Putting Economics Back Into Geoeconomics

Christopher Clayton* Matteo Maggiori† Jesse Schreger‡

April 2025

Abstract

Geoeconomics is the use of a country's economic strength to exert influence on foreign entities to achieve geopolitical or economic goals. We discuss how concepts of power in the political science and economics literature can be used to guide research on geoeconomics. Economic threats as a form of coercion have seen a recent resurgence. We show how different types of threats can be modeled using simple tools and discuss what channels their potential effectiveness is based on. We discuss important open questions for the future literature to pursue.

Keywords: Geopolitics, Economic Security, Economic Statecraft, Great Powers, Sanctions, Chokepoints, Export and Import Restrictions.

JEL Codes: F02, F05, F12, F15, F33, F36, F38, P43, P45.

*Yale School of Management and NBER; christopher.clayton@yale.edu.

†Stanford University Graduate School of Business, NBER, and CEPR; maggiori@stanford.edu.

‡Columbia Business School, NBER, and CEPR; jesse.schreger@columbia.edu.

This paper is in preparation for the 2025 NBER Macro Annual. We thank Pol Antràs, Kyle Bagwell, Fernando Broner, Antonio Coppola, Doug Diamond, James Fearon, Jesús Fernández-Villaverde, Jeff Frieden, Ben Golub, Bengt Holmstrom, John Leahy, Alberto Martin, Pablo Ottonello, Diego Perez, Valerie Ramey, Stephen Redding, Peter Schott, Alp Simsek, Joe Stiglitz, Jean Tirole, and Christoph Trebesch. We thank Chiara Bargellesi, Hanson Ho, Ziwen Sun, and Yicheng Yang for excellent research assistance.

1 Introduction

Great Powers use the linkages from their economies' trade and financial activities with the rest of the world to exert influence and achieve either geopolitical or economic goals. The accumulation and wielding of this international power has occupied governments throughout history, with the recent tensions between the US and China as rival powers only the latest incarnation of this Great Game that has occupied Roman Emperors, Genghis Khan, the Medici, and imperial Britain alike.[1]

Geoeconomics is an area of study of economics and political science that focuses on how governments use their country's economic strength to exert influence on foreign entities.[2] Or perhaps we should say that it should be an area of economics devoted to the study of these topics: economists have paid so little attention to this area since World War II that this area of study barely existed until recently. In this article, together with a nascent literature in economics, we put forward ideas and modeling blocks for this purpose. We explicitly focus on the economic aspect of the great power competition, leaving aside the important and connected military issues or the cultural ones. We focus on how the modern toolbox of economics can be wielded to map this area of study, mixing tools of game theory, international economics, finance, and political economy. Our thinking in this paper is based on our work on geoeconomics in Clayton, Maggiori, and Schreger (2023b, 2024b).

We start by reviewing different concepts of power and how to model them. We think of power as the ability to induce an entity, be it a foreign government or firm, to take an action that it would otherwise not want to take. This notion of power is much more general that than the concept of market power most frequently associated with economic power. The notion is more general in that the actions being demanded are not limited to only paying mark-up on goods, but can instead range from restrictions on buying and selling goods or transferring technology to political concessions or changes in policy stance. The common element is that the target finds these actions to be privately costly.

Power comes from the fact that the targeted entity is willing to take this privately costly action to either avoid a punishment or earn a reward. If the entity is worse off taking the action, it will not do so. This participation constraint is the key to geoeconomic power projection. Power, therefore, is rooted in the ability to shape the target's incentives. This article reviews the central role of the participation constraint of the targeted entities in geoeconomic analysis. Every government, not just the global hegemon or one of the Great Powers, has the ability to influence its domestic entities, a consumer or firm, via taxation and regulation. Hegemonic countries, however, often seek to influence foreign entities over which they have no direct control. They do so either by threatening negative consequences if the target does not undertake the desired actions, thus lowering the outside option of the participation constraint; or by promising positive benefits if the target does undertake

[1] The Great Game is a term popularized by Rudyard Kipling in the novel "Kim" and refers to the rivalry between Britain and Russia for the economic and military control of Central Asia, especially India.

[2] The term "geoeconomics" is often attributed to Luttwak (1990), although earlier uses certainly exist. For the history of the term see Mallin and Sidaway (2024) and Luttwak (2024).

the desired actions, thus increasing the inside option of the participation constraint.

We then show how to model many different types of threats and inducements that are common in the practice of geoeconomics. Threats not to sell an input for production (or consumption) prevent the target from accessing necessary inputs. For example, the US in recent years has imposed export controls to China on semiconductors and the machinery necessary for their production. Threats not to buy goods from the target restrict market access for the target. For example, the Napoleonic blockade aimed to close British access to European markets for its exports. Threatening to withhold foreign aid is another form of geoeconomic pressure. For example, during the Cold War the US threatened (and in part did) withhold aid to Egypt over its alignment with the Soviet Union. Joint threats couple together disparate economic activities to act as an enforcement mechanism on the target. For example, the Chinese Belt and Road Initiative bundles together financing and manufacturing activities to help sustain them at larger scale. Coordination threats punish individual actors if they take actions that would collectively move the equilibrium from a good to a bad one, and reward individuals with access to an equilibrium coordinated to be the good one. For example, in a financial crisis the hegemon can threaten punishment of individual countries that excessively liquidate assets, an action that would collectively lead to a speculative attack or bank run, with the reward of being part of a system in which these bad equilibria do not occur and having access to liquidity swap lines with the hegemon. Threats to provide or withhold a technological transfer that increases productivity, can effectively offer the target an opportunity to switch to a more efficient production function. For example, the US-India nuclear deal offered India access to commercial nuclear technology in exchange for its integration into nuclear non-proliferation efforts. Financial threats include freezing or expropriating the target's assets, preventing the target from accessing transaction systems (like payments and settlement) that support trade in financial assets or goods, and limiting inbound or outbound direct investment. For example, the US, Europe, and others froze the foreign reserves of Russia following its invasion of Ukraine, and threatened European banks with loss of access to US funding and settlement over dealings with Iran. Many countries have instituted review processes for inbound and outbound foreign direct investment on grounds of national security.

We show that all the above positive inducements or negative threats have in common that they either increase the inside option or lower the outside option of the participation constraint. The upper bound on what the hegemon could demand out of the targeted entity is described by the slack in the participation constraint. If the hegemon were to ask for more, then the request would be declined. Threats generate power to the extent that they generate slack in the participation constraint. We highlight the basic economics of what threats are more likely to be powerful.

The class of threats that aim to shift the marginal revenue curve faced by the targeted entity as a seller, such as threats not to buy the seller's products, are more effective when there is a scarcity of alternative buyers so that the goods' prices have to drop substantially as a result. These threats aim to starve the targeted entity of revenues and profits with which to buy inputs. At the country

level, and in the presence of balanced trade, this lack of foreign revenue moves the targeted country closer to autarky. For example, sanctions imposed on Russian exports of oil and gas following its invasion of Ukraine have been less effective given the presence of China and India as large buyers of these exports.

The class of threats that aim to shift the marginal cost curve of the targeted entity as a buyer, most obviously the threats not to sell inputs, are effective when there is little or no substitute input available for the producer to rebalance to. This can be due to technological reasons such as a low elasticity of substitution in the production technology or because the hegemon controls the entire supply. For example, the threat to withhold from China the ASML photolithography machines that are used to make advanced computer chips is only powerful to the extent that China cannot acquire or produce domestically machines that are close substitutes.

Other threats only directly affect the budget constraint. For example, aid is a unilateral gift with no direct transaction in return. The effectiveness of threats to withhold aid depends on whether an alternative source of aid can be found and on the macroeconomic conditions in the country. The same is true for some forms of lender of last resort and macroeconomic support. For example, during the Suez crisis the US threatened Britain with withdrawing state contingent support of its foreign exchange reserves while the pound peg was being attacked. The risk of suffering a currency crisis induced the British government to comply with US demands to withdraw troops from the Suez canal.

The power of the threats is not only dissipated by the ability of the target to re-arrange economic activity ex-post if the threat is carried out, e.g. finding an alternative seller, buyer, or mean of transacting. It is also dissipated ex-ante by the targets' anticipation of the threats and reaction by changing their economic plans. To sketch these incentives and how they differ for different types of anticipated threats, we consider an extension in which producers have the ability to choose which inputs to produce in an ex-ante stage, before trade and economic threats occur and final production is finalized. Threats that lower the outside option, such as not to buy and sell, cause firms to shift production of certain goods to home and subsequently reshape their trade patterns. In contrast, positive threats such as aid provision have more muted effects on firm activities, since they offer to raise the inside option but leave the outside option unchanged.

Despite the recent surge of research in geoeconomics, much remains to be done in this area. In the last section, we highlight three broad areas to make progress on: 1) from an applied theory perspective: (i) models of multiple hegemons and endogenous emergence of hegemons, (ii) models of the political economy of hegemonic power; 2) large-scale data on economic interdependence and causal evidence on the effects of threats; and 3) quantitative models for policy counterfactuals. The first elements will be necessary to better map out the theoretical mechanisms underlying the Great Power competition. We should recognize that these policies are likely to have large distributional consequences and attract intense lobbying efforts. Optimal policy design should incorporate the political economy considerations that are likely to be binding in practice. Second, the literature will

need credible causal evidence on the effects of geoeconomic policies, especially economic threats. Third, quantitative evaluation is essential in order to guide policy and make sure geoeconomics is used to improve welfare, or at least minimize the costs of its (ab)use.

2 Concepts of Power in Political Science and Economics

In modern economics, the concept of economic power is much too often exclusively associated with monopoly power: the ability to sell a good at a mark-up over cost. While this is surely an important force, it is only one of many possible notions of power. When we think of a corporation, such as Google or JP Morgan, let alone a government, as being powerful, we are probably thinking of something more general than its ability to extract mark-ups from buyers of its products. Colloquially, we might think of power as the ability to induce others to take a desired action that they would not otherwise take. This broader notion of power, especially in the context of large firms, is behind the resurgence of the Brandeis antitrust school of thought (Brandeis (1914)). Dahl (1957) concisely states it as: "A has power over B to the extent that he can get B to do something that B would not otherwise do."[3] Paying more for a good is only one such possibility. The motivating examples in the introduction all fall in this broad definition.

Fortunately, political scientists have devoted much thought to this topic, especially when it comes to international relations. Of particular relevance to this paper is the distinction between levels or faces of power (Bachrach and Baratz (1962), Cohen (1977), Strange (1988)).[4] The lower level, sometimes referred to as "relational power," is essentially when an actor, like a government, influences another actor to take a desired action. The higher level, sometimes referred to as "structural power," is when an actor influences an entire economic environment, for example by setting the rules of the game (like a treaty, or a set of norms). There might be little direct exercise of power or coercion after the rules are set, but choosing the rules can clearly be a great source of power.

A related question is the source of the power and the tools used to wield it. Nye (2004) distinguishes between hard and soft power, but is upfront that the distinction is not so clear cut in practice. He writes: "power is the ability to influence the behavior of others to get the outcomes one wants. But there are several ways to affect the behavior of others. You can coerce them with threats; you can induce them with payments; or you can attract and co-opt them to want what you want.[...] Hard and soft power are related because they are both aspects of the ability to achieve one's purpose by affecting the behavior of others. The distinction between them is one of degree."[5] The tools of hard power often involve command, threats, and coercion; those of soft power include attraction, co-option, and agenda setting. The idea that power could come from making a set of values and norms commonplace goes back to Antonio Gramsci, the founder of the Italian Communist

[3] See Dahl (1957) pages 202-203.
[4] See also Norrlof (2014).
[5] See Nye (2004) pages 2 and 7.

Party, who theorized that the hegemonic capitalist culture helped preserve the wealth and power of the entrenched capitalist class.

These concepts are undoubtedly interesting, but the lack of structure makes it hard to operationalize them to estimate power empirically, design optimal policy, or perform counterfactuals. Cohen (2015) summarizes the dissatisfaction thus: "scholars find it difficult to concur even on a basic definition of the term. Robert Gilpin once described the idea of power as "one of the most troublesome in the field of international relations." The only true point of agreement, quips David Baldwin, is on the "unsatisfactory state of knowledge about this topic.""[6] In the next section we put forward a notion of international power that is both theoretically sound and sufficiently specified to make testable empirical predictions.

Power relationships are of core interest to international economics since across countries, especially in sovereign relationships, there is little or no legal enforceability. Nonetheless, the concepts of power we highlight and the mechanisms for building and wielding power that we model also relate to the theory of the firm. Indeed, Zingales (2017) laments that large corporations have become powerful in a broad sense and "Yet in contemporary economics, the commonly prevailing view of the firm ignores all these elements of politics and power." Zingales points to a "Medici vicious cycle" in which a powerful firm builds up its power by affecting the rules of the game.[7] Acemoglu and Johnson (2023) focus on how power and technological progress shape each other in both the public and private spheres.

2.1 Geoeconomic Power

Since the Great Powers have used forms of economic statecraft over centuries it is not surprising that public intellectuals and advisers to rulers of the day have thought about geoeconomics. From a deeper intellectual perspective, however, the founding moment of the discipline in its modern economic incarnation is the publication of the book "National Power and the Structure of Foreign Trade" by Albert O. Hirschman in 1945.

Hirschman (1945) achieves two intellectual feats: providing a theory of geoeconomics, and providing an index to measure the power concentration. In the first part of the book, he puts forward a theory of power imbalances among countries driven by differences in the size and composition of their trade relationships. His immediate motivation was the use of economic pressure by Germany on its neighboring countries in the buildup to World War II.[8] However, Hirschman traces the history of thought on the topic to Adam Smith's debate with the mercantilists. Like Smith he dismisses the

[6] See page 29 in Cohen (2015), and more generally his excellent review of notions of powers in that chapter.

[7] See also Cowgill et al. (2024) and Callander et al. (2022).

[8] The book was written in 1941-42 and then published in 1945 at the University of California at Berkeley where Hirschman had arrived on a Rockefeller Fellowship after escaping Nazi-occupied Europe. It is a remarkable life story that Hirschman was instrumental in helping Varian Fry rescue Jewish refugees in Nazi-occupied Europe. Among the rescued are Marc Chagall, Macel Duchamp, Andre Breton, Hannah Arendt, and many others. For an interesting account of his life and the impact of his life experiences on his work see Adelman (2014) and Alacevich (2021).

simplistic view of trade of the mercantilists, but unlike Smith he does not conclude that laissez-faire trade would result in no power imbalances. Hirschman writes: "Adam Smith is thus quite aware of the political dependence into which one country might fall by her trade relations; but he pictures this dependence as the consequence of an unhealthy trading system, a consequence which will disappear with the abolition of that system. [...] Under free trade, there would result "a natural balance...among all the different branches of British industry"; trade would run "in a great number of small channels"; and there would obviously be no need to worry about the interruption of any one of these channels [...] It seems therefore that the early English free trade economists, unlike many of their later disciples, did not ignore entirely the power aspect of international economic relationships."[9]

Since inception, therefore, geoeconomics is antithetic to the mercantilist view of trade as a zero-sum game for the accumulation of fixed resources. In the classic debate of "power vs plenty as objective of foreign policy" as in Viner (1948), geoeconomics does not subordinate plenty to power, but rather is interested in how "power" produces and distributes "plenty," and how plenty in turn might generate "power."[10] It recognizes that different configurations might lead to the destruction of "plenty" and the concentration of its distribution across countries and peoples. It does not share the laissez-faire view that "plenty" is always best achieved ignoring the issue of "power." We argue that the tools of second-best optimal policy analysis in modern economics are well suited to studying this fundamental problem.

"National Power and the Structure of Foreign Trade" was written by Hirschman as an economist and for an economics audience.[11] Yet, the first part of the book has had thus far very limited impact on economics. For example, Figure 1 shows that a citation analysis for the book starts with a preponderance of citations coming from economics, but then the bulk of citations are quickly overtaken in the 1970s by political science and other fields (such as Area Studies).[12]

What accounts for the neglect of this work in economics? The book was probably too far ahead of its time and the tools of economics as a quantitative science were not ready to make concrete these important ideas. Perhaps there was a sense among economists that these issues

[9] See Hirschman (1945) page 74.

[10] For a classic review of mercantilism as favoring power over plenty see also Heckscher (1935).

[11] Hirschman's later work, especially after 1960, became methodologically and in its target audience more broadly aimed at the social sciences including political science.

[12] Indeed, Alacevich (2021) remarks that few chapters of the book "have resisted the passing of time, most notably the statistical inquiries [...]- in particular a statistical index that became quite popular in the early 1960s - and the core chapter of part I, rediscovered in the early 1970s as a foundational analysis for the then nascent discipline of International Political Economy (IPE)." The citation analysis in Figure 1 is based on 3774 google scholar citations that were matched to fields of study as follows. For journal articles, the journal names were matched to Clarivate journal lists. Economics includes the categories: "Economics", "Business", "Business, Finance", "Agricultural Economics and Policy", "Management", and "Operations research and management science". Political Science includes the categories: "Political Science", "Public Administration", and "International Relations". For books, other mediums, or unmatched journals, research assistants manually determined the classification by inspecting the entry and its authors' departmental affiliations. The figure plots the shares of citations for a 10-year rolling window coming from publications in each field.

