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A Theory of Political Conflict and Chinese Economic Statecraft

How can economic models of conflict and sanctions help to explain why democratic countries initiate political disputes with China when the Chinese state is likely to respond by imposing economic sanctions?

Master's thesis

NTNU
Norwegian University of
Science and Technology

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Abstract

China has experienced dramatic economic growth over the last few decades, revealing novel opportunities for the Chinese state to use economic policy as a strategic instrument of power. As Beijing's economic power has grown, its willingness to use economic statecraft to reach various foreign policy goals has increased. This shift in Chinese economic power reveals new dilemmas for democratic countries that want to influence Chinese policymaking but increasingly depend on stable economic relations with China for prosperity. This thesis studies why democratic countries continue to attempt to influence Chinese policy despite its apparent futility. Specifically, it draws on models of conflict and sanctions to build a framework for analyzing political disputes between a democratic country and China. The model suggests that political disputes, and resulting sanctions, occur due to issue indivisibility, principal-agent problems, and information asymmetries.

Sammendrag

Kina har opplevd dramatisk økonomisk vekst de siste tiårene, noe som har avslørt nye muligheter for den kinesiske staten til å benytte økonomisk politikk som et strategisk maktmiddel. Samtidig som Beijings økonomiske makt har vokst, har det samme skjedd med villigheten til å benytte seg av økonomisk statshåndverk for å oppnå ulike utenrikspolitiske mål. Dette skiftet i kinesisk økonomisk makt gir nye dilemmaer for demokratiske land som ønsker å påvirke kinesisk politikk, men som i økende grad avhenger av stabile økonomiske relasjoner med Kina for velstand. Denne masteroppgaven studerer spørsmålet om hvorfor demokratiske land fortsetter å forsøke å påvirke kinesisk politikk på tross av dets tilsynelatende nytteløshet. Konkret benytter oppgaven økonomiske konflikt- og sanksjonsmodeller for å konstruere et rammeverk for analyse av politiske konflikter mellom et demokratisk land og Kina. Modellen antyder at politiske konflikter, og resulterende sanksjoner, hender på grunn av udelelige konfliktområder, prinsipal-agent-problemer og asymmetrisk informasjon.

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Chapter 1

Introduction

In the last few centuries, the Western world has arguably dictated international relations, establishing standards for international law, terms of trade, and institutions for international cooperation. After the collapse of the Soviet Union, the hegemony of the West, and the United States, in particular, has been virtually unchallenged. However, the last two decades have also revealed the maturation of a new potential superpower in the East, namely China. Between 2010 and 2020, the most populous country in the world more than doubled its gross domestic product (GDP), and its economic growth is continuing at a rapid pace, although slower than previously (World Bank 2020; Brandt et al. 2020). It has been puzzling to many economists to observe that this economic growth continues despite the lack of democracy and inclusive institutions, which by several economists are considered crucial determinants for sustained economic growth (see, for instance, Acemoglu et al. 2019).

Although this puzzle is interesting to study directly, the rise of a non-democracy as the world's second-largest economy also bears other notable consequences that this thesis seeks to explore. Greater economic strength and increasing trade flows with other countries translate to greater power, which China is no stranger to exploiting (Macikenaite 2020). When the Norwegian Nobel Committee awarded the Nobel Peace Prize to a Chinese political dissident in 2010, Norway bore the consequences of China's novel international strategy. China called back diplomats, suspended all free trade talks with the Norwegian government, and ostensibly sanctioned Norwegian salmon exports to China. After the alleged imposition of the sanction, Norwegian voting on UN resolutions quickly became more aligned with China's, suggesting that China's economic pressure had successfully changed Norwegian foreign policy (Kolstad 2020; X. Chen and Garcia 2016). The Nobel Peace Prize incident is a frequently mentioned example of Chinese exertion of economic

statecraft, but it is not unique. China has exploited economic and diplomatic ties with countries ranging from France and the United Kingdom to Taiwan and Japan to reach its foreign political goals (Reilly 2012; Chang and Yang 2020; Lai 2018; Norris 2016).

This shift in Chinese foreign policy has forced many democratic countries to rethink how they interact with a sizeable authoritarian state like China. On the one hand, Chinese non-democratic practices and breaches of international law have proved hard to ignore (see, for instance, Al Jazeera 2021). On the other hand, China represents the world's largest export and import markets, suggesting that entirely avoiding engagement with China is simply not an alternative for many small, open economies (CIA 2020). Thus, many democratic countries balance their integrity as democratic states against the economic benefit of maintaining good economic and diplomatic relations with China (Fuchs and Klann 2013). It is interesting to study this relationship, perhaps especially the intuition behind the choices made by the democratic country in the conflict of interest between democratic values and economic profit. Further, it is interesting to explore why the country may choose to criticize China despite its apparent futility.

China's exertion of economic statecraft is extensively covered in case studies and descriptive social science articles but has not been studied much in theoretical economic literature. Therefore, this thesis draws on economic models of conflict and sanctions to examine the mechanisms in a political game between China and a small democratic country. Specifically, the thesis studies the question:

> How can economic models of conflict and sanctions help to explain why demo-
> cratic countries initiate political disputes with China when the Chinese state
> is likely to respond by imposing economic sanctions?

The thesis proceeds in the following order: Chapter 2 provides the reader with definitions of central terminology, a literature review of relevant cases of Chinese economic statecraft, and a description of relevant economic models; Chapter 3 presents the thesis' theoretical framework, including assumptions about the countries, outcomes of political conflict, and the power of political instruments; Chapter 4 describes two possible game forms, simultaneous and sequential games, compares them, and introduces an extension of the model; Chapter 5 includes a discussion of the implications of the model; Chapter 6 concludes.

Chapter 2

Literature Review

This chapter introduces the fundamentals for understanding Chinese economic statecraft and strategic sanctions models. It starts by formally defining instruments of power and economic statecraft specifically before touching upon central episodes of Chinese uses of economic statecraft and its reasoning. Finally, the chapter introduces literature on why conflict and sanctioning occur and the theoretical sanctions literature.

2.1 Instruments of power

A state has a range of tools available for implementing its foreign policy. Ultimately, they translate to a country's possibility of exerting power in international relations and the ability to further its own political and strategic objectives. There have been several attempts to categorize these instruments of power coherently.

Baldwin (1985, p.13-14) defines four types of statecraft[1]: propaganda, diplomacy, economic statecraft, and military statecraft, while the so-called MPECI-framework,[2] categorizes instruments of power into military, political, economic, civil/judicial, and information-related instruments (Cullen and Reichborn-Kjennerud 2017; Monaghan et al. 2019; Waage et al. 2021). The MIDLIFE specification divides the tools further, separating military, informational, diplomatic, law enforcement, intelligence, financial, and economic tools (Worley 2015, p.226). States can use these tools individually or as complements to each other in so-called hybrid warfare[3]. Some of these definitions overlap, but the nuances

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[1]The Britannica Dictionary (2022) defines **statecraft** as *"the art or skill of conducting government affairs"*.

[2]This framework is developed by the Multinational Capability Development Campaign (MCDC) (Cullen and Reichborn-Kjennerud 2017).

[3]Cullen and Reichborn-Kjennerud (2017, p.8) defines **hybrid warfare** as *"the synchronized use of multiple instruments of power tailored to specific vulnerabilities across the full spectrum of societal functions to achieve synergistic effects"*.

are not vital for the conclusions of the thesis. What is important to recognize is that a state has a range of tools to draw on when conducting its foreign affairs. This thesis focuses specifically on political instruments of power (diplomatic domain) and economic instruments of power (economic statecraft). The cases introduced in section 2.2 will help to justify this choice.

2.1.1 Political and diplomatic instruments of power

Political, or diplomatic, instruments of power represent *"the power of persuasion"* and include multilateral, plurilateral, and bilateral negotiations to achieve foreign policy goals (Worley 2015, p.238). Importantly, they draw on political and social capital and the ability of actors to translate this capital into results (Goddard et al. 2019). One can think of international negotiations and political pressure as the political or diplomatic tool of statecraft (Waage et al. 2021, p.4; Baldwin 1985, p.13; Cullen and Reichborn-Kjennerud 2017, p.17-18). Thus, the thesis uses the concepts of diplomacy and political pressure relatively interchangeably.

According to Worley (2015, p.226), the political/diplomatic domain is, however, sometimes omitted as a separate tool of power because it can also be the art of applying the other tools. In a way, diplomacy works by being backed by other instruments of power, for instance, negotiating with the implicit threat of military intervention.

2.1.2 Economic statecraft

Economic statecraft[4] refers to a state's use of economic means, i.e. intentional manipulation of economic transactions, to reach strategic objectives (Baldwin 1985, p.13-14; Norris 2016, p.12-14). The strategic objectives are normally assumed to be related to foreign policy and/or national security (Baldwin 1985, p.40; Norris 2016, p.12-14). Importantly, however, the goals of economic statecraft cannot be purely economic but have

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[4]Other concepts that authors use as synonyms or related concepts include geoeconomics, economic warfare, economic coercion and economic sanctions (Blackwill and Harris 2016, p.20; Schelling 1958, p.487; Baldwin 1985, p.35-38). Baldwin (1985, p. 35-40) argues that the last three definitions are too narrow to encompass all forms of economic statecraft because they implicitly focus on only negative forms of statecraft and the outcomes of statecraft rather than the means. For instance, Baldwin (1985, p. 41) argues that bombing a factory is a case of military statecraft and not economic statecraft because the means are military, even if the consequences are economic.

a geopolitical aspect[5] (Blackwill and Harris 2016, p.20).

While there are differences in what different scholars consider tools of economic statecraft, typical instruments include tariff discrimination, targeted investment policies, and economic assistance (Blackwill and Harris 2016[6]; Baldwin 1985, p.41-42[7]; Norris 2016, p.14[8]). Baldwin (1985, p. 41-42) also argues that threats and promises of executing sanctions are forms of economic statecraft because they rely on economic means.

Baldwin (1985, p.41-42) broadly defines economic statecraft as either positive or negative sanctions, signifying the use of economic inducements and economic coercion, respectively, to reach foreign policy goals. However, the line between positive and negative sanctions is fuzzy because they can represent the same action with different signs. For instance, granting economic aid to influence politics in the target country is a positive economic sanction, while withdrawing existing aid to pressure the target country is a negative economic sanction. However, this thesis is primarily concerned with economic coercion and does not spend any more space devoted to economic inducements. For the remainder of the text, sanctions and economic sanctions are used primarily to mean coercive, negative economic approaches to reaching geopolitical goals unless otherwise stated.

Notably, the effectiveness of economic coercion has traditionally depended on size, in which countries with large domestic markets or high global market shares have had a significant advantage. However, sanctioning can also work well in instances where entities have considerable systemic importance (Blackwill and Harris 2016, p.58).

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[5]Economic actions that pursue economic gains can be a positive-sum game where all parties gain. Conversely, economic actions of statecraft are more similar to traditional military statecraft in that they can produce zero-sum or even negative results (Blackwill and Harris 2016, p.20).

[6]Blackwill and Harris (2016) define seven leading tools of economic statecraft: trade policy, investment policy, economic sanctions, economic assistance, financial and monetary policy, national policies governing commodities and energy, and cyber.

[7]Baldwin (1985, p.41-42) lists ten types of negative economic trade sanctions, including embargo, boycott, and tariff increase; and six types of negative economic capital sanctions, including freezing assets, controls on import or export, and aid suspension. He also lists six types of positive economic trade sanctions, including favorable tariff discrimination, direct purchase, and granting "most-favored-nation" treatment, and four types of positive capital sanctions, including aid provision, investment guarantees, and favorable taxation. He also includes threats and promises of these measures.

[8]Norris (2016, p.14) does not attempt to make an exhaustive list but mentions sanctions, taxation, embargoes, trade agreements, asset freezing, engagement policies, currency manipulation, subsidies, tariffs, and trade agreements.

2.2 Chinese economic statecraft

This thesis aims to model the political game between an authoritarian state, China, and a democratic state attempting to influence China's policy. Thus, this section introduces Chinese economic statecraft and some specific cases relevant to the formulation of the model, attempting to display a pattern in Chinese conduct of foreign policy.

2.2.1 Background

In the last few decades, China has become an increasingly important player on the international stage. Counting almost one-sixth of the world's population, China forms the largest internal market and labor force on earth. Further, its abundance of cheap labor has led China to be the world's greatest exporter. As a result, its economy has almost doubled in the last decade, making it the world's largest economy in terms of purchasing power parity[9] (CIA 2020). From an economic development perspective, China is thus a tremendous success story, having achieved double-digit economic growth and massive poverty reduction.

In contrast to many other countries climbing towards high-income status, China remains an autocracy that executes policies largely unpopular in the democratic world. The Chinese leadership receives negative attention for several of its policies, including its treatment of the ethnic minority Uyghurs, its assertiveness in the East and South-China seas, and increasing military and verbal aggression toward Taiwan and Hong Kong (Human Rights Watch 2021; Al Jazeera 2021; Zongyou 2017; Hui 2020; J. Kwon 2020; Chang and Yang 2020). Further, many accuse China of intellectual property theft from companies operating within its borders (Swanson 2018; Shang and Shen 2021).

The combination of increased economic power and internationally unpopular policy choices in China places democratic countries in a dilemma. The countries have an interest in trading with China for financial reasons, but also have an interest in that China leads democratic policies consistent with human rights (see section 3.1 for a more thorough discussion). However, achieving both these goals is difficult, as the Chinese state reacts harshly to any attempts at influencing its policies, jeopardizing economic and diplomatic

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[9]China's GDP adjusted for purchasing power parity is by some seen as a superior measurement of its actual economic power because market forces do not determine the currency (CIA 2020).

relations. As China's economic power increases, so have Beijing's willingness to use economic coercion to avoid criticism (Macikenaite 2020). Chinese conduct of economic policy has gradually changed from being growth-driven to increasingly being used as a strategic instrument of power (Norris 2022). In some ways, China has even become the poster child for the successful use of economic statecraft, drawing on a variety of tools to reach its political goals (Blackwill and Harris 2016). Norris (2016) is one author who describes how China strengthens diplomatic and economic ties with other countries to be in a more favorable bargaining position in the future, a form of positive economic statecraft that Mastanduno (1999) terms "structural linkages". These linkages can be exploited strategically at later times to achieve concessions using coercive methods. Strong diplomatic and economic ties have arguably favored China in Asia, Africa, Latin America, and even Eastern Europe (Norris 2022; Reilly 2017; Pepermans 2018). Moreover, an empirical study on African and Latin-American countries found that countries that trade more with China also converge with China on foreign policy issues (Flores-Macías and Kreps 2013). This finding can suggest that increased reliance on China deters countries from opposing China and enables China's use of economic statecraft.

This thesis generalizes China's coercive economic conduct, drawing on three relatively recent, particularly illustrative episodes.

2.2.2   Official receptions of the Dalai Lama

The exiled leader of Tibet, the Dalai Lama, travels the world to spread awareness and support for his battle to liberate Tibet. China views Tibet as a natural part of its territory and has been quick to criticize anyone who supports Tibet's independence movement (Reilly 2017).

