.611)
Polity							-0.561 (0.442)
Ever Export under GSP		-0.861* (0.489)	1.693 (1.484)				3.311** (1.350)
GDP (log)				-0.013 (0.010)			-0.020 (0.018)
Military Deployment					-5.653 (3.775)		-4.303 (3.979)
State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year * Any GSP Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,567	1,425	1,686	1,687	1,650	1,463	1,314

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

Table B.3: Sensitivity to Covariates

	<i>Dependent variable:</i>						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Value of GSP Membership (lag-8)	-0.0005*** (0.0001)	-0.0005*** (0.0001)	-0.0005*** (0.0001)	-0.0005*** (0.0001)	-0.0005*** (0.0001)	-0.0005*** (0.0001)	-0.0005*** (0.0001)
State Department Terror Index	-0.001 (0.002)						0.0001 (0.002)
Polity		0.001 (0.001)					0.001 (0.001)
Ever Export under GSP			-0.005* (0.002)				-0.005** (0.002)
GDP (log)				-0.0001 (0.00005)			-0.0001 (0.0001)
Military Deployment					-0.017** (0.008)		-0.019*** (0.007)
State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year * Any GSP Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	820	791	821	821	813	813	775

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

Table B.4: Sensitivity to Differential Trends

	<i>Dependent variable:</i>			
	(1)	(2)	(3)	(4)
	Rights Violations			
Value of GSP Membership (lag=8)	-0.264*** (0.100)	-0.255*** (0.098)	-0.249** (0.098)	-0.236* (0.141)
State Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Fixed Effect for Trends	Any GSP	Potential GSP	Current GSP	Region
Observations	1,314	1,314	1,314	1,314

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

Table B.5: Sensitivity to Differential Trends

	<i>Dependent variable:</i>			
	(1)	(2)	(3)	(4)
	Piracy Rate			
Value of GSP Membership (lag=8)	-0.0005*** (0.0001)	-0.001*** (0.0001)	-0.001*** (0.0001)	-0.0004** (0.0002)
State Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Fixed Effect for Trends	Any GSP	Potential GSP	Current GSP	Region
Observations	775	775	775	775

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

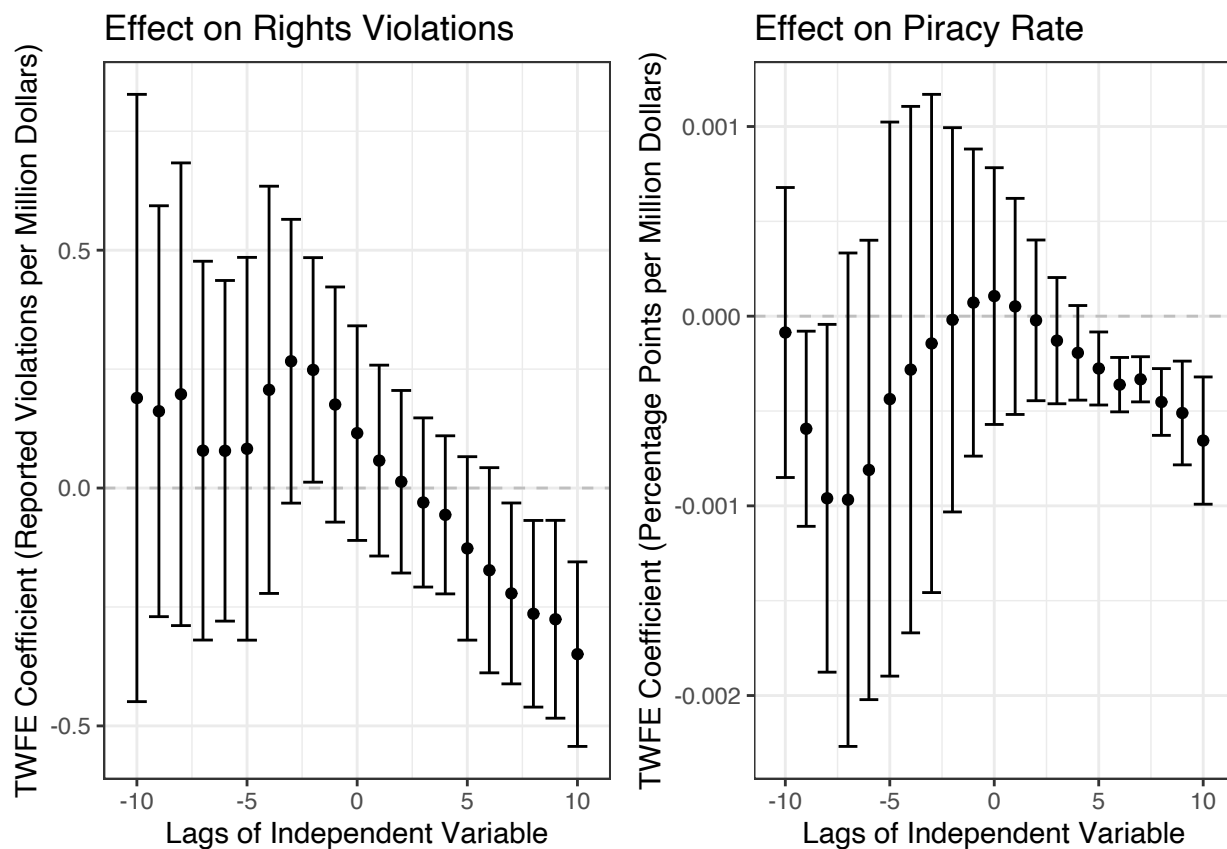


Figure B.1: Plot of Effects at Long Lags

Table B.6: Drop all states that are ineligible for GSP

	<i>Dependent variable:</i>			
	Rights Violations		Piracy Rate	
	(1)	(2)	(3)	(4)
Value of GSP Membership (lag=8)	-0.302*** (0.104)	-0.258*** (0.099)	-0.0005*** (0.0001)	-0.0005*** (0.0001)
State Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Covariates	No	Yes	No	Yes
Observations	1,345	1,044	601	571

Note:

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

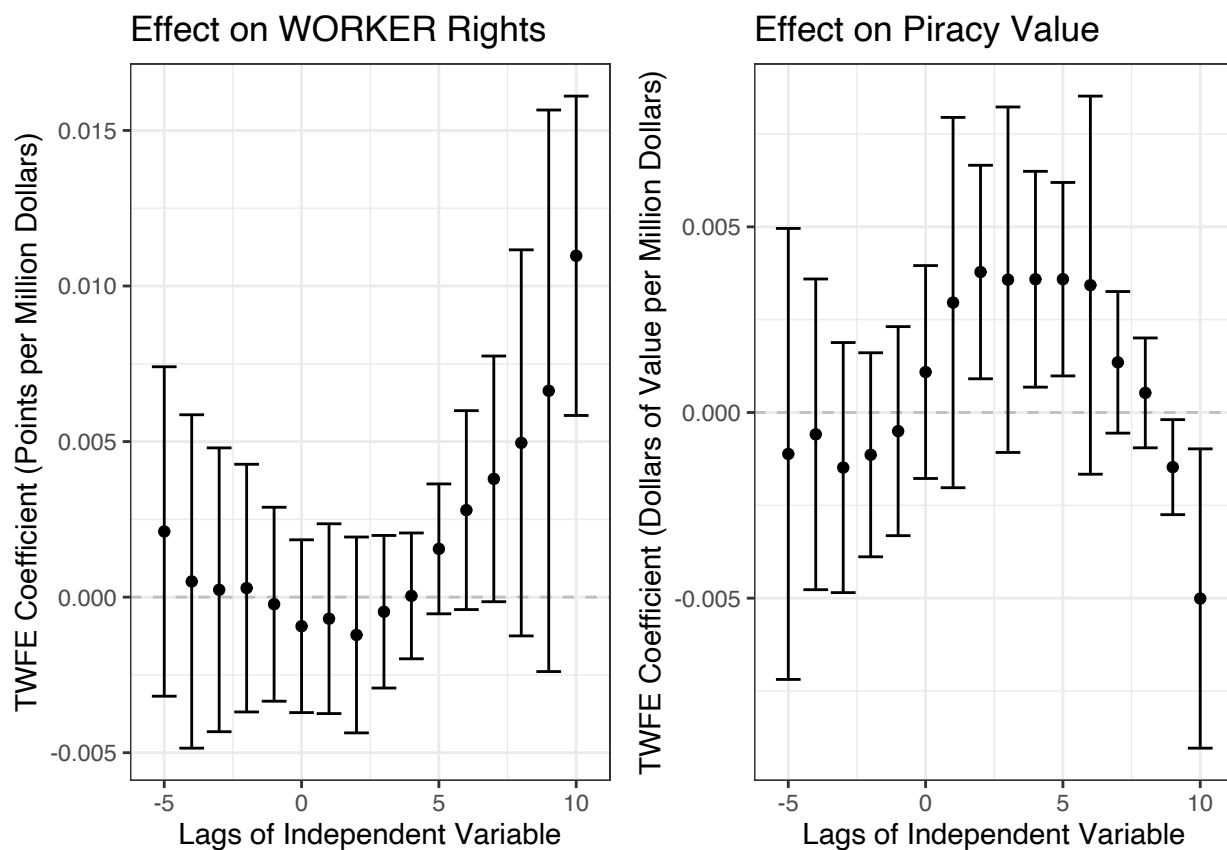


Figure B.2: Effects on Alternative Outcomes

Table B.7: Value of GSP Membership and Compliance with Additional Lags.

	<i>Dependent variable:</i>			
	Rights Violations		Piracy Rate	
	(1)	(2)	(3)	(4)
Value of GSP Membership (lag=8)	-0.273** (0.112)	-0.273*** (0.084)	-0.0004*** (0.0001)	-0.0002* (0.0001)
State Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Year * Any GSP Fixed Effects	Yes	Yes	Yes	Yes
Covariates Lagged	No	2 periods	No	2 periods
Observations	1,298	1,004	765	581

Note:

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

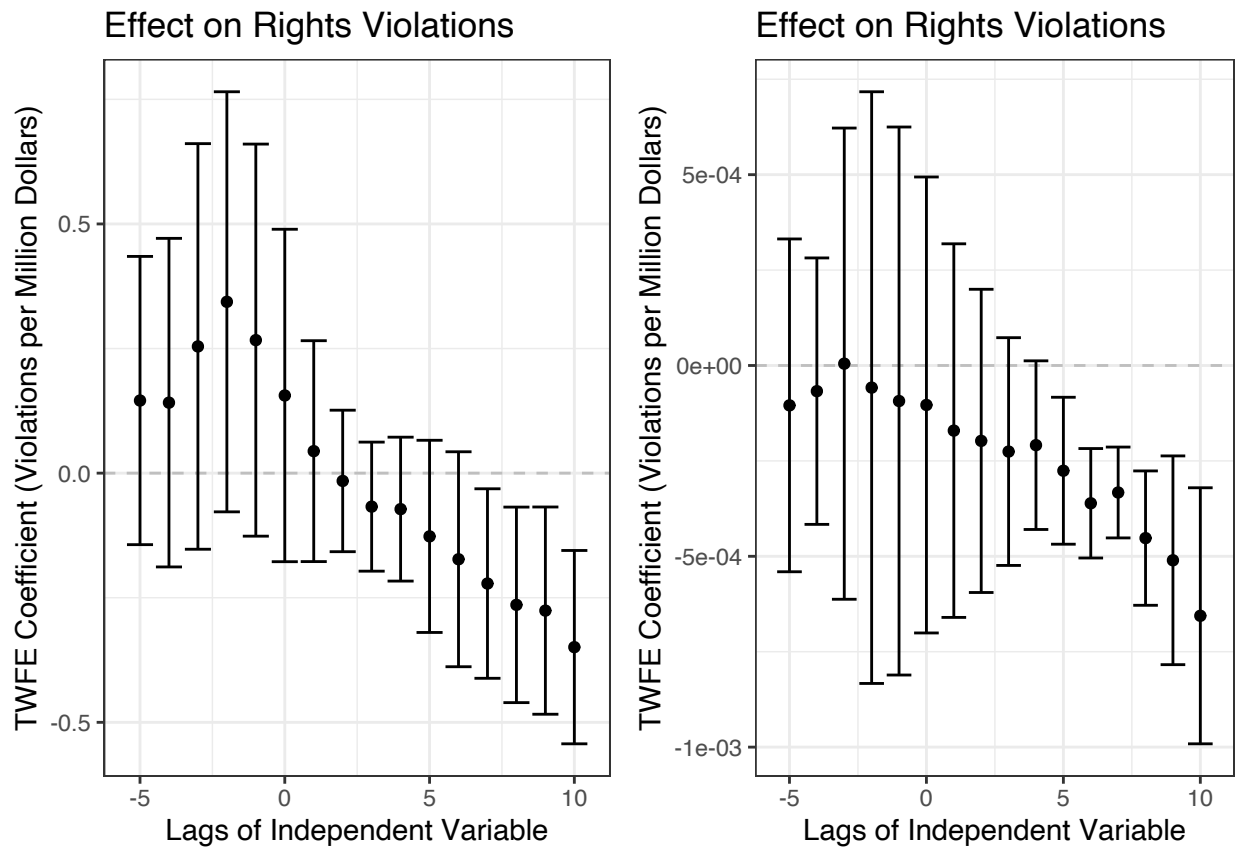


Figure B.3: Results when limiting to years post 2002.