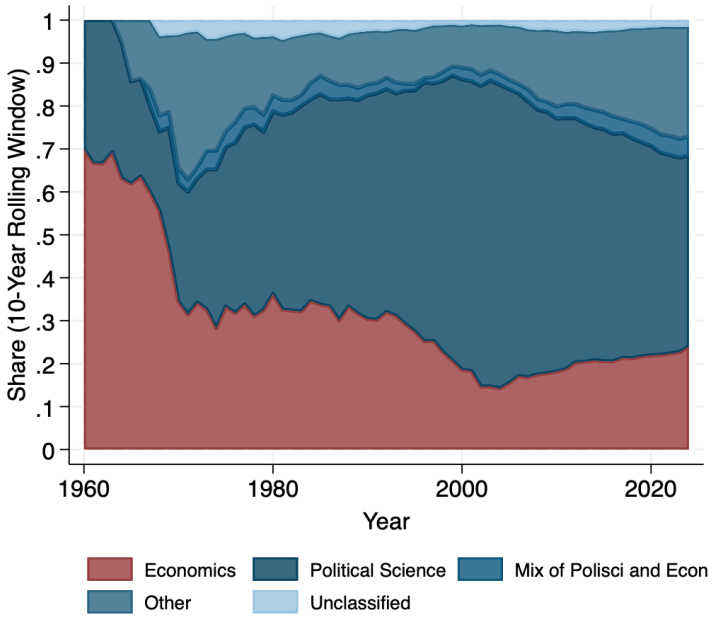
belonged to the past, to a world before the liberal order with strong multilateral institutions that were being created in those years (e.g., the IMF). Hirschman himself argued for resolving the power imbalances by delegating economic sovereignty to a multilateral institution. As it often happens, the lack of theoretical structure and, consequently, of empirical measurement led the work to go out of fashion and be largely forgotten among economists. A notable exception among economists is McLaren (1997) who picks up on these ideas to develop a model of how countries can shape their economy ex-ante in expectation of trade disputes with their partners depending on whether they are a small or big country. The neglect in economics contrasts with political science, in which the field of International Political Economy has largely grown out of this work. It is only recently that economists have rediscovered this landmark work en force (Clayton, Maggiori, and Schreger (2023b), Clayton, Maggiori, and Schreger (2024b), Thoenig (2023), Becko and O'Connor (2024), Broner, Martin, Meyer, and Trebesch (2024), Konrad (2024), Kleinman, Liu, and Redding (2024), Liu and Yang (2024), Kooi (2024), Alekseev and Lin (2024), Pflueger and Yared (2024), Flynn, Levy, Moscona, and Wo (2025), and Mayer, Mejean, and Thoenig (2025)). For a review of the burgeoning literature on geoeconomics see Mohr and Trebesch (2024). Figure 1 shows some sign of pick up by economists in recent years, and it will be interesting to see whether the recent work might meaningfully change the picture ten years from now.

The second half of "National Power and the Structure of Foreign Trade" has had a more lasting impact in economics, at least at present. In the second half of the book, Hirschman analyzes the distribution and composition of international trade in the period 1925-38. He operationalizes his theory by analyzing the concentration of a country's trading power under the notion that more concentrated trade leads to dependency on foreign countries. Remarkably, he puts forward an index to measure concentration which has become known as the Herfindahl-Hirschman index.[13] This simple empirical measure has become standard in economics, especially in industrial economics. Yet, its modern use has been largely confined to measuring market concentration of firms, and lost its original focus on the geoeconomic power of countries.

Another foundational book in geoeconomics is Baldwin (1985) which reviews the history of both practice and thought around economic statecraft. Of particular interest to this paper are the debates surrounding hegemonic stability theory. A series of now classic books by Kindleberger (1973), Keohane and Nye (1977), Krasner (1976), Gilpin (1981), and Keohane (1984) articulate the stability and welfare outcomes of a world dominated by one hegemon versus a multipolar world with several great powers. They put forward the view that hegemons not only extract rents via their power but also provide global public goods. These goods could be the safety of navigation from piracy, but also coordination of global policy (e.g. lower protectionist barriers, or the functioning of the monetary system) and resolution of conflicts. To what extent periods with a single dominant power (often

[13] In "The Paternity of an Index" (Hirschman (1964)), Hirschman writes "The net result is that my index is named after Gini, who did not invent it at all, or after Herfindahl, who reinvented it. Well, it's a cruel world." A testament to the bitterness of academic disputes from an author who had lived first hand the cruelty of World War II.

Figure 1: "National Power" in Economics and Political Science



Notes: 10-year rolling window citation analysis of Hirschman (1945) by field.

labeled as "Pax" such as "Pax Americana," "Pax Britannica," "Pax Mongolica," "Pax Romana," etc.) generate better outcomes for the world as a whole is open to debate. Waltz (1979) distinguishes between anarchic and hierarchical systems of the international order. Under an anarchic system, there is no central authority (country) to enforce rules between countries, and each country must rely on "self-help" to ensure its survival. Under an anarchic system, therefore, international geopolitics limits integration and specialization among countries since each country aims to limit its dependency on the others. Hierarchical systems might generate more interdependence as the central authority, for example a hegemonic country, might limit the possibility of interdependence being used to coerce the individual countries.

The literature on interdependence has seen a revival with the recent tensions between China and the United States. Blackwill and Harris (2016) argue for a return and re-organization of economic statecraft in US policymaking. Farrell and Newman (2019), Farrell and Newman (2023), and Drezner, Farrell, and Newman (2021) focus on the "weaponization" of economic interdependence given the multiple points of contact between the US and China. They argue that global economic networks could be used to coerce other firms or countries. A particular tool of economic statecraft, economic and financial sanctions, is a focus of a long political science and history literature, including such contributions as Lindsay (1986), Kirshner (1997b), Drezner (2003), and Mulder (2022). See Drezner (2024) for a recent review of the literature.

Although our focus here is on economic statecraft, military statecraft is another common tool of international influence. Indeed, early pioneering work in game theory often oriented around

conflict in the shadow of the Cold War, including work from future Nobel prize winners Thomas Schelling and Robert Aumann (Schelling (1960, 1966), Aumann and Maschler (1995)). Waltz (1959) influentially viewed the international system as a state of anarchy, where absence of an international legal authority meant "[b]ecause each state is the final judge of its own cause, any state may at any time use force to implement its policies."[14] Kennedy (1987) provides a historical examination of great powers' rise and fall over the past five centuries, and the interconnection between economics and military power. Fearon (1995) argues that the costs of war should lead rational countries to bargain over an outcome without war having to occur, but that asymmetric information and imperfect commitment can lead to bargaining failures. These works belong to a broader literature in economics and political science on conflict (e.g., Skaperdas (1992), Powell (1993), Hirshleifer (1995), Powell (1999), Baliga and Sjöström (2004), Jackson and Morelli (2009), Chassang and Padró I Miquel (2010), Acemoglu, Golosov, Tsyvinski, and Yared (2012), Padró I Miquel and Yared (2012), König et al. (2017)). The idea that trade relationships introduce interdependencies that promote peace was famously articulated by Montesquieu in "The Spirit of the Laws" and has been studied in the economics literature (Martin, Mayer, and Thoenig (2008, 2012)). The recent geoeconomics literature is also exploring the relationship between trade and war (Thoenig (2023), Alekseev and Lin (2024), Pflueger and Yared (2024)).

3 Economic Threats

We introduce a simple modeling environment that is both minimalist and flexible enough to capture the main economics. It borrows set-up and notation from the more general environment in Clayton et al. (2023b, 2024b). In particular, we focus on modeling a single small open economy n that is targeted by the hegemon. Because the small open economy takes the global equilibrium as given, we specify country n's setup while taking the global equilibrium as given. That is the optimal offensive policy of the hegemon and how it builds and wields power as in Clayton et al. (2023b) (henceforth CMS(a)), or the optimal defense policies of the targeted countries and how they affect the equilibrium as in Clayton et al. (2024b) (henceforth CMS(b)), are outside the scope of what we cover here since they require substantially more structure. Here we focus on a different task: to provide a sketch book of how the many different threats that have been discussed in the history and political science literature can be modeled in a simple environment. The aim is for the sketches to serve as an entry point to economists, political scientists, and historians on how to think more formally about economic threats.

Consider a small open economy, denoted n, operating in a global economy. There are intermediate goods $i \in \{1, \ldots, I\}$ that are internationally traded at world prices $p_1, \ldots, p_I$. We think of country n as specializing in production of a single intermediate good, and to simplify notation we assume this to be intermediate good n. In particular, country n has an endowment $\overline{x}_{nn}$ of interme-

[14] See Waltz (1959) p. 160.

diate good n, which it can sell to purchase other intermediate goods (i.e., country n's endowment is $\overline{x}_{ni} = 0$ for goods $i \neq n$).[15] Country n has a representative consumer, a representative final good producer, and a government.

Representative Consumer. The representative consumer has utility $u(c_n) = \log c_n$ over consumption of the country n final good. She owns her country's endowment of intermediate goods and the claim to the profits of the country's final goods producer, denoted Π_n. Her budget constraint is

$$p_n^f c_n \leq p_n \overline{x}_{nn} + \Pi_n,$$

where p_n^f denotes the endogenously determined price of the final good in country n. The solution of the consumer problem is that she spends all her wealth on the final good of her country: the binding budget constraint defines her optimal consumption choice.

Representative Producer. The representative final goods producer produces the country n final good using a CES aggregator of intermediate goods with decreasing returns to scale,

$$f_n(x_{n1}, \ldots, x_{nI}) = A_n \left(\sum_{i=1}^{I} \alpha_{ni} \, x_{ni}^{\frac{\sigma-1}{\sigma}} \right)^{\frac{\sigma}{\sigma-1}\beta},$$

where σ is the elasticity of substitution across intermediate goods and $\beta \in (0, 1)$ captures returns to scale. The final goods producer's profit maximization problem is

$$\max_{x_{n1}, \ldots, x_{nI}} \; p_n^f A_n \left(\sum_{i=1}^{I} \alpha_{ni} x_{ni}^{\frac{\sigma-1}{\sigma}} \right)^{\frac{\sigma}{\sigma-1}\beta} - \sum_{i=1}^{I} p_i x_{ni}.$$

If $\sigma > 1$ (i.e., intermediate goods are substitutes), country n can produce a positive amount of the final good even if it is unable to purchase certain intermediate goods. If $\sigma \leq 1$ (i.e., intermediate goods are complements), losing access to any intermediate good leaves the final goods producer unable to operate. Given this production structure, we will tend to focus on cases in which $\sigma > 1$.

Market Clearing for Final Goods. Because the final good is only consumed domestically, market clearing is $c_n = y_n$. The final good price p_n^f adjusts so that the domestic market for the final good clears.

Domestic Government's Objective Function. We assume that the domestic government of country n cares about the consumption utility of its domestic consumer, and also cares about a geopolitical action $a_n \in \mathbb{R}$ (which for simplicity we make univariate). The geopolitical action can represent, for example, votes at the UN, (non)recognition of a foreign country or government, positions on human rights issues, or conflict. The geopolitical action can encode one notion of alignment between different countries that the hegemon can influence. This relates the "friends and enemies" work of Kleinman et al. (2024) who study whether economic interdependence produces political alignment.

[15] Other countries may also produce and sell good n, but we think of country n as fully specialized in the production of this good.

We include the geopolitical action as a simple stand-in to capture the hegemon's attempt to influence the political activities of country n. This approach is common in the literature, for example Thoenig (2023), Broner et al. (2024), Becko and O'Connor (2024) similarly take a reduced-form approach to political actions a. Ultimately, the literature will have to provide micro-foundations for these actions. Antràs and Miquel (2023) provides an interesting avenue for further work in this direction, linking political preferences and actions to economic policy decisions that have spillovers across countries.

We assume the country n government has separable preferences over consumption and the geopolitical action, given by $\log c_n + \psi_n \log \varphi_n(a_n)$. The function φ_n captures the geopolitical preferences (both costs and benefits) of country n's government that determine its desired action, while ψ_n captures the relative weight that country n places on geopolitical utility versus consumption utility. Given market clearing, consumption c_n is equal to the output y_n of the final goods producer. The country n government's objective can therefore be written as

$$U_n(x_n, a_n) = \log A_n \left(\sum_{i=1}^{I} \alpha_{ni} x_{ni}^{\frac{\sigma-1}{\sigma}} \right)^{\frac{\sigma}{\sigma-1}\beta} + \psi_n \log \varphi_n(a_n). \tag{1}$$

Country n's aggregate resource constraint comes from balanced trade,

$$\sum_{i=1}^{I} p_i x_{ni} \leq p_n \overline{x}_{nn}. \tag{2}$$

Balanced trade is a common but not an innocuous assumption since as we discuss below some of the effects of policy instruments, such as tariffs and sanctions, change in the presence of the ability to borrow or existing stocks of assets exposed to valuation changes.

A standard social planning problem is to analyze the outcome when the government has full control over private activities in the domestic economy. In our setup, this planning problem of the country n government is to choose allocations (x_n, a_n) to maximize domestic welfare (equation 1) subject to the economy's resource constraint (equation 2). The government's optimization problem over economic relationships has a familiar solution that results from the CES production structure. The price index faced by the government for production of the final good is the same as that of the final goods producer, $P_n = \left(\sum_{i=1}^{I} \alpha_{ni}^{\sigma} p_i^{1-\sigma} \right)^{\frac{1}{1-\sigma}}$. The country's optimal expenditure share on good i is given by

$$\Omega_{ni} = \alpha_{ni}^{\sigma} \left(\frac{p_i}{P_n} \right)^{1-\sigma} = \frac{\alpha_{ni}^{\sigma} p_i^{1-\sigma}}{\sum_{j=1}^{I} \alpha_{nj}^{\sigma} p_j^{1-\sigma}}. \tag{3}$$

The economy's expenditure share is higher on goods that are cheaper (lower p_i) or more productive (higher α_{ni}).

Hegemonic Threats. We assume that in the rest of the world there is an hegemonic country, one can think of the US or China in the present context, that tries to influence either the country n government or the country n final producer by employing economic threats. As discussed above, given our small open economy focus, we leave the objectives and maximization problem of this hegemonic country largely unspecified. For exposition, we focus on threats against a targeted government that behaves akin to a social planner for the small open economy of country n. We discuss the similarities and differences between threats against governments as opposed to private entities such as firms in Section 3.3.

An economic threat by the hegemon specifies consequences to the targeted entity (firm or government) for refusing to comply with the hegemon's demands. A threat is, therefore, different from background uncertainty about the states of the world or policy. It specifies an action that the target can take in order to receive a benefit or avoid a negative consequence. In this sense, an economic threat can be positive or negative (Baldwin (1985)). Under a positive threat, the hegemon offers a benefit to the targeted entity, but threatens to withdraw that benefit in the event of noncompliance with the hegemon's demands. A negative threat, on the other hand, specifies a punishment for noncompliance but no benefit for compliance. In both cases, because the hegemon does not generally control all (economic) relationships of any specific foreign entity, it must consider how the entity will adapt or respond both ex-post if a threat is carried out (e.g., after the entity is punished) and ex-ante in expectation of being threatened. Table 1 provides a list of frequently used geoeconomic tools. Each tool can be part of positive or negative economic threats, and we map below several of these threats into our simple economic environment.

An important concern is whether the hegemon's threats, whether positive or negative, are credible. Indeed, economic threats typically come with a mutual cost to both the hegemon's country and the targeted entity. For example, a hegemon threatening to stop selling goods to a targeted entity would be forced to find an alternative buyer if this threat were carried out (Eaton and Engers (1992)). This might depress the price of the hegemon's goods and hurt the hegemon's own economy. These types of credibility problems are often encountered in game theory: a hegemon that tried to commit itself to carry out an economic threat might ultimately renege on that commitment when forced to carry out the threat. In other words, actually carrying out the threat may not be part of a subgame perfect equilibrium. Although sustaining credibility of threats may be difficult in a one-shot game, in practice a hegemon makes economic threats against multiple entities over time. In such a repeated game with multiple targets, the hegemon potentially gains credibility for carrying out a threat against one entity due to reputational spillovers to other (future) relationships, possibly with different entities entirely. Informally, if the hegemon does not carry out its threat against one entity today, then other entities may think they will also be let off the hook in the future. Indeed, game theorists and political scientists alike have long recognized that a willingness to sustain greater harm today can signal greater commitment for the future (Schelling, 1966; Baldwin, 1985). The theory tools for repeated games, such as Abreu et al. (1990), are particularly useful in disciplining

what threats can be sustained in equilibrium.

Finally, it is important to specify which actors are involved in carrying out economic threats. Economic threats routinely involve the hegemon's own domestic firms. For example, U.S. financial sanctions almost always involve U.S. financial institutions. However, in addition to threats directly involving the hegemon's own firms, hegemons often induce coalitions of other firms or governments to participate in its threats. This practice of extraterritorial threats and sanctions has risen in prominence. For example, the U.S. typically pressures SWIFT, a Belgian cooperative, to join in financial sanctions, broadening the economic network that joins the US-led threat. Even if these other entities have no direct interest in being involved in the economic threat, their participation is often itself sustained by an economic threat. Such indirect punishment coalitions broaden the scope of a threat and can increase the damage done to the targeted entity. In each of our examples, we highlight how to think about the scope of the punishment coalition.

We leave credibility and coalition building to fuller treatments in the literature, and proceed here to map common economic threats into our simple environment.

Table 1: Geoeconomic Tools

Export or Import Restrictions
Tariffs
Quotas
Licensing and regulation
Access to means of transport and infrastructure
Industrial Policy
Producer and infrastructure subsidies
Long-term procurement contracts and price floors
Creation and use of strategic reserve funds
Creation and allocation of sovereign wealth funds
Financial Restrictions
Asset freezes
Asset expropriation
Access and taxes on international payment, settlement, custody systems
Aid withdrawals
FDI inbound and outbound screening
Access and taxes on equity and debt portfolio allocations
Access and taxes on insurance
Access and taxes on trade credit
Macroeconomic Restrictions
Ability to use lender of last resort facilities
Ability to participate in international regulatory meetings
Participation in sovereign renegotiations
Participation in bilateral and multilateral treaties

3.1 Mapping Economic Threats in the Basic Setup

We now show how to map a number of economic threats into our basic environment.

Threats Not To Sell (Export Controls and Taxes). An economic threat to impose export restrictions or export taxes can be captured by assuming the hegemon threatens to impose export taxes τ_i on a subset $\mathcal{J}_n$ of goods in the event of noncompliance with the hegemon's demands. If the hegemon can only threaten export taxes applied to its own economy's exports, then $\mathcal{J}_n$ is at most the subset of goods sold by the hegemon's country. On the other hand, if the hegemon is able to coordinate secondary sanctions, $\mathcal{J}_n$ can also include goods sold by other countries. An export ban (which is a quantity restriction) is the limiting case of an infinite tax, $\tau_i \to \infty$. Although we focus on threats not to sell that take the form of taxes τ, adopting different rebate rules for the tax revenue can also span export controls, i.e. quantity restrictions, going back to the classic work of price vs. quantity regulation of Weitzman (1974).[16]

Threats not to sell have a long history and have been used frequently. For example, they were frequently employed by the US administration during the Cold War as a form of economic containment of the USSR. The Coordinating Committee for Multilateral Export Controls (CoCom) maintained lists of goods subject to export controls including a "Nuclear List", a "International Munitions List", and an "Industrial List", and their enforcement often required pressure on foreign companies or governments (Mastanduno (1992)). More recently, the Biden administration put together the "Framework for the Diffusion of Advanced AI Technologies" that restricts the export of AI technologies based on a three tier categorization of foreign countries closeness with the US national interest. The framework aims to "use of U.S. AI exports as leverage to extract geopolitical and technological concessions".[17]

The value function of the country n government, now depending on τ, is therefore

$$V_n(\tau) = \max_{x_n, a_n} U_n(x_n, a_n) \quad s.t. \quad \sum_{i=1}^{I} (p_i + \tau_i) x_{ni} \leq p_n \overline{x}_{nn} \tag{4}$$

which leaves implicit that $\tau_i = 0$ if $i \notin \mathcal{J}_n$. The economic threat of export taxes comes with a carrot of no taxes ($\tau = 0$) if the hegemon's demands are met.[18] Importantly, the power of the hegemon's threats is limited by the ability of the targeted country to substitute away from the affected inputs.