For instance, when the former president of France, Nicolas Sarkozy, announced he would meet with the Dalai Lama in 2009, the state-controlled Chinese newspaper People's Daily warned that the meeting would *"ultimately damage the whole interests of the French people and the European Union"* (Reuters 2008). Later, China canceled two trade delegations that were supposed to visit France and postponed the annual EU-China summit originally planned to be held in Paris[10]. Further, Beijing canceled a large order of airplanes from

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[10]The diplomatic fallout eventually resulted in Prague hosting the conference instead (Reilly 2012).

the French aerospace company Airbus, and a senior Chinese official avoided France on his tour of Europe, implicitly referring to the diplomatic fallout. After the scheduled meeting with Dalai Lama, Paris issued a statement strongly recognizing Tibet as Chinese territory (Reilly 2012). Other countries that have experienced repercussions from China following visits from the Dalai Lama include Mongolia, the United Kingdom, and Denmark, to mention some (AlJazeera 2016; Reilly 2012; Brødsgaard 2010).

Fuchs and Klann (2013) find that countries with official receptions of the Dalai Lama on average experience a 16.9 percent reduction in exports to China, an effect they call the "Dalai Lama effect on international trade"[11]. Notably, the effect is only significant for meetings at the highest political level. In a reexamination of the data, Lin et al. (2019) find that Chinese state-owned enterprises primarily cause the export reduction, suggesting direct state involvement.

2.2.3   The Nobel Peace Prize incident

On October 8th, 2010, the Norwegian Nobel Committee announced that the winner of the Nobel Peace Prize for 2010 was the Chinese democracy advocate Liu Xiaobo. Liu had been a central figure in the Tienanmen Square democracy protests in 1989. He was also one of the principal authors behind charter 08, a manifesto released in 2008 demanding fundamental human rights in China. As a result, the Chinese government imprisoned Liu Xiaobo on multiple occasions, with the latest sentence of 11 years for releasing charter 08 (NobelPrize.org 2010; NobelPrize.org 2022; Jacobs and Ansfield 2010).

Already at the nomination of Liu Xiaobo, Chinese officials warned the leader of the Nobel committee that awarding the prize to the activist would sever relations between Oslo and Beijing (S. Chen 2010). Immediately after the announcement of Liu Xiaobo as the winner, Beijing tried to intimidate other countries from joining the award ceremony (Reilly 2012). A senior Chinese diplomat warned:

> "The choice before some European countries and others is clear and simple:
> do they want to be part of the political game to challenge China's judicial
> system or do they want to develop a true friendly relationship with the Chinese

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[11]Fuchs and Klann (2013) investigate the question empirically using a dataset from 1991 to 2008 with 159 countries but only find significant effects for what they dub "The Hu Jintao era" from 2002 to 2008.

government and people in a responsible manner?" (Reuters 2010).

Even though the government of Norway attempted to assure Beijing that the committee was independent of the Norwegian state and that they had no authority to interfere in its mandate, Beijing embarked on a massive retaliation campaign (Kolstad 2020).

At the time, Norway and China were negotiating a free trade agreement, but these negotiations were immediately frozen. Further, China withdrew diplomats and ostensibly sanctioned Norwegian salmon exports to China (X. Chen and Garcia 2016; S. Chen 2010; Kolstad 2020). According to unofficial sources, in 2014, China presented Norway with fourteen demands the Norwegian state had to fulfill before the countries could restore diplomatic ties, including never awarding the prize to a Chinese dissident again (Baker 2014). The political and diplomatic ties between the two countries were cold for several years before the relationship was normalized in 2016, resuming free trade talks, for instance (Chan 2016). However, several authors suggest that the Chinese sanctioning effort did affect Norwegian policy. When the Dalai Lama visited Oslo for the 25th anniversary of his Nobel Peace Prize in 2014, no members of the Norwegian government agreed to meet him, and he was also denied a formal reception at the parliament (Baker 2014; X. Chen and Garcia 2016). Further, Kolstad (2020) finds that the Norwegian agreement with China on UN resolutions immediately increased following the peace prize award.

2.2.4   Trade war with Australia over the origins of Covid-19

The first cases of the SARS CoV-2 virus, triggering the Covid-19 pandemic, were detected in Wuhan in China, leading to the widely accepted hypothesis that the virus originated in China (WHO-China 2021; Holmes et al. 2021). However, Chinese authorities have been reluctant to let independent researchers gain access to Wuhan to research the origins of the coronavirus, sparking criticism from the international community. Following the lead of the United States, Australia thus called for an independent inquiry into the virus's origins in April 2020 (Worthington 2020).

This inquiry did not please Beijing and arguably deteriorated the diplomatic relationship between China and Australia (Pan and Korolev 2021). Shortly after the foreign minister of Australia had released her statement, a senior Chinese diplomat to the UK called the

initiative politically motivated and said it would divert attention from the real problem of fighting the pandemic (BBC News 2020a). China's ambassador to Canberra, Jingye Cheng, casually suggested that continued calls for an independent inquiry could lead to an unwillingness by Chinese people to visit Australia, drink Australian wine or eat Australian beef. This statement was by some interpreted as a threat of economic coercion (Hitch and Hayne 2020). The state-sponsored media followed suit. The editor of the Global Times wrote on Weibo that the Chinese ought to be more risk-averse when considering doing business with Australia and sending their children to study there (Kuo 2020).

A few weeks later, the words became action, and Beijing imposed an 80 percent tariff on Australian barley, blaming anti-dumping measures (Conifer 2020). Further, Beijing blacklisted four Australian red-meat processors for imports to China, which at the time consisted of 35 percent of Australia's export of beef to China (Kate Sullivan and Gunders 2020). In June, Beijing issued an advisory for students on the risks of studying in Australia, blaming discrimination against Asians during the pandemic (BBC News 2020b). The trade war saw no de-escalation at the end of the year when China imposed tariffs on Australian wine of up to 200 percent (Kath Sullivan et al. 2020). Other products that were hit by novel Chinese trade laws included Australian lobsters, cotton, timber, and coal (Doran 2021; Dziedzic 2021). A later examination of the exports suggested that Australian exports to China fell by a total of 40 percent in the last half of 2020 compared to 2019 (Doran 2021).

In the beginning, Australian officials refused the accusations of a trade war, saying that China had initiated the process of raising tariffs on barley over a year earlier. However, they could not ignore the fact that the diplomatic relations between the countries were severed (Kath Sullivan 2020; Dziedzic 2021). Canberra repeatedly attempted to restore diplomatic relations, while refusing to implement countersanctions (Dziedzic 2021; Grant et al. 2020). After their efforts to resolve some of the trade issues were unfruitful, however, the Australian government eventually brought the issue to the World Trade Organization (WTO), where the organization appointed a three-person panel to settle the dispute (McNaughton and Verley 2021). The WTO has yet to reach a decision (WTO 2022a). Meanwhile, China has sent its own complaint regarding Australian trade practices after the WTO blocked its first complaint (WTO 2022b).

2.2.5 The patterns

These three cases are only a few examples of Chinese economic sanctioning, but they are relatively representative. Therefore, this subsection describes some general patterns to construct a model based on Chinese conduct.

First, the order of events is similar. The dispute starts when a country directly or indirectly criticizes Chinese domestic policy. It varies whether the country willingly does this and how direct the accusations are. No matter how planned or directed the criticism is, however, Beijing appears fierce in its response. Often, diplomatic relations become strained, with diplomats leaving the democratic country and releasing powerful statements condemning the meddling in Chinese domestic policy. In the case of Australia, China escalated the political dispute by making formal complaints to the WTO when Australia did. Further, the Chinese state often threatens consequences and then imposes sanctions. The sanctions are usually related to the bilateral trade between the countries.

Second, China is open about its motives, but not its actions. As Lai (2018) points out, China regularly denies the imposition of any sanction while quietly pursuing the path of economic coercion. China only implied that sanctions would be imposed in all three cases but did not openly admit that it actually did so. Often, Beijing blames concerns over food quality, technical difficulties, or even that the measures are in place to ensure equitable trade practices (Lai 2018; Conifer 2020). However, Beijing openly threatens specific consequences to countries that oppose them. As the Australian case illustrates, these threats are often similar to the imposed sanctions, leading to the natural conclusion that the new trade restrictions are, in fact, retaliatory measures.

Third, Beijing's reaction to criticism appears blown out of proportion in several instances. The three policy issues presented are important to the Chinese state, but they do not seem to represent immediate perils to Chinese national security. However, the Chinese leadership has shown on multiple occasions that they let nothing pass when it comes to criticism of Chinese policy, potentially deterring other potential criticizers from taking any action. This policy of setting an example to scare others is also seen in Chinese domestic policy and is reflected in an old Chinese idiom: *"Kill the chicken to scare the monkey"* (殺雞儆猴) (Mei and Pearson 2014; Norton 2014; Calhoun 2021).

Although there appear to be patterns in Chinese economic coercion, it is essential to recognize the limitations of attempting to generalize Chinese foreign policy. For instance, although there is strong evidence that China sometimes imposes sanctions, it is not necessarily a causal link between a trade measure and a policy each time. For instance, Poh (2017) argues that many scholars and policy analysts exaggerate Chinese assertiveness in the South China Sea disputes. It is also difficult to verify sanction episodes when they are not officially imposed (Lai 2018). Second, economic coercion is arguably only a small part of Chinese economic statecraft. This thesis largely overlooks the others. For instance, one issue that has created significant friction in international policy debates is how Chinese investment and financial assistance form large spheres of Chinese influence all over the world (Reilly 2017; W. Zhou and Esteban 2018; Yan and Y. Zhou 2021). Nevertheless, as these examples illustrate, there are patterns to Chinese economic coercion, which an economic model potentially could clarify.

2.3   Why does conflict occur?

Conflict is a costly redistribution of resources, where the parties involved will have fewer total resources after the conflict than before. This deadweight loss applies to both war and sanction imposition. Thus, the parties would be better off without the conflict (Fearon 1995; Drezner 2003). This section explores why sanction imposition and conflict nevertheless occur.

2.3.1   Why does war occur?

Two countries waging war spend resources (and human lives) fighting, while the contested piece of land or resource remains the same or even smaller. Thus, war is associated with deadweight losses, which leads Fearon (1995, p. 383) to point out: *"As long as both sides suffer some costs for fighting, then war is always inefficient ex-post"*. If the actors knew the outcomes of the war with certainty, one would expect war never to occur. Nevertheless, war has been a consistent part of almost every human civilization. There are at least five reasons why war may occur despite its apparent redundancy: irrationality,

lack of leader accountability[12], information problems, commitment problems, or issue indivisibility (Fearon 1995). The last three explanations are what Fearon (1995) calls rational explanations for war and are interesting to explore further.

The first rational explanation for war relates to information problems. Fearon (1995) posits that leaders who hold private information about their military capabilities or resolve may intentionally misrepresent it to strike a better bargain with their adversary. Without being able to prove the information intended to present, the two parties must consider information asymmetries, and war may follow as the most rational action after calculating the probabilities of different states of nature.

The second rational explanation relates to commitment problems. If there is no enforceable bargain solution, the equilibrium may be that both parties engage in war for fear that the other will. Within a state, the government can enforce a power monopoly, and there exists no rationale for settling disputes with violence because there will be reprisals. However, every actor can use violence as part of a national strategy in the international domain. Schelling (1970, p.12) also makes this point, comparing international relations to gang wars; even though both adversaries would prefer no war ex-post, they cannot risk not preparing for or engaging in war. This commitment problem gives an equilibrium with a war that no one wants.

The final explanation is that issues may be indivisible, leading to no potential compromise between the two adversaries. For example, suppose the issue at stake is a piece of land, as in a typical interstate conflict. In that case, it might be possible to divide the land according to their relative military capabilities, so the outcome would give each party their expected gain from war without incurring any deadweight costs. However, suppose the issue in question is indivisible, such as whether a leader should stay in power or not. This indivisibility gives a winner-takes-it-all solution, and neither party may be content with settling beforehand.

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[12]A leader ordering war may reap benefits from war, while the population bears all the cost, leading to a rational calculation by the leader that war is worth it.

2.3.2   Why are sanctions imposed?

Like war, sanction imposition entails a deadweight loss to the actors involved. Thus, the theoretical literature finds that rational and unitary actors that can credibly commit to their stated policies will never impose sanctions in a complete information setting (Lacy and Niou 2004; Hovi et al. 2005). Likewise, a target who knows it will acquiesce to the sender's demands if sanctioned should do so before it endures the costs of sanctions (Drezner 2003). Using a simple game-theoretic framework, Drezner (2003) shows that if a sanction is likely to be successful, then the mere threat of imposing this sanction will be effective, leading to no imposition of effective sanctions under complete information. The fact that states impose sanctions despite their inefficiency must then result from inefficiencies in the way countries make their sanctioning decisions. This inefficiency can be due to information problems, commitment problems, issue indivisibility, or non-unity of actors.

Information problems

Incomplete information can affect both the target and the sender's choices, and Hovi et al. (2005) argue that countries may impose sanctions in four specific situations of incomplete information.

The first is that the target underestimates the potency of the sanctions. If the target believes that the sanctions will have a lower economic impact than it actually will, it can choose to defy threats initially. Then, knowing that the sanctions are severe, the sender will impose sanctions that will lead to target acquiescence.

The second situation is where the target misinterprets the contingency of the threat, meaning it believes the sender will impose sanctions no matter the target's course of action. In that case, the sender knows that the threat is contingent and will impose sanctions if the target sticks to an unwanted policy.

The third case is when the target believes that the threats of sanctions are false, while the sender knows they are not. Lacy and Niou (2004) also explore this assertion, arguing that countries must sometimes impose sanctions so that the target correctly updates its beliefs about the sender's resolve. If a sender never actually imposes sanctions, then a

target may wrongly believe that the threat of sanctions is empty, thus refusing to comply with the sender's demands. Similarly, Nossal (1989) argues that senders use economic sanctions as a form of punishment rather than as an attempt at coercing the target. He argues that the imposition of a sanction can leave the target less willing to perform a similar policy in the future while signaling the sender's resolve.

The fourth case is where the *sender* has incomplete information regarding the target's resolve. For example, suppose the sender does not know the target's costs of complying compared to standing firm. In that case, the sender might impose sanctions, believing them to elicit target concessions when they will not (Hovi et al. 2005).

Thus, information availability plays a vital role in determining whether sanctions will be imposed or not. The actors in a sanctions interaction would benefit from complete information, possibly being able to avoid costly sanctions. In reality, this means that the actors need to be able to signal their intent credibly. Hart (2000) finds empirically that sanction threats from democracies are more effective than from non-democracies; arguably because they are more transparent and can "tie their hands" more convincingly, being liable to their voters.

Commitment problems

In line with Fearon's rationalist explanations for war, Drezner (1999) argues that sanctions also can be rationally imposed under complete information due to commitment problems. He claims that if expectations of conflict are high, then both the sender and target fear that backing down today will leave them in a more vulnerable bargaining position in the future. So then, a sanction is imposed independent of its likelihood of success, and the target does not acquiesce to the sender's demands (as expected).