Chapter 6

References

- Abrahamian, Ervand. 1982. *Iran Between Two Revolutions*. Princeton University Press.
- . 1993. *Khomeinism: Essays on the Islamic Republic*. Univ of California Press.
- . 2001. “The 1953 Coup in Iran.” *Science & Society* 65 (2). Guilford Press: 182–215.
- Addis, Casey L. 2009. “Iran’s 2009 Presidential Elections.” R40653. Congressional Research Services.
- Alcaro, R. 2018. *Europe and Iran’s Nuclear Crisis: Lead Groups and Eu Foreign Policy-Making*. Palgrave Studies in European Union Politics. Springer International Publishing. <https://books.google.com/books?id=Owh-swEACAAJ>.
- Alcaro, Riccardo. 2014. “Should Washington be Concerned with Italy’s Iran Policy?” Brookings.
- Alesina, Alberto, and Allan Drazen. 1991. “Why Are Stabilizations Delayed?” *The American Economic Review*. JSTOR, 1170–88.
- Alexandraki, Katerina, and Hans Peter Lankes. 2004. “The Impact of Preference Erosion on Middle-Income Developing Countries.” IMF working paper.
- Allen, Susan Hannah. 2008. “The Domestic Political Costs of Economic Sanctions.” *Journal of Conflict Resolution* 52 (6). Sage Publications Sage CA: Los Angeles, CA: 916–44.
- Allison, Graham. 2017. *Destined for War: Can America and China Escape Thucydides’s Trap?* Houghton Mifflin Harcourt.
- Amiti, Mary, and John Romalis. 2007. “Will the Doha Round Lead to Preference Erosion?” *IMF Staff Papers* 54 (2). Springer: 338–84.
- Angell, Norman. 2010. *The Great Illusion*. Cosimo, Inc.
- Angrist, Joshua D, and Victor Lavy. 1999. “Using Maimonides’ Rule to Estimate the Effect of Class Size on Scholastic Achievement.” *The Quarterly Journal of Economics* 114 (2). MIT Press: 533–75.

- Angrist, Joshua D, and Jörn-Steffen Pischke. 2008. *Mostly Harmless Econometrics*. Princeton university press.
- . 2010. “The Credibility Revolution in Empirical Economics: How Better Research Design Is Taking the Con Out of Econometrics.” *Journal of Economic Perspectives* 24 (2): 3–30.
- Baer, George W. 1973. “Sanctions and Security: The League of Nations and the Italian–Ethiopian War, 1935–1936.” *International Organization* 27 (2). Cambridge University Press: 165–79.
- Bagwell, Kyle, and Robert W Staiger. 1999. “An Economic Theory of Gatt.” *American Economic Review* 89 (1): 215–48.
- . 2004. “The Economics of the World Trading System.” *MIT Press Books* 1. The MIT Press.
- Bahgat, Gawdat. 2006. “Nuclear Proliferation: The Islamic Republic of Iran.” *International Studies Perspectives* 7 (2). Blackwell Publishing Inc Malden, USA: 124–36.
- Baker, William D, and John R O’Neal. 2001. “Patriotism or Opinion Leadership? The Nature and Origins of the ”Rally’round the Flag” Effect.” *Journal of Conflict Resolution* 45 (5). Sage Publications, Inc. 2455 Teller Road, Thousand Oaks, CA 91320: 661–87.
- Baldwin, David A. 1971. “The Power of Positive Sanctions.” *World Politics* 24 (1). Cambridge University Press: 19–38.
- . 2020. *Economic Statecraft: New Edition*. Princeton University Press.
- Baldwin, David Allen. 1985. *Economic Statecraft*. Princeton University Press.
- Baldwin, Richard. 2016. “The World Trade Organization and the Future of Multilateralism.” *Journal of Economic Perspectives* 30 (1): 95–116.
- Baldwin, Robert E. 1989. “The Political Economy of Trade Policy.” *Journal of Economic Perspectives* 3 (4): 119–35.
- Banks, Jeffrey S. 1990. “Equilibrium Behavior in Crisis Bargaining Games.” *American Journal of Political Science*. JSTOR, 599–614.
- Bapat, Navin A, Tobias Heinrich, Yoshiharu Kobayashi, and T Clifton Morgan. 2013. “Determinants of Sanctions Effectiveness: Sensitivity Analysis Using New Data.” *International Interactions* 39 (1). Taylor & Francis: 79–98.
- Bapat, Navin A, and Bo Ram Kwon. 2015. “When Are Sanctions Effective? A Bargaining and Enforcement Framework.” *International Organization* 69 (1). Cambridge University Press: 131–62.
- Bapat, Navin A, and T Clifton Morgan. 2009. “Multilateral Versus Unilateral Sanctions Reconsidered: A Test Using New Data.” *International Studies Quarterly* 53 (4). Blackwell Publishing Ltd Oxford, UK: 1075–94.
- Baum, Matthew A. 2002. “The Constituent Foundations of the Rally-Round-the-Flag Phenomenon.” *International Studies Quarterly* 46 (2). Blackwell Publishers, Inc. Boston, USA; Oxford, UK: 263–98.
- Bhagwati, Jagdish N. 1982. “Directly Unproductive, Profit-Seeking (Dup) Activities.” *Journal of Political Economy* 90 (5). The University of Chicago Press: 988–1002.

———. 1988. *Protectionism*. Vol. 1. MIT press.

Blanchard, Emily, and Shushanik Hakobyan. 2015. “The Us Generalised System of Preferences in Principle and Practice.” *The World Economy* 38 (3). Wiley Online Library: 399–424.

Blanchard, Emily, and Xenia Matschke. 2015. “US Multinationals and Preferential Market Access.” *Review of Economics and Statistics* 97 (4). MIT Press: 839–54.

Bolton, John R. 2015. “To Stop Iran’s Bomb, Bomb Iran.” *The New York Times*.

Braumoeller, Bear F. 2021. “Trends in Interstate Conflict.” In *What Do We Know About War?*, edited by Sara McLaughlin Mitchell and John A Vasquez. Rowman & Littlefield Lanham, MD.

Broz, J Lawrence, Jeffrey Frieden, and Stephen Weymouth. 2019. “Populism in Place: The Economic Geography of the Globalization Backlash.” *Prepared for a Special Issue of International Organization*.

———. 2021. “Populism in Place: The Economic Geography of the Globalization Backlash.” *International Organization* 75 (2). Cambridge University Press: 464–94.

Burtless, Gary, Robert Z Lawrence, Robert E Litan, and Robert J Shapiro. 2010. *Globophobia: Confronting Fears About Open Trade*. Brookings Institution Press.

Bush, George W. 2002. “President Delivers State of the Union.”

Byman, Daniel L. 2016. “The U.S.-Saudi Arabia counterterrorism relationship.” *Testimony Before the House Committee on Foreign Affairs Subcommittee on Terrorism, Nonproliferation, and Trade*.

Carassava, Anthee. 2004. “Greece Admits Faking Data to Join Europe.” *The New York Times*, September 23.

Carnegie, Allison. 2014. “States Held Hostage: Political Hold-up Problems and the Effects of International Institutions.” *American Political Science Review* 108 (1). Cambridge University Press: 54–70.

———. 2015. *Power Plays: How International Institutions Reshape Coercive Diplomacy*. Cambridge University Press.

Carnegie, Allison, and Nikolay Marinov. 2017. “Foreign Aid, Human Rights, and Democracy Promotion: Evidence from a Natural Experiment.” *American Journal of Political Science* 61 (3). Wiley Online Library: 671–83.

Cebul, Matthew D, Allan Dafoe, and Nuno P Monteiro. 2021. “Coercion and the Credibility of Assurances.” *The Journal of Politics* 83 (3). The University of Chicago Press Chicago, IL: 000–000.