To illustrate the hegemon's power and the country's ability to substitute, suppose that the

[16] For example, a quantity restriction can be modeled as an ad-valorem tax plus a lump-sum rebate to the buyer. Clayton and Schaab 2022 show how this logic applies not just to goods trade but also to international financial flows.

[17] See the analysis by the Carnegie Endowment.

[18] In general, the hegemon could combine carrots and sticks by offering a more favorable set of taxes (e.g., subsidies) in the event of compliance, and an unfavorable set of taxes in the event of noncompliance. Another interpretation of a finite taxes $0 \leq \tau_i < \infty$ is that the hegemon is only able to force export ban compliance on a subset of sellers. In this case, we think of τ_i as capturing how much the hegemon can increase the price faced by country n because it has to find alternative sellers of good i.

hegemon threatens to cut off the goods that it controls (i.e., a threat to impose $\overline{\tau}$ that is $\tau_i = \infty$ for $i \in \mathcal{J}_n$). Define the total expenditure share of country n on goods that the hegemon threatens to cut off as $\overline{\Omega} = \sum_{i \in \mathcal{J}_n} \Omega_{ni}$. In this case, CMS(b) show that the loss of value that can be induced by the hegemon's threat is

$$V_n(0) - V_n(\overline{\tau}) = \beta \frac{1}{\sigma - 1} \log \left(\frac{1}{1 - \overline{\Omega}} \right). \tag{5}$$

Equation 5 highlights two key determinants of the power of the hegemon's threat. A threat is more powerful if it is harder to substitute away from the goods being cut off (lower σ), or if the goods being cut off account for a larger share of the target's expenditures (higher $\overline{\Omega}$). These forces are standard in the cost of autarky calculations in trade (Arkolakis et al. (2012)), and in the context of geoeconomics also reveal that larger economies are all else less likely to suffer from threats since much of their expenditure falls on domestically produced inputs (i.e., a large Ω_{nn} that cannot be cut off by the hegemon).

In general, many economic threats will induce a loss in value to the target that takes the form

$$\Delta \log V_n = \beta \Delta \log w_n - \beta \Delta \log P_n. \tag{6}$$

The Δ operator is between the inside and outside option, w_n is the wealth level, and P_n is the price index. The first term on the right hand side captures the effect of the threat on the wealth level of the country, and will be prominent below for threats involving foreign aid and asset freezes. The second term on the right hand side captures the effect of the threat on the price index faced by the country, and will be prominent below for threats not to buy and restrictions on investment, technology, and payment systems. Similarly, the loss from the threat not to sell above (equation 5) arises from a movement in the price index.

Threats Not To Buy. An economic threat not to buy is one in which the hegemon either will not purchase goods sold by the targeted entity, or will only buy them at an artificially low price. A threat not to buy aims to depress the price of a good sold by the targeted entity and so reduce its revenue/wealth. For example, this could take the form of import tariffs imposed on the hegemon's economy for goods coming from the targeted country, or a price cap or import quantity restriction. These restrictions were typical of the mercantilist era of global trade with the stated objective of running trade surpluses to accumulate gold and other hard specie in fixed global supply. Napoleon launched the Continental Blockade (1806-13) on imports of the European continent of British goods with the aim of weakening Britain by depriving its industries of important export markets (Juhász (2018)). In the last decade, China has often threatened the suspension or limitation of access to its consumers in response to political tensions. This has involved in turn Norwegian salmon in 2011, US NBA franchise rights in 2019, and Australian Wines in 2020. In 2022 the US led a coalition of countries in sanctioning imports of oil and gas from Russia with the aim of depriving the Russian

government of revenues to fund its invasion of Ukraine. In the first months of 2025, many countries around the world have faced a barrage of threats from the newly installed Trump administration of imposing US import tariffs on foreign products. These threats aimed to put pressure on foreign countries for political or economic concessions by threatening the loss (or impairment) of access to US consumers. For example, the Trump administration threatened to impose 25 percent tariffs on US imports from Colombia if the Colombian government did not allow US military planes with deported migrant to land in Colombia.

We can think of this type of threat as lowering the sale price of goods sold by the targeted entity. In our simple economy, country n is a net exporter of good n and a net importer of all other intermediate goods. We therefore represent an economic threat not to buy as a lowering the price at which country n can sell its endowment of intermediate good n from p_n to χp_n for $\chi < 1$.[19] The value function of the country n government is therefore[20]

$$V_n(\chi) = \max_{x_n, a_n} U_n(x_n, a_n) \quad s.t. \quad \sum_{i \neq n} p_i x_{ni} + \chi p_n x_{nn} \leq \chi p_n \overline{x}_{nn}. \tag{7}$$

Notice that equation 7 is similar to equation 4 except that it implies a lower effective price of country n exports rather than a higher price for its imports. Indeed, it is clear from simple rearrangement that a threat not to buy is equivalent to a form of threat not to sell: multiplying through the budget constraint by $1/\chi$ remaps the buy-threat into an equivalent sell-threat, in which prices of the country's imported goods ($i \neq n$) are inflated by a factor $1/\chi$. The limiting case in which no international buyer can be found ($\chi \to 0$) is equivalent to forced autarky, that is a threat to cut off all exports to country n. The close relation between import tariffs and export taxes goes back to the classic Lerner symmetry (Lerner (1936); Costinot and Werning (2019)).[21]

The parallel between buy and sell threats is also apparent in computing the loss that the threat, once carried out, would inflict on country n:

$$V_n(1) - V_n(\chi) = \beta \frac{1}{\sigma - 1} \log \frac{1}{1 - (1 - \chi^{\sigma-1}) \, \overline{\Omega}_n^{foreign}} \tag{8}$$

where $\overline{\Omega}_n^{foreign} = \sum_{i \neq n} \Omega_{ni}$ is the expenditure share by country n on all foreign goods. If the hegemon does not manage to decrease the price of exports by country n by executing its threat, that is $\chi = 1$, then the threat generates no power for the hegemon. Indeed, the value of the threat increases the more the hegemon can depress the price, that is lower χ. The effect interacts with the expenditure share of the country on all foreign goods $\overline{\Omega}_n^{foreign}$, not just those supplied by the hegemon (and its coalition) $\overline{\Omega}_n$. The intuition is that a lower price χp_n of exports, combined with

[19] Note that in our simple setup in which country n is a small open economy, this only lowers the price at which country n sells its good but does not affect world prices.

[20] The purchase price for country n of good n is also lowered to χp_n to reflect that country n earns revenues $\chi p_n(\overline{x}_{nn} - x_{nn})$ on the amount of its endowment it sells.

[21] See also Itskhoki and Mukhin (2023).

balanced trade, depresses the ability of country n to source all inputs. This reduction in buying power is more costly for country n the more its final goods producer relies on foreign inputs, that is the higher $\overline{\Omega}_n^{foreign}$, irrespective of whether the supplier was the hegemon or some other foreign country. A lower trade elasticity σ also increases the cost, since it makes having to shift away from foreign inputs and toward autarky more expensive. The threat not to buy and not to sell are identical in the limiting case when the hegemon controls the entire rest of the world and the threat fully depresses the price. Then, $\chi = 0$ and $\overline{\Omega}_n^{foreign} = \overline{\Omega}_n$, and equation 8 collapses to equation 5. Equation (8) relies on balanced trade, but could be extended to non-balanced set-ups in which both the ability to borrow to smooth out the fall in export revenue and the valuation effects (changes in χp_n) on existing stock of foreign assets and liabilities would enter the calculation.

However, even though buy and sell threats have similarities, they can differ in their targeting and efficacy. A threat not to sell is ineffective if it is easy to substitute to an alternate seller (high σ). In exactly the same way, a threat not to buy is ineffective if it is easy to find another buyer (i.e., the price impact $1 - \chi$ is low). The targeting of the threats also differs. Intuitively, a threat not to buy effectively inflates the effective price of all imported goods and so encourages country n to shift towards autarky. Threats not to sell instead directly raise the price of certain (but not all) imports.

Parallel to Imperfect Competition. Threats not to buy in an environment with decreasing returns to scale have parallels to imperfect competition. Our setup so far has assumed the hegemon directly lowers the sale price to χp_n, for example by coordinating all buyers to place a tariff on purchases of country n's good. We show how such price impact can also be generated in a model of imperfect competition. Stepping away from our small open economy set-up for a moment, consider a case in which country n sells its intermediate good internationally in a monopolistically competitive market. In particular, country n sells its intermediate good to international buyers, indexed $b \in \{1, \ldots, B\}$. Each buyer b has a demand schedule for good n given by

$$x_{bn} = \gamma \left(\frac{p_n}{P} \right)^{-\varsigma} X_b,$$

where P is the price index of alternatives, ς is the elasticity of substitution of the international buyers, and X_b is the total size of expenditures by buyer b. This means the total foreign demand curve faced by country n for its intermediate good is

$$x_{foreign,n} = \gamma \left(\frac{p_n}{P} \right)^{-\varsigma} \sum_{b=1}^{B} X_b.$$

In this imperfect competition setting, a threat not to buy can be seen as cutting off purchases by a subset $\mathcal{B}_n$ of buyers, who account for a fraction $\mathcal{X} = \frac{\sum_{b \in \mathcal{B}_n} X_b}{\sum_{b=1}^{B} X_b}$ of the total foreign buyers market. If the hegemon, including its allies, only controls a set of buyers that accounts for a small fraction $\mathcal{X}$ of the total market, the threat not to buy will not be effective because the demand schedule is barely

affected. In the language of the prior example, the sale price χp_n will only be slightly depressed. On the other hand, if the hegemon controlled the entire foreign market, $\mathcal{X} = 1$, the threat not to buy would push country n back into autarky, equivalent to $\chi \to 0$. The size of the consumer market (really demand, so including intermediate goods buying) in the country making the threat is clearly relevant here. Indeed, the examples we provide above from history and current affairs all involve large countries such as the US and Russia.

These concerns played a role in the sanctions against Russia for its invasion of Ukraine in 2022. The US, as a hegemon, organized a coalition of countries that threatened and (in part) actually cut off the purchase of certain Russian products, especially oil and gas. The aim was to starve Russia of foreign revenues that could be used to sustain the war. The coalition, however, did not include China and India. The effect of the sanctions, therefore, was reduced by the presence of these large alternative buyers for Russian energy exports.

Foreign Aid. Provision of foreign aid to a country can be used in an economic threat. This is perhaps the closest to the hegemon simply paying for the desired action out of the targeted country. An economic threat involving foreign aid promises a benefit to the targeted entity and threatens aid reduction or withdrawal for noncompliance. In our example economy, a simple conceptualization of foreign aid is as a wealth transfer $T > 0$ to the country n government in the case of compliance (and no or reduced aid provision under noncompliance). The country n government's value function, based on foreign aid, is

$$V_n(T) = \max_{x_n, a_n} U_n(x_n, a_n) \quad s.t. \quad \sum_{i=1}^{I} p_i x_{ni} \leq p_n \overline{x}_{nn} + T \tag{9}$$

Economic power from foreign aid is strongest when the promised foreign aid T constitutes a sizable fraction of the country's total economic wealth, $p_n \overline{x}_{nn} + T$.

Due to homothetic preferences, the loss of value that can be induced through the hegemon's threat is

$$V_n(T) - V_n(0) = \beta \log \left(1 + \frac{T}{p_n \overline{x}_{nn}}\right) \tag{10}$$

Given diminishing marginal utility and decreasing returns to scale in production, a given amount of foreign aid is more valuable for poorer countries with lower baseline economic wealth (i.e., low $p_n \overline{x}_{nn}$), making all else equal the threat more effective on a per-dollar basis against these countries. Economic threats involving foreign aid have the potential to be even more powerful against some countries if preferences are non-homothetic, for example by introducing in the preferences a kink around subsistence level consumption. This non-linearity makes threats to withdraw aid to poor countries more powerful.

Prominent examples of foreign aid with geopolitical strings attached are abundant. The US government's Marshall Plan for European reconstruction after the second world war had the objective of containing the Soviet influence in Europe (Steil (2018)). During the Cold War, the US threat

(and actual) withdrawal of funding to Egypt for the construction of the Aswan dam, led Egyptian president Nasser to more closely align with the Soviet Union (Kirshner (1997a)).

Joint Threats: The Hegemon as a Global Enforcer. The international economic environment is rife with problems of contractual incompleteness. For example, a government can default on its sovereign debt with limited legal recourse apart from termination of future lending relationships, or can expropriate a foreign investment with primarily only the fear of a dry up in future investment. Although some mechanisms such as letters of trade credit help protect activities at smaller scale, typically recourse is limited to the bilateral relationship: defaulting on sovereign debt does not typically also terminate other foreign trade or investment relationships.

CMS(a) show how a hegemonic country, which simultaneously engages in many economic relationships with a given country and its government, can serve a role as a global enforcer by coordinating punishments for deviation by that country's government (or firms) across any one of them. For example, China's Belt and Road Initiative (BRI) pairs sovereign lending relationships with infrastructure services and manufacturing relationships. This bundling of economic relationships helps to sustain a larger borrowing capacity in China's counterparties by threatening termination of services and manufacturing relationships if the country defaults on its loans (and vice versa), thereby enhancing the government's commitment not to default. Such coordinated "joint threats" are a positive value that a hegemonic country can offer to foreign entities that comply with its demands. Indeed, borrowing under BRI often comes with expectation of political concessions such as UN voting or nonrecognition of Taiwan (Dreher et al. (2022)).

We briefly sketch a simple example, based on CMS(a), of how joint threats operate. Suppose country n only makes productive use of two intermediates, denoted j and k, both of which are supplied by the hegemon (i.e., $\alpha_{ni} = 0$ for $i \notin \{j, k\}$). Suppose that relationship j is easy to legally enforce, such as a routinely traded good with much of the payment happening upfront, whereas relationship k is a very difficult to legally enforce, such as foreign direct investment. We take the limiting case in which relationship j is fully enforceable whereas relationship k is not at all enforceable. In a one shot game, country n would not be able to obtain input k (e.g., expropriation of the investment is certain), whereas in a repeated game relationship k can only be enforced by the threat of loss of future relationships. To make things simple, suppose that there is a second period of trade after the first in which there are no incentive problems, so that the continuation value based on the preserved relationships is simply $V_n(\tau)$ from equation 4, with infinite taxes on inputs that are cut off.

Absent joint threats for retaliation, country n faces an incentive constraint for using input k based on the threat of losing the relationship,

$$\log(1 + \frac{p_k x_k}{c}) \leq \beta[V_n(0) - V_n(\tau^k)]$$

where $\tau^k_{nj} = 0$ and $\tau^k_{nk} = \infty$. The left hand side represents the value to the government of deviating

on the relationship by "stealing" what it was supposed to pay for (e.g., expropriating the investment), whereas the right hand side represents the continuation value of maintaining the relationship. The key to joint threats is that if the government deviates on relationship k, then it also loses relationship j, and is thus relegated into autarky in the future and receives no value in the continuation period. CMS(a) show that the joint threat expands the production possibilities by relaxing its incentive constraint to

$$\log(1 + \frac{p_k x_k}{c}) \leq \beta[V_n(0) - 0].$$

The economic threat of the hegemon in this case is to coordinate enforcement across economic relationships and expand its ability to sustain foreign direct investment using the joint threat for country n if it complies with the hegemon's demands, or else not to coordinate enforcement if country n rejects the hegemon's demands.

Again, going back to analogies between concepts of power of countries and of corporations, joint threats are a form of multimarket contact as in Bernheim and Whinston (1990). Joint threats are also related to the trade literature on issue linkage (Limão (2005), Maggi (2016)).[22] Power arising from the ability to sustain threats across disparate relationships is very natural and important in the context of international relations. First, because in the international arena and especially for relationships among governments there is little or no legal enforeceability, other mechanisms based on power relationships are the foundation of the transactions. Second, because governments are by definition entities that can affect multiple relationships, for example via their influence on different domestic industries (finance, manufacturing, raw materials, transport and shipping).

At the core of joint threats is the hegemon's government coordination of many different economic sectors and activities. The government wants to pursue a foreign policy or commercial goal and binds the target country closer to itself by threatening that deviation in any one part of the deal will cause retaliation across the board of all activities. Such deals have been, either implicitly or explicitly, typical of the US and more recently Chinese exertion of geoeconomic power. Indeed, the US foreign policy has often both aimed to open markets and secure business for US multinationals and at the same time used such multinationals jointly to purse US geopolitical goals.[23] In 2022, the Biden

[22] See also the sovereign debt literature in which punishments for default can include seizure of exports (Bulow and Rogoff (1989)), loss of reputation across multiple relationships (Cole and Kehoe (1998)), or loss of trade finance (Mendoza and Yue (2012)). See also Mangini (2024).

[23] President Taft stated it most candidly in his 1912 Annual Message to Congress in a section titled "diplomacy a hand maid of commercial intercourse and peace" in which he proclaimed: "The diplomacy of the present administration has sought to respond to modern ideas of commercial intercourse. This policy has been characterized as substituting dollars for bullets. It is one that appeals alike to idealistic humanitarian sentiments, to the dictates of sound policy and strategy, and to legitimate commercial aims. It is an effort frankly directed to the increase of American trade upon the axiomatic principle that the Government of the United States shall extend all proper support to every legitimate and beneficial American enterprise abroad. [...] Because modern diplomacy is commercial, there has been a disposition in some quarters to attribute to it none but materialistic aims. How strikingly erroneous is such an impression may be seen from a study of the results by which the diplomacy of the United States can be judged." This policy became known as Dollar Diplomacy and built upon the Monroe Doctrine and Roosevelt Corollary on US foreign and commercial exclusive sphere of influence over Latin America.

administration launched the Lobito Corridor extension and renovation project that aims to build a reliable railway to cart minerals from Zambia copperbelt into Angola's Atlantic port of Lobito.[24] In a region of the world with high expropriation and operational risk, the US administration combined loans to local governments and corporations to buy American equipment, subsidies and guarantees for US multinational to be involved in local projects, and potentially sales of military equipment, in addition to directly financing the infrastructure project.