Issue indivisibility

Further, a sender can rationally impose a sanction if the policy issue is indivisible. For example, if the issue is freedom of speech in China, the two parties cannot settle on a middle ground; either there is freedom of speech in China, or there is not. In that case, the sender might prefer to impose a sanction because the expected benefit of sanctioning is higher than the cost of doing nothing (Drezner 1999).

Non-unity of actors

In a democracy, leaders can choose to impose sanctions doomed to fail merely to please the electorate. Kaempfer and Lowenberg (1988) formulate a model showing that the interests of different pressure groups in the sending country can determine the political market equilibrium of sanctions. They build on the assumption that some groups in the sending country earn a higher income if the country imposes sanctions, for instance, by overtaking the market shares of sanctioned firms. At the same time, some groups lose out, for instance, by having to pay more for input factors to production. There may also be pressure groups that support sanctions for moral reasons. In a democracy, the opinions of the pressure groups, and their relative power balance, can spill directly onto policy decisions. Beladi and Oladi (2009), who extend Kaempfer and Lowenberg's (1988) model, argues that the sender government, in many circumstances, is more concerned with reelection than the compliance of the target country. Then, inefficient sanctions may be imposed just to please the voters, not for the belief of actually changing the target's policy.

In a non-democracy, leaders do not necessarily bear the costs of sanctions in the same way as their population, leading to the potential implementation of inefficient sanctions. In studying targets rather than senders, Allen (2005) argues that economic coercion is more likely to work on democratic states than non-democratic states because their leaders need to rely on consistent domestic support to remain in office. In an empirical study, Peksen (2019, p. 264) indeed finds that sanctions against democratic regimes are the most efficient. Additionally, she finds that sanctions targeting military regimes or one-party states (like China) are the least effective *"as they have strong coercive and institutional capacity to cope with the economic and political burdens of the coercion"*. Further, even with so-called "smart sanctions" that target specific individuals and firms rather than the whole economy, the state can strategically shield actors from the burden by reallocating assets within the economy (Ahn and Ludema 2020). This evasion possibility means that non-democratic leaders potentially bear little of the burden of economic sanctions, suggesting that an authoritarian state can impose sanctions, or a democratic country can impose sanctions on an authoritarian state, despite its apparent inefficiency.

2.4 Sanctions

The theoretical[13] literature on sanctions is convenient to draw on for understanding a strategic interaction ending in sanctions. Thus, this section introduces relevant models of sanctions and their terminology. Further, the section explores gaps in the literature and explains why a separate framework might be more convenient to draw on for understanding instances of Chinese economic sanctioning.

Several authors have developed models of sanctions, with pioneers including Kaempfer and Lowenberg (1988), Eaton and Engers (1992), and Drezner (1999). Other notable contributions include Dorussen and Mo (2001), Drezner (2003), Lacy and Niou (2004), Hovi et al. (2005), Beladi and Oladi (2009), Krustev (2010) and Bapat and Kwon (2014). Although the authors have different approaches and results, they have some of the same basic components relevant to introduce.

2.4.1 Strategic interaction

In a strategic interaction involving sanctions, there are two primary actors; the *sender* (sometimes known as the *coercer*) and the *target* (Eaton and Engers 1992; Hufbauer et al. 2007, p.2). Often, the target is a state violating an international norm, for instance, developing nuclear weapons. The sender is "gate-keeping" this norm by threatening or imposing sanctions after the target violates the norm. The actors sequentially choose their policies. The sender decides whether to impose sanctions or not, and the target decides whether to acquiesce (yield) to the sender's demands or to stand firm.

The first step in the game is often a threat stage, where the sender decides whether to threaten sanctions or not or which threshold level of policy in the target country that will spark sanctions (Drezner 2003; Eaton and Engers 1992). Other authors (such as Dorussen and Mo 2001 and Hovi et al. 2005) assume the threat of a sanction to be implicit because the target knows the consequences of violating an international norm. The second step of the game is where the target decides whether to violate a norm or not, which forms the first stage in Dorussen and Mo's (2001) and Hovi et al.'s (2005) frameworks. In all cases, the sender then chooses whether to impose sanctions, and the target decides whether to

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[13]There is also a vast empirical literature on sanctions that is not necessarily highly relevant for this thesis and therefore excluded.

acquiesce to the sender's demands. There are a few semantic differences in the approaches of different authors, but the basic ideas are similar.

2.4.2   Costs and benefits

There are a few different specifications of the costs and benefits of an interaction involving sanctions. For instance, the types of actors included in the theoretical model will directly impact the costs. However, a few costs are common to the most influential models: costs and benefits of the policy, costs of sanctions, and audience costs.

Generally, the target benefits from following a policy, while the sender bears a disadvantage, modeled in monetary terms or with utility functions. For example, in Hovi et al.'s (2005) model, there is a violation benefit to the target, $B > 0$, of violating a norm, and a violation cost for the sender, $C > 0$ if the target violates a norm. Bapat and Kwon (2014) have the same underlying reasoning, except that they also include payoffs to domestic firms that have "normal" profits as long as no sanctions are imposed. Kaempfer and Lowenberg (1988) and Beladi and Oladi (2009) also introduce costs and benefits for the interest groups, tied to both profits and "morality", that directly influence the level of the optimal sanction. Finally, Eaton and Engers (1992) introduce the benefits and costs of policy in terms of utility, with the same rationalization as other authors.

There are also direct costs associated with sanctions for the actors involved, which all authors include. Hovi et al. (2005) denote this sanction cost as S_j^t for country $j = T, S$ (T = target, S = sender) and sanction type $t = L, P$, where the sender can choose to impose either lenient (L) or potent (P) sanctions. Authors like Kaempfer and Lowenberg (1988), Bapat and Kwon (2014), and Beladi and Oladi (2009) let the sanction be a continuous variable leading to many possible costs. Lacy and Niou (2004) and Krustev (2010) model discrete sanctions costs, only different for the sender and target.

The final cost that many authors include is the so-called **audience costs**, which portray the (political) costs of not imposing sanctions. These represent negative reprisals from the population in the potential sending country, who wants the state to react to international norm violations. Fearon (1994) was the first author to describe audience costs, although in the context of war (Weber and Schneider 2020). These costs are influential in Hovi

et al.'s (2005) model, which argues that domestic interest groups often lobby heavily in favor of sanctions, leading to audience costs if the government does not comply. Notably, they assume no audience costs if the sender imposes potent sanctions and some audience costs if the sanctions are lenient. Conversely, in Kaempfer and Lowenberg's (1988) and Beladi and Oladi's (2014) models, there are no direct audience costs because the level of the optimal sanction is determined directly by the electorate.

For the model developed below, audience costs may be relevant for the democratic country involved but arguably less so for an autocracy like China. Instead, the Chinese leadership imposes sanctions due to perils to their authority as leaders, represented by the violation cost in the general framework in the sanctions literature.

2.4.3 Gaps in the existing sanctions literature

Modeling the cases of Chinese economic statecraft presented in section 2.2 is not straightforward using existing theoretical models, however. In the general framework of sanctions scholars, one could think of China as the sender and the democratic country as the sanctions target. In that case, the first step of the game would be that the target (democratic country) violates a norm imposed by China, i.e., criticizes its policy choices. Then China answers by threatening to impose sanctions, and finally imposes sanctions. However, there are two main reasons this story does not perfectly hold and why much of the existing sanctions literature arguably fails to describe Chinese economic statecraft accurately.

First, the order of events does not match. In the sanctions literature, the sender first threatens to impose sanctions if the target executes a policy. If the target then chooses to ignore the threats and go through with the policy, the sender imposes sanctions. Here, the (democratic) country that ends up being the target of sanctions is, in fact, the sender of the political demands, while the sender, China, has violated an international norm. Further, after the democratic country has made political demands, China does not simply choose to comply or not without using diplomatic effort. Instead, it exerts political pressure and sanctions the democratic country.

Second, the sanctions literature largely overlooks political pressure and diplomacy directly. Instead, the models generally focus on *threats* and non-compliance of the target. In a way,

threats of sanctions are comparable to the political pressure imposed by China in the model presented here. As discussed in section 2.1, diplomacy arguably works by being backed by other instruments of power. Thus, implicit or non-spoken threats represent political pressure from the sender of sanctions, namely China. Importantly, however, imposing direct threats of sanctions is arguably economic statecraft and not diplomacy (Baldwin 1985). At the same time, the role of the democratic country is more unclear. In the sanctions literature, the target's role is to violate a norm and then comply with demands or do not comply. The target does generally not try to exert pressure back, although some empiric sanctions literature also explores countersanctions from the target (see, for instance, Hedberg 2017).

Thus, the model presented below has an advantage in that it combines insight from conflict economy and the sanctions literature to come closer to describing cases of Chinese economic statecraft as accurately as possible.

Chapter 3

Theoretical Framework

This thesis aims to model a strategic interaction between a democratic country and China. The democratic country is interested in influencing Chinese policy, while China prefers the status quo and is willing to use resources to protect it. The theoretical literature on sanctions and conflict inspires the model framework.

3.1 Assumptions about the countries

There are two countries; a democratic country (D) and China (C). The first assumption is that these countries are **autonomous**, meaning that there is no transnational authority to settle disputes between the countries. This assumption of autonomy is common in conflict economics as well (Garfinkel and Skaperdas 2007).

The second assumption is that the leaders of the countries are **rational**. Rationality means, in this case, that the leaders make decisions based on their highest personal expected payoff, and they want to stay in power in their respective countries. For the leaders of the democratic country, who strives for reelection, this entails making decisions that benefit the most people in their country. In China, however, the Chinese leadership is interested in limiting its citizens' rights to avoid criticism and a possible overthrow of the incumbent government. As, for instance, Chang and Yang (2020, p.318) note, *"the fundamental goal for the Chinese leadership is to create a world that is safe for China's authoritarian regime."* Thus, the Chinese leaders do not have an interest in Western democracy and want to limit some human rights, such as freedom of speech.

In the extension of this assumption, the third assumption is that the **democratic country has an interest in influencing the politics in China**. The lack of human rights and democracy are two of the most commonly listed reasons why countries impose sanc-

tions, and the United States and the European Union (EU) are the most frequent imposers of sanctions, along with the United Nations (UN) (Felbermayr et al. 2020). These empirical observations suggest that democratic countries are interested in improving the human rights policy in non-democratic countries.

There are multiple reasons why this could be the case. First, as several sanctions scholars argue, democratic countries may follow policies consistent with domestic interest groups' wishes. These groups may support human rights protection in non-democratic countries for moral reasons. These demands may grow even stronger if their country has economic relations with non-democratic countries, indirectly subsidizing oppressive policies for non-democratic regimes. This pressure may translate directly into political action through elections. Second, a democratic country may support democracy movements in other countries for security reasons. Democracies rarely engage in violent conflict with each other, a concept known as *democratic peace* (Oneal and B. M. Russett 1997; Maoz and B. Russett 1993). Drury et al. (2014) argue that accountability and transparency in democracies can explain this. Thus, having a democratic country as a trading partner may benefit national security. Third, democratic regimes are more stable than authoritarian regimes (Hegre et al. 2001). Disruptions in trade due to civil unrest can be costly. Fourth, as the American-Chinese trade war has shown, a democratic country has an economic interest in the protection of intellectual property rights in a non-democratic country (Shang and Shen 2021). Multinational companies may lose profit due to insufficient protection of their intellectual property abroad.

The fourth assumption is that **China has a considerably larger economy** than the democratic country. This assumption is not unreasonable, considering China is the world's largest economy in purchasing power parity (CIA 2020). However, as China's most significant competitor in terms of economic muscles to a lesser degree has experienced Chinese economic coercion, the democratic country is also assumed to be considerably smaller than the United States.

Finally, the fifth assumption is that the democratic country and China, to begin with, have **complete information** regarding the other country's objectives and capabilities.

3.2 The model

In the status quo, China is oppressing human rights[1]. This policy choice describes a neutral state for the Chinese leadership, which neither receives benefits nor costs from this oppression. The democratic country, on the other hand, is not satisfied with this situation, something that sanction scholars often model as a cost to the potential sender state (see, for instance, Hovi et al. 2005). As mentioned in section 2.4, it is common in the sanctions literature to separate between violation costs and audience costs, but this model does not do this. The reason for this is twofold.

First, the leaders are assumed to only care for power. Thus, the costs the democratic country bears are exclusively related to the costs born by the people, i.e., the audience costs. These can be related to morality, national security, and economic reasons, as briefly discussed in section 3.1. As long as Chinese policy does not change, and the democratic country's leaders are unsuccessful in changing this, the people are discontent. On the other hand, China's leaders do not care what the people want directly but care for continued regime survival and control. Regime survival of the authoritarian regime necessitates keeping regime criticism at an absolute low. Thus, the democratic country arguably only bears audience costs, while China only bears costs related to regime vulnerability.

Second, for a democratic country, losing a political conflict with China often entails apologizing or correcting the political pressure previously exerted. For instance, after the Dalai Lama visited France, Paris issued a statement recognizing Tibet as a part of Chinese territory. Activists in France that support Tibet's liberation would arguably not be more satisfied with this outcome than if Paris had never received the Dalai Lama in the first place. Thus, the separation between audience costs and violation costs is meaningless in this case.

Thus, the democratic country endures a cost, R, when the authoritarian country represses human rights, for instance, by facing pressure from domestic interest groups. The coun-

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[1]This might be a simplistic assertion, but from here and on, oppressing human rights specifically entails leading a policy that *democratic states* view as a violation of human rights.

tries' payoffs in status quo are given by:

$$\Pi_D^0 = -R \tag{3.1}$$

$$\Pi_C^0 = 0 \tag{3.2}$$

where Π_i^0 is the initial payoff of country $i = D, C$, and R is the cost of an unfavored policy in China.

The first step in the game is the choice of the democratic country of whether to attempt to influence Chinese policy or not. Then, the democratic country can draw on instruments of power from the political domain, diplomacy, to pressure China to adopt more favorable human rights policies. For instance, such a measure could be inviting a Chinese human rights activist to the country while publicly condemning Chinese breaches of human rights. Thus, the democratic country can use political power tools (P_D) to influence China[2]. The unit cost of using political pressure is γ_D for the democratic country.

If the democratic country never attempts to pressure China, the game ends. However, if the democratic country exerts political pressure, the second step in the game is for China to answer with political effort/diplomacy (P_C). This political effort can entail criticizing the democratic country back, withdrawing diplomats, or blocking any bilateral or multilateral cooperation.

Now, the model changes from being similar to the sanctions literature to drawing more on the economics of war. The assumption is that one of the two countries is successful in its attempt to coerce the other.

One outcome is that China yields (Y) to the pressure from the democratic state. Then, the cost endured by the leaders in the democratic country of oppressive policies in China is transferred to the Chinese leadership. This situation gives the following payoffs:

$$\Pi_D^Y = -\gamma_D P_D \tag{3.3}$$

$$\Pi_C^Y = -R - \gamma_C P_C, \tag{3.4}$$

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[2]As the overview in section 2.1 makes clear, the democratic country has a range of instruments of power to draw on. The choice of a diplomatic tool specifically may result from the relative size difference between the countries or the relative severity of the tool.