Chapman, Terrence L, and Scott Wolford. 2010. “International Organizations, Strategy, and Crisis Bargaining.” *The Journal of Politics* 72 (1). Cambridge University Press New York, USA: 227–42.

Christensen, Thomas J. 1992. “Threats, Assurances, and the Last Chance for Peace: The Lessons of Mao’s Korean War Telegrams.” *International Security* 17 (1). JSTOR: 122–54.

Chubin, Shahram. 2010. *Iran’s Nuclear Ambitions*. Brookings Institution Press.

Chubin, Shahram, and Robert S Litwak. 2003. “Debating Iran’s Nuclear Aspirations.” *Washington Quarterly* 26 (4). Taylor & Francis: 99–114.

- Cingranelli, David L., David L. Richard, and K. Chad Clay. 2014. "The CIRI Human Rights Dataset."
- Clinton, Hillary R. 2011. "America's Pacific Century." *Foreign Policy*.
- Coe, Andrew J. 2015. "The Modern Economic Peace." *Unpublished Manuscript, University of Southern California*.
- Cohen, Stephen P., and Robert Ward. 2013. "Asia Pivot: Obama's Ticket Out of Middle East?" *Brookings*.
- Colantone, Italo, and Piero Stanig. 2018a. "Global Competition and Brexit." *American Political Science Review* 112 (2). Cambridge University Press: 201–18.
- . 2018b. "The Trade Origins of Economic Nationalism: Import Competition and Voting Behavior in Western Europe." *American Journal of Political Science* 62 (4). Wiley Online Library: 936–53.
- Compa, Lance, and Jeffrey S Vogt. 2000. "Labor Rights in the Generalized System of Preferences: A 20-Year Review." *Comp. Lab. L. & Pol'y J.* 22. HeinOnline: 199.
- Consolidated Version of the Treaty on the Functioning of the European Union. n.d.
- Conybeare, John AC. 1984. "Public Goods, Prisoners' Dilemmas and the International Political Economy." *International Studies Quarterly* 28 (1). Blackwell Publishing Ltd Oxford, UK: 5–22.
- Copeland, Dale C. 1996. "Economic Interdependence and War: A Theory of Trade Expectations." *International Security* 20 (4). The MIT Press: 5–41.
- Cordell, Rebecca, C Clay, Christopher J Fariss, Reed M Wood, and Thorin Wright. 2019. "Recording Repression over Space and Time: Identifying Allegations in Annual Country Human Rights Reports." Research report.
- Cordell, Rebecca, K Chad Clay, Christopher J Fariss, Reed M Wood, and Thorin M Wright. 2020. "Changing Standards or Political Whim? Evaluating Changes in the Content of US State Department Human Rights Reports Following Presidential Transitions." *Journal of Human Rights* 19 (1). Taylor & Francis: 3–18.
- Council of the European Union. 2010. "Council Regulation (EU) 961/2010."
- . 2012. "Council Regulation (EU) 267/2012."
- Council on Foreign Relations. 2018. "U.S.-Saudi Relations." Council on Foreign Relations.
- Dafoe, Allan, Remco Zwetsloot, and Matthew Cebul. 2021. "Reputations for Resolve and Higher-Order Beliefs in Crisis Bargaining." *Journal of Conflict Resolution*. SAGE Publications Sage CA: Los Angeles, CA, 0022002721995549.
- Davenport, Kelsey. 2015. "Official Proposals on the Iranian Nuclear Issue, 2003-2013." Arms Control Association.
- . 2018. "Timeline of Nuclear Diplomacy With Iran." Arms Control Association.
- Davis, Christina L. 2004. "International Institutions and Issue Linkage: Building Support for Agricultural Trade Liberalization." *American Political Science Review* 98 (1). Cambridge University Press: 153–69.

- . 2012. *Why Adjudicate?: Enforcing Trade Rules in the Wto*. Princeton University Press.
- Davis, James W. 2000. *Threats and Promises: The Pursuit of International Influence*. JHU Press.
- Debs, Alexandre, and Jessica Chen Weiss. 2016. “Circumstances, Domestic Audiences, and Reputational Incentives in International Crisis Bargaining.” *Journal of Conflict Resolution* 60 (3). SAGE Publications Sage CA: Los Angeles, CA: 403–33.
- Dehghani, Morteza, Rumen Iliev, Scott Atran, Jeremy Ginges, and Douglas Medin. 2009. “Emerging Sacred Values: The Iranian Nuclear Program.” *Judgment and Decision Making* 4: 990–93.
- De Mesquita, Bruce Bueno, Alastair Smith, Randolph M Siverson, and James D Morrow. 2005. *The Logic of Political Survival*. MIT press.
- Dixit, Avinash, and Victor Norman. 1980. *Theory of International Trade: A Dual, General Equilibrium Approach*. Cambridge University Press.
- Dobbin, Frank, Beth Simmons, and Geoffrey Garrett. 2007. “The Global Diffusion of Public Policies: Social Construction, Coercion, Competition, or Learning?” *Annu. Rev. Sociol.* 33. Annual Reviews: 449–72.
- Dorussen, Han, and Jongryn Mo. 2001. “Ending Economic Sanctions: Audience Costs and Rent-Seeking as Commitment Strategies.” *Journal of Conflict Resolution* 45 (4). Sage Publications, Inc. 2455 Teller Road, Thousand Oaks, CA 91320: 395–426.
- Drahos, Peter, and John Braithwaite. 2002. *Information Feudalism: Who Owns the Knowledge Economy?* Earthscan.
- Dreher, Axel, Jan-Egbert Sturm, and James Raymond Vreeland. 2009. “Global Horse Trading: IMF Loans for Votes in the United Nations Security Council.” *European Economic Review* 53 (7). Elsevier: 742–57.
- Drezner, Daniel W. 1999. *The Sanctions Paradox: Economic Statecraft and International Relations*. 65. Cambridge University Press.
- . 2000. “Bargaining, Enforcement, and Multilateral Sanctions: When Is Cooperation Counterproductive?” *International Organization* 54 (1). Cambridge University Press: 73–102.
- . 2003. “The Hidden Hand of Economic Coercion.” *International Organization* 57 (3). Cambridge University Press: 643–59.
- Drezner, Daniel W, Henry Farrell, and Abraham L Newman. 2021. “The Uses and Abuses of Weaponized Interdependence.” Brookings Institution Press.
- Dür, Andreas, Leonardo Baccini, and Manfred Elsig. 2014. “The Design of International Trade Agreements: Introducing a New Dataset.” *The Review of International Organizations* 9 (3). Springer: 353–75.
- Dür, Andreas, and Manfred Elsig. 2015. *Trade Cooperation*. Cambridge University Press.
- Early, Bryan R. 2015. *Busted Sanctions: Explaining Why Economic Sanctions Fail*. Stanford University Press.