Financial Threats: Asset Freezes, Payment Systems, Limits to Foreign Investment. Although our model is set up in the language of traded goods, it can be extended to accommodate finance and financial threats. We show how to incorporate asset freezes, payment systems, and foreign investment into the setup.

Asset Freezes. Asset freezes are a common geoeconomic instrument, for example used by the US-led coalition in sanctioning Russia for its invasion of Ukraine in 2022. We can incorporate this instrument into our setup by assuming there is a component of wealth b_n, for example central bank reserve holdings or foreign bonds, so that country n's budget constraint is[25]

$$\sum_{i=1}^{I} p_i x_{ni} \leq p_n \overline{x}_n + b_n.$$

We can model an asset freeze as restricting country n's access to its positive position $b_n > 0$ (Bianchi and Sosa-Padilla (2024)). In particular, the hegemon can freeze a fraction χ of country n's asset holdings. The value function of country n is then[26]

$$V_n(1-\chi) = \max_{x_n, a_n} U_n(x_n, a_n) \quad s.t. \quad \sum_{i=1}^{I} p_i x_{ni} \leq p_n \overline{x}_{nn} + (1-\chi) b_n. \tag{11}$$

Asset freezes in this formulation play a similar role as foreign aid in forming an economic threat. However, whereas foreign aid was a positive sanction – providing aid for compliance and withdrawing aid for noncompliance – asset freezes are instead a negative sanction. That is, the benefit for compliance is continuation of normal relations, whereas the punishment of noncompliance is the disruption of country n's access to its foreign wealth. Similarly to foreign aid, the power of the threat is given by

$$V_n(0) - V_n(\chi) = \beta \log \left(1 + \frac{\chi b_n}{p_n \overline{x}_{nn} + (1-\chi) b_n} \right). \tag{12}$$

[24] The project's geopolitical goal is to secure critical minerals for the US and, at the same time, diminish Chinese influence in the region. China is involved in the Tazara railway that carts minerals from the same region of Zambia to the Pacific port of Dar el-Salaam in Tanzania.

[25] In this simple setup, this component of wealth would add up to zero when summed across countries, that is an asset of country n is a liability of some other country.

[26] Because the setup is static, asset freezing amounts to expropriation. In a dynamic model, asset freezing could be modeled as forced savings (i.e., the country gets back its frozen assets at a later date) or as expropriation (i.e., the country does not get back its frozen reserves).

Freezing assets is a more powerful threat when the targeted country has low wealth and a high marginal value of consumption. This can be magnified quantitatively by introducing non-homotetic preferences, or nonlinearities induced by credit constraints (see further below). Indeed, asset freezes can have macroeconomic relevance and be extended to be state contingent. For example, country n might have the ability to draw on a credit line whenever necessary either directly from the hegemon or from a multilateral institution, such as the IMF, closely influenced by the hegemon. This could take the form of FX reserve loans, or swap lines (Bahaj and Reis (2020)). Since countries use this state contingent support when they are in trouble, the conditional threat of withdrawing the support is particularly powerful. For example, during the Suez crisis in 1957, the US threatened the British government with both selling sterling to deplete the Bank of England FX reserves and preventing the emergency provision of foreign currency loans by either the US government of the IMF to replenish such reserves. These financial threats aimed to coerce the British government in withdrawing its troops from the newly occupied Suez Canal (Kirshner (1997a)).

Payment Systems and Foreign Investment. We extend the model by assuming that there are I capital goods, with rental rates r_i. Country n has an endowment $\overline{k}_{nn}$ of capital good n. The country n final goods producer uses both capital and intermediate goods in production,

$$f_n(x_{n1},\ldots,x_{nI},k_{n1},\ldots,k_{nI}) = A_n \cdot \left[\left(\sum_{i=1}^{I} \alpha_{ni}\, x_{ni}^{\frac{\sigma-1}{\sigma}}\right)^{\frac{\sigma}{\sigma-1}(1-\gamma)} \cdot \left(\sum_{i=1}^{I} \alpha_{ni}^{k} k_{ni}^{\frac{\varsigma-1}{\varsigma}}\right)^{\frac{\varsigma}{\varsigma-1}\gamma}\right]^{\beta}.$$

where γ reflects the relative expenditure share on capital versus intermediates. Interpreting k as foreign investment is relatively direct, but k can also be interpreted as a payment system. To interpret it as a payment system, the Cobb-Douglas representation means that the final goods producer pays a percentage fee γ of its expenditures in order to be able to process the payments for input orders (CMS(b)).[27]

Given this production function, country n maximizes utility subject to the resource constraint

$$\sum_{i=1}^{I} p_i x_{ni} + \sum_{i=1}^{I} r_i k_{ni} \leq p_n \overline{x}_{nn} + r_n \overline{k}_{nn}.$$

A threat to suspend access to the hegemon-controlled capital varieties – that is, to suspend access to the hegemon-controlled payment system or investment – is akin to a threat not to sell the hegemon-controlled varieties of capital goods. Given the Cobb-Douglass structure of the outer nest of production, it is straightforward to extend 8 to this setting considering threats to cut off capital goods (see CMS(b)), given by

$$V_n(0) - V_n(\overline{\tau}) = \beta \frac{1}{\varsigma - 1} \gamma \log\left(\frac{1}{1-\overline{\Omega}^{k}}\right) \tag{13}$$

[27] See also Bigio and La'O (2020) for an interpretation as financial frictions such as working capital requirements.

where recall that γ is the country n expenditure share on the capital good (relative to inputs). Indeed, in this setting the efficacy of a threat to cut off capital is determined by the same forces that drove threats to cut off intermediate goods – the elasticity of substitution, ς, and the fraction of the expenditure share on capital direct to the hegemon's coalition, $\overline{\Omega}^k$. CMS(b) document that power from such threats can be high for the U.S., whose coalition controls a large portion of the foreign expenditure share on financial services for many countries.

Although we model payment systems and foreign investment under the same umbrella of a capital good, an important practical difference is that foreign investment often comes with giving up of control rights. For example, if a foreign investor acquires 51% or more of the equity in a firm, then the foreign investor controls the firm to the extent that control rights are enforced. Foreign Direct Investment (FDI) often has this feature since it focuses, by definition, on acquiring concentrated stakes in an entity (the threshold is normally 10% of the equity outstanding). Portfolio investment is much more diffuse and normally is not associated with full control. Yet, the rise of sovereign wealth funds and the concentration of portfolio investment in the hands of enormous asset management groups has started to raise concerns of foreign influence even for portfolio investments. We view strategic foreign equity investments as a way for the hegemon to bypass the participation constraint of the targeted firms entirely (see Section 3.2), replacing indirect geoeconomic power via threats with direct ownership-based control as a method for shaping the targeted firm's actions.

Technology Threats. Economic threats can also involve technological transfers and licensing (Flynn et al. (2025)). Recent examples have involved the US restricting Chinese access to advanced semiconductor technology or the national security concerns that are emerging around AI-capabilities. The Biden's administration "Framework for the Diffusion of Advanced AI Technologies" produced a list of approved countries and a middle tier list of countries with restrictions. Diplomatic negotiations and concession could in the future be involved in moving countries between these tiers. We can model threats to withdraw technology by assuming that the final goods producer's productivity is affected by technology provided in part by the hegemon. In particular, the final goods producer can license both domestic and foreign technology that determines its productivity,

$$f_n(A_{n1},\ldots,A_{nI},x_{n1},\ldots,x_{nI}) = \overline{A}_n\left(\sum_{i=1}^{I}\alpha_{ni}^{k}A_{ni}^{\frac{\varsigma-1}{\varsigma}}\right)^{\frac{\varsigma}{\varsigma-1}\gamma\beta}\left(\sum_{i=1}^{I}\alpha_{ni}\,x_{ni}^{\frac{\sigma-1}{\sigma}}\right)^{\frac{\sigma}{\sigma-1}(1-\gamma)\beta}.$$

Country n has a stock $\overline{A}_{nn}$ of its own technology, and can license foreign technology at a fee of q_i. Modeled this way, the analysis parallels the one above for payment systems and capital goods, and so power is given by

$$V_n(0) - V_n(\overline{\tau}) = \beta\frac{1}{\varsigma-1}\gamma\log\left(\frac{1}{1-\overline{\Omega}^A}\right). \tag{14}$$

where γ is the expenditure share on technology. Again, the efficacy of a threat to cut off the ability to license hegemon-coalition technology depends on how easily substitutable technology is

(ς) and what the expenditure share on the hegemon's coalition is ($\overline{\Omega}^A$). For example, advanced semiconductors are often used by the US government in threats and actual on-path restrictions. These restrictions are powerful if they satisfy three key properties: the US controls a large share of the technology worldwide, other types of chips are (relatively) inferior substitutes, and chips have a large impact on overall productivity of the targeted firms.

Coordination Threats. Coordination failures are a common feature of the international environment. A common example is defense treaties and spending: members of a defense alliance, such as NATO, benefit from collective security, but each member has an incentive to free ride on the military capacity provided by others (Olson and Zeckhauser (1966)).[28] Another example are collapses of the monetary system or global financial institutions that arise from a run by foreign investors. Both the collapse of Britain-centric gold-exchange standard in 1931 and the collapse of the US-centric Bretton Woods system in 1972, featured runs on the pound and the dollar respectively. In both cases, the hegemonic powers of the time, attempted to sustain the system by coordinating foreign sales of currency for gold. The core of these problems is the ability to leverage a strategic complementarity in a threat. We provide two examples: coordination of economic policies for financial stability, and coordination of a defense alliance.[29]

Financial Stability Coordination. To study the benefits of coordinating fire sales in the presence of financial stability concerns, we extend the model by adding a simple capital market. We borrow the set-up of the international capital market and collateral problem from Clayton and Schaab (2022), and refer the reader to that paper for a full treatment of the set-up.

Starting from our basic small open economy that we have studied thus far, we make three modifications. First. country n has an endowment $\overline{k}_n = (\overline{k}_{n1}, \ldots, \overline{k}_{nN})$ of capital goods, where $\overline{k}_{no}$ is country n's ownership of the country o capital good. One can think of $\overline{k}_{no}$ as being investments by country n into country o (e.g., FDI), that here are taken as exogenous.

Second, we introduce a firesale and collateral problem. We introduce a simple before-after structure, in which the final goods producer has to purchase intermediate goods before it produces. This gives rise to a borrowing constraint in which the final goods producer has to either sell its capital goods to finance intermediate goods purchases or use the capital goods as collateral to borrow in order to pay for intermediate goods. We denote $k_{no} \leq \overline{k}_{no}$ the amount of capital goods it holds to maturity, and $L_{no} = \overline{k}_{no} - k_{no}$ the amount it liquidates immediately at an endogenous price p^k_o. The final goods producer's revenues from production and assets held to maturity are $p^f_n f_n(x_n) + \sum_{o=1}^N k_{no}$. When borrowing, the value of capital goods that can be used as collateral is

[28] This free-riding tendency is a feature of balance-of-power incentives, where free riders try to let a balancing coalition of other states contain a common adversary.

[29] These ideas relate to the theory of clubs in which threatened penalties against non-members can be used to ensure compliance and provide public goods (e.g., Buchanan (1965), Nordhaus (2015), Celebi and Papaioannou (2024)).

subject to a haircut, giving rise to the following collateral constraint:[30]

$$\underbrace{\sum_{i=1}^{I} p_i x_{ni} - \sum_{o=1}^{N} p_o^k L_{no}}_{\text{Amount Borrowed}} \leq \underbrace{\sum_{o=1}^{N} (1-\phi) p_o^k k_{no}}_{\text{Collateral}}, \tag{15}$$

where the collateral has a haircut ϕ. A fall in the capital price p_o^k of country o tightens the constraint both by reducing revenues from sales and by reducing the value of collateral.

Third, we specify how the capital goods price is determined. Capital goods of country n can be sold to a representative arbitrageur in country n, who has a diminishing returns production technology $g_n(\overline{L}_n)$ with $g_n'(0) < 1$ so that the arbitrage technology is inefficient.[31] Liquidation market clearing in country n is $\overline{L}_n = \sum_{o=1}^{N} L_{on}$ and the equilibrium capital goods price in country n is $p_n^k = g_n'(\overline{L}_n) < 1$. Note that this means the equilibrium capital goods price in country n depends not only on sales by its own final goods producer, but also by sales of final goods producers located in other countries. We think of $1 - p_n^k$ as being the fire sale discount in country n.

Clayton and Schaab (2022) show that this set-up leads to a coordination problem for global policies. Each government of a small open economy would like to restrict the ability of foreigners to firesell the capital goods held in its country, while at the same time allowing its domestic agents to freely sell capital goods they own abroad. Intuitively, every government wants to treat domestic and foreign investors differentially, but of course its own investors will be treated as foreigners in other countries. This type of logic applies to a larger class of models that feature Nash policy inefficiencies due to a lack of international coordination, e.g. Caballero and Simsek (2020) on fickle capital flows.

In the above models, as common in the literature, a global planner is introduced to study the efficient solution, and then contrasted with different implementations of Nash policy. Here we take a different approach. We imagine that the hegemon acts as an enforcer of policy coordination. Intuitively, it offers our small open economy government the ability to join a club of countries whose capital markets suffer less from firesales but requires the government to implement a macroprudential policy that treats domestic and foreign investors (more) symmetrically. If the government does not accept the hegemon's conditions, the hegemon blocks it from being able to liquidate the capital goods it holds in the countries that are part of the club. The participation of each country in the club is ultimately what makes the club worth joining since it corrects the externality. That is to say, if the hegemon's coalition is the set of countries $\mathcal{O}$, then a member country faces a collateral constraint given by equation 15 while a nonmember country faces

$$\underbrace{\sum_{i=1}^{I} p_i x_{ni} - \sum_{o \notin \mathcal{O}} p_o^k L_{no}}_{\text{Amount Borrowed}} \leq \underbrace{\sum_{o=1}^{N} (1-\phi) p_o^k k_{no}}_{\text{Collateral}}.$$

[30] For simplicity we assume the producer's profits from intermediate good production cannot be used as collateral.

[31] For simplicity, we assume that only the country n arbitrageur can purchase the capital of country n.

That is, exclusion from the club forces the nonmember to redirect asset sales into its own economy and other nonmembers. Thus as membership in the coalition grows, the cost of nonmembership becomes larger and larger as the country increasingly has to direct asset sales into its own market, exacerbating its own fire sale.[32] In this setup, the hegemon provides a public good in the form of financial stability, which also gives rise to its power in the form of threatening restricted access to that stable financial system. This is reminiscent of the political science debate on hegemonic stability theory (Kindleberger (1973); Krasner (1976); Gilpin (1981); Keohane (1984)) which discusses whether hegemons can serve as global public goods providers.

Defense Coordination. We sketch an example of coordination of a defense alliance, such as NATO. Suppose the action $a_n \in \{0, 1\}$ constitutes contribution to a defense alliance. We extend geopolitical utility to be $\psi_n(a_n, a_n^h, \overline{a}) = \exp\{a_n^h \overline{a} - (1 + \kappa)a_n\}$, which now includes whether the hegemon includes country n in the alliance, $a_n^h \in \{0, 1\}$, and the number $\overline{a}$ of alliance members. Country n wants to be in the alliance ($a_n^h = 1$) the more other countries are part of it (higher $\overline{a}$), but all else equal prefers to free ride and not contribute to it ($a_n = 0$). The hegemon's positive threat is to allow n to join the alliance, setting a_n^h to 1, conditional on country n also contributing by setting a_n to 1 (and possibly other demands) and to suspend membership in the event of noncompliance. Then the loss in value induced by the hegemon's threat is given by:

$$V_n(1) - V_n(0) = \overline{a} - (1 + \kappa). \tag{16}$$

The hegemon's threat leverages the strategic complementarity: as more members join and contribute to the alliance ($\overline{a}$ rises), the cost of being excluded from the alliance rises, making the target more willing to comply with the hegemon's demands in order to retain membership in the alliance. As in the case of financial stability coordination, this hegemonic-led public good provision reinforces the incentives of alliance members to maintain the alliance, leading the hegemon to provide a source of global value that resembles the choices of a hypothetical global planner.

3.2 Foreign Influence and the Participation Constraint

At the heart of geoeconomics is the desire of the hegemonic country to alter the behavior of foreign entities that are outside of its domestic legal jurisdiction. Any country, hegemonic or not, has considerable leeway within its borders to impose rules on its own citizens and firms which can be sustained through domestic law enforcement. In contrast, the hegemon (like any country) has no legal jurisdiction over the (foreign) activities of foreign citizens, firms, or governments. As a result, the hegemon needs to incentivize these foreign entities to comply with its demands. This puts at the front and center of geoeconomic policy a *participation constraint*: foreign entities must be better

[32] One could embed this sketch into a repeated game, in which member countries are excluded in subsequent period from the club if they deviate from the agreed policy of not discriminating foreign investors compared to domestic ones in the ability to liquidate assets.

off voluntarily complying with the hegemon's demands than refusing them.

Suppose that the hegemon wishes for the targeted foreign entity, here the government of country n, to adopt policies (x^h, a^h). Unless these policies so happen to be in that government's own self interest, it will refuse to adopt them without an inducement for compliance. Drawing from the previous subsection, the hegemon can leverage an economic threat to induce compliance. As we make clear, all of the previous types of threats can be represented by an economic threat in which the hegemon will impose $\theta = \overline{\theta}$ if the foreign government complies with the hegemon's demands to adopt policies (x^h, a^h), and will impose $\theta = \underline{\theta}$ if the government does not comply with the hegemon's demands. For example, an economic threat involving foreign aid provision offers aid $T = \overline{\theta} > 0$ for compliance, but threatens to withhold aid, $T = \underline{\theta} = 0$, if the foreign government refuses to comply. We map the other common threats into this environment after presenting the participation constraint.