---

where Π_i^Y is the payoff for country i when the democratic country wins the dispute, γ_i is the unit cost of political effort for country i, and P_i is the amount of political effort used, where $i = D, C$. The democratic country is now content considering the policy in China but has endured the costs of diplomacy when reaching this goal. On the other hand, Chinese leaders are discontent with the policy change and have also borne direct costs from diplomacy. Note that R is **indivisable**, meaning that the issue in question has no compromise.

The other potential outcome is that China refuses to change policy and instead chooses to sanction (S) the democratic country as punishment for trying to interfere in its policy and stopping them from continuing their diplomatic efforts. In that case, the payoffs are:

$$\Pi_D^S = -R - S - \gamma_D P_D \tag{3.5}$$

$$\Pi_C^S = S - \gamma_C P_C \tag{3.6}$$

where Π_i^S is the payoff of country $i = D, S$ if China imposes sanctions, and S is the sanction cost. Note that the sanction figures as a transfer from the democratic country to China. This assumption is relatively uncommon, but something section 5.1.5 argues is vital for the calculations but not for the conclusions. At the same time, it incorporates the economic asymmetry between the two countries.

3.2.1 Expected payoff of conflict

Suppose the democratic country decides to initiate a conflict with China over its human rights policy. In that case, there are two possible outcomes: Either China yields to the pressure, adopting improved human rights policies, or China stands firm and sanctions the democratic country. The expected payoff of political conflict (PC) generally becomes:

$$E[\Pi_i^{PC}] = p\Pi_i^Y + (1-p)\Pi_i^S \tag{3.7}$$

where p is the probability that the authoritarian country yields, and Π_i^j is the payoff for country $i = D, C$ in state $j = Y, S$.

With the specific costs and benefits, the expected payoffs of political conflict become the

following for the two countries:

$$E\left[\Pi_D^{PC}\right] = p(R+S) - \gamma_D P_D - R - S \tag{3.8}$$

$$E\left[\Pi_C^{PC}\right] = -p(R+S) - \gamma_C P_C + S \tag{3.9}$$

These are very similar, only with different signs. Additionally, it is clear that there is a dead-weight loss associated with political conflict, namely $-(\gamma_C P_C + \gamma_D P_D)$. This suggests that settlement ahead of dispute should be a superior equilibrium if issues are divisible.

3.3 Power of political instruments

As already established, the democratic country can influence Chinese policy by committing resources to diplomacy. Disagreement on a (foreign) policy issue is ultimately a conflict, as two adversaries seek different outcomes. Understanding how diplomatic resources translate to pressure and ultimately acquiescence by the target, this thesis draws on conflict economics, where numerous authors have used game-theoretic concepts to explain the outcomes and stages of military conflict in particular.

3.3.1 Technologies of conflict

Hirshleifer (1989) was the first scholar to use the term **technologies of conflict** referring to the input functions of war. Unlike input functions in production, conflict technologies do not cooperate to produce output but compete against each other for the output given by the agents' initial resources (Garfinkel and Skaperdas 2007).

There is a range of different functional specifications of technologies of conflict[3]. However, the most relevant functional form for this thesis is one developed by Grossman and Kim (1995), who provide a means to incorporate asymmetry in the winning probability of the two contenders. They assume adversaries can allocate their resources to defense (h_i) and offense (g_i). They introduce the following specification of the technology of conflict:

$$p_i = \frac{1}{1+x_i}, \quad x_i = \theta\frac{g_j}{h_i} \tag{3.10}$$

---

[3]Garfinkel and Skaperdas (2007) provide a good overview.

where p_i is the fraction of own endowment that agent i keeps and x_i is the strength of the offender, agent j, relative to the defender, agent i, $i \neq j$. Further, $\theta > 0$ measures the effectiveness of offensive capabilities relative to defensive, g_j is the amount agent j has allocated to offensive weapons, and h_i is the amount agent i has allocated to defensive capabilities. Importantly, the optimal allocation of resources to offense and defense depends on the adversary's allocation choice as well. This co-dependency creates a game of strategic interaction determining the outcome of the conflict. Equation 3.10 can easily be rewritten to

$$p_i = \frac{h_i}{h_i + \theta g_i}, \tag{3.11}$$

yielding a similar functional form to the ones presented by Garfinkel and Skaperdas (2007). In a winner-takes-it all setting (issues are indivisible), as presented by Garfinkel and Skaperdas (2007), p_i can also be interpreted as the *probability* that agent i wins the conflict, because it describes the adversaries' relative advantages. The output of conflict is determined by the relative allocation of defensive and offensive capabilities between the adversaries, giving a probability $p_i(h_i, g_j)$ that country i defends own resources successfully, and a probability $p_j(h_j, g_i)$ that country j does. As they denote probabilities of winning, the functions must have the property $0 \leq p_i(h_i, g_j), p_j(h_j, g_i) \leq 1$ (Garfinkel and Skaperdas 2007).

The intriguing aspect of Grossman and Kim's (1995) model is that it allows for the possibility that the defender has an advantage in the conflict. In the context of war, innovation can influence this advantage. Grossman and Kim (1995) cite the example of the invention of cannons in the medieval ages as an event that increased the offensive advantage, θ. Similarly, one can imagine that an invention of an improved missile defense system would decrease θ. However, one can also let θ remain exogenous.

3.3.2 Probability that China yields

Similar to technologies of conflict, the *probability* that China yields to the democratic country's pressure is assumed to be a function of resources committed by both countries:

$$p = f(P_D, P_C) \tag{3.12}$$

Further, drawing on Grossman and Kim's (1995) specification, there is asymmetry in the countries' advantages in the dispute:

$$p(P_D, P_C) = \frac{P_D}{P_D + \theta P_C}, \tag{3.13}$$

where θ describes the effectiveness of China's diplomacy relative to the democratic country's. Further, $1 < \theta < 9$, so that China has an inherent advantage in the political dispute[4]. This assumption is reasonable as China should have the best opportunity to choose its own human rights policy. Here, the likelihood that China will yield to the democratic country's pressure increases with the resources committed by the democratic country and decreases with the resources committed by China:

$$\frac{\partial p(P_D, P_C)}{\partial P_D} = \frac{\theta P_C}{(P_D + \theta P_C)^2} > 0$$

$$\frac{\partial p(P_D, P_C)}{\partial P_C} = -\frac{\theta P_D}{(P_D + \theta P_C)^2} < 0$$

Further, the relative effectiveness of devoting resources to diplomacy dwindles as more resources are committed:

$$\frac{\partial^2 p(P_D, P_C)}{\partial P_D^2} = -\frac{2\theta P_C}{(P_D + \theta P_C)^3} < 0$$

$$\frac{\partial^2 p(P_D, P_C)}{\partial P_C^2} = \frac{2\theta^2 P_D}{(P_D + \theta P_C)^3} > 0$$

The fact that political instruments of power have diminishing effects seems like a reasonable assumption, as there are limits to what political effort can do to change a policy in another country.

---

[4]Let $p(P_D = 1, P_C = 1) = \varphi$ be the probability that the democratic country is successful when the two countries exert equal amounts of effort, with $0 < \varphi < 1$. Then the probability that China is successful must be the opposite: the democratic country is unsuccessful, $1 - p(P_D = 1, P_C = 1) = (1 - \varphi)$. China's relative advantage in the conflict becomes $\frac{(1-\varphi)}{\varphi}$. If China has an advantage in the conflict, then $\varphi < \frac{1}{2}$. This gives a boundary for $\theta = \frac{(1-\varphi)}{\varphi}$, where $1 < \theta < 9$.

Chapter 4

The Political Game

The first step in the game is that the democratic country decides whether to initiate a political conflict or not. It will do so if the expected payoff of starting the dispute is greater than the payoff in the status quo

$$E\left[\Pi_D^{PC}\right] > \Pi_D^0$$

This relation gives:

$$p(R + S) > S + \gamma_D P_D$$

The left-hand side of this equation shows the potential benefits of conflict, namely retrieving the policy cost and avoiding the sanction. The right-hand side of the equation shows the cost of conflict: the sanction and the cost of diplomacy. For the democratic country to deem it worthwhile to initiate a conflict, the expected benefits must be larger than the expected costs. With the specific probability function, this inequality becomes:

$$\frac{P_D}{P_D + \theta P_C}(R + S) > S + \gamma_D P_D \tag{4.1}$$

Equation (4.1) is the democratic country's participation constraint. If this does not hold, the democratic country will never initiate a conflict because it will rather bear the costs of unfavorable policy in China than engage in a costly political conflict. However, to know whether the participation constraint holds, it is necessary to calculate the optimal political effort that each country will exert, given conflict. If the democratic country initiates a conflict, the two countries choose political effort by maximizing the expected payoff. The next step in the game is for the democratic country to choose its political effort level. However, it must consider China's expected answer. Thus, it is necessary to

consider the decisions under simultaneous decisions as well to know how the two countries respond to each other.

4.1 Simultaneous decisions

Assume that the countries devote resources to diplomacy simultaneously. Then, given that they know each other's optimal responses, both countries will maximize their payoff given the other's response. Appendix A provides all calculations for this section.

4.1.1 The democratic country

The democratic country decides how much political effort to use by maximizing the expected payoff. It has to take China's effort as given because this is determined simultaneously, and the democratic country cannot affect it directly. The democratic country's maximization problem becomes.

$$
\max_{\{P_D\}} \quad E\left[\Pi_D^{PC}\right]
$$
$$
\text{s.t.} \quad P_C = \bar{P}_C
$$
(4.2)

where $\bar{P}_C$ denotes China's choice of political effort, a parameter the democratic country must take as given while making its decision. With the expected payoff given by $E[\Pi_D^{PC}] = p(P_D, \bar{P}_C)(\Pi_D^Y - \Pi_D^S) + \Pi_D^S$, and assuming the costs of diplomacy are equal in the two outcomes, the general first order condition becomes:

$$
\frac{\partial p(P_D, \bar{P}_C)}{\partial P_D}\left[\Pi_D^Y - \Pi_D^S\right] = -\frac{\partial \Pi_D^S}{\partial P_D}
$$

The left-hand side portrays the effects of using more political effort on the probability that the democratic country will win. The right-hand side shows the effects of using more political effort on the payoff in the state where China sanctions. With the specific functions, the first order condition becomes:

$$
\frac{\theta P_C}{(P_D + \theta P_C)^2}(R + S) = \gamma_D
$$
(4.3)

The democratic country balances the marginal benefits against the marginal costs of using a higher level of diplomacy. A higher level of diplomacy increases the probability that China yields. This benefit is higher for more notable differences between payoffs in the two states. At the same time, however, increased political pressure is also associated with higher costs, and the marginal cost is equal to the unit cost of diplomacy, γ_D.

The first-order condition can be solved for P_D to find the democratic country's optimal political effort as a function of Chinese diplomacy in a simultaneous Nash equilibrium[1]:

$$P_D^*(P_C) = \left[\frac{(R+S)}{\gamma_D} \theta P_C \right]^{\frac{1}{2}} - \theta P_C \tag{4.4}$$

There are two main components of the democratic country's response function. The first component balances the benefits of using more political effort against the cost of diplomacy as China exerts more (efficient) political pressure. If China yields to the pressure, then the democratic country earns a political benefit, R, from improved human rights policy in China while dodging the sanction S. At the same time, diplomacy has a unit cost of γ_D. The more political pressure China uses (P_C), and the higher relative efficiency of its efforts (θ), the more political effort the democratic country must exert to get China to yield. At the same time, the second component shows that P_D is not entirely increasing in P_C. At a certain point, if China's effort is sufficiently high, or its political effort is very efficient relative to the democratic country's, there are small additional benefits of using more political effort for the democratic country.

4.1.2 China

Similarly, the Chinese leadership's maximization problem becomes:

$$\begin{aligned} \max_{\{P_C\}} \quad & E\left[\Pi_C^{PC}\right] \\ \text{s.t.} \quad & P_D = \bar{P}_D \end{aligned} \tag{4.5}$$

where $\bar{P}_D$ denotes a constant P_D, i.e. China has to take the democratic country's political effort as given. With the expected pyaoff given by $E\left[\Pi_C^{PC}\right] = p(\bar{P}_D, P_C)(\Pi_C^Y - \Pi_C^S) + \Pi_C^S$, and again assuming that the costs of diplomacy does not change in the two outcomes, the

---

[1]See Appendix A.1 for complete calculations.

general first order condition becomes:

$$\frac{\partial p(\bar{P}_D, P_C)}{\partial P_C}\left[\Pi_C^Y - \Pi_C^S\right] = -\frac{\partial \Pi_C^S}{\partial P_C}$$

The specific first order condition is:

$$\frac{\theta P_D}{(P_D + \theta P_C)^2}(R + S) = \gamma_C, \tag{4.6}$$

which is very similar to the democratic country's first-order condition. The Chinese leadership weighs the benefits of using increased political effort against the cost. Note that the marginal benefit for China, in actuality, is the direct opposite of the democratic country's marginal benefit. The negative signs cancel out as the probability of the democratic country being successful gets lower as China uses more diplomacy. This first-order condition can be solved to find China's optimal political effort as a function of the democratic country's diplomacy[2]:

$$P_C^*(P_D) = \left[\frac{(R + S)}{\gamma_C}\frac{P_D}{\theta}\right]^{\frac{1}{2}} - \frac{P_D}{\theta} \tag{4.7}$$

This is similar to the democratic country's response function, except for the role of China's advantage in the dispute. θ is thus very important to the equilibrium, as well as the two unit costs of exerting political pressure.

4.1.3 The relationship between the optimal responses

What happens with China's level of diplomacy as the democratic country uses increased political pressure? The relationship between the two countries' optimal levels of political pressure is important for understanding the escalating or deescalating effects of increased use of diplomacy. The relationship can be found by taking the derivative of equation 4.7 with respect to P_D[3]:

$$\frac{dP_C}{dP_D} = \frac{1}{2}\left[\frac{R + S}{\gamma_C \theta P_D}\right]^{\frac{1}{2}} - \frac{1}{\theta} \tag{4.8}$$

---

[2]See Appendix A.2 for complete calculations.
[3]See Appendix A.3 for complete calculations.

This derivative can be set to zero to find the level of diplomacy from the democratic country that triggers the highest possible political pressure from China

$$P_D = \frac{\theta(R+S)}{4\gamma_C} \qquad (4.9)$$

The political effort from China, P_C, will increase when the political effort from the democratic country is lower than equation 4.9 states, and decrease when the political effort surpasses $\frac{\theta(R+S)}{4\gamma_C}$. See Figure 4.1 for an illustration.
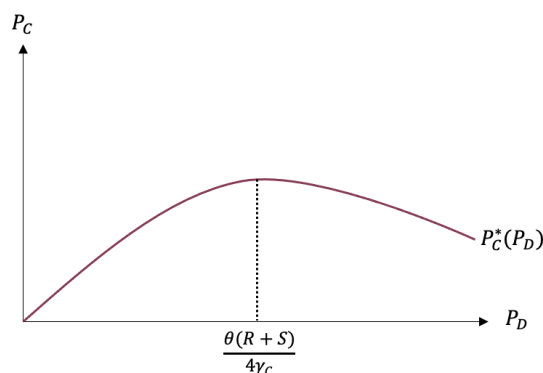
Figure 4.1: Illustration of the relationship between the optimal responses.