- Eaton, Jonathan, and Maxim Engers. 1992. "Sanctions." *Journal of Political Economy* 100 (5). The University of Chicago Press: 899–928.
- . 1999. "Sanctions: Some Simple Analytics." *American Economic Review* 89 (2): 409–14.
- Eichengreen, Barry, and Jeffrey Frieden. 1993. "The Political Economy of European Monetary Unification: An Analytical Introduction." *Economics & Politics* 5 (2). Wiley Online Library: 85–104.
- Elliott, Kimberly Ann. 1998. "The Sanctions Glass: Half Full or Completely Empty?" *International Security* 23 (1). The MIT Press: 50–65.
- European Union. 1992. "Treaty on European Union."
- European Union External Action. 2016. "Information Note on EU sanctions to be lifted under the Joint Comprehensive Plan of Action (JCPOA)." <https://eeas.europa.eu/sites/eeas/files/sn10176-re01.en17.en17.pdf>.
- Evenett, Simon J. 2007. "Five Hypotheses Concerning the Fate of the Singapore Issues in the Doha Round." *Oxford Review of Economic Policy* 23 (3). Oxford University Press: 392–414.
- Fabius, Laurent. 2016. "Inside the Iran Deal: A French Perspective." *The Washington Quarterly* 39 (3). Taylor & Francis: 7–38.
- Farmer, Richard D. 2000. "Costs of Economic Sanctions to the Sender." *The World Economy* 23 (1). John Wiley & Sons, Incorporated: 93–93.
- Farrell, Henry, and Abraham L Newman. 2019. "Weaponized Interdependence: How Global Economic Networks Shape State Coercion." *International Security* 44 (1). MIT Press: 42–79.
- Fassihi, Farnaz, and John M. Biers. 2012. "EU Bans Imports of Iran's Oil, Raising Pressure on Tehran." *Wall Street Journal*.
- Fearon, James. 2002. "Selection Effects and Deterrence." *International Interactions* 28 (1). Taylor & Francis: 5–29.
- Fearon, James D. 1994. "Domestic Political Audiences and the Escalation of International Disputes." *American Political Science Review* 88 (3). Cambridge University Press: 577–92.
- . 1995. "Rationalist Explanations for War." *International Organization* 49 (3). Cambridge University Press: 379–414.
- . 1998. "Bargaining, Enforcement, and International Cooperation." *International Organization* 52 (2). Cambridge University Press: 269–305.
- Fey, Mark, and Kristopher W Ramsay. 2011. "Uncertainty and Incentives in Crisis Bargaining: Game-Free Analysis of International Conflict." *American Journal of Political Science* 55 (1). Wiley Online Library: 149–69.
- Finger, J Michael, Merlinda D Ingco, and Ulrich Reincke. 1996. *The Uruguay Round: Statistics on Tariff Concessions Given and Received*. World Bank Publications.
- Francois, Joseph, Bernard Hoekman, and Miriam Manchin. 2006. "Preference Erosion and Multilateral Trade Liberalization." *The World Bank Economic Review* 20 (2). Oxford University Press: 197–216.

- Fuhrmann, Matthew, and Todd S Sechser. 2014. "Signaling Alliance Commitments: Hand-Tying and Sunk Costs in Extended Nuclear Deterrence." *American Journal of Political Science* 58 (4). Wiley Online Library: 919–35.
- Galtung, Johan. 1967. "On the Effects of International Economic Sanctions, with Examples from the Case of Rhodesia." *World Politics* 19 (3). Cambridge University Press: 378–416.
- Gasiorowski, Mark J. 1987. "The 1953 Coup d'état in Iran." *International Journal of Middle East Studies* 19 (3). Cambridge University Press: 261–86.
- Gerenmayah, Ellie. 2015. "When in Rome: Why Iran is Prioritising Italy." European Council on Foreign Affairs.
- Goldstein, Judith, and Lisa L Martin. 2000. "Legalization, Trade Liberalization, and Domestic Politics: A Cautionary Note." *International Organization* 54 (3). Cambridge University Press: 603–32.
- Gourevitch, Peter. 1978. "The Second Image Reversed: The International Sources of Domestic Politics." *International Organization* 32 (4). Cambridge University Press: 881–912.
- Gowa, Joanne, and Edward D Mansfield. 1993. "Power Politics and International Trade." *American Political Science Review* 87 (2). Cambridge University Press: 408–20.
- Grauvogel, Julia, Amanda A Licht, and Christian von Soest. 2017. "Sanctions and Signals: How International Sanction Threats Trigger Domestic Protest in Targeted Regimes." *International Studies Quarterly* 61 (1). Oxford University Press: 86–97.
- Grossman, Gene M, and Elhanan Helpman. 1994. "Protection for Sale." *The American Economic Review*. JSTOR, 833–50.
- Grozubinski, Dmitry. 2018. "50 Shades of Red Line." Explain Trade (blog); Explain Trade. <https://www.explaintrade.com/articles/2018/9/8/50-shades-of-red-line>.
- Hafner-Burton, Emilie M, Layna Mosley, and Robert Galantucci. 2018. "Protecting Workers Abroad and Industries at Home: Rights-Based Conditionality in Trade Preference Programs." *Journal of Conflict Resolution* 1: 30.
- Hakobyan, Shushanik. 2015. "Accounting for Underutilization of Trade Preference Programs: The Us Generalized System of Preferences." *Canadian Journal of Economics/Revue Canadienne d'économique* 48 (2). Wiley Online Library: 408–36.
- . 2017. "Export Competitiveness of Developing Countries and Us Trade Policy." *The World Economy* 40 (7). Wiley Online Library: 1405–29.
- Harrison, Glenn W, Thomas F Rutherford, and David G Tarr. 1997. "Quantifying the Uruguay Round." *The Economic Journal* 107 (444). Oxford University Press Oxford, UK: 1405–30.
- Hathaway, Dale E, Merlinda Ingco, and others. 1996. "Agricultural Liberalization and the Uruguay Round." *The Uruguay Round and the Developing Countries*. Cambridge University Press Washington, DC, 30–58.
- Henisz, Witold J, and Edward D Mansfield. 2006. "Votes and Vetoes: The Political Determinants of Commercial Openness." *International Studies Quarterly* 50 (1). Blackwell Publishing Ltd Oxford, UK:

189–211.

Hirschman, Albert O. 1980. *National Power and the Structure of Foreign Trade*. Vol. 105. Univ of California Press.

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

Hoffman, Aaron M. 2002. “A Conceptualization of Trust in International Relations.” *European Journal of International Relations* 8 (3). Sage Publications London: 375–401.

Huelshoff, Michael G. 1994. “Domestic Politics and Dynamic Issue Linkage: A Reformulation of Integration Theory.” *International Studies Quarterly* 38 (2). Blackwell Publishing Ltd Oxford, UK: 255–79.

Hufbauer, Gary Clyde, and Jeffrey J Schott. 1985. “Economic Sanctions and Us Foreign Policy.” *PS: Political Science & Politics* 18 (4). Cambridge University Press: 727–35.

Hufbauer, Gary Clyde, Jeffrey J Schott, and Kimberly Ann Elliott. 1990. *Economic Sanctions Reconsidered: History and Current Policy*. Vol. 1. Peterson Institute.

IAEA. 2003. “Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran.”