The *participation constraint* of the targeted entity – here the government of country n – given the hegemon's demanded actions (x^h, a^h) and the threat θ, is given by

$$U_n(x^h, a^h, \overline{\theta}) \geq V_n(\underline{\theta}). \tag{17}$$

The participation constraint compares the targeted government's *inside option* on the left hand side with its *outside option* on the right hand side. The inside option is the value country n's government receives from complying with the hegemon's demands, that is setting $(x, a) = (x^h, a^h)$, while avoiding the economic threat being carried out, that is the hegemon responds by setting $\theta = \overline{\theta}$. The outside option is the value the firm receives when it is free to choose its own policies (x, a) but the hegemon's economic threat is carried out, $\theta = \underline{\theta}$. Because we have assumed country n is a small open economy, equilibrium objects outside of country n, in particular here the vector of intermediate goods prices p, do not depend on whether its government decides to accept the hegemon's offer.

There is an upper bound $U_n(x^h, a^h, \overline{\theta}) \leq V_n(\overline{\theta})$ on the inside option: the hegemon's asks always leave the entity below its own private optimum (when faced with $\overline{\theta}$). This inequality reflects how the hegemon promises value to the targeted entity from compliance, reflected in $\overline{\theta}$, and then draws down that value through demands for costly actions, lowering the inside option down towards the outside option. The participation constraint places a lower bound on how far down the hegemon can push the inside option before country n prefers to refuse to comply.

The participation constraint encodes our notion of hegemonic power put forward in CMS(a,b). In particular, hegemonic power arises from the slack the hegemon can generate in the participation constraint by leveraging its economic threat while demanding no costly actions. CMS(a,b) define hegemonic power as the maximal slack the hegemon can generate in the targeted entity's participation constraint (i.e., demanding no costly actions),

$$\text{Power} = V_n(\overline{\theta}) - V_n(\underline{\theta}). \tag{18}$$

Power represents the private cost and benefit to the entity that the hegemon can impose through its economic threats. It thus reflects how much private cost the hegemon can impose on the entity through its demands for changes in behavior, before that entity would prefer to simply reject the hegemon's demands rather than bear the cost of compliance. By demanding the actions x^h, a^h the hegemon is effectively choosing a point $U_n(x^h, a^h, \overline{\theta})$ on the interval of power it can exert: $V_n(\overline{\theta}) \geq U_n(x^h, a^h, \overline{\theta}) \geq V_n(\underline{\theta})$.

Hegemonic power depends directly on the economic threat at the inside option ($\theta = \overline{\theta}$) and the outside option ($\theta = \underline{\theta}$). However, power is a function not only of the economic threat but of the equilibrium environment in which that threat is made. At the most basic level, an economic threat not to sell is highly effective when the price of the good being cut off is low and so the expenditure share on it is high (equations 4 and 5), but is relatively ineffective at generating power when the good cut off is very expensive. The hegemon can also "build power" over a particular entity by shaping its domestic economy and the world equilibrium to maximize the gap between the inside and outside option that it can threaten the entity with (CMS(a,b)). The hegemon might want to subsidize its domestic sectors that produce inputs of crucial importance for the targeted entity. For example, strategic capital stock investments can make it easier to leverage trade threats (Becko and O'Connor (2024)) and improve bargaining positions (Kooi (2024)) during conflict. Practical examples include US subsidies to semiconductor and advanced chip technology, and export restrictions of these technology to China, that aim to shape the world equilibrium to be one in which the US controls the world supply of the technology. Threats not to sell would then be particularly powerful for the US as a hegemon since the targeted entities would have little or no alternative.

The geoeconomic instruments in Table 1 and the threats modeled above can map directly into this environment. Starting with the case of a threat not to sell (export controls or taxes), the hegemon's threat is to impose $\tau = \underline{\theta}$ if its demands are not met, and $\tau = \overline{\theta} = 0$ if its demands are met. For a threat not to buy, the hegemon threatens to buy at a depressed price, setting $\chi = \underline{\theta}$, if its demands are not met, but to buy at full price $\chi = \overline{\theta} = 1$ if its demands are met. A threat involving foreign aid offers $T = \overline{\theta}$ if demands are met and $T = \underline{\theta}$ if demands are rejected. Under a joint threat, $\overline{\theta}$ reflects coordinating threats, whereas $\underline{\theta}$ reflects not coordinating threats. For asset freezes, the hegemon threatens a freeze $1 - \chi = \underline{\theta}$ as a removal of unrestricted access $1 - \chi\overline{\theta} = 0$. Similar to a threat not to sell, threats to impose controls on payment system access, restrictions on investment, or loss of technology access map into $\tau = \underline{\theta}$ if demands are not met and no control $\tau = \overline{\theta} = 0$ if demands are met. Finally, a coordination threat has a benefit $\overline{\theta}$ of the coordinated equilibrium, with $\underline{\theta}$ reflecting no coordination. For the defense coordination, this was membership in the alliance $a_n^h = \overline{\theta} = 1$ as a carrot and nonmembership $a_n^h = 0$ as the stick. In each case, the loss of value the hegemon can impose through its economic threat determines its power. For example, equation 5 describes the power of the sell threat.

The sketches of the various threats above make clear that power is not a straightforward function

of economic size. Nor is it a direct function of mark-ups, the private value of the firm, or a simple concentration index of the sector. Instead is about the ability to move the inside and outside option of the targeted entities, and economic models can make these objects measurable and testable. Given the analogy we drew in Section 2 with the power of large firms, these modeling tools are also of interest to the effort to understand the scope and implications of corporate power and its implications for antitrust policy.

Moving the inside or the outside option has different implications in static and dynamic setups. In a static environment, increasing the inside option by 1 unit and decreasing the outside option by 1 unit have the same consequence for hegemonic power. In such an environment, the relative efficacy of each type of threat depends on the hegemon's capabilities in generating it, for example in the magnitude of foreign aid provided or in the desirability of the good being cut off. As discussed in CMS(a), a difference arises between the two when considering a repeated game. In a repeated game, when the hegemon increases the inside option by increasing flow utility by 1 and extracts it via coercion every period, the targeted entity's flow utility and continuation value both do not change relative to its outcome in absence of hegemonic coercion.[33] This is because the hegemon has simply added and taken away value in equal amounts. On the other hand, when the hegemon reduces the outside option by reducing flow utility by 1 each period, not only does the government's flow utility fall but also its continuation value falls. Intuitively, the targeted entity knows that refusing to comply with the hegemon's demands also shields it from future coercion that would reduce its value regardless of its compliance decision today. To the extent that continuation values affect the targeted entity's current decision making, for example through incentive constraints, threats against the outside option are in part self-defeating in a repeated game.

Of the threats sketched above, joint threats, coordination threats, and positive threats of foreign aid and technology transfers have the feature of increasing the inside option of the target. The latter two have direct and possibly substantial budget costs for the hegemon. The first two, instead, stand out as among the most effective threats because the hegemon is adding value to the target by using its economic network. They indeed underlie the role of the hegemon as a global enforcer and setter of norms that both historians and political scientists identify as primary attributes of hegemony.

3.3 Coercing Governments or Private Entities, and Defensive Coalitions

In principle, the hegemon could engage in economic coercion against either the government of country n, or the final-good producer firm directly, or both. All these types of coercion happen in practice. At a basic level, the economic threats the hegemon can levy against either entity share many similarities. For example, a threat not to sell can be levied against either: against a firm, it

[33] Note the subtlety that this statement is made relative to the equilibrium that prevails when the hegemon is engaging in coercion.

disrupts the firm's economic inputs for production and thereby firm profits; against the government, it disrupts the firms' economic production and thereby consumption (which is financed from the profits). In both cases, the economic profitability of the firm is disrupted based on its expenditure share on hegemon-controlled goods and the elasticity of substitution. The source of hegemonic power against either is similar. Parallels can also be made for threats not to buy, joint threats, and even foreign aid (e.g., subsidies). However, there are differences in both how power is built and how it is wielded.

The first key difference is the economic size of the targeted entity. Firms are typically small enough that they take the equilibrium as given, whereas a government is large enough to at least internalize the domestic equilibrium (even if it is small in international markets). In the basic setup, the final goods producer takes the domestic price p_n^f of its good as given, whereas the government internalizes that this price is determined by domestic market clearing. More broadly, when production, demand, or pecuniary externalities are present – for example, an external economy of scale in production of the home good out of home inputs, $\alpha_n(x_{nn})$ – the government internalizes that the demands of the hegemon impact the economy of country n via equilibrium objects, whereas individual firms in country n do not.

CMS(a) defines two key notions of hegemonic power. "Micro Power" measures the power that the hegemon has over an individual entity that takes the general equilibrium as given to get it to take costly actions on the hegemon's behalf. "Macro Power", measures how much value the hegemon could generate for itself by influencing the activities of a set of entities and thus changing the equilibrium.

The difference between exerting power at the micro or macro level has important consequences. When the hegemon asks an individual firm for costly actions, that firm only considers its private costs, while the hegemon considers the macro benefits to itself. All else equal, hegemonic exertion of power is most effective from the hegemon's perspective against small players, an incarnation of the motto "divide et impera." The government of country n is already a more difficult target in this respect, since it internalizes at least the externalities within its domestic economy. A hegemon can still pit governments of different countries against each other internationally, which opens up the possibility of governments forming coalitions to defend themselves from hegemonic influence. For example, the European Union is coordinating economic security policy for countries in the Union rather than having France, Germany, and Italy each face pressure from the US or China by itself. Broner et al. (2024) document through the signing of trade treaties how coalitions and alliances have shifted over the past two centuries.[34] Pellegrino et al. (2021) provide an extensive collection of variables that map the geopolitical and economic distance of countries.

The second key difference is in the disaggregation versus aggregation of power. When the hegemon pressures a government, the economic threat promises consequences for a large swath of (private) actors in the domestic economy that the government cares about. This aggregates the

[34]See also Broner et al. (2025).

economic power of the hegemon across the different entities that it might not have been able to individually threaten: the hegemon can use an economic threat against one actor to get the domestic government to change the behavior of a different actor entirely. In contrast, when pressuring an individual firm, the economic threat promises consequences for that specific entity and the costly actions have to be carried out by the entity itself. In this respect, hegemons threatening foreign governments are using to their advantage those governments' ability, via their legal, tax, and regulatory powers, to change the behavior of many entities in their respective economies.

3.4 Sanctions: On Path versus Off Path

In an economic threat that promises a negative consequence for non-compliance, the negative consequence might only ever materialize off the equilibrium path. That is, the hegemon does not ask more of a targeted entity than that entity would be willing to accede to, else its demands would simply be rejected. If this were the case, economic sanctions might be threatened but would never realize. Indeed, in a world in which the targeted entity can infer the wishes of the hegemon, the targeted entity would simply change its behavior without the demand and corresponding sanction threat ever needing to be explicitly stated (i.e., an observer might not even see the economic threat itself being made explicit, only the on-path outcome desired by the hegemon).

In reality, sanctions often occur on the equilibrium path. One simple explanation is that the hegemon may not be able to perfectly predict the economic or noneconomic consequences to the target of the threat, which affects the willingness of the target to comply with the threat. This leads the hegemon to sometimes ask more than the target is willing to comply with and, hence, to noncompliance and the economic threat being carried out on the equilibrium path. Analogously, sometimes the hegemon would ask less than the entity would voluntarily comply with, leaving additional surplus to the target. From a researcher's perspective, this might be a welcome feature since it provides actual data with which to test and discipline the models. A necessary step is to make sure the model can deliver on path realizations of the threats, which we show below can be done straightforwardly.

Consider a simple example in which the hegemon is uncertain as to the value ψ_n that country n assigns to the demanded geopolitical action a^h.[35] If it cannot elicit that preference by offering a menu of options, then the participation constraint becomes

$$\log c^h + \psi_n \log \varphi(a^h) \geq \log \underline{c} + \psi_n \sup_{a_n} \log \varphi(a_n),$$

where c^h and $\underline{c}$ denote consumption at the inside and outside options, respectively. Rearranging,

[35] Although beyond the scope of this paper, an interesting topic for exploration is how a country might offer menus when faced with such risks. The tools of mechanism design and contract theory are well-suited for studying this question.

we obtain

$$\psi_n \leq \overline{\psi}_n \equiv \frac{\log c^h - \log \underline{c}}{\sup_{a_n} \log \varphi_n(a_n) - \log \varphi(a^h)}.$$

Thus, the participation constraint is only satisfied when country n places a sufficiently low value on geopolitical utility. The threshold $\overline{\psi}_n$ for compliance falls either when the hegemon's demands lower the consumption from compliance relative to that of noncompliance, or move the geopolitical action further away from country n's preferred action. Thus the probability $Pr(\psi_n \leq \overline{\psi}_n)$ of compliance is endogenous to the demands of the hegemon. By moving country n further away from its preferred allocation, the hegemon has to balance the benefits against the risk that the target will be more likely to refuse to comply. In this probabilistic participation constraint, the hegemon is deciding how far it is willing to push its demands on the targeted entity. The higher the demands, the more slack in the constraint is used up, and hence the more likely it is that the constraint will be violated ex-post and the hegemon will have to carry out the threats. Morgan et al. (2014) separately identifies episodes of sanctions threats and implementations to measure their efficacy.

Liu and Yang (2024) study how asymmetries in power lead to international disputes, reflecting the greater gain the stronger country is able to extract by exploiting the weaker one. They derive a model-implied measure of power and document empirically that greater power asymmetries lead to more bilateral negotation and engagement.

Although on-path realizations of economic threats is one explanation for observed sanctions in the data, it is important to also recognize that the types of policies (e.g., sanctions) involved in economic threats have purposes apart from being threats. That is, it is important to distinguish between sanctions as an economic threat and sanctions as a desired action required by the hegemon. That is, the observed sanctions, tariffs, import-export restrictions, and so on can be the way the hegemon implements the desired actions (x^h, a^h) on path by the targeted entity.

Consider the example of sanctions against Russia following its invasion of Ukraine in 2022. In the language of economic threats, the sanction threat might have served as a disciplining device to prevent the invasion, but ultimately one that was not powerful enough to ensure Russia's compliance (an off-path sanction ended up being realized on path). However, another interpretation (among many) is that conditional on invasion, the U.S. wished to weaken the Russian economy to make it harder to continue its invasion. Under this latter interpretation, the sanction was an on-path action taken for reasons other than deterrence. This simple example showcases one instance in which a sanction might have simultaneously served multiple objectives, some of which might be thought of as "off-path" purposes and some as "on-path" purposes. It is therefore important to distinguish the purpose(s) of a sanction in determining when and how one should expect it to materialize, a point stressed by Baldwin (1985). Indeed, this point is all the more salient since even in our simple model, the hegemon could implement its economic asks x^h through use of instruments. For example, a hegemon asking a country to reduce or eliminate use of an input from a geopolitical rival, could be represented by asking the country to place an import tariff on the rival's input.

Leakage of Threats and Bargaining Weights. Even when an economic threat is made and realized,

it is possible that the targeted entity will end up being able to evade the threat. For example, when faced with an economic threat not to sell, the targeted entity may be able to route the imports through a third party country. Indeed, Russia seems to have been able to obtain many western produced items, despite the sanctions, by reimporting the goods via Central Asian countries and Turkey.

CMS(a,b) show that such leakage is straight-forward to incorporate into the setup by modifying the outside option. To incorporate leakage, assume that with probability π, the economic threat is successfully carried out and the targeted entity receives $V_n(\underline{\theta})$. On the other hand with probability $1-\pi$, the economic threat is not carried out, and the targeted entity receives $V_n(\overline{\theta})$. In this case, the participation constraint is modified to

$$U_n(x^h, a^h, \overline{\theta}) \geq \pi V_n(\underline{\theta}) + (1-\pi)V_n(\overline{\theta}). \tag{19}$$

Leakage of threats (e.g., sanction evasion) thus reduces the power of the hegemon over the target, which by refusing to comply retains a chance of avoiding the threat being carried out.

Equation 19 could also be interpreted in reduced form as an extension with bargaining weights. In our basic setup, the hegemon had all the bargaining power in the sense that it could hold the targeted entity to its outside option. Alternative bargaining setups, like Nash bargaining, involve a division of surplus from the preserved relationship. We can think of π as capturing a reduced form bargaining weight, with $\pi = 1$ assigning all bargaining power to the hegemon and $\pi = 0$ assigning all bargaining power to the targeted entity (i.e., when $\pi = 0$ the hegemon cannot demand any costly actions).

3.5 The Political Economy of Power Projection

We so far have largely abstracted from a number of political economy issues that arise in power projection. Perhaps most significantly, we abstracted away from the political economy of control rights and from lobbying.

In projecting power, the hegemon only exercises indirect control over the targeted entity: because the hegemon has no direct legal jurisdiction, it must employ an economic threat to get that entity to change its behavior. In contrast, if the targeted entity is owned by the hegemon's government or country, the hegemon has greater capacity to directly influence its activities rather than having to rely on economic threats. Frieden (1994) builds this idea into an argument that colonial control, an extreme form of direct control backing cross-border investments with direct property rights enforcement, provided greater protection for investments that would otherwise be relatively easy to expropriate. In a foreign country with relatively strong property rights protections, direct ownership of a firm gives the hegemon another mechanism to exercise direct control, an idea further discussed in Clayton et al. (2025c). Intuitively, the value of direct control is the value to the hegemon of relaxing the targeted entity's participation constraint and so being able to demand more costly actions. The

desire to gain direct control has motivated China to strategically acquire firms in strategic industries (Liu (2023)) and has motivated other countries to pass restrictions on the abilities of foreigners to acquire domestic firms in strategic industries (Bauerle Danzman and Meunier (2023)). We do not develop the notion of FDI as a mean to exert further geoeconomic power here and suggest it would be an interesting future avenue.