The political effort from the democratic country varies similarly with the political effort from China:

$$\frac{dP_D}{dP_A} = \frac{1}{2}\left[\frac{\theta(R+S)}{\gamma_D P_C}\right]^{\frac{1}{2}} - \theta \qquad (4.10)$$

Then, P_D rises and falls around

$$P_C = \frac{R+S}{4\theta\gamma_D} \qquad (4.11)$$

Thus, when the political effort is sufficiently low, higher diplomacy by one part will escalate the dispute. However, as diplomacy increases, there will be a point in which further aggression leads to a de-escalation of the dispute. Note that a higher sanction, S, and a higher cost of unfavorable policies in China are associated with higher equilibrium levels of diplomacy.

4.1.4 Simultaneous equilibrium

Graphical representation

We can show the simultaneous equilibrium graphically. The two response functions behave as described in the previous paragraph - first increasing in the other's political pressure and then decreasing. As there are several unknown parameters, it is impossible to graph the functions accurately. However, by making some assumptions about the parameters, it is possible to visually understand how the two countries respond to each other's use of diplomacy. Thus, it is assumed that $R = 5$ and that $\gamma_D = \gamma_C = 0.1$. As $(R + S)$ enters similarly in both response functions, the most controversial choice is perhaps to keep the costs constant and equal in the two countries. However, the differences between the two countries can arguably be sufficiently captured in the advantage parameter, θ.

Figure 4.2 below shows a panel of four alternative equilibria, where China's relative advantage in dispute (θ) and the sanctions parameter (S) are allowed to vary.
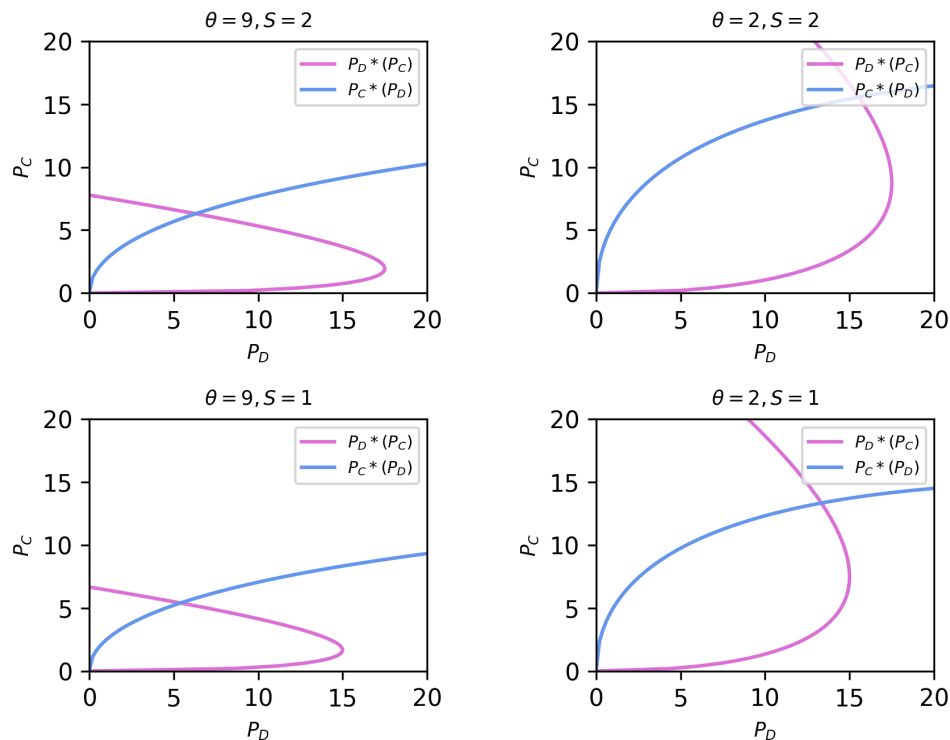

Figure 4.2: Simultaneous equilibrium, where the violet curve represents the democratic country's best response function and the blue curve represents China's best response. Assumptions: $R = 5$, $\gamma_D = \gamma_C = 0.1$.

A higher sanction and a higher relative advantage for the democratic country in the

dispute leads to a higher equilibrium value, i.e., a more escalated dispute.

Analytical representation

We can find an expression for the simultaneous equilibrium by noting that both first order conditions must hold simultaneously in equilibrium, which gives:

$$\frac{P_A}{\gamma_D} = \frac{P_D}{\gamma_A}$$

$$\Rightarrow P_D = \frac{\gamma_A}{\gamma_D} P_A \tag{4.12}$$

$$\Rightarrow P_A = \frac{\gamma_D}{\gamma_A} P_D \tag{4.13}$$

Knowing how P_D and P_A are related in the simultaneous equilibrium, we can find the equilibrium values by substituting in for P_C in the democratic country's best response function and find[4]:

$$P_D^*(P_C^*) = \frac{\theta \gamma_C (R + S)}{(\gamma_C + \theta \gamma_D)^2} \tag{4.14}$$

This equation represents the simultaneous Nash equilibrium for the democratic country's optimal political effort.

Some terms have a clear-cut effect on the level of diplomacy: A higher payoff from China yielding compared to standing firm $(R + S)$, and a higher cost of diplomacy for China (γ_C) will give a higher level of diplomacy in equilibrium, all other things equal. However, these costs are weighted with China's relative advantage in the dispute, θ.

We can find the simultaneous Nash equilibrium value of China's political pressure. This equilibrium level of diplomacy is very similar to the democratic country's level:

$$P_C^*(P_D^*) = \frac{\theta \gamma_D (R + S)}{(\gamma_C + \theta \gamma_D)^2} \tag{4.15}$$

Note that if the unit costs of using diplomacy in both countries are equal, both countries will choose the same level of diplomacy. This symmetry gives China a higher chance of winning because it has an inherent advantage, $\theta > 1$.

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[4]See Appendix A.4 for complete calculations.

Expected payoff

What will the *expected payoff* of the two countries be in equilibrium? We can start by finding a new expression for the probability that the democratic country will be successful. In simultaneous equilibrium, then $P_D = \frac{\gamma_C}{\gamma_D} P_C$, so we can rewrite the probability in equilibrium as:

$$p(P_D^*, P_C^*) = \frac{\gamma_C}{\gamma_C + \theta\gamma_D} \tag{4.16}$$

The probability that China will yield in equilibrium is a function of relative inherent advantages and unit costs of diplomacy. Note again that if the costs are equal, then the probability that China yields is less than 50 percent.

Substituting for the equilibrium probability that China will yield, its expected payoff in simultaneous equilibrium becomes[5]:

$$E[\Pi_D^{PC}]^{sim} = (R + S)\left[\left(\frac{\gamma_C}{\gamma_C + \theta\gamma_D}\right)^2 - 1\right], \tag{4.17}$$

which gives a new participation constraint with only exogenous variables:

$$S < \frac{R\gamma_C^2}{\theta\gamma_D(2\gamma_C + \theta\gamma_D)} \tag{4.18}$$

The participation constraint shows that the benefits of political conflict must be larger than the costs if the democratic country shall be willing to initiate the dispute. Suppose either the cost of sanctions (S), the cost of diplomacy (γ_D), or China's advantage in the dispute (θ) is sufficiently high. In that case, the democratic country will have a higher payoff from "leaving China alone." However, if the cost to the democratic country of China leading an unfavorable policy (R) is very high, this can compensate for high sanctions.

China's expected payoff with simultaneous decisions is given by:

$$E[\Pi_C^{PC}]^{sim} = S - \frac{\gamma_C(\gamma_C + 2\theta\gamma_D)}{(\gamma_C + \theta\gamma_D)^2}(R + S) \tag{4.19}$$

If the cost of unfavorable policy in China, R, is very high, then China will have a low

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[5]See Appendix A.5 for complete calculations.

expected payoff, and should be very willing to avoid conflict at all.

4.2   Sequential decisions

However, as assumed in section 3.1, the countries do not decide on political efforts simultaneously. Instead, the democratic country chooses the level of political effort to devote first, then China answers. When the democratic country decides how much diplomacy to use, it must consider China's response function. Appendix B derives all mathematical expressions for this section.

Under complete information, the democratic country knows that equation 4.6 gives China's optimal response. Now, the democratic country's maximization problem becomes:

$$
\begin{aligned}
\max_{\{P_D\}} \quad & E[\Pi_D^{PC}]^{seq} \\
\text{s.t.} \quad & P_A = P_A^*(P_D)
\end{aligned}
\tag{4.20}
$$

This gives the following general first order condition[6]:

$$
\left(\frac{\partial p(P_D, P_C^*(P_D))}{\partial P_D} + \frac{\partial p(P_D, P_C^*(P_D))}{\partial P_C^*} \frac{dP_C^*}{dP_D} \right) \left[\Pi_D^Y - \Pi_D^S \right] = - \frac{\partial \Pi_D^S}{\partial P_D}
$$

In this game, there is a *new term* to the democratic country's first-order condition, which describes the effect of the change in China's response when the democratic country changes its level of diplomacy. For small values of P_D, it is true that if the democratic country devotes increased resources, so will China, which indicates that $\frac{dP_C^*}{dP_D}$ is positive. It is already established that $\frac{\partial p(P_D, P_C)}{\partial P_C} < 0$. Thus, as the right-hand side of the equation stays the same, this must mean that other terms on the left-hand side must compensate for this lower value than in the symmetric case. Everything else equal, sequentiality thus indicates that it is optimal for the democratic country to devote a *lower* level of political effort in the sequential case to avoid "escalation" of the dispute. This containment is a so-called "step on the toe effect." The democratic country restrains itself because if they exert high political pressure, China will only answer with higher political pressure, giving a higher equilibrium value of diplomacy. Thus, China has the advantage when the political game

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[6]With the assumption that the payoff in each state depends equally on P_D, as before.

is played sequentially rather than simultaneously. However, if the level of political effort is already high in equilibrium, then $\frac{dP_C^*}{dP_D}$ can also be negative, leading to a *higher* optimal level of diplomacy.

It can be shown (see Appendix B.1) that the expected payoff for the democratic country under sequential decisions is given by:

$$E[\Pi_D^{PC}]^{seq} = \left[\frac{\gamma_C P_D(R+S)}{\theta}\right]^{\frac{1}{2}} - \gamma_D P_D - R - S \qquad (4.21)$$

Maximizing this expected payoff leads to an equilibrium level of political effort of:

$$P_D^* = \frac{\gamma_C(R+S)}{4\theta\gamma_D^2} \qquad (4.22)$$

which is different from the simultaneous game. As in the simultaneous case, a higher cost for China of using political instruments of power (γ_C), a higher cost of unfavorable Chinese policy (R), and a higher sanctions cost (S) lead to a higher equilibrium level of diplomacy. A higher cost of own political effort and high Chinese advantage leads to a lower equilibrium.

Substituting in for P_D^* in China's optimal response, we get:

$$P_C^* = \frac{R+S}{2\theta\gamma_D}\left(1 - \frac{\gamma_C}{2\theta\gamma_D}\right) \qquad (4.23)$$

If the unit costs of diplomacy are equal for the two countries, then China will use more political effort than the democratic country in equilibrium (see Appendix B.1 for calculations). Therefore, with the additional advantage, θ, the likelihood that China yields is meager in this case.

4.2.1 Payoff and participation

The probability that China yields when the political game is played sequentially is given by:

$$p(P_D^{seq*}, P_C^{seq*}) = \frac{\gamma_C}{2\theta\gamma_D} \qquad (4.24)$$

The relative costs of using political instruments of power are central to China's probability of yielding in equilibrium. If the costs are equal, the probability that China yields is again less than 50 percent because $1 < \theta < 9$. Notably, if $\theta > 2$, then the probability of the democratic country winning is also lower than in the simultaneous case. The probability gives the following expected payoffs of the sequential games for the two adversaries:

$$E[\Pi_D^{PC}]^{seq} = \frac{\gamma_C(R+S)}{4\theta\gamma_D} - R - S \tag{4.25}$$

$$E[\Pi_C^{PC}]^{seq} = S - \frac{\gamma_C(R+S)(4\theta\gamma_D - \gamma_C)}{2\theta\gamma_D} \tag{4.26}$$

and the democratic country's participation constraint becomes:

$$S < \frac{\gamma_C}{4\theta\gamma_D - \gamma_C}R \tag{4.27}$$

The democratic country will only initiate a dispute if the sanction is very low, the cost of unfavorable policies is high, the costs of diplomacy are low, or the Chinese costs of political effort are high.

4.3 Comparing the equilibria

4.3.1 Equilibrium levels of political effort

To see which decision sequence gives the highest equilibrium level of political effort, we first see what conditions must hold for the sequential equilibrium to be highest. We have that:

$$P_D^{sim} = \frac{\theta\gamma_C(R+S)}{(\gamma_C + \theta\gamma_D)^2}$$
$$P_D^{seq} = \frac{\gamma_C(R+S)}{4\theta\gamma_D^2}$$

Assume now for simplicity that $\gamma_D = \gamma_C = \gamma$. Then, the condition for the sequential equilibrium to be higher than the simultaneous equilibrium becomes:

$$P_D^{seq} > P_D^{sim}$$

$$-3\theta^2 + 2\theta + 1 > 0$$

This condition gives that $-\frac{1}{3} < \theta < 1$. However, as stated in 3.1, $1 < \theta < 9$, because China has an advantage in the dispute. Thus the equilibrium level of diplomacy from the democratic country will *always* be lower with sequential decisions than with simultaneous decisions. This is the so-called "step-on-the-toe-effect".