———. 2014. “Monitoring and Verification in the Islamic Republic of Iran in relation to the Joint Plan of Action.”

Jensen, J Bradford, Dennis P Quinn, and Stephen Weymouth. 2017. “Winners and Losers in International Trade: The Effects on Us Presidential Voting.” *International Organization* 71 (3). Cambridge University Press: 423–57.

Jervis, Robert. 1978. “Cooperation Under the Security Dilemma.” *World Politics: A Quarterly Journal of International Relations*. JSTOR, 167–214.

———. 1979. “Deterrence Theory Revisited.” *World Politics* 31 (2). Cambridge University Press: 289–324.

Jinnah, Sikina, and Abby Lindsay. 2016. “Diffusion Through Issue Linkage: Environmental Norms in Us Trade Agreements.” *Global Environmental Politics* 16 (3). MIT Press: 41–61.

Kaempfer, William H, and Anton D Lowenberg. 1999. “Unilateral Versus Multilateral International Sanctions: A Public Choice Perspective.” *International Studies Quarterly* 43 (1). Blackwell Publishers, Inc. Boston, USA; Oxford, UK: 37–58.

Kane, Tim J. 2006. “Global Us Troop Deployment, 1950–2005.” *Available at SSRN 1146649*.

Kane, Tim, and others. 2016. “The Decline of American Engagement: Patterns in Us Troop Deployments.” *Economics Working Paper* 16101.

Keddie, Nikki R, and Yann Richard. 2006. *Modern Iran: Roots and Results of Revolution*. Yale University Press.

Keohane, Robert O. 2003. “International Relations and International Law: Two Optics 1996.” In *Power and Governance in a Partially Globalized World*, 131–45. Routledge.

Kertzer, Joshua D. 2016. *Resolve in International Politics*. Vol. 2. Princeton University Press.

- Kindleberger, Charles P. 1973. *The World in Depression, 1929-1939: 40th Anniversary of a Classic in Economic History*. University of California Press.
- . 1981. “Dominance and Leadership in the International Economy: Exploitation, Public Goods, and Free Rides.” *International Studies Quarterly* 25 (2). Blackwell Publishing Ltd Oxford, UK: 242–54.
- Knopf, Jeffrey W. 2012. “Varieties of Assurance.” *Journal of Strategic Studies* 35 (3). Taylor & Francis: 375–99.
- Krasner, Stephen. 1999. *Sovereignty: Organized Hypocrisy*. Princeton University Press. <https://books.google.com/books?id=tHJ5m56sBX4C>.
- Krustev, Valentin L, and T Clifton Morgan. 2011. “Ending Economic Coercion: Domestic Politics and International Bargaining.” *Conflict Management and Peace Science* 28 (4). Sage Publications Sage UK: London, England: 351–76.
- Kydd, Andrew H. 2018. *Trust and Mistrust in International Relations*. Princeton University Press.
- Kydd, Andrew H, and Roseanne W McManus. 2017. “Threats and Assurances in Crisis Bargaining.” *Journal of Conflict Resolution* 61 (2). SAGE Publications Sage CA: Los Angeles, CA: 325–48.
- Lacy, Dean, and Emerson MS Niou. 2004. “A Theory of Economic Sanctions and Issue Linkage: The Roles of Preferences, Information, and Threats.” *The Journal of Politics* 66 (1). Cambridge University Press New York, USA: 25–42.
- Lee, Boram. 2021. “Environmental Issue Linkage as an Electoral Advantage: The Case of Nafta.” *Review of International Political Economy*. Taylor & Francis, 1–28.
- Leventoglu, Bahar, and Ahmer Tarar. 2005. “Pre-negotiation Public Commitment in Domestic and International Bargaining.” *American Political Science Review*. JSTOR, 419–33.
- Leventoğlu, Bahar, and Ahmer Tarar. 2008. “Does Private Information Lead to Delay or War in Crisis Bargaining?” *International Studies Quarterly* 52 (3). Blackwell Publishing Ltd Oxford, UK: 533–53.
- Levy, Jack S. 1997. “Prospect Theory, Rational Choice, and International Relations.” *International Studies Quarterly* 41 (1). Blackwell Publishing Ltd Oxford, UK: 87–112.
- Lindsay, James M. 1986. “Trade Sanctions as Policy Instruments: A Re-Examination.” *International Studies Quarterly* 30 (2). Blackwell Publishing Ltd Oxford, UK: 153–73.
- Lohmann, Susanne. 1997. “Linkage Politics.” *Journal of Conflict Resolution* 41 (1). Sage Periodicals Press 2455 Teller Road, Thousand Oaks, CA 91320: 38–67.
- Mansfield, Edward D, Helen Milner, and John Pevehouse. 2005. “Vetoing Cooperation: The Impact of Veto Players on International Trade Agreements.” *American Political Science Association, Washington, DC*.
- Mansfield, Edward D, Helen V Milner, and B Peter Rosendorff. 2002. “Why Democracies Cooperate More: Electoral Control and International Trade Agreements.” *International Organization* 56 (3). Cambridge University Press: 477–513.
- Margalit, Yotam. 2019. “Economic Insecurity and the Causes of Populism, Reconsidered.” *Journal of Economic Perspectives* 33 (4): 152–70.

- Martin, Lisa L. 1993. "Credibility, Costs, and Institutions: Cooperation on Economic Sanctions." *World Politics* 45 (3). Cambridge University Press: 406–32.
- . 1994. *Coercive Cooperation: Explaining Multilateral Economic Sanctions*. Princeton University Press.
- Martin, Will, L Alan Winters, and L Alan Winters. 1996. *The Uruguay Round and the Developing Countries*. Cambridge University Press.
- McCain, John, and Lindsey Graham. 2015. "Statement by Senators John McCain and Lindsey Graham on President Obama's Remarks on Iran Nuclear Agreement." Press Release.
- McGillivray, Fiona, and Allan C Stam. 2004. "Political Institutions, Coercive Diplomacy, and the Duration of Economic Sanctions." *Journal of Conflict Resolution* 48 (2). Sage Publications Sage CA: Thousand Oaks, CA: 154–72.
- McKibben, Heather Elko. 2010. "Issue Characteristics, Issue Linkage, and States' Choice of Bargaining Strategies in the European Union." *Journal of European Public Policy* 17 (5). Taylor & Francis: 694–707.
- . 2013. "The Effects of Structures and Power on State Bargaining Strategies." *American Journal of Political Science* 57 (2). Wiley Online Library: 411–27.
- . 2015. *State Strategies in International Bargaining: Play by the Rules or Change Them?* Vol. 134. Cambridge University Press.
- McLean, Elena V, and Taehee Whang. 2010. "Friends or Foes? Major Trading Partners and the Success of Economic Sanctions." *International Studies Quarterly* 54 (2). Blackwell Publishing Ltd Oxford, UK: 427–47.
- Mearsheimer, John J. 1992. "Disorder Restored." In *Rethinking America's Security: Beyond Cold War to New World Order* (New York: WW Norton & Company, 1992), edited by Graham Allison and Gregory F. Treverton, 213–37.
- Miers, Anne, and T Morgan. 2002. "Multilateral Sanctions and Foreign Policy Success: Can Too Many Cooks Spoil the Broth?" *International Interactions* 28 (2). Taylor & Francis: 117–36.
- Milner, Helen V. 1999. "The Political Economy of International Trade." *Annual Review of Political Science* 2 (1). Annual Reviews 4139 El Camino Way, PO Box 10139, Palo Alto, CA 94303-0139, USA: 91–114.
- Milner, Helen V, and Keiko Kubota. 2005. "Why the Move to Free Trade? Democracy and Trade Policy in the Developing Countries." *International Organization* 59 (1). Cambridge University Press: 107–43.
- Mo, Jongryn. 1995. "Domestic Institutions and International Bargaining: The Role of Agent Veto in Two-Level Games." *American Political Science Review*. JSTOR, 914–24.
- Moravcsik, A. 1998. *The Choice for Europe: Social Purpose and State Power from Messina to Maastricht*. Cornell Paperbacks. Cornell University Press. <https://books.google.com/books?id=iNuxaIMPIUC>.
- Morgan, T Clifton. 1990. "Issue Linkages in International Crisis Bargaining." *American Journal of Political Science*. JSTOR, 311–33.