On lobbying and political influence, our modeling has thus far assumed that the government of country n chooses economic and geopolitical policies in the interest of its citizens. In practice, government's international and domestic policies are often influenced by domestic political economy considerations and lobbying by interest groups (Bombardini and Trebbi (2020)), which can affect the government's choice of trade policy (Grossman and Helpman (1994)), financial integration (Frieden (1991)), and currency and exchange rate (Frieden (2014)).[36] We sketch how to extend our setup to incorporate a process of domestic lobbying that determines how the government of country n sets its policy.[37]

Our sketch builds on the lobbying model of Grossman and Helpman (1994), which employs a common agency framework a la Bernheim and Whinston (1986). We extend our basic model by assuming that not only the government, but also firms and the representative consumer have utility over the action a_n, which we denote respectively by $\varphi_n^g(a_n)$, $\varphi_n^f(a_n)$, and $\varphi_n^c(a_n)$. We can think of this as a stand in for how each agent cares about the policy choice, and think of the action a_n as potentially capturing a broader set of geopolitical or economic actions.[38] In our basic setup, we can think of the government's geopolitical utility φ_n as capturing some weighted average of these three components, $\varphi_n(a_n) = \sum_{b\in\{g,f,c\}} \omega^b \varphi_n^b(a_n)$. In our lobbying setup, we assume that the government chooses the geopolitical action, but that firms and consumers can lobby the government for policy changes. Lobbying is captured by a campaign contribution schedule T_n^b ($b \in \{c, f\}$), where $T_n^f(a_n) \geq 0$ is the "campaign contribution" that the final goods producer makes to the government when the government chooses action a_n (and similarly T_n^c is the campaign contribution schedule of the consumer). Given that individual firms and consumers are atomistic, for expositional simplicity this model is best thought of as coordinated lobbying by each type of agent (i.e., the sector of final goods producers lobby as a block). We think of these contributions being made in payments of the final good, and they correspond to private consumption of the government. We extend the government's utility function to incorporate private consumption, $U_n(x_n, a_n) + T_n^f(a_n) + T_n^c(a_n)$.

In the basic lobbying setup without a hegemon, the firm and consumer take as given the campaign contribution schedule of one another and choose their own contribution schedule to maximize their payoff $\varphi_n^b(a_n^*) + T_n^b(a_n^*)$, internalizing the effect of their chosen contribution schedule on the government's optimal action a_n^*. When the hegemon is applying economic threats against the final goods producer, we assume that one of the costly actions the hegemon can demand of the final goods

[36] Firm political power and lobbying has also seen a resurgence of interest (Cowgill et al. (2024)).

[37] Clayton et al. (2023b) sketch a reduced-form lobbying model within the target country.

[38] We focus on separable utility of a_n to maintain simplicity of the setup. One could extend the setup to have a_n affect economic payoffs, in which case it could capture policies such as taxes or subsidies.

producer is to change its campaign contribution schedule T_n^f. Indeed, the recent resurgence of tariff policy in the United States and more generally policies under the "national security" umbrella are generating intense lobbying effort both for protection and for exemption from adverse tariffs.

4 Ex-Ante Reaction to Economic Threats

Concerns about the risks of economic coercion by a Great Power, such as the U.S. or China, have led firms around the world to reconsider their supply chain relationships. Firms are considering and adopting changes such as rerouting production to their home countries and "friendshoring" supply chains towards countries that are geopolitical allies of their home government. For example, western firms often mention a sourcing strategy of "China+1", as in at least one supplier independent of China. Similarly, in the first few months of 2025, the barrage of threats by the Trump administration is leading many countries, even traditional allies such as Western European countries, to re-evaluate their economic and military dependence on the United States.

In this section, we extend our basic setup to incorporate a simple ex-ante stage in which the final goods producer produces intermediate goods that it then uses in the ex-post stage for production and trade. In our simple economy, under free trade the final goods producer fully specializes in production of a single intermediate in which its comparative advantage is largest. We then illustrate how the prospect of hegemonic coercion leads the firm to alter its productive activities, producing more at home ex-ante and altering its trade patterns ex-post.

Our focus in this section is highlighting the private incentives of firms to change their economic activities ex-ante in anticipation of threats.[39] Governments have also responded by employing Economic Security policies, which are mixtures of trade and industrial policies that aim to reduce dependencies on Great Powers either by reducing reliance on hegemonic goods and systems or by promoting (e.g., through subsidies) use of home alternatives or of alternatives provided by allied countries.

4.1 Specialization meets Geoeconomics

We extend our sketch of a small open economy of Section 3 to allow the final goods producer to take ex-ante steps to try and safeguard itself from economic threats. To do so, we introduce an ex-ante stage in which the final goods producer chooses production of intermediate goods that it can then trade and use in production.

We assume that in the ex-ante stage, the representative consumer of country n inelastically supplies a quantity $\overline{\ell}_n$ of a labor factor n. The wage rate in country n is w_n.

[39] A growing empirical literature investigates the impacts of such policies and geopolitical tensions on international economic fragmentation (Thoenig (2023); Fernández-Villaverde et al. (2024); Gopinath et al. (2024); Aiyar et al. (2024); Alfaro and Chor (2023); Hakobyan et al. (2023); Aiyar et al. (2023); Bonadio et al. (2024); Crosignani et al. (2024)).

The final goods producer hires labor to produce intermediate goods, where its separable production technology for intermediate goods is $f_{ni}(\ell_{ni}) = A_{ni}\ell_{ni}$. Consistent with the notation employed in Section 3, we denote $\overline{x}_{ni}$ to be the final good producer's total production of intermediate good i. Therefore, the final goods producer solves a two-step maximization problem. In the ex-ante stage, it chooses labor demand $\ell_i = \{\ell_{ni}\}$, which determines its production of intermediates $\{\overline{x}_{ni}\}$. In the ex-post stage, it trades in intermediates and produces the final good.

The consumer's income in the ex-post stage now includes wages from the labor factor and final goods producer profits (which now also includes income from intermediate goods).

An Economy in Autarky. We begin with an instructive benchmark in which country n operates in autarky. As a result, the final goods producer must produce the intermediate goods it will use in production. It costs the final goods producer $\frac{w_n}{A_{ni}}$ to produce one unit of intermediate good i (i.e., the implied autarkic price of good i in country n is $p_i^{aut} = w_n/A_{ni}$), meaning that we can write the profit maximization problem of the final goods producer in autarky as

$$\max_{x_{n1},\ldots,x_{nI}} p_n^f A_n \left(\sum_{i=1}^{I} \alpha_{ni} x_{ni}^{\frac{\sigma-1}{\sigma}} \right)^{\frac{\sigma}{\sigma-1}\beta} - \sum_{i=1}^{I} p_i^{aut} x_{ni}.$$

Employing a parallel derivation to that of equation 3, given these autarky prices the expenditure shares of the final goods producer under autarky are

$$\Omega_{ni} = \frac{\alpha_{ni}^{\sigma} A_{ni}^{\sigma-1}}{\sum_{j=1}^{I} \alpha_{nj}^{\sigma} A_{nj}^{\sigma-1}}. \tag{20}$$

Intuitively, the final goods producer of country n produces and utilizes more of intermediate i when it is relatively productive in either producing intermediate good i (high A_{ni}) or in using it in final goods production (high α_{ni}). Because the economy must produce its inputs domestically, the Inada conditions of the final goods producer imply that every input is produced domestically, even very unproductive ones (low A_{ni}). However, the country tends to rely more on intermediates which it is more efficient at producing.

Free Trade and Specialization. Suppose now that country n operates within the global economy, but is free from economic threats by a hegemon. Because country n is a small open economy, it takes world prices of intermediates as given, but the local wage w_n and final goods price p_n^f are determined locally to clear markets.

Given free trade and linear production of intermediates, the final goods producer of country n will have infinite demand for labor if there exists an i such that $p_i A_{ni} > w_n$, and will demand no labor if $p_i A_{ni} < w_n$ for all i. Therefore, the equilibrium wage rate in country n is $w_n = \max_i p_i A_{ni}$. This means that the final goods producer earns zero profits from production of intermediate goods, only earning profits from production of final goods. Moreover, the final goods producer of country

n specializes completely in the production of a single intermediate. Without loss and to match the notation used in Section 3, we denote this most-efficient intermediate good to be n. Our ex-post economy in Section 3 therefore has $\overline{x}_{nn} = A_{nn}\overline{\ell}_n$ and $\overline{x}_{ni} = 0$ for $i \neq n$, where as in Section 3 $\overline{x}_{ni}$ denotes the (here endogenous) endowment country n has of intermediate good i in the ex-post trading stage.

Country n's specialization in production of intermediate good n reflects a standard logic of comparative advantage. Country n's final goods producer has the highest incentive to produce goods in which it is highly productive (high A_{ni}) and in which the rest of world is less productive (reflected in a high global price p_i). Here because of linear production, the final goods producer fully specializes in a single intermediate good.[40] However, country n may not have an absolute advantage in production of good n. Indeed if $p_n < A_{nn}^{-1}$, we might associate foreigners with having higher productivity. Even so, because labor is assumed to be internationally immobile and inelastically supplied, domestic intermediate production still occurs in this case.

In this full specialization equilibrium, expenditure shares are given as in equation 3 by

$$\Omega_{ni} = \frac{\alpha_{ni}^{\sigma} p_i^{1-\sigma}}{\sum_{j=1}^{I} \alpha_{nj}^{\sigma} p_j^{1-\sigma}}. \tag{21}$$

In comparison to autarky, the economy tends to shift expenditures towards goods that are produced more cheaply abroad (i.e., $p_i < A_{ni}^{-1}$) and away from goods that are produced more expensively abroad.

4.2 How firm production and trade respond to hegemonic threats

The prospect of hegemonic coercion has led a number of firms to rethink supply chain relationships, seeking to diversify where they source and sell goods and route away from geopolitical rivals of their home country. We use our model to sketch how the final goods producer might restructure its production and trade relationships in the shadow of geoeconomic pressure.

Whether the hegemon attempts to directly coerce the final goods producer or to coerce the government, a number of economic threats involve disrupting the final goods' producers economic relationships. For example, threats not to sell limit the inputs the final goods producer can buy while threats not to buy limit the intermediate goods it can sell, both of which threaten to disrupt its international trade relationships. This gives the firm a vested interest in raising its outside option – the right hand side of the participation constraint (equation 17) – which reflects its value if the economic threat were to be carried out. There are two reasons for this. First, raising the outside option increases the firm's bargaining power when it is itself subject to an economic threat (a mechanism emphasized by CMS(b)). This increase in bargaining power helps the firm keep more

[40] If, instead, the intermediate good was produced with decreasing returns and an Inada condition, the final goods producer would produce a positive quantity of all intermediates but produce more in intermediates in which its comparative advantage $A_{ni}p_i$ was higher.

of the surplus and reduce the costly actions that can be demanded of it. Second, the more likely an economic threat against either the firm or government is to be carried out on the equilibrium path (see Section 3.4), the more the final goods producer will structure its activities in anticipation of operating in an economic environment in which the threat is in effect.

To make analysis simple and intuitive, we study how the final goods producer prepares if it expects to be held to its outside option (e.g., if the threat were carried out).

Threats Not to Sell. Suppose that the hegemon makes an economic threat to impose tarrifs or export controls on certain goods, so that the final goods producer of country n will be able to purchase these goods (or will have to purchase them at a premium).

Consider first the limiting case of a complete export ban applied to every good outside of country n. In other words, the hegemon's threat is to place country n into international autarky. The outside option of the final goods producer is therefore operating in autarky. Following the prior subsection, the final goods producer begins producing every intermediate good and its expenditure shares become those in equation 21. The firm's response is intuitive: rather than fully specializing, the prospect of the economic threat leads the firm to shift entirely to producing at home, anticipating being unable to trade.

What if the economic threat was less severe than autarky? Consider the case in which the hegemon is able to coordinate an export control on goods $j \in \mathcal{J}_n$, so that the final goods producer of n cannot purchase these goods abroad. As a result, the final goods producer anticipates being unable to purchase these goods, and so to bolster its outside option has to begin producing them at home. We can write the final goods producer's outside option when the export ban is carried out, given its ex-ante stage production $\overline{x}_n$, as

$$V_n(\underline{\theta}_n) = \max_{x_n} p_n^f f_n(x_n) - \sum_i p_i x_{ni} + \sum_i [p_i - A_{ni}^{-1} w_n] \overline{x}_{ni} \quad s.t. \quad x_{ni} \leq \overline{x}_{ni} \;\; \forall i \in \mathcal{J}_n.$$

The constraint on the outside option, $x_{ni} \leq \overline{x}_{ni}$, reflects the export ban of goods $i \in \mathcal{J}_n$, that is the final goods producer can only use up to the quantity it produces for itself. There are a few important observations from the structure of this outside option that inform which intermediate inputs $\overline{x}_{ni}$ the final goods producer would want to produce. First, the final goods producer will only produce its most specialized good, n, and goods that are subject to the economic threat, $i \in \mathcal{J}_n$. Intuitively, for any good it can still trade for, the final goods producer is better off producing good n to sell to purchase these goods. Thus the final goods producer only shifts to home production for those goods involved in the economic threat, a form of partial shift towards autarky.

In addition to shifting the final goods producer towards producing for itself those intermediates involved in the threat, the economic threat changes the good usage and patterns of trade among the remaining relationships. In particular, goods $i \in \mathcal{J}_n$ now become relatively expensive to use because they must be produced rather than obtained through the more efficient sell-n-to-buy-j strategy. That is, rather than using a unit of labor to produce A_{nn} units of good n that is then

sold to purchase $\frac{p_n A_{nn}}{p_j}$ units of good j, the final goods producer instead has to use that same unit of labor to directly produce $A_{nj} \leq \frac{p_n A_{nn}}{p_j}$ units of good j (where the inequality comes from specialization as above). Since these goods have become more expensive to employ in production, this encourages the final goods producer to shift its intermediate goods away from these goods, that keep Ω_{ni} lower than what it would have purchased under free trade. Since expenditure shares on these goods then lower, correspondingly expenditure shares on traded intermediate goods that are not cut off on average rise. This is reminiscent of "friendshoring" behavior.

Threats Not to Buy. Because in this section country n potentially produces multiple inputs, a threat not to buy can now apply (potentially to different extents) to multiple goods. We focus on an instructive case: the threat not to buy affects all goods' prices in the same proportion, that is the sale price for country n of intermediate good i is χp_i for $\chi < 1$.[41]

At first pass, one might conjecture that the final goods producer should continue fully specializing in production of intermediate input n: full specialization continues to maximize economic wealth for trade and the producer can purchase any good. However, this conjecture is incorrect. To understand why, return to the limiting case in which the hegemon can push the country into de-facto autarky, here achieved by coordinating $\chi = 0$ so that the final goods producer cannot find any international buyer for its intermediate goods. Since the country cannot find any international buyer, it cannot engage in international trade, and therefore must rely entirely on home production. This motivates the final goods producer back into preparing itself by producing as-if it were going to operate in autarky, much akin to a complete export ban.

For less extreme values of χ, the threat not to buy also motivates the final goods producer to shift towards producing a broader set of intermediate goods for itself. Let $\mathcal{E} = \{i \mid x_{ni} < \overline{x}_{ni}\}$ denote the (endogenous) set of intermediate goods that the final goods producer exports, and its complement the set that it imports. Given the buy threat, we can write the outside option of the final goods producer, given its production of intermediate input i, as

$$V_n(\underline{\theta}_n) = \max_{x_n} p_n^f f_n(x_n) + \sum_{i \in \mathcal{E}} \chi p_i (\overline{x}_{ni} - x_{ni}) - \sum_{i \notin \mathcal{E}} p_i (x_{ni} - \overline{x}_{ni}) - \sum_i A_{ni}^{-1} w_n \overline{x}_{ni}. \tag{22}$$

The first two terms are the final goods producers revenues from final goods sales and exports of intermediates. The second two terms are the costs of imports and of hiring labor to produce intermediate goods.

Equation 22 sheds light on the incentives of the final goods producer to begin producing intermediate goods apart from n. In particular, if the final goods producer is looking to bolster its outside option, then when choosing intermediate goods production ex-ante it could hire a unit of labor to produce A_{ni} units of good i. Alternatively, it could use that same unit of labor to produce A_{nn} units

[41] One can extend the setup to allow for different buy threats on different goods, for example, by making χ_i be good-specific.

of good n, and sell this output to purchase $\frac{\chi p_n A_{nn}}{p_i}$ units of good i. Thus the final goods producer would have an incentive to start producing intermediate good i for itself if $\chi < \frac{p_i A_{ni}}{p_n A_{nn}}$. As the buy threat becomes more and more powerful, that is $1-\chi$ rises, the final goods producer is incentivized to producer a larger set of intermediate goods. This generates a different pattern of changes in ex-ante production and ex-post trade than under a sell threat. Under a sell threat, the final goods producer has an incentive to produce the goods that would be cut off for itself, and then to increase its trade for the goods that are not cut off. In contrast for a buy threat, the final goods producer begins by producing the intermediate goods in which it has the greatest comparative advantage, and then expands towards intermediate goods in which it has greater comparative disadvantages in only as the buy threat becomes more severe. As a result, the intermediate goods that the final goods producer continues to trade for are those which it is the least efficient at producing. This means the price of these least-efficient traded goods is inflated by the full magnitude of the buy threat, $1/\chi$, whereas the implicit price increase for goods that it produces at home is only $1/\overline{\chi}_i$ for $\overline{\chi}_i = \frac{p_i A_{ni}}{p_n A_{nn}} > \chi$. Notably, thinking back to the expenditure shares of equation 3, this means that the final goods producer tends to shift expenditures *away* from the goods it continues to trade for, since these goods are now those that are relatively more expensive to buy. In this sense the final goods producer actually tends to shift towards autarky both by producing more at home and also by reducing expenditure shares on the goods it continues to trade.

Foreign Aid and Positive versus Negative Threats. To illustrate how positive economic threats can have much different implications for the incentives of the final goods producer to alter its production and trade patterns, consider the case of threats to suspend foreign aid. When the economic threat promises a government positive foreign aid $T > 0$ for acceptance and no foreign aid $T = 0$ for rejection, the outside option of country n's final goods producer is to operate in an environment without foreign aid, akin (holding fixed the equilibrium) to operating in a world without economic threats. As such, full specialization remains optimal. As a result, the threat to suspend foreign aid does not switch country n away from full specialization. Intuitively, the final goods producer still maximizes its profits from intermediate goods production, achieved by full specialization.

This observation in the context of foreign aid underscores a more general difference between positive and negative threats. As discussed in Section 3, under a positive threat the hegemon offers rewards at the inside option, while under a negative threat the hegemon threatens consequences at the outside option. The final goods producer, facing a negative threat, anticipates its activities being disrupted at the outside option and plans accordingly. On the other hand, given a positive threat, a firm anticipates "business as usual" if it were to operate at the outside option, with simply no positive benefit from the hegemon being received. This preservation of the outside option as "normal relationships" (holding fixed the equilibrium) puts the outside option back into the world of "free trade and specialization" and motivates the final goods producer to continue with its strategy

of full specialization. This simple observation highlights that economic coercion formulated through positive threats may be less prone to generating shifts in economic activities by firms.