Figure 4.3 below shows a panel of four alternative equilibria, where China's relative advantage in dispute (θ) and the sanctions parameter (S) are allowed to vary as in the previous case. As in the simultaneous case, it is assumed that $R = 5$ and $\gamma_D = \gamma_C = 0.1$.
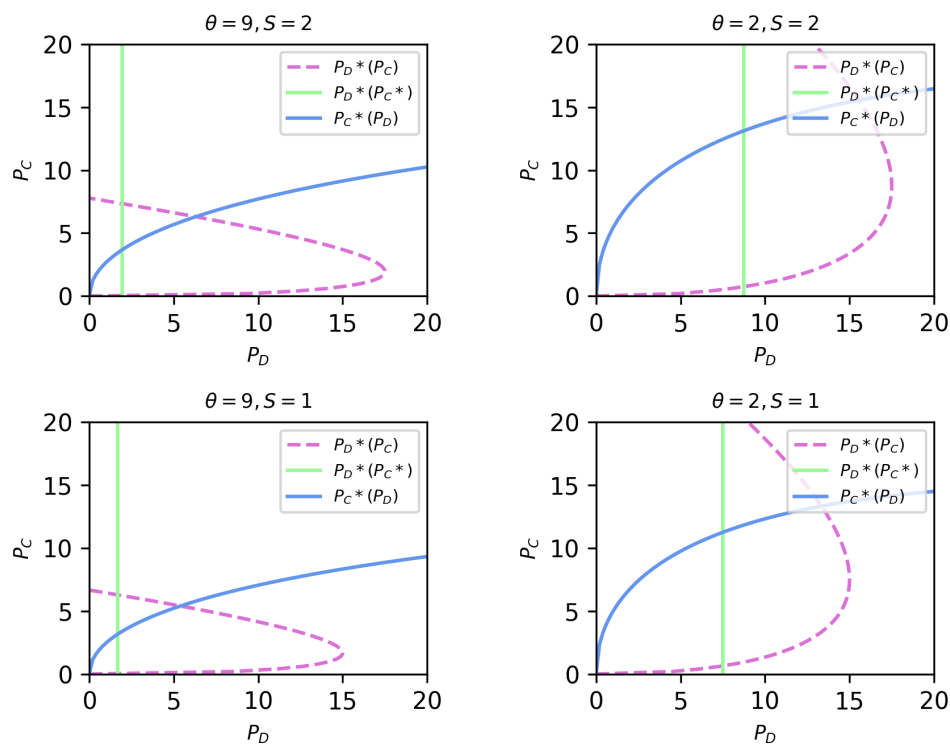

Figure 4.3: Sequential equilibrium in the intersection between the green and blue lines for different values of China's inherent advantage (θ) and the sanction (S). Assumptions: $R = 5$, $\gamma_D = \gamma_C = 0.1$.

The intersection between the green and blue lines is the new equilibrium. As calculated above, the equilibrium levels of political effort are lower in the sequential case than in the simultaneous equilibrium - especially for the democratic country. The fact that China can freely answer the democratic country's political pressure deters the democratic country from escalating the dispute. Knowing that China will respond more harshly incentivizes caution in the political pressure of the democratic country.

4.3.2 Participation constraint

The participation constraints are, respectively:

$$S < \frac{R\gamma_C^2}{\theta\gamma_D(2\gamma_C + \theta\gamma_D)} \qquad (P_{sim})$$

$$S < \frac{\gamma_C}{4\theta\gamma_D - \gamma_C}R \qquad (P_{seq})$$

We can test the assumption that the constraint binds more in the sequential case. With $\gamma_D = \gamma_C = \gamma$, the constraint is $\theta > 1$[7]. Again, this constraint holds because $1 < \theta < 9$, see section 3.1. Thus, if costs are equal and China has an advantage in the dispute, the condition with sequential decisions is stricter than with simultaneous decisions. When China can respond strategically to the democratic country's political pressure, the democratic country will only choose to initiate a conflict if the sanction is sufficiently low.

4.4 Extension: Committing to a level of sanctions

The democratic country will initiate a dispute if the payoff of doing so is higher than doing nothing. Recall that the participation constraint under sequential decisions is given by

$$S < \frac{\gamma_C}{4\theta\gamma_D - \gamma_C}R$$

The smaller the sanction is, the more likely the democratic country will initiate a dispute. Until this point, S has been treated as exogenous. However, this is not the case. China chooses the sanction, S. This endogeneity means that China can deter the democratic

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[7]See Appendix C for calculations.

country from initiating a dispute if it determines S so that:

$$S > \frac{\gamma_C}{4\theta\gamma_D - \gamma_C}R \qquad (4.28)$$

Note that in the case of complete information, China can simply set the sanction according to equation 4.28. In the case of *incomplete information*, however, China has to reliably signal that S has this property, which is perhaps a more realistic case.

This possibility of deterrence ex-ante has relevance for the Chinese policy of "Kill the chicken to scare the monkey." If information is incomplete, there is the possibility that China can occasionally impose high sanctions to reliably commit to this high level. In that case, the leadership can, in principle, deter any country from initiating a political conflict. This deterrent is in line with Drezner's (2003) and Hovi et al.'s (2005) arguments of threats, and in many ways, it is similar. However, note that if the political cost of doing nothing, R, is sufficiently high, the democratic country may initiate the dispute nevertheless.

Chapter 5

Discussion

5.1 The role of the parameters

There are five distinctly different parameters in the model, the political effort levels (P_D, P_C), the unit costs of diplomacy (γ_D, γ_C), China's relative advantage in conflict (θ), the cost of an unfavorable policy in China (R) and the sanctions parameter (S). So it makes sense to take a closer look at each of them to see what contributions this model has to understand political disputes between China and a democratic country.

5.1.1 Political pressure levels, P_i

The political pressure levels represent the political or diplomatic instruments of power a country can exert to attempt to change the policy of its adversary. This specification is in line with the number of guns a country has in the conflict model of Skaperdas and Syropoulos (2001). In the model, diplomacy is the decision parameter that each country can set to attempt to win the conflict. As the probability functions state, increasing political pressure increases the probability of winning. At the same time, the strategic interaction between the adversaries shows that it is not rational to increase the use of political effort endlessly as this leads the other country to do the same. These assumptions seem to be rational. The country that exerts the highest effort in trying to convince the other to change policy is more likely to be successful, all other things equal.

Although this thesis uses P_i uniquely to symbolize political pressure, there is no reason why this parameter could not capture several instruments of power at once in hybrid warfare. In that case, the country with the highest combined effort of instruments of power could win the conflict. In that case, the sanction could represent a power transfer from the loser to the winner of the conflict. For instance, one could argue that the

structural power of China grows every time it coerces an adversary into silence because it deters other countries from doing the same.

5.1.2 Unit costs of diplomacy, γ_i

The relative costs of diplomacy in the two countries are central to the model equilibrium. Higher costs give a lower ideal level of own diplomacy and a higher ideal level for the adversary. Thus, they can give critical competitive advantages. If, for instance, the unit cost of diplomacy is considerably lower in the democratic country than in China, this can potentially weigh up for a high relative advantage in the political conflict, θ, giving an increased probability of success for the democratic country. However, if the costs are equal in the two countries, the probability that China yields becomes much more dependent on China's relative advantage.

5.1.3 Relative advantage in political conflict, θ

The relative Chinese advantage in political conflicts is central to whether China will yield or not. In their specification of an asymmetric conflict model, Grossman and Kim (1995) note that innovation in offensive capabilities can increase θ, while innovation in defensive capabilities can decrease θ. In the context of political conflict, θ measures the effectiveness of China's political instruments of power relative to the democratic country's. If Worley (2015) is correct and that the political/diplomatic domain works by being backed by other instruments of power, then θ can be influenced by the relative sizes of the backed instruments. For instance, how great the economy is, how large the military is, their dependence on each other's capital flows or economies, or how sophisticated their intelligence service, cyber operations, or propaganda machines are. In that case, China's θ has arguably increased over the last few decades.

5.1.4 The cost of an unfavorable policy in China, R

The higher the cost of an unfavorable policy in China, R, the more likely is the democratic country to initiate a political dispute because R increases the cost of doing nothing. If the population in the democratic country is very discontent with the Chinese policy, it becomes harder for the democratically elected leaders to remain in office. Thus, initiating

a dispute gives at least a slight chance that the leaders will achieve reelection. A higher cost of an unfavorable policy in China will also increase both countries' equilibrium levels of diplomacy for the same reason. In China, R represents existential threats to the leadership that will spend more resources in a conflict when R is high. Thus, R escalates the conflict because it becomes more costly to lose.

5.1.5   The sanction, S

The larger the sanction is in the model, the less likely it is that the democratic country will initiate a dispute with China at all, see equation 4.27. However, a higher sanction also gives higher equilibrium levels of diplomacy when the conflict has begun. Thus, the sanction, S, carries similar significance to the policy cost, R; it increases the cost of losing the conflict.

S is also similar to R in that the cost is transferred from one country to the other. The choice of modeling the sanction as a cost to the target and not to the sender is very uncommon and perhaps the most controversial choice in the model. However, there are arguably good reasons for making this assumption.

First, the model does not include the economic sizes of the countries, although China is a vast country and the democratic country is small. θ may implicitly capture this relative size. However, the sanction can also capture this size difference. Arguably, the costs of implementing sanctions are negligible to a great country like China that can easily find other trading partners (i.e., $S_C \approx 0$). At the same time, they may be sizable for a small democratic country that depends on Chinese supply and demand (i.e., $S_D >> 0$). Thus, implementing the sanction as a transfer implicitly accounts for the size difference between the countries.

Second, authoritarian leaders depend less on their people than democratic leaders to stay in power, as subsection 2.3.2 also discusses. This independence means that an economic cost to the population due to sanction implementation will not necessarily harm the Chinese leaders. Thus, the lack of leader accountability is another argument for neglecting any costs of sanction implementation for China.

Third, if the democratic country has already decided to initiate a conflict, the role of the

sanction is not central to China's determination to win if R is high enough. Suppose the cost of an unfavorable policy is too high to bear for China. In that case, the Chinese leadership will do anything to win the conflict, no matter the economic consequences of imposing sanctions.

Fourth, as mentioned in section 2.2, after the Nobel Peace Prize incident, Norwegian voting on UN resolutions quickly became more aligned with China. The positive sanction parameter, S, can capture this policy benefit. A democratic country that loses a political dispute with China also loses some of its relative power vis-a-vis Beijing.

Finally, the willingness to impose high sanctions on small democratic countries can deter other countries from criticizing China in the future. In some ways, equivalent to a power transfer, this discounted benefit can be captured in the sanction benefit for China.

5.2 Why do countries initiate disputes with China?

Literature on sanctions and war suggests that rational actors should avoid all conflicts because they entail deadweight losses. The political disputes that democratic countries initiate with China are costly for both parties involved, but they have also seemed unlikely to yield any policy results. Still, democratic countries do attempt to influence Chinese policy. Based on the literature review and the model presented here, this section argues that democratic countries initiate disputes with China for three main reasons: indivisible policy issues, principal-agent problems, and information asymmetries. There is also the possibility that the leaders of many democratic countries are irrational, but this is an unsatisfactory explanation for the multitude of cases involving Chinese economic statecraft.

The first explanation for why democratic countries may initiate disputes with China is that the policy issue may be indivisible. In the model, the indivisible parameter R represents the cost of a non-favored policy in China. With no potential for compromise on the policy issue, i.e., R cannot be divided between the adversaries, settling beforehand means that one country achieves its will on the policy issue and the other does not. As in contract and game theory, one could imagine that the adversaries could settle the dispute financially. However, as the two countries' leaders derive utility from staying in power, this might not be a feasible solution. In a democratic country, a population driven by moral motives is

unlikely to accept a financial settlement. Likewise, a Chinese leadership driven by power motives will not accept a financial settlement if this means that their power position becomes more vulnerable if they acquiesce to demands. Thus, if the cost of an unfavored policy in China, R, is very high, it may be rational for the democratic country to initiate a dispute. The cost is endured either way in the status quo, but initiating a dispute gives at least a small probability that Chinese policy will change. Arguably, this can be why Australia attempted to pressure China into allowing an independent investigation of the origins of the coronavirus. This issue is indivisible because China can either allow an independent inquiry of the virus' origins or not. Chinese economic coercion has been fierce and persistent. Although the conclusion of the dispute is yet to be known, there are hitherto no indications that Australia will back down on its demands. If Australia initiated the trade war because of information asymmetries or principal-agent problems (see below), it is reasonable to assume that the country would have yielded by now. Thus, Australian persistence can suggest that the indivisibility of the policy issue better explains the conflict.

The second explanation for why democratic countries may initiate political conflicts with China is the non-unity of such actors and the resulting principal-agent problems. Although the literature and the thesis often refer to countries as single agents, there is a range of actors and, thus, different objectives within a state. The Chinese leadership arguably controls its institutional actors strictly[1], while democratic countries usually have press freedom, and several national institutions operate independently from the government. In the explanations for war and sanctions introduced in section 2.3.2, principal-agent-issues were not relevant because agents within a state typically lack the authority to initiate interstate wars and sanctions. However, initiating a political conflict can be a bit more blurry. Beijing has shown that it does not necessarily separate the politics of a country's government and its institutions. For instance, the lack of separation between state and institutions arguably sparked the Nobel Peace Prize incident in 2010. The Norwegian Nobel Committee is independent of the Norwegian state, and its decision to award the prize to Liu Xiaobo was arguably not an ideal situation for the Norwegian government. As mentioned in section 2.2, the Norwegian agreement with Chinese voting

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[1]Although Norris (2016) argues that even China has limited control over its vast bureaucracy of state-owned firms and national institutions.

on UN resolutions quickly increased after the award, and the government also refused to receive the Dalai Lama publicly a few years later. This foreign policy change suggests that the Norwegian government did what it could to end the cold front with China, perhaps because it was not their intention to initiate the conflict.

A third explanation relates to information asymmetries. In the political conflict model, the countries have complete information regarding the other country's goals and capabilities. Suppose a democratic country willingly initiates a political conflict with China, although it violates their participation constraint. In that case, it may be because they have incomplete information about China's resolve or capabilities. This situation is somewhat realistic as Beijing is nontransparent in almost all encounters and blatantly denies actual imposition of sanctions. Suppose, for instance, that the sanction, S, is more extensive than anticipated. Then, a country is likely to be caught by surprise and regret the decision to start a conflict. The case where France officially received the Dalai Lama, only to fervently recognize Tibet as a part of Chinese territory immediately afterward, suggests that the country underestimated the force of the Chinese sanctioning. This argument is the same as Hovi et al. (2005) make as a rational reason for imposing sanctions. It may be that France underestimated the potency of the threats from China as the threats came somewhat disguised from the state-controlled media.

5.3 Limitations and questions for further research

Although the model presented here arguably is a step toward understanding the strategic interaction in political and economic disputes with China, it also has several shortcomings that future studies could address.

First, the model only consists of two, at the most, three strategic decision steps. In reality, the time frame is much longer than that. For instance, the Australian-Chinese trade war is still underway, and both countries have escalated the dispute incrementally. Still, one can argue that when China first imposes sanctions, it does not back down until the democratic country has apologized or done something else to please Beijing (as the cases presented in section 2.2 illustrates). Thus, employing multiple steps would complicate the model but not necessarily enrich its conclusions. However, this could be an interesting question for

further research.

Secondly, the model's choice of including unit costs of diplomacy is not sufficiently grounded in reality. Although there are costs to diplomacy, these are unlikely to be fixed unit costs but would likely vary with the amount of political pressure. Future studies could incorporate different functional forms of the costs of political pressure to see whether they affect conclusions. Further, it is difficult to say whether these diplomacy costs are essential in foreign policy decision-making. It would be interesting to see whether empirical work could find evidence for the hypothesis that countries consider these costs when conducting foreign policy.

Third, the model does not account for the possibility that the game may end before the imposition of any sanction. Instead, the model assumes that China imposes sanctions if the democratic country is unsuccessful. Although observation of Chinese economic statecraft suggests that Beijing has a low threshold for imposing sanctions, incorporating a third possible outcome where China does not impose sanctions could enrich the model.