- Morgan, T Clifton, Navin Bapat, and Yoshiharu Kobayashi. 2014. "Threat and Imposition of Economic Sanctions 1945–2005: Updating the Ties Dataset." *Conflict Management and Peace Science* 31 (5). Sage Publications Sage UK: London, England: 541–58.
- Morgan, T Clifton, Navin Bapat, and Valentin Krustev. 2009. "The Threat and Imposition of Economic Sanctions, 1971–2000." *Conflict Management and Peace Science* 26 (1). SAGE Publications Sage UK: London, England: 92–110.
- Morgan, T Clifton, and Yoshiharu Kobayashi. 2021. "Talking to the Hand: Bargaining, Strategic Interaction, and Economic Sanctions." *European Economic Review* 134. Elsevier: 103685.
- Morgan, T Clifton, and Anne C Miers. 1999. "When Threats Succeed: A Formal Model of the Threat and Use of Economic Sanctions." In *Annual Meeting of the American Political Science Association, Atlanta, Ga.* Vol. 264.
- Morris, Chris. 2020. "Brexit Trade Deal: What Do the Uk and Eu Want?" *British Broadcasting Corporation*. <https://www.bbc.com/news/51357589>.
- Morrow, James D. 1989. "Capabilities, Uncertainty, and Resolve: A Limited Information Model of Crisis Bargaining." *American Journal of Political Science*. JSTOR, 941–72.
- . 1992. "Signaling Difficulties with Linkage in Crisis Bargaining." *International Studies Quarterly* 36 (2). Blackwell Publishing Ltd Oxford, UK: 153–72.
- Netanyahu, Benjamin. 2012. "Address to the United Nations General Assembly." <https://undocs.org/A/67/PV.12>.
- Nooruddin, Irfan. 2002. "Modeling Selection Bias in Studies of Sanctions Efficacy." *International Interactions* 28 (1). Taylor & Francis: 59–75.
- Office of the United States Trade Representative. 2017. "U.S. Generalized System of Preferences Guidebook." Executive Office of the President.
- . 2018. "Findings of the Investigation into China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation Under Section 301 of the Trade Act of 1974: Executive Summary."
- Olson, Mancur. 1989. "Collective Action." In *The Invisible Hand*, 61–69. Springer.
- Olson, Mancur, and Richard Zeckhauser. 1966. "An Economic Theory of Alliances." *The Review of Economics and Statistics*. JSTOR, 266–79.
- Olson, Richard Stuart. 1979. "Economic Coercion in World Politics: With a Focus on North-South Relations." *World Politics* 31 (4). Cambridge University Press: 471–94.
- P5+1. 2006. "Elements of a proposal to Iran."
- Pape, Robert A. 1997. "Why Economic Sanctions Do Not Work." *International Security* 22 (2). The MIT Press: 90–136.
- . 1998. "Why Economic Sanctions Still Do Not Work." *International Security* 23 (1). The MIT Press: 66–77.

- Payne, Julia, and Emily Farge. 2012. "Exclusive: Glencore, Vitol Keep Oil Flowing to Greece." *Reuters*. <https://www.reuters.com/article/businessNews/idCABRE84T0JV20120530?edition-redirect=ca>.
- Pease, Don J, and J William Goold. 1985. "The New Gsp: Fair Trade with the Third World?" *World Policy Journal* 2 (2). JSTOR: 351–66.
- Peterson, Timothy M. 2014. "Sending a Message: The Reputation Effect of US Sanction Threat Behavior1." *International Studies Quarterly* 57 (4): 672–82. <https://doi.org/10.1111/isqu.12017>.
- Pisani-Ferry, Jean. 2011. *The Euro Crisis and Its Aftermath*. OUP USA.
- Poast, Paul. 2012. "Does Issue Linkage Work? Evidence from European Alliance Negotiations, 1860 to 1945." *International Organization*. JSTOR, 277–310.
- . 2013a. "Can Issue Linkage Improve Treaty Credibility? Buffer State Alliances as a "Hard Case""? *Journal of Conflict Resolution* 57 (5). SAGE Publications Sage CA: Los Angeles, CA: 739–64.
- . 2013b. "Issue Linkage and International Cooperation: An Empirical Investigation." *Conflict Management and Peace Science* 30 (3). Sage Publications Sage UK: London, England: 286–303.
- Powell, Robert. 1987. "Crisis Bargaining, Escalation, and Mad." *The American Political Science Review*. JSTOR, 717–35.
- . 1991. "Absolute and Relative Gains in International Relations Theory." *American Political Science Review* 85 (4). Cambridge University Press: 1303–20.
- . 1993. "Guns, Butter, and Anarchy." *American Political Science Review* 87 (1). Cambridge University Press: 115–32.
- . 2002. "Bargaining Theory and International Conflict." *Annual Review of Political Science* 5 (1): 1–30.
- . 2006. "War as a Commitment Problem." *International Organization* 60 (1). Cambridge University Press: 169–203.
- Putnam, Robert D. 1988. "Diplomacy and Domestic Politics: The Logic of Two-Level Games." *International Organization* 42 (3). Cambridge University Press: 427–60.
- Rathbun, Brian C. 2009. "It Takes All Types: Social Psychology, Trust, and the International Relations Paradigm in Our Minds." *IT* 1. HeinOnline: 345.
- Raustiala, Kal, and Anne-Marie Slaughter. 2002. "International Law, International Relations and Compliance." *International Relations and Compliance. Princeton Law & Public Affairs Paper*, nos. 02-2.
- Roberts, Dan, and Julian Borger. 2013. "Obama holds historic phone call with Rouhani and hints at end to sanctions." *The Guardian*.
- Rodrik, Dani. 1995. "Political Economy of Trade Policy." *Handbook of International Economics* 3. Elsevier: 1457–94.
- . 1997. *Has Globalization Gone Too Far?* Columbia University Press.
- . 2011. *The Globalization Paradox: Democracy and the Future of the World Economy*. WW Norton & Company.