However, this does imply that economic activities might shift by less than one would have expected in response to a positive threat. For example, consider foreign aid provision that instead took the form of a subsidy on purchases of the hegemon's goods, feature that can be part of an aid package. In a world in which the final goods producer has decreasing returns in production of intermediates and so does not fully specialize, the hegemon's subsidy would, all else equal, encourage the final goods producer to shift towards producing less of the now-subsidized goods the hegemon is selling, yielding a change in production and trade patterns. However, a final goods producer preparing for its outside option would instead engage in intermediate goods production as if the subsidy were not to go into effect.

5 Open Questions and Research Avenues

Much remains to be done in this broad research area and further work seems to us essential if we are to avoid the misuse of these instruments of policy with potentially catastrophic outcomes for the world economy. In this Macro Annual, we set out to map the topic for economists and also sketch a number of building blocks. Each of the blocks can in turn be fully developed in separate papers, and indeed this process is already underway across the literature. In this final section, we focus on open areas that are important but a little further afield from the current literature.

Multiple Hegemons and the Political Economy of Hegemony. Focusing first on applied theory, there are two broad areas that need more modeling. The first is the presence of multiple hegemons, a form of multi-polarity, and the endogenous emergence of hegemons. The second, is the political economy of how hegemons exert power and what political processes sustain this power exertion.

On the first element, much of the existing literature takes as given the presence of one hegemon, but reality often features multiple large countries exerting power. Even historical periods, like the 1990s post the Cold War, that seem to be dominated by a single power, the United States, often feature other countries (like China) that, although not current hegemons, might be building their reputation and state capacity to be a contender in the future. Work in this direction has started (e.g., Broner et al. (2024) and Pflueger and Yared (2024)), but much remains to be mapped out. Broner et al. (2024) put forward two important building blocks. From a theoretical perspective they build a model of poles of attraction, in which there is a critical threshold in terms of economic size at which an up-and-coming hegemon starts to attract (in a self-reinforcing loop) other countries in its sphere of influence and away from an incumbent hegemon. From an empirical perspective, they provide an extensive historical dataset of economic and political alliances (treaties) that the literature could build on to measure spheres of influence dynamics over modern history.

The literature could find inspiration and further building blocks either in the papers focusing on state capacity for military hegemony (e.g. Gennaioli and Voth (2015)) or in those papers that have focused on hegemonic competition in the narrower sense of reserve assets and financial services provisions (e.g. Farhi and Maggiori (2018); Farhi and Tirole (2024)).[42]

The framework of CMS(a,b) could be further developed with multiple potential hegemons competing for pre-eminence.[43] Competing hegemons might offer contracts, a collection of threats, rewards, and demanded actions, to foreign entities to join their economic networks. A potential hegemon might seek to have a country join its sphere of influence for at least three distinct reasons: (i) to build its own power; (ii) to prevent a competing hegemon from building its own power; (iii) to defend itself from foreign influence. Which spheres of influence can be sustained under which starting conditions and the welfare consequences of this competition is an open and important question. This is both of historical and present relevance. For example, the world order that emerged from WWII featured two opposing blocks with little trade across blocks. Today, instead, we have two competing powers, the US and China, that operate in a highly interdependent world economy.

On the political economy side, we focused in Section 3.5 on how to embed lobbying models a la Grossman and Helpman (1994) in the target economies. We highlight here several open avenues for research. First, within the hegemonic country political economy mechanisms are important to understand what sustains or makes collapse the state capacity to exert foreign influence. For example, the US has oscillated in the last century between periods of isolationism and periods of globalism. This problem appears to be particularly rich since geoeconomic power exertion has notable distributional consequences. For example, in imposing export controls on NVIDIA chips the US government is making the stakeholders of NVIDIA bear a private cost in the interest of a national security externality that presumably benefits the entire country. There is also the risk that private interests would hijack foreign policy. In the US, some geoeconomic policies degenerated into commercial imperialism with US foreign policy interventions lobbied by private interests. For example, the 1954 CIA-backed intervention in Guatemala was closely connected to United Fruit Company business interests in the country.[44]

Ultimately, as Antràs (2025) also remarked, the literature will need deeper modeling of why hegemons want to influence the political structures and preferences of other countries. A promising avenue put forward in Antràs and Miquel (2023) is that foreign political preferences lead those governments to adopt policies that affect the efficacy of policies that the home country wants to

[42] See also Bahaj and Reis (2020), Clayton et al. (2025b), Chahrour and Valchev (2022), Clayton et al. (2024a), Coppola et al. (2023).

[43] CMS(a) provides an initial sketch of these forces in the Online Appendix.

[44] On commercial imperialism see Berger et al. (2013). On the commingling of private interests and US foreign policy, see Kinzer (2013) on the influence of the Dulles brothers as Secretary of State and head of the CIA in US foreign commercial and covert operations. These joint interests became so obvious as to surface in popular culture: the painting "La Gloriosa Victoria" by Mexican artist Diego Rivera depicts the Dulles brothers and President Eisenhower orchestrating the Guatemala coup with money and the bananas from United Fruit Company.

implement. A typical example is a home country that would like to tax its multinational enterprises. That policy will be both more distortive and ineffective if other countries do not adopt similarly high tax rates. Hence, the home government wishes to influence foreign countries' political processes to install parties in power that have a similar preference for taxing multinationals. This logic seems fruitful for applications to coalition building for geoeconomic power.

Mapping Interdependence Using Micro Data and Causal Evidence on the Effects of Threats. A deeper understanding of the facts, let alone empirical evaluation of policies, is seriously hindered by a lack of detailed data on linkages within and between countries. These linkages can take many forms such as financial (equity or debt investments), goods (trade and value chains), services (often delivered digitally worldwide), or technology (e.g. tech transfers and shared R&D). Some of these linkages involve private entities, while others are among governments or a mix of the two. In the government sphere, linkages such as the provision of aid, state-contingent macro support (swap lines and lender of last resort), and military support are clearly of first order importance. The modeling blocks developed above make it clear that geoeconomic policy combines these linkages, sometimes from activities that appear far afield from each other, to exert pressure. A basic empirical need, therefore, is to be able to analyze many of these linkages jointly.

Much is moving in the right direction in this quest for a more complete mapping of the world's interconnectedness. In the official investment and lending space, both at concessional and at market rates, the work of Aid Data on China stands out in its breadth and detail. A number of recent papers have drawn on this data to document how Chinese foreign investment has impacted other economies as well as China itself (Horn et al. (2021), Gelpern et al. (2022), Horn et al. (2023), and Dreher et al. (2022)). These papers crucially shed light on how China lends around the world, especially to low income countries, and how economic and political objectives are intertwined in this effort. On portfolio investments and global securities issuance, the Global Capital Allocation Project has provided a mapping of capital allocations from investors to ultimate parent companies. For geoeconomics, tax havens and financial centers are especially relevant as governments and state owned enterprises increasingly use these opaque jurisdictions as intermediate layers of investment that obscure the underlying linkages. For example, Chinese firms have developed a prominent presence in tax havens such as the Cayman Islands and the British Virgin Islands, and Chinese savings are in part allocated globally from vehicles in western European financial centers (Coppola et al. (2021); Clayton et al. (2023a); Beck et al. (2023)). Foreign Direct Investment (FDI) remains a difficult area to make progress in due to the opacity of intra-firm transactions (Damgaard et al. (2024)). Currently available data often relies on public announcements of greenfield FDI, but it remains an ongoing struggle to know whether it is representative of overall FDI and correctly reported (Aiyar et al. (2024); Gopinath et al. (2024)).[45]

On the trade side, bilateral datasets such as BACI provided by CEPII and BaTIS, as well

[45]For example, many announcements are just measured by counting projects or use valuations imputed by the data provider (e.g. FDI Markets or ORBIS cross-border FDI datasets).

as world input output tables from the OECD, have advanced the measurement of bilateral trade flows at the sector level. Measuring services remains an ongoing challenge especially as they are increasingly provided remotely via online platforms. Access to these online platforms and the data that they accumulate has been at the focus of recent geoeconomic policy tensions (for example, China introduced new Regulations on Network Data Security Management, effective in January 2025). Much recent effort is still ongoing to further disaggregate trade flows to have an accurate rendition of global value chains. This level of detail is especially relevant if non-linearity in the aggregate production function arises from bottlenecks in very specific parts of the value chain that would be lost in a naive aggregation at the sector level (Baqaee and Farhi (2019); Elliott et al. (2022)).[46] For example, the specific importance of ASML machinery in the supply chain for chips production would be lost when aggregating naively to bilateral flows at a "tech" sector level. Crosignani et al. (2024) interact supply chain data and sanctions list to study the effect of sanctions in the semiconductor industry. Production as well as firm level variables have become more and more available thanks to efforts on producing nationally representative historical datasets based on ORBIS (Kalemli-Ozcan et al. (2015)). Firm and product level information from customs trade data, e.g. from Panjiva, can be combined to assess the impact of changes in global value chain on economic activity (e.g. Alfaro and Chor (2023); Alfaro et al. (2024)). On means of transport, Fernández-Villaverde et al. (2025) use the Automatic Identification System data that tracks ships navigation worldwide to identify the oil tanker shadow fleet used to evade Western sanctions restricting oil transport from Iran, Syria, North Korea, Venezuela, and Russia.

Ultimately, the variation in these micro datasets will have to be used to provide credible causal evidence for geoeconomic policies. The golden question in this literature is whether threats or the realization of the threatened actions induce changes in the target behavior. If they do, then the question is whether the models are predicting the type, direction, and magnitude of the response correctly. There are two obvious challenges in this process. The first is that economic coercion is hardly observable in traditional data. For example, a powerful threat might systematically induce the desired changes in the targets' behavior and therefore the threatened actions are not carried out in equilibrium. Second, threats are endogenous and without a credible identification strategy causal statements on how they affect the target behavior cannot be made. Most obviously, a cursory look at sanctions might erroneously conclude that sanctions cause military aggression, but researchers clearly worry about reverse causality.

In measuring threats, Clayton et al. (2025a) leverage recent advances in Large Language Models (LLMs) and the availability of large text corpora to systematically extract information about firms and governments being threatened with actions akin to those in Table 1. This approach rests on the notion that threats that change the behavior of governments and firms are often written or talked about in the general media, the specialized press, analysts writing research on macro or

[46]For example, a series of papers use Baqaee and Farhi (2019) to evaluate the economic consequences of sanctions (Bachmann et al. (2022); Hausmann et al. (2024)).

firm specific, or by the targets themselves explaining to their citizens or stakeholders the change in behavior. It builds on pioneering work in natural language processing (NLP) using dictionary methods that measured economic policy uncertainty (Baker et al. (2016)), firm level political risk (Hassan et al. (2024)), and geopolitical uncertainty (Caldara and Iacoviello (2022)).

Quantitative Models for Policy Counterfactuals. Ultimately, if this literature is to be useful in the implementation of policy, it should be able to offer quantitative guidance on policy counterfactuals. The existing models have started to map out the theoretical mechanisms and, in doing so, are laying the ground for future quantitative investigations. It seems likely that tools from quantitative macro, trade, and industrial organization will be fruitful in this endeavor. Quantitative models of trade can be used to estimate the costs of shutting down some economic relationships, a version of the cost of autarky as in Arkolakis et al. (2012), as well as potential losses from armed conflict (Martin et al. (2008, 2012); Thoenig (2023)). For example, Becko and O'Connor (2024) and Kooi (2024) quantify in a trade framework the importance of different sectors in producing goods that could be cut off in a conflict. A promising avenue is to mix static models that have a structural gravity structure with models that have macro dynamics (Kleinman et al. (2024, 2023)). These models can leverage the empirical richness of gravity structures (Head and Mayer (2014); Conte et al. (2022)) while accounting for systematic uncertainty and macro dynamics.

We think that one important avenue will be to think carefully about the repeated game dynamics of policy decisions in these quantitative settings. This is normally not at the core of analysis carried out in quantitative open economy macro models. However, in the area of geoeconomics the core focus is on large strategic players, like hegemonic countries, who attempt to manipulate the world equilibrium in their favor. Other countries might be competitors, as in other (potential) hegemonic powers, or smaller economies trying to shape their economic policy in the face of hegemonic competition. In this environment, a policy choice, e.g. a decision to make a particular threat, must be evaluated thinking carefully about its credibility, its future effects on the game, and the strategic reactions of other countries. Otherwise, we fear, short-run policies that wield a potentially large amount of power but quickly dissipate it in the future would appear unduly effective. Tools of repeated games (e.g. Abreu et al. (1990)) and sustainable plans (Chari and Kehoe (1990)) can be embedded in macro models with Markovian dynamics to discipline the quantitative predictions. In analyzing the dynamics of geoeconomic policy, theoretical and quantitative analysis could also incorporate non-Markovian strategies. The literature can build on the analysis of non-stationary strategies that aim to sustain better equilibria (Ray (2002), Acemoglu et al. (2008)) in order to consider optimal dynamic design of geoeconomic policies. For example, dynamically designed economic threats can employ promises of future rewards and punishments to incentivize behavior today, yielding a trade-off in when and how to project power.

6 Conclusions

We have discussed different views of economic power in the economics and political science literature. A common element of geoeconomic power is the threats, either positive or negative, that hegemon countries make to induce compliance by the targeted entities. We have shown how to model many of the threats that are common in practice. The modeling reveals what channels these threats rely on and thus both their potential effectiveness and what counter-measures might dissipate their power. Much more work is needed in this literature, and we proposed directions for this future work.

References

Dilip Abreu, David Pearce, and Ennio Stacchetti. Toward a theory of discounted repeated games with imperfect monitoring. *Econometrica: Journal of the Econometric Society*, pages 1041–1063, 1990.

D. Acemoglu and S. Johnson. *Power and Progress: Our Thousand-Year Struggle Over Technology and Prosperity*. PublicAffairs, 2023. ISBN 9781541702554. URL https://books.google.com/books?id=BV2HEAAAQBAJ.

Daron Acemoglu, Michael Golosov, and Aleh Tsyvinski. Political economy of mechanisms. *Econometrica*, 76(3):619–641, 2008.

Daron Acemoglu, Mikhail Golosov, Aleh Tsyvinski, and Pierre Yared. A dynamic theory of resource wars. *The Quarterly Journal of Economics*, 127(1):283–331, 01 2012. ISSN 0033-5533. doi: 10.1093/qje/qjr048. URL https://doi.org/10.1093/qje/qjr048.

Jeremy Adelman. *Worldly philosopher: the odyssey of Albert O. Hirschman*. Princeton University Press, 2014.

Shekhar Aiyar, Andrea Presbitero, and Michele Ruta. *Geoeconomic Fragmentation the Economic Risks from a Fractured World Economy*. Centre for Economic Policy Research, 2023.

Shekhar Aiyar, Davide Malacrino, and Andrea F Presbitero. Investing in friends: The role of geopolitical alignment in fdi flows. *European Journal of Political Economy*, page 102508, 2024.

M. Alacevich. *Albert O. Hirschman: An Intellectual Biography*. Columbia University Press, 2021.

Maxim Alekseev and Xinyue Lin. Trade policy in the shadow of conflict: the case of dual-use goods.". 2024.

Laura Alfaro and Davin Chor. Global supply chains: The looming "great reallocation". Technical report, National Bureau of Economic Research, 2023.

Laura Alfaro, Mariya Brussevich, Camelia Minoiu, and Andrea Presbitero. Bank financing of global supply chains. *Available at SSRN 4840501*, 2024.

Pol Antràs. Fbba lecture 2024: The uncharted waters of international trade. *Journal of the European Economic Association*, 23(1):1–51, 2025.

Pol Antràs and Gerard Padró I Miquel. Exporting ideology: The right and left of foreign influence. Technical report, National Bureau of Economic Research, 2023.

Costas Arkolakis, Arnaud Costinot, and Andrés Rodríguez-Clare. New trade models, same old gains? *American Economic Review*, 102(1):94–130, 2012.

Robert J. Aumann and Michael Maschler. *Repeated Games with Incomplete Information*. MIT Press, 1995.

Ruediger Bachmann, David Baqaee, Christian Bayer, Moritz Kuhn, Andreas Löschel, Benjamin Moll, Andreas Peichl, Karen Pittel, and Moritz Schularick. What if? the economic effects for germany of a stop of energy imports from russia. Technical report, ECONtribute Policy Brief, 2022.

Peter Bachrach and Morton S. Baratz. Two faces of power. *The American Political Science Review*, 56(4):947–952, 1962.

Saleem Bahaj and Ricardo Reis. Jumpstarting an international currency. 2020.

Scott R Baker, Nicholas Bloom, and Steven J Davis. Measuring economic policy uncertainty. *The quarterly journal of economics*, 131(4):1593–1636, 2016.

David A Baldwin. *Economic Statecraft*. Princeton University Press, 1985.

Sandeep Baliga and Tomas Sjöström. Arms races and negotiations. *The Review of Economic Studies*, 71(2):351–369, 04 2004. ISSN 0034-6527. doi: 10.1111/0034-6527.00287. URL https://doi.org/10.1111/0034-6527.00287.

David Rezza Baqaee and Emmanuel Farhi. The Macroeconomic Impact of Microeconomic Shocks: Beyond Hulten's Theorem. *Econometrica*, 87(4):1155–1203, 2019. ISSN 0012-9682. doi: 10.3982/ecta15202.

Sarah Bauerle Danzman and Sophie Meunier. Mapping the characteristics of foreign investment screening mechanisms: The new prism dataset. *International Studies Quarterly*, 67(2), 2023.

Roland Beck, Antonio Coppola, Angus Lewis, Matteo Maggiori, Martin Schmitz, and Jesse Schreger. The geography of capital allocation in the euro area. *Working Paper*, 2023.

John Sturm Becko and Dangiel G. O'Connor. Strategic (dis)integration. 2024.

Daniel Berger, William Easterly, Nathan Nunn, and Shanker Satyanath. Commercial imperialism? political influence and trade during the cold war. *American Economic Review*, 103(2):863–896, 2013.

B. Douglas Bernheim and Michael D. Whinston. Common agency. *Econometrica*, 54(4):923–942, 1986.

B Douglas Bernheim and Michael D Whinston. Multimarket contact and collusive behavior. *The RAND Journal of Economics*, pages 1–26, 1990.

Javier Bianchi and César Sosa-Padilla. International sanctions and dollar dominance. 2024.

Saki Bigio and Jennifer La'O. Distortions in production networks. *The Quarterly Journal of Economics*, 135(4):2187–2253, 2020.

Robert D Blackwill and Jennifer M Harris. *War by other means: Geoeconomics and statecraft*. Harvard University Press, 2016.