Fourth, this thesis looks exclusively at economic coercion attempts, but Chinese economic statecraft consists of various other tools. Therefore, it could be interesting to develop a model that, to a larger degree, incorporates China's range of possible options to influence decision-making in other countries.

Chapter 6

Conclusion

This thesis develops a model that attempts to describe a political dispute between a democratic country and China to answer the thesis question of why a democratic country would initiate a political dispute with China.

In line with its growing economic strength, China has, to an increasing degree, employed instruments of power to achieve strategic goals in foreign relations. The thesis presents three cases of Chinese economic coercion that are particularly illustrative: France's official reception of the Dalai Lama in 2009, the Chinese cold front after the Nobel Peace Prize award in 2010, and the Australian-Chinese trade war beginning in 2020.

The thesis develops a model that draws on insight from conflict economics and the literature on sanctions to describe these episodes where China has used economic statecraft against a democratic country. These fields cannot sufficiently describe the cases of political disputes with China alone, but combining them yields a model that comes closer to doing so.

The model suggests at least three reasons why a democratic country may attempt to influence Chinese policy. The first is that the policy issue in question often is indivisible, meaning that there is no potential political compromise. Without a compromise, the expected benefit of starting a conflict may be higher than the status quo. The second reason is related to principal-agent problems. A democratic country may initiate a political dispute with China without the intent of the democratic country's leaders, which arguably happened with Norway in 2010. A third reason can be information asymmetry. China is a nontransparent country that rarely reveals its true intent. This opacity can make it hard for democratic leaders to anticipate its reaction to criticism correctly.

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Appendix

A Derivations, simultaneous game

A.1 Democratic country's maximization problem

$$\max_{\{P_D\}} \quad E\left[\Pi_D^{PC}\right]$$

$$\text{s.t.} \quad P_C = \bar{P}_C$$

where

$$E\left[\Pi_D^{PC}\right] = p(P_D, \bar{P}_C)(R + S) - \gamma_D P_D - R - S$$

This gives:

$$\frac{\partial E\left[\Pi_D^{PC}\right]}{\partial P_D} = 0$$

$$\frac{\partial p(P_D, \bar{P}_C)}{\partial P_D}\left[\Pi_D^Y - \Pi_D^S\right] + p(P_D + \bar{P}_C)\left(\frac{\partial \Pi_D^Y}{\partial P_D} - \frac{\partial \Pi_D^S}{\partial P_D}\right) = 0$$

$$\frac{\partial p(P_D, \bar{P}_C)}{\partial P_D}(R + S) - \gamma_D = 0$$

$$\frac{\theta P_C}{(P_D + \theta P_C)^2}(R + S) = \gamma_D$$

Solving the first order condition for P_D, to find the democratic country's response function in a simultaneous Nash equilibrium, yields:

$$\frac{\theta P_C}{(P_D + \theta P_C)^2}(R + S) = \gamma_D$$

$$\theta P_C(R + S) = \gamma_D\left(P_D + \theta P_C\right)^2$$

$$\left(P_D + \theta P_C\right)^2 = \frac{\theta P_C(R + S)}{\gamma_D}$$

$$P_D + \theta P_C = \left[\frac{\theta P_C(R + S)}{\gamma_D}\right]^{\frac{1}{2}}$$

$$P_D^*(P_C) = \left[\frac{(R + S)}{\gamma_D}\theta P_C\right]^{\frac{1}{2}} - \theta P_C$$

A.2 China's maximization problem

$$\max_{\{P_C\}} \quad E\left[\Pi_C^{PC}\right]$$

$$\text{s.t.} \quad P_D = \bar{P}_D$$

where

$$E\left[\Pi_C^{PC}\right] = -p(\bar{P}_D, P_C)(R + S) - \gamma_C P_C + S$$

This gives:

$$\frac{\partial E\left[\Pi_C^{PC}\right]}{\partial P_C} = 0$$

$$-\frac{\partial p(\bar{P}_D, P_C)}{\partial P_C}(R + S) - \gamma_C = 0$$

$$-\left(-\frac{\theta P_D}{(P_D + \theta P_C)^2}\right)(R + S) = \gamma_C$$

$$\frac{\theta P_D}{(P_D + \theta P_C)^2}(R + S) = \gamma_C$$

Can solve this for P_C to find China's response function:

$$\frac{\theta P_D}{(P_D + \theta P_C)^2}(R + S) = \gamma_C$$

$$\theta P_D(R + S) = \gamma_C (P_D + \theta P_C)^2$$

$$(P_D + \theta P_C)^2 = \frac{\theta P_D(R + S)}{\gamma_C}$$

$$P_D + \theta P_C = \left[\frac{\theta P_D(R + S)}{\gamma_C}\right]^{\frac{1}{2}}$$

$$\theta P_C = \left[\frac{\theta P_D(R + S)}{\gamma_C}\right]^{\frac{1}{2}} - P_D$$

$$P_C^*(P_D) = \left[\frac{(R + S)}{\gamma_C}\frac{P_D}{\theta}\right]^{\frac{1}{2}} - \frac{P_D}{\theta}$$

A.3 Strategic interaction

Can take the derivative of China's best response function to see how P_C varies with P_D:

$$\frac{dP_C}{dP_D} = \frac{1}{2}\left[\frac{(R+S)}{\gamma_C}\frac{P_D}{\theta}\right]^{-\frac{1}{2}}\frac{(R+S)}{\theta\gamma_C} - \frac{1}{\theta}$$

$$= \frac{1}{2}\frac{(R+S)}{\theta\gamma_C}\left[\frac{\gamma_C\theta}{(R+S)P_D}\right]^{\frac{1}{2}} - \frac{1}{\theta}$$

$$= \frac{1}{2}\left[\frac{R+S}{\gamma_C\theta P_D}\right]^{\frac{1}{2}} - \frac{1}{\theta}$$

Further, we can see what values of P_D that will spark increased, decreased or unchanged response from China:

$$\frac{1}{2}\left[\frac{R+S}{\gamma_C\theta P_D}\right]^{\frac{1}{2}} - \frac{1}{\theta} = 0$$

$$\frac{1}{2}\left[\frac{R+S}{\gamma_C\theta}\right]^{\frac{1}{2}}\frac{1}{P_D^{\frac{1}{2}}} = \frac{1}{\theta}$$

$$P_D^{\frac{1}{2}} = \frac{1}{2}\left[\frac{\theta(R+S)}{\gamma_C}\right]^{\frac{1}{2}}$$

$$P_D = \frac{\theta(R+S)}{4\gamma_C}$$

P_C will increase when:

$$\frac{1}{2}\left[\frac{R+S}{\gamma_C\theta P_D}\right]^{\frac{1}{2}} - \frac{1}{\theta} > 0$$

$$\frac{1}{2}\left[\frac{R+S}{\gamma_C\theta}\right]^{\frac{1}{2}}\frac{1}{P_D^{\frac{1}{2}}} > \frac{1}{\theta}$$

$$P_D < \frac{\theta(R+S)}{4\gamma_C}$$

and decrease when:

$$\frac{1}{2}\left[\frac{R+S}{\gamma_C\theta P_D}\right]^{\frac{1}{2}} - \frac{1}{\theta} < 0$$

$$\frac{1}{2}\left[\frac{R+S}{\gamma_C\theta}\right]^{\frac{1}{2}} \frac{1}{P_D^{\frac{1}{2}}} < \frac{1}{\theta}$$

$$P_D > \frac{\theta(R+S)}{4\gamma_C}$$

Starting with the democratic country's response function, one can also observe how its response changes with China's choice of diplomacy:

$$\frac{dP_D}{dP_A} = \frac{1}{2}\left[\frac{(R+S)\theta P_C}{\gamma_D}\right]^{-\frac{1}{2}} \frac{\theta(R+S)}{\gamma_D} - \theta$$

$$= \frac{\theta(R+S)}{2\gamma_D}\left[\frac{\gamma_D}{(R+S)\theta P_C}\right]^{\frac{1}{2}} - \theta$$

$$= \frac{1}{2}\left[\frac{\theta(R+S)}{\gamma_D P_C}\right]^{\frac{1}{2}} - \theta$$

and that P_D rises and falls around

$$\frac{1}{2}\left[\frac{\theta(R+S)}{\gamma_D P_C}\right]^{\frac{1}{2}} - \theta = 0$$

$$\frac{1}{2}\left[\frac{\theta(R+S)}{\gamma_D}\right]^{\frac{1}{2}} \frac{1}{P_C^{\frac{1}{2}}} = \theta$$

$$P_C^{\frac{1}{2}} = \frac{1}{2}\left[\frac{(R+S)}{\theta\gamma_D}\right]^{\frac{1}{2}}$$

$$P_C = \frac{R+S}{4\theta\gamma_D}$$

A.4   Equilibrium

We can rewrite the democratic country's first order condition to:

$$\frac{\theta P_C}{(P_D+\theta P_C)^2}(R+S) = \gamma_D$$

$$\frac{P_C}{\gamma_D} = \frac{(P_D+\theta P_C)^2}{\theta(R+S)}$$

and similarly for China's first order condition:

$$\frac{\theta P_D}{(P_D + \theta P_C)^2}(R + S) = \gamma_C$$

$$\frac{P_D}{\gamma_C} = \frac{(P_D + \theta P_C)^2}{\theta(R + S)}$$

Then this must give:

$$\frac{P_C}{\gamma_D} = \frac{P_D}{\gamma_C}$$

$$\Rightarrow P_D = \frac{\gamma_C}{\gamma_D}P_C$$

$$\Rightarrow P_C = \frac{\gamma_D}{\gamma_C}P_D$$

We can find the Nash equilibrium in the simultaneous game by substituting in for $P_C = \frac{\gamma_D}{\gamma_C}P_D$ in the democratic country's response function:

$$P_D^*(P_C) = \left[\frac{(R+S)}{\gamma_D}\theta P_C\right]^{\frac{1}{2}} - \theta P_C$$

$$P_D = \left[\frac{(R+S)}{\gamma_D}\theta\frac{\gamma_D}{\gamma_C}P_D\right]^{\frac{1}{2}} - \theta\frac{\gamma_D}{\gamma_C}P_D$$

$$1 = \left[\frac{\theta(R+S)}{\gamma_C P_D}\right]^{\frac{1}{2}} - \theta\frac{\gamma_D}{\gamma_C}$$

$$\left(1 + \theta\frac{\gamma_D}{\gamma_C}\right)^2 = \frac{\theta(R+S)}{\gamma_C P_D}$$

$$P_D = \frac{\theta(R+S)}{\gamma_C\left(1 + \theta\frac{\gamma_D}{\gamma_C}\right)^2}$$

$$P_D = \frac{\theta(R+S)}{\gamma_C\left(\frac{\gamma_C + \theta\gamma_D}{\gamma_C}\right)^2}$$

$$P_D^* = \frac{\theta\gamma_C(R+S)}{(\gamma_C + \theta\gamma_D)^2}$$

Similarly, we find P_C^* by substituting in for $P_D = \frac{\gamma_C}{\gamma_D} P_C$ in China's response function:

$$P_C^*(P_D) = \left[\frac{(R+S)}{\gamma_C} \frac{P_D}{\theta} \right]^{\frac{1}{2}} - \frac{P_D}{\theta}$$

$$P_C = \left[\frac{(R+S)}{\theta \gamma_C} \frac{\gamma_C}{\gamma_D} P_C \right]^{\frac{1}{2}} - \frac{\gamma_C}{\theta \gamma_D} P_C$$

$$1 = \left[\frac{(R+S)}{\theta \gamma_D P_C} \right]^{\frac{1}{2}} - \frac{\gamma_C}{\theta \gamma_D}$$

$$\left(1 + \frac{\gamma_C}{\theta \gamma_D} \right)^2 = \frac{(R+S)}{\theta \gamma_D P_C}$$

$$P_C = \frac{(R+S)}{\theta \gamma_D \left(1 + \frac{\gamma_C}{\theta \gamma_D} \right)^2}$$

$$P_C = \frac{(R+S)}{\theta \gamma_D \left(\frac{\theta \gamma_D + \gamma_C}{\theta \gamma_D} \right)^2}$$

$$P_C^* = \frac{\theta \gamma_D (R+S)}{(\theta \gamma_D + \gamma_C)^2}$$

A.5   Participation constraint

We can find a new expression for the probability that China will yield to the democratic country's demands under simultaneous decisions. In simultaneous equilibrium, then $P_D = \frac{\gamma_C}{\gamma_D} P_C$, so we get:

$$p(P_D, P_C) = \frac{P_D}{P_D + \theta P_C}$$

$$p(P_D^*, P_C^*) = \frac{\frac{\gamma_C}{\gamma_D} P_C}{\frac{\gamma_C}{\gamma_D} P_C + \theta P_C}$$

$$= \frac{\frac{\gamma_C}{\gamma_D}}{\frac{\gamma_C}{\gamma_D} + \theta}$$

$$= \frac{\gamma_C}{\gamma_C + \theta \gamma_D}$$

Substituting in for the democratic country's probability of success in equilibrium, its expected payoff in simultaneous equilibrium becomes:

$$
\begin{aligned}
E[\Pi_D^{PC}]^{sim} &= p(P_D^*, P_C^*)(R+S) - \gamma_D P_D^* - R - S \\
&= \frac{\gamma_C}{\gamma_C + \theta\gamma_D}(R+S) - \gamma_D \frac{\theta\gamma_C(R+S)}{(\gamma_C + \theta\gamma_D)^2} - R - S \\
&= \frac{\gamma_C}{\gamma_C + \theta\gamma_D}(R+S) - \frac{\theta\gamma_C\gamma_D}{(\gamma_C + \theta\gamma_D)^2}(R+S) - R - S \\
&= \frac{\gamma_C(\gamma_C + \theta\gamma_D)(R+S) - \theta\gamma_C\gamma_D(R+S)}{(\gamma_C + \theta\gamma_D)^2} - R - S) \\
&= \frac{\gamma_C^2(R+S)}{(\gamma_C + \theta\gamma_D)^2} - R - S \\
&= \left(\frac{\gamma_C}{\gamma_C + \theta\gamma_D}\right)^2(R+S) - (R+S) \\
&= (R+S)\left[\left(\frac{\gamma_C}{\gamma_C + \theta\gamma_D}\right)^2 - 1\right]
\end{aligned}
$$