- . 2018. “Populism and the Economics of Globalization.” *Journal of International Business Policy* 1 (1). Springer: 12–33.
- Rogin, Josh. 2015. “Republicans Warn Iran – and Obama – That Deal Won’t Last.” *Bloomberg View*.
- Rogowski, Ronald. 1987. “Political Cleavages and Changing Exposure to Trade.” *The American Political Science Review*. JSTOR, 1121–37.
- . 1989. “Commerce and Coalitions: How Trade Affects Domestic Political Alignments.”
- Rosendorff, B Peter, and Helen V Milner. 2001. “The Optimal Design of International Trade Institutions: Uncertainty and Escape.” *International Organization* 55 (4). Cambridge University Press: 829–57.
- Samore, Gary S, Matthew G Bunn, Graham T Allison, Aaron Arnold, R Nicholas Burns, Shai Feldman, Chuck Freilich, et al. 2015. “The Iran Nuclear Deal: A Definitive Guide.” Belfer Center for Science; International Affairs, Harvard Kennedy School.
- Schattschneider, Elmer Eric. 1935. “Politics, Pressures and the Tariff.” Prentice-Hall, inc.
- Schelling, Thomas C. 1966. *Arms and Influence*. Yale University Press.
- . 1980. *The Strategy of Conflict: With a New Preface by the Author*. Harvard university press.
- Schreiber, Anna P. 1973. “Economic Coercion as an Instrument of Foreign Policy: US Economic Measures Against Cuba and the Dominican Republic.” *World Politics* 25 (3). Cambridge University Press: 387–413.
- Schumer, Charles E. 2015. “My Position on the Iran Deal.” Press Release.
- Sebenius, James K. 1983. “Negotiation Arithmetic: Adding and Subtracting Issues and Parties.” *International Organization*. JSTOR, 281–316.
- Sick, Gary. 1985. *All Fall down: America’s Fateful Encounter with Iran*. IB Tauris.
- Simmons, Beth A, Frank Dobbin, and Geoffrey Garrett. 2006. “Introduction: The International Diffusion of Liberalism.” *International Organization* 60 (4). Cambridge University Press: 781–810.
- Skocpol, Theda. 1982. “Rentier State and Shi’a Islam in the Iranian Revolution.” *Theory and Society* 11 (3). Springer: 265–83.
- Smith, Alastair. 1995. “The Success and Use of Economic Sanctions.” *International Interactions* 21 (3). Taylor & Francis: 229–45.
- . 1996. “The Success and Use of Economic Sanctions.” *International Interactions* 21 (3). Taylor & Francis: 229–45.
- Smith, J Maynard. 1974. “The Theory of Games and the Evolution of Animal Conflicts.” *Journal of Theoretical Biology* 47 (1). Academic Press: 209–21.
- Stamberger, Jennifer L. 2003. “The Legality of Conditional Preferences to Developing Countries Under the Gatt Enabling Clause.” *Chi. J. Int’l L.* 4. HeinOnline: 607.
- Stein, Arthur A. 1990. *Why Nations Cooperate: Circumstance and Choice in International Relations*. Cornell University Press.

- Stolper, Wolfgang F, and Paul A Samuelson. 1941. "Protection and Real Wages." *The Review of Economic Studies* 9 (1). JSTOR: 58–73.
- Svensson, Jakob. 2000. "When Is Foreign Aid Policy Credible? Aid Dependence and Conditionality." *Journal of Development Economics* 61 (1). Elsevier: 61–84.
- Tarar, Ahmer. 2005. "Constituencies and Preferences in International Bargaining." *Journal of Conflict Resolution* 49 (3). Sage Publications Sage CA: Thousand Oaks, CA: 383–407.
- Tarar, Ahmer, and Bahar Leventoglu. 2009. "Public Commitment in Crisis Bargaining." *International Studies Quarterly* 53 (3). Blackwell Publishing Ltd Oxford, UK: 817–39.
- Tinbergen, Jan. 1952. "On the Theory of Economic Policy."
- Topkis, Donald M. 1978. "Minimizing a Submodular Function on a Lattice." *Operations Research* 26 (2). INFORMS: 305–21.
- Tsebelis, George. 2002. *Veto Players: How Political Institutions Work*. Princeton University Press.
- United Nations Conference on Trade and Development. 2016. "Handbook on the Scheme of the United States of America." United Nations.
- UNSC. 2006a. "UN Security Council Resolution 1696."
- . 2006b. "UN Security Council Resolution 1737."
- . 2007. "UN Security Council Resolution 1747."
- . 2008a. "UN Security Council Resolution 1803."
- . 2008b. "UN Security Council Resolution 1803."
- . 2010. "UN Security Council Resolution 1929."
- US Department of Treasury and US Department of State. 2016. "Guidance Relating to the Lifting of Certain U.S. Sanctions Pursuant to the Joint Comprehensive Plan of Action on Implementation Day."
- Voermans, Wim, Josephine MR Hartmann, and Michael Kaeding. 2014. "The Quest for Legitimacy in Eu Secondary Legislation." *The Theory and Practice of Legislation* 2 (1). Taylor & Francis: 5–32.
- Von Amerongen, Otto Wolff. 1980. "Commentary: Economic Sanctions as a Foreign Policy Tool?" *International Security* 5 (2). The MIT Press: 159–67.
- Vreeland, James Raymond. 1999. "The Imf: Lender of Last Resort or Scapegoat."
- . 2006. *The International Monetary Fund (Imf): Politics of Conditional Lending*. Routledge.
- Warren, Elizabeth. 2019. "Trade—on Our Terms."
- Weeks, Jessica L. 2008. "Autocratic Audience Costs: Regime Type and Signaling Resolve." *International Organization*. JSTOR, 35–64.
- Whang, Taehee, Elena V McLean, and Douglas W Kuberski. 2013. "Coercion, Information, and the Success of Sanction Threats." *American Journal of Political Science* 57 (1). Wiley Online Library: 65–81.

- Wiegand, Krista E. 2009. "China's Strategy in the Senkaku/Diaoyu Islands Dispute: Issue Linkage and Coercive Diplomacy." *Asian Security* 5 (2). Taylor & Francis: 170–93.
- Wolford, Scott. 2014. "Showing Restraint, Signaling Resolve: Coalitions, Cooperation, and Crisis Bargaining." *American Journal of Political Science* 58 (1). Wiley Online Library: 144–56.
- Wooldridge, Jeff. 2021. "Two-Way Fixed Effects, the Two-Way Mundlak Regression, and Difference-in-Differences Estimators." *Available at SSRN 3906345*.
- You, Hye Young. 2017. "Ex Post Lobbying." *The Journal of Politics* 79 (4). University of Chicago Press Chicago, IL: 1162–76.
- Zanotti, Jim. 2016. "Israel: Background and U.S. Relations." RL33476. Congressional Research Services.
- Zarif, Mohammad Javad, Salehi Ali Akbar, Seyed Abbas Araghchi, and Majid Takht Ravanchi. 2021. *Secret to the Seal*. Islamic Republic News.