Matilde Bombardini and Francesco Trebbi. Empirical models of lobbying. *Annual Review of Economics*, 12:391–413, 2020.

Barthélémy Bonadio, Zhen Huo, Elliot Kang, Andrei A. Levchenko, Nitya Pandalai-Nayar, Hiroshi Toma, and Petia Topalova. Playing with blocs: Quantifying decoupling. 2024.

Louis D. Brandeis. *Other People's Money and How the Bankers Use It*. Small, Maynard & Company, Boston, 1914.

Fernando Broner, Alberto Martin, Josefin Meyer, and Christoph Trebesch. Hegemonic globalization. 2024.

Fernando Broner, Alberto Martin, Josefin Meyer, Christoph Trebesch, and Jiaxian Zhou Wu. Hegemony and international alignment. 2025.

James M. Buchanan. An economic theory of clubs. *Economica*, 32(125):1–14, 1965. ISSN 00130427, 14680335. URL http://www.jstor.org/stable/2552442.

Jeremy Bulow and Kenneth Rogoff. A constant recontracting model of sovereign debt. *Journal of political Economy*, 97(1):155–178, 1989.

Ricardo J Caballero and Alp Simsek. A model of fickle capital flows and retrenchment. *Journal of Political Economy*, 128(6):2288–2328, 2020.

Dario Caldara and Matteo Iacoviello. Measuring geopolitical risk. *American Economic Review*, 112 (4):1194–1225, 2022.

Steven Callander, Dana Foarta, and Takuo Sugaya. Market competition and political influence: An

integrated approach. *Econometrica*, 90(6):2723–2753, 2022.

Oguzhan Celebi and Elias Papaioannou. International unions and integration. 2024.

Ryan Chahrour and Rosen Valchev. Trade finance and the durability of the dollar. *The Review of Economic Studies*, 89(4):1873–1910, 2022.

Varadarajan V Chari and Patrick J Kehoe. Sustainable plans. *Journal of political economy*, 98(4): 783–802, 1990.

Sylvain Chassang and Gerard Padró I Miquel. Conflict and deterrence under strategic risk*. *The Quarterly Journal of Economics*, 125(4):1821–1858, 11 2010. ISSN 0033-5533. doi: 10.1162/qjec.2010.125.4.1821. URL https://doi.org/10.1162/qjec.2010.125.4.1821.

Christopher Clayton and Andreas Schaab. Multinational banks and financial stability. *The Quarterly Journal of Economics*, 137(3):1681–1736, 2022.

Christopher Clayton, Antonio Coppola, Amanda Dos Santos, Matteo Maggiori, and Jesse Schreger. China in tax havens. *AEA Papers and Proceedings*, 113:114–19, 2023a.

Christopher Clayton, Matteo Maggiori, and Jesse Schreger. A framework for geoeconomics. Working Paper 31852, National Bureau of Economic Research, November 2023b. URL http://www.nber.org/papers/w31852.

Christopher Clayton, Amanda Dos Santos, Matteo Maggiori, and Jesse Schreger. International currency competition. *Available at SSRN 5067555*, 2024a.

Christopher Clayton, Matteo Maggiori, and Jesse Schreger. A Theory of Economic Coercion and Fragmentation. 2024b.

Christopher Clayton, Antonio Coppola, Matteo Maggiori, and Jesse Schreger. Chokepoints: Identifying economic pressure. Technical report, 2025a.

Christopher Clayton, Amanda Dos Santos, Matteo Maggiori, and Jesse Schreger. Internationalizing like china. *American Economic Review*, 2025b.

Christopher Clayton, Matteo Maggiori, and Jesse Schreger. The Political Economy of Geoeconomic Power. 2025c.

Benjamin Cohen. *Organizing The Worlds Money*. Basic Books, 1977.

Benjamin Cohen. *Currency power: Understanding monetary rivalry*. Princeton University Press, 2015.

Harold L. Cole and Patrick J. Kehoe. Models of sovereign debt: Partial versus general reputations. *International Economic Review*, 39(1):55–70, 1998.

Maddalena Conte, Pierre Cotterlaz, Thierry Mayer, et al. The cepii gravity database. 2022.

Antonio Coppola, Matteo Maggiori, Brent Neiman, and Jesse Schreger. Redrawing the map of global capital flows: The role of cross-border financing and tax havens. *The Quarterly Journal of Economics*, 136(3):1499–1556, 2021.

Antonio Coppola, Arvind Krishnamurthy, and Chenzi Xu. Liquidity, debt denomination, and currency dominance. Technical report, CEPR Discussion Papers, 2023.

Arnaud Costinot and Iván Werning. Lerner symmetry: A modern treatment. *American Economic Review: Insights*, 1(1):13–26, 2019.

Bo Cowgill, Andrea Prat, and Tommaso Valletti. Political power and market power. Technical report, National Bureau of Economic Research, 2024.

Matteo Crosignani, Lina Han, Marco Macchiavelli, and André F Silva. Securing technological leadership? the cost of export controls on firms. *FRB of New York Staff Report*, (1096), 2024.

Robert A Dahl. The concept of power. *Behavioral science*, 2(3):201–215, 1957.

Jannick Damgaard, Thomas Elkjaer, and Niels Johannesen. What is real and what is not in the global fdi network? *Journal of International Money and Finance*, 140:102971, 2024.

Axel Dreher, Andreas Fuchs, Bradley Parks, Austin Strange, and Michael J Tierney. *Banking on Beijing: The Aims and Impacts of China's Overseas Development Program*. Cambridge University Press, 2022.

Daniel W Drezner. The hidden hand of economic coercion. *International organization*, 57(3): 643–659, 2003.

Daniel W Drezner. Global economic sanctions. *Annual Review of Political Science*, 27, 2024.

Daniel W Drezner, Henry Farrell, and Abraham L Newman. *The uses and abuses of weaponized interdependence*. Brookings Institution Press, 2021.

Jonathan Eaton and Maxim Engers. Sanctions. *Journal of political economy*, 100:899–928, 1992.

Matthew Elliott, Benjamin Golub, and Matt V. Leduc. Supply Network Formation and Fragility. *American Economic Review*, 112(8):2701–2747, 2022. doi: 10.2139/ssrn.3525459.

Emmanuel Farhi and Matteo Maggiori. A model of the international monetary system. *The Quarterly Journal of Economics*, 133(1):295–355, 2018.

Emmanuel Farhi and Jean Tirole. Too domestic to fail liquidity provision and national champions. *Review of Economic Studies*, page rdae028, 2024.

Henry Farrell and Abraham Newman. *Underground Empire: How America Weaponized the World*

Economy. Henry Holt and Co., 2023.

Henry Farrell and Abraham L Newman. Weaponized interdependence: How global economic networks shape state coercion. *International Security*, 44(1):42–79, 2019.

James D. Fearon. Rationalist explanations for war. *International Organization*, 49(3):379–414, 1995.

Jesús Fernández-Villaverde, Tomohide Mineyama, and Dongho Song. Are we fragmented yet? measuring geopolitical fragmentation and its causal effects. 2024.

Jesús Fernández-Villaverde, Li Yiliang, Le Xu, and Francesco Zanetti. Charting the uncharted: The (un)intended consequences of oil sanctions and dark shipping. *working paper*, 2025.

Joel P Flynn, Antoine Levy, Jacob Moscona, and Mai Wo. Foreign political risk and technological change. *Available at SSRN 5112377*, 2025.

Jeffry A. Frieden. Invested interests: The politics of national economic policies in a world of global finance. *International Organization*, 45(4):425–451, 1991. ISSN 00208183, 15315088. URL http://www.jstor.org/stable/2706944.

Jeffry A Frieden. International investment and colonial control: A new interpretation. *International Organization*, 48(4):559–593, 1994.

Jeffry A. Frieden. *Currency Politics: The Political Economy of Exchange Rate Policy*. Princeton University Press, 2014.

Anna Gelpern, Sebastian Horn, Scott Morris, Brad Parks, and Christoph Trebesch. How china lends: A rare look into 100 debt contracts with foreign governments. *Economic Policy*, 2022.

Nicola Gennaioli and Hans-Joachim Voth. State capacity and military conflict. *The Review of Economic Studies*, 82(4):1409–1448, 2015.

Robert Gilpin. *War and change in world politics*. Cambridge University Press, 1981.

Gita Gopinath, Pierre-Olivier Gourinchas, Andrea Presbitero, and Petia B Topalova. Changing global linkages: A new cold war? 2024.

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

Shushanik Hakobyan, Sergii Meleshchuk, and Robert Zymek. Divided we fall: Differential exposure to geopolitical fragmentation in trade. Technical report, International Monetary Fund, 2023.

Tarek A Hassan, Jesse Schreger, Markus Schwedeler, and Ahmed Tahoun. Sources and transmission of country risk. *Review of Economic Studies*, 91(4):2307–2346, 2024.

Ricardo Hausmann, Ulrich Schetter, and Muhammed A Yildirim. On the design of effective sanc-

tions: The case of bans on exports to russia. *Economic Policy*, 39(117):109–153, 2024.

Keith Head and Thierry Mayer. Gravity equations: Workhorse, toolkit, and cookbook, chapter 3 in the handbook of international economics vol. 4, eds. gita gopinath, elhanan helpman, and kenneth s. rogoff. *Elsevier Ltd., Oxford*, 131:195, 2014.

Eli F Heckscher. *Mercantilism*. London, 1935.

Albert O Hirschman. *National power and the structure of foreign trade*. University of California Press, 1945.

Albert O Hirschman. The paternity of an index. *American economic review*, 54(5), 1964.

Jack Hirshleifer. Anarchy and its breakdown. *Journal of Political Economy*, 103(1):26–52, 1995.

Sebastian Horn, Carmen M Reinhart, and Christoph Trebesch. China's overseas lending. *Journal of International Economics*, 133:103539, 2021.

Sebastian Horn, Bradley C Parks, Carmen M Reinhart, and Christoph Trebesch. China as an international lender of last resort. Technical report, National Bureau of Economic Research, 2023.

Oleg Itskhoki and Dmitry Mukhin. International sanctions and limits of lerner symmetry. In *AEA Papers and Proceedings*, volume 113, pages 33–38. American Economic Association 2014 Broadway, Suite 305, Nashville, TN 37203, 2023.

Matthew O. Jackson and Massimo Morelli. Strategic militarization, deterrence and wars. *Quarterly Journal of Political Science*, 4(4):279–313, 2009. ISSN 1554-0626. doi: 10.1561/100.00009047. URL http://dx.doi.org/10.1561/100.00009047.

Réka Juhász. Temporary protection and technology adoption: Evidence from the napoleonic blockade. *American Economic Review*, 108(11):3339–3376, 2018.

Sebnem Kalemli-Ozcan, Bent Sorensen, Carolina Villegas-Sanchez, Vadym Volosovych, and Sevcan Yesiltas. How to construct nationally representative firm level data from the orbis global database: New facts and aggregate implications. Technical report, National Bureau of Economic Research, 2015.

Paul Kennedy. *The Rise and Fall of the Great Powers: Economic Change and Military Conflict from 1500 to 2000*. New York, NY, Random House, 1987.

R.O. Keohane and J.S. Nye. *Power and Interdependence*. Little Brown, 1977.

Robert O Keohane. *After hegemony: Cooperation and discord in the world political economy*. Princeton university press, 1984.

Charles Poor Kindleberger. *The world in depression, 1929-1939*. Univ of California, 1973.

Stephen Kinzer. *The brothers: John Foster Dulles, Allen Dulles, and their secret world war*. Macmillan, 2013.

Jonathan Kirshner. *Currency and coercion: the political economy of international monetary power*. Princeton University Press, 1997a.

Jonathan Kirshner. The microfoundations of economic sanctions. *Security Studies*, 6(3):32–64, 1997b.

Benny Kleinman, Ernest Liu, Stephen J Redding, and Motohiro Yogo. Neoclassical growth in an interdependent world. Technical report, National Bureau of Economic Research, 2023.

Benny Kleinman, Ernest Liu, and Stephen Redding. International friends and enemies. *American Economic Journal: Macroeconomics*, 2024.

Michael D. König, Dominic Rohner, Mathias Thoenig, and Fabrizio Zilibotti. Networks in conflict: Theory and evidence from the great war of africa. *Econometrica*, 85(4):1093–1132, 2017. doi: https://doi.org/10.3982/ECTA13117. URL https://onlinelibrary.wiley.com/doi/abs/10.3982/ECTA13117.

Kai A Konrad. Dominance and technology war. *European Journal of Political Economy*, 81:102493, 2024.

Oliver Kooi. Power and resilience: An economic approach to national security policy. *working paper*, 2024.

Stephen D Krasner. State power and the structure of international trade. *World politics*, 28(3): 317–347, 1976.

Abba P Lerner. The symmetry between import and export taxes. *Economica*, 3(11):306–313, 1936.

Nuno Limão. Trade policy, cross-border externalities and lobbies: do linked agreements enforce more cooperative outcomes? *Journal of International Economics*, 67(1):175–199, 2005.

James M Lindsay. Trade sanctions as policy instruments: A re-examination. *International Studies Quarterly*, 30(2):153–173, 1986.

Ernest Liu and David Yang. International power. 2024.

Zongyuan Zoe Liu. *Sovereign funds: How the Communist party of China finances its global ambitions*. Harvard University Press, 2023.

Edward N Luttwak. From geopolitics to geo-economics: Logic of conflict, grammar of commerce. *The national interest*, (20):17–23, 1990.

Edward N Luttwak. The logic of war in the grammar of commerce: Geoeconomics revisited. *Transactions of the Institute of British Geographers*, 49(1):e12650, 2024.

Giovanni Maggi. Issue linkage. In *Handbook of commercial policy*, volume 1, pages 513–564. Elsevier, 2016.

Felix Mallin and James D Sidaway. Critical geoeconomics: A genealogy of writing politics, economy and space. *Transactions of the Institute of British Geographers*, 49(1):e12600, 2024.

Michael-David Mangini. The economic coercion trilemma. *Journal of Conflict Resolution*, 68(6): 1226–1251, 2024.

Philippe Martin, Thierry Mayer, and Mathias Thoenig. Make trade not war? *The Review of Economic Studies*, 75(3):865–900, 2008.

Philippe Martin, Thierry Mayer, and Mathias Thoenig. The geography of conflicts and regional trade agreements. *American Economic Journal: Macroeconomics*, 4(4):1–35, 2012.

M. Mastanduno. *Economic Containment: CoCom and the Politics of East-West Trade*. Cornell Studies in Security Affairs. Cornell University Press, 1992.

Thierry Mayer, Isabelle Mejean, and Mathias Thoenig. The fragmentation paradox : De-risking trade and global safety. *working paper*, 2025.

John McLaren. Size, sunk costs, and judge bowker's objection to free trade. *The American Economic Review*, 87(3):400–420, 1997. ISSN 00028282. URL http://www.jstor.org/stable/2951352.

Enrique G Mendoza and Vivian Z Yue. A general equilibrium model of sovereign default and business cycles. *The Quarterly Journal of Economics*, 127(2):889–946, 2012.

Cathrin Mohr and Christoph Trebesch. Geoeconomics. 2024.

T Clifton Morgan, Navin Bapat, and Yoshiharu Kobayashi. Threat and imposition of economic sanctions 1945–2005: Updating the ties dataset. *Conflict Management and Peace Science*, 31(5): 541–558, 2014.

Nicholas Mulder. *The economic weapon: The rise of sanctions as a tool of modern war*. Yale University Press, 2022.

William Nordhaus. Climate clubs: Overcoming free-riding in international climate policy. *American Economic Review*, 105(4):1339–70, April 2015.

Carla Norrlof. Dollar hegemony: A power analysis. *Review of International Political Economy*, 21 (5):1042–1070, 2014.

J.S. Nye. *Soft Power: The Means To Success In World Politics*. PublicAffairs, 2004.

Mancur Olson and Richard Zeckhauser. An economic theory of alliances. *The review of economics and statistics*, pages 266–279, 1966.

Gerard Padró I Miquel and Pierre Yared. The political economy of indirect control *. *The Quarterly Journal of Economics*, 127(2):947–1015, 04 2012. ISSN 0033-5533. doi: 10.1093/qje/qjs012. URL https://doi.org/10.1093/qje/qjs012.

Bruno Pellegrino, Enrico Spolaore, and Romain Wacziarg. Barriers to global capital allocation. Technical report, National Bureau of Economic Research, 2021.

Carolin Pflueger and Pierre Yared. Global hegemony and exorbitant privilege. 2024.

Robert Powell. Guns, butter, and anarchy. *The American Political Science Review*, 87(1):115–132, 1993. ISSN 00030554, 15375943. URL http://www.jstor.org/stable/2938960.

Robert Powell. *In the Shadow of Power: States and Strategies in International Politics*. Princeton University Press, 1999. ISBN 9780691004570. URL http://www.jstor.org/stable/j.ctv10crg4t.

Debraj Ray. The time structure of self-enforcing agreements. *Econometrica*, 70(2):547–582, 2002.

Thomas C. Schelling. *The Strategy of Conflict*. Yale University Press, 1960.

Thomas C. Schelling. *Arms and Influence*. Yale University Press, 1966. ISBN 9780300002218. URL http://www.jstor.org/stable/j.ctt5vm52s.

Stergios Skaperdas. Cooperation, conflict, and power in the absence of property rights. *The American Economic Review*, 82(4):720–739, 1992. ISSN 00028282. URL http://www.jstor.org/stable/2117341.

Benn Steil. *The Marshall Plan: Dawn of the Cold War*. Oxford University Press, 2018.

S. Strange. *States and Markets*. London: Pinter Publishers), 1988.

Mathias Thoenig. Trade policy in the shadow of war: Quantitative tools for geoeconomics. 2023.

Jacob Viner. Power versus plenty as objectives of foreign policy in the seventeenth and eighteenth centuries. *World Politics*, 1(1):1–29, 1948.

K. Waltz. *Theory of International Politics*. Addison-Wesley, Reading, MA, 1979.

Kenneth N. Waltz. *Man, the State, and War: A Theoretical Analysis*. Columbia University Press, 1959. URL http://www.jstor.org/stable/10.7312/walt12537.

Martin L Weitzman. Prices vs. quantities. *The Review of Economic Studies*, 41(4):477–491, 1974.

Luigi Zingales. Towards a political theory of the firm. *Journal of Economic Perspectives*, 31(3): 113–130, 2017.