The democratic country's participation constraint at simultaneous decisions becomes:

$$
E[\Pi_D^{PC}]^{sim} > \Pi_D^0
$$

$$
\left(\frac{\gamma_C}{\gamma_C + \theta\gamma_D}\right)^2(R+S) - R - S > -R
$$

$$
S < \left(\frac{\gamma_C}{\gamma_C + \theta\gamma_D}\right)^2(R+S)
$$

$$
S\left(1 - \left(\frac{\gamma_C}{\gamma_C + \theta\gamma_D}\right)^2\right) < \left(\frac{\gamma_C}{\gamma_C + \theta\gamma_D}\right)^2 R
$$

$$
S < \frac{\left(\frac{\gamma_C}{\gamma_C + \theta\gamma_D}\right)^2 R}{\left(1 - \left(\frac{\gamma_C}{\gamma_C + \theta\gamma_D}\right)^2\right)}
$$

$$
S < \frac{R}{\left(\frac{\gamma_C + \theta\gamma_D}{\gamma_C}\right)^2 - 1}
$$

$$
S < \frac{R\gamma_C^2}{(\gamma_C + \theta\gamma_D)^2 - \gamma_C^2}
$$

$$
S < \frac{R\gamma_C^2}{\theta\gamma_D(2\gamma_C + \theta\gamma_D)}
$$

China's expected payoff in equilibrium becomes, similarly:

$$
\begin{aligned}
E[\Pi_C^{PC}]^{sim} &= -p(P_D^*, P_C^*)(R+S) - \gamma_C P_C^* + S \\
&= -\frac{\gamma_C}{\gamma_C + \theta\gamma_D}(R+S) - \gamma_C \frac{\theta\gamma_D(R+S)}{(\theta\gamma_D + \gamma_C)^2} + S \\
&= \frac{-\gamma_C\left(\theta\gamma_D + \gamma_C\right)(R+S) - \theta\gamma_C\gamma_D(R+S)}{(\theta\gamma_D + \gamma_C)^2} + S \\
&= \frac{-\gamma_C^2(R+S) - 2\theta\gamma_C\gamma_D(R+S)}{(\theta\gamma_D + \gamma_C)^2} + S \\
&= S - \frac{\gamma_C(\gamma_C + 2\theta\gamma_D)}{(\gamma_C + \theta\gamma_D)^2}(R+S)
\end{aligned}
$$

B Derivations, sequential game

B.1 Maximization with sequential decisions

China's optimal response for every level of the democratic country's diplomatic effort is given by:

$$P_C^*(P_D) = \left[\frac{(R+S)}{\gamma_C}\frac{P_D}{\theta}\right]^{\frac{1}{2}} - \frac{P_D}{\theta}$$

With $P_C = P_C^*(P_D)$, we can find a new expression for the probability that China will yield:

$$
\begin{aligned}
p(P_D, P_C^*(P_D)) &= \frac{P_D}{P_D + \theta P_C^*(P_D)} \\
&= \frac{P_D}{P_D + \theta\left(\left[\frac{(R+S)}{\gamma_C}\frac{P_D}{\theta}\right]^{\frac{1}{2}} - \frac{P_D}{\theta}\right)} \\
&= \frac{P_D}{P_D + \left[\frac{\theta(R+S)}{\gamma_C}P_D\right]^{\frac{1}{2}} - P_D} \\
&= \frac{P_D}{\left[\frac{\theta(R+S)}{\gamma_C}P_D\right]^{\frac{1}{2}}} \\
&= P_D\left[\frac{\gamma_C}{\theta(R+S)P_D}\right]^{\frac{1}{2}} \\
&= \left[\frac{\gamma_C P_D}{\theta(R+S)}\right]^{\frac{1}{2}}
\end{aligned}
$$

This gives:

$$
\begin{aligned}
E[\Pi_D^{PC}]^{seq} &= p(P_D, P_C^*(P_D))(R+S) - \gamma_D P_D - R - S \\
&= \left[\frac{\gamma_C P_D}{\theta(R+S)}\right]^{\frac{1}{2}}(R+S) - \gamma_D P_D - R - S \\
&= \left[\frac{\gamma_C P_D(R+S)}{\theta}\right]^{\frac{1}{2}} - \gamma_D P_D - R - S
\end{aligned}
$$

This gives the following maximization problem for the democratic country:

$$\max_{\{P_D\}} \quad E[\Pi_D^{PC}]^{seq}$$

$$\text{s.t.} \quad P_C = P_C^*(P_D)$$

where

$$E[\Pi_D^{PC}]^{seq} = \left[\frac{\gamma_C P_D(R+S)}{\theta}\right]^{\frac{1}{2}} - \gamma_D P_D - R - S,$$

which gives:

$$\frac{\partial E[\Pi_D^{PC}]^{seq}}{\partial P_D} = 0$$

$$\frac{1}{2}\left[\frac{\gamma_C(R+S)}{\theta}P_D\right]^{-\frac{1}{2}}\frac{\gamma_C(R+S)}{\theta} - \gamma_D = 0$$

$$\frac{1}{2}\left[\frac{\theta}{\gamma_C(R+S)P_D}\right]^{\frac{1}{2}}\frac{\gamma_C(R+S)}{\theta} = \gamma_D$$

$$\frac{1}{2}\left[\frac{\gamma_C(R+S)}{\theta P_D}\right]^{\frac{1}{2}} = \gamma_D$$

Solving for P_D gives the democratic country's optimal level of diplomatic effort, P_D^*:

$$\frac{1}{2}\left[\frac{\gamma_C(R+S)}{\theta P_D}\right]^{\frac{1}{2}} = \gamma_D$$

$$\frac{\gamma_C(R+S)}{\theta P_D} = 4\gamma_D^2$$

$$P_D^* = \frac{\gamma_C(R+S)}{4\theta\gamma_D^2}$$

Substituting in for P_D^* in China's optimal response, we get:

$$
\begin{aligned}
P_C^*(P_D^*) &= \left[\frac{(R+S)}{\gamma_C}\frac{P_D^*}{\theta}\right]^{\frac{1}{2}} - \frac{P_D^*}{\theta} \\
&= \left[\frac{(R+S)}{\theta\gamma_C}\left(\frac{\gamma_C(R+S)}{4\theta\gamma_D^2}\right)\right]^{\frac{1}{2}} - \frac{1}{\theta}\left(\frac{\gamma_C(R+S)}{4\theta\gamma_D^2}\right) \\
&= \left[\frac{(R+S)^2}{4\theta^2\gamma_D^2}\right]^{\frac{1}{2}} - \frac{\gamma_C(R+S)}{4\theta^2\gamma_D^2} \\
&= \frac{R+S}{2\theta\gamma_D} - \frac{\gamma_C(R+S)}{4\theta^2\gamma_D^2} \\
&= \frac{R+S}{2\theta\gamma_D}\left(1 - \frac{\gamma_C}{2\theta\gamma_D}\right)
\end{aligned}
$$

Can see what condition must hold for $P_C^* > P_D^*$:

$$
\frac{R+S}{2\theta\gamma_D}\left(1 - \frac{\gamma_C}{2\theta\gamma_D}\right) > \frac{\gamma_C(R+S)}{4\theta\gamma_D^2}
$$

$$
\frac{2\theta\gamma_D - \gamma_C}{4\theta^2\gamma_D^2} > \frac{\gamma_C}{4\theta\gamma_D^2}
$$

$$
2\theta\gamma_D - \gamma_C > \theta\gamma_C
$$

With $\gamma_D = \gamma_C = \gamma$:

$$
2\theta\gamma - \gamma > \theta\gamma
$$

$$
2\theta - 1 > \theta
$$

$$
\theta > 1
$$

This condition holds by assumption, as $1 < \theta < 9$.

B.2 Participation constraint

The probability that China yields when the political game is played sequentially is given by:

$$p(P_D^{seq*}, P_C^{seq*}) = \left[\frac{\gamma_C P_D^*}{\theta(R+S)}\right]^{\frac{1}{2}}$$

$$= \left[\frac{\gamma_C}{\theta(R+S)}\frac{\gamma_C(R+S)}{4\theta\gamma_D^2}\right]^{\frac{1}{2}}$$

$$= \left[\frac{\gamma_C^2}{4\theta^2\gamma_D^2}\right]^{\frac{1}{2}}$$

$$= \frac{\gamma_C}{2\theta\gamma_D}$$

The expected payoff in sequential equilibrium for the democratic country becomes:

$$E[\Pi_D^{PC}]^{seq} = p(P_D^{seq*}, P_C^{seq*})(R+S) - \gamma_D P_D^* - R - S$$

$$= \frac{\gamma_C}{2\theta\gamma_D}(R+S) - \gamma_D\frac{\gamma_C(R+S)}{4\theta\gamma_D^2} - R - S$$

$$= \frac{\gamma_C}{2\theta\gamma_D}(R+S) - \frac{\gamma_C(R+S)}{4\theta\gamma_D} - R - S$$

$$= \frac{2\gamma_C(R+S) - \gamma_C(R+S)}{4\theta\gamma_D} - R - S$$

$$= \frac{\gamma_C(R+S)}{4\theta\gamma_D} - R - S$$

which gives the participation constraint:

$$E[\Pi_D^{PC}]^{seq} > \Pi_D^0$$

$$\frac{\gamma_C(R+S)}{4\theta\gamma_D} - R - S > -R$$

$$S < \frac{\gamma_C(R+S)}{4\theta\gamma_D}$$

$$S - \frac{\gamma_C}{4\theta\gamma_D}S < \frac{\gamma_C}{4\theta\gamma_D}R$$

$$S\left(1 - \frac{\gamma_C}{4\theta\gamma_D}\right) < \frac{\gamma_C}{4\theta\gamma_D}R$$

$$S\left(4\theta\gamma_D - \gamma_C\right) < \gamma_C R$$

$$S < \frac{\gamma_C}{4\theta\gamma_D - \gamma_C}R$$

The expected payoff for China in the sequential political game is given by:

$$E[\Pi_C^{PC}]^{seq} = -p(P_D^{seq*}, P_C^{seq*})(R + S) - \gamma_C P_C^{seq*} + S$$

$$= -\frac{\gamma_C}{2\theta\gamma_D}(R + S) - \gamma_C \frac{R + S}{2\theta\gamma_D}\left(1 - \frac{\gamma_C}{2\theta\gamma_D}\right) + S$$

$$= -\frac{\gamma_C}{2\theta\gamma_D}(R + S)\left(1 + \left(1 - \frac{\gamma_C}{2\theta\gamma_D}\right)\right) + S$$

$$= -\frac{\gamma_C}{2\theta\gamma_D}(R + S)\left(2 - \frac{\gamma_C}{2\theta\gamma_D}\right) + S$$

$$= S - \frac{\gamma_C(R + S)(4\theta\gamma_D - \gamma_C)}{2\theta\gamma_D}$$

C   Comparing the equilibria

To see which decision sequence that gives the highest equilibrium level of political effort, we first see what conditions must hold for the sequential equilibrium to be highest. We have that:

$$P_D^{sim} = \frac{\theta\gamma_C(R + S)}{(\gamma_C + \theta\gamma_D)^2}$$
$$P_D^{seq} = \frac{\gamma_C(R + S)}{4\theta\gamma_D^2}$$

Assume now for simplicity that $\gamma_D = \gamma_C = \gamma$. Then, the condition for the sequential equilibrium to be higher than the simultaneous equilibrium becomes:

$$P_D^{seq} > P_D^{sim}$$
$$\frac{\gamma(R + S)}{4\theta\gamma^2} > \frac{\theta\gamma(R + S)}{(\gamma + \theta\gamma)^2}$$
$$(\gamma + \theta\gamma)^2 > 4\theta^2\gamma^2$$
$$\gamma^2 + 2\theta\gamma^2 + \theta^2\gamma^2 > 4\theta^2\gamma^2$$
$$1 + 2\theta + \theta^2 > 4\theta^2$$
$$-3\theta^2 + 2\theta + 1 > 0$$

This condition gives that $-\frac{1}{3} < \theta < 1$, which is violated. Thus:
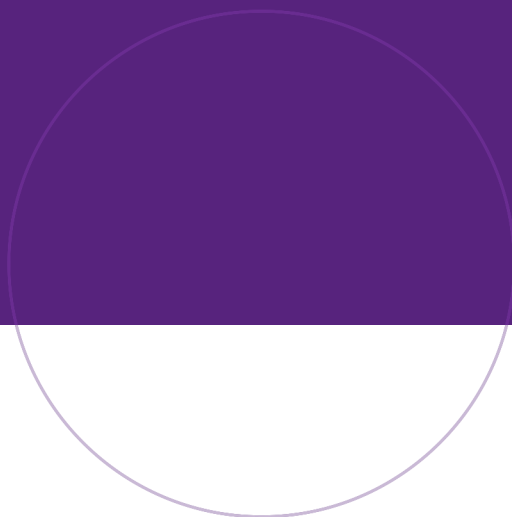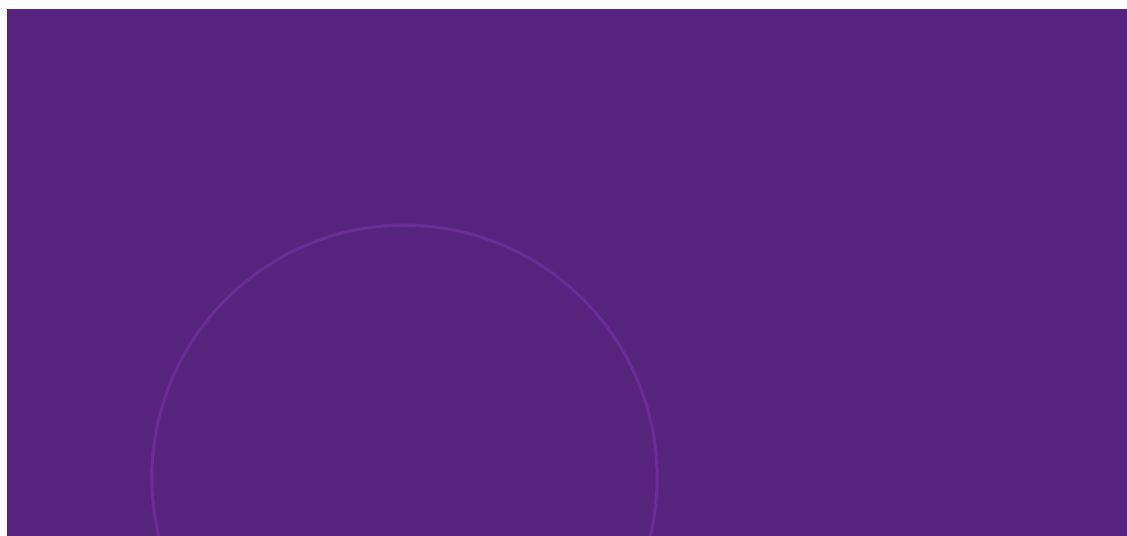
$$P_D^{seq} < P_D^{sim}$$

Further, the condition for the participation constraint to be more binding in the sequential case is that:

$$\frac{\gamma_C}{4\theta\gamma_D - \gamma_C} R < \frac{\gamma_C^2}{\theta\gamma_D(2\gamma_C + \theta\gamma_D)} R$$

$$\theta\gamma_D(2\gamma_C + \theta\gamma_D) < \gamma_C(4\theta\gamma_D - \gamma_C)$$

$$2\theta\gamma_D\gamma_c + \theta^2\gamma_D^2 < 4\theta\gamma_D\gamma_C - \gamma_C^2$$

$$\theta^2\gamma_D^2 < 2\theta\gamma_D\gamma_C - \gamma_C^2$$

Assume that $\gamma_D = \gamma_C = \gamma$:

$$\theta^2\gamma^2 < 2\theta\gamma^2 - \gamma^2$$

$$-\theta^2 + 2\theta - 1 > 0$$

The values of the advantage parameter that makes this condition hold is $\theta > 1$.