

Hegemonic Globalization

Fernando Broner, Alberto Martin, Josefin Meyer, Christoph Trebesch*

September 19, 2024

PRELIMINARY AND INCOMPLETE

Abstract

What is the relationship between hegemonic power and globalization? We develop a theoretical framework in which countries have heterogeneous preferences over political “actions”, such as the type of government (democracy vs. autocracy), industry standards, or regulation. Trade between any two countries increases in the similarity of their actions. The presence of a “hegemon,” i.e., a large economy, prompts alignment in actions and facilitates the transition to a globalized world. In contrast, the shift to a multipolar world may cause an unraveling of globalization, which may benefit some countries and harm others. We test the theory’s main prediction on a novel dataset on the near-universe of international treaties, 1800-2020. Our “Global Treaties Database” contains 6,000 multilateral and 68,000 bilateral agreements – a unique new resource for studying international cooperation. In line with the theory, we find that hegemons drive a disproportionate share of treaty-signing, that treaty-signing is significantly correlated with international trade, and that countries that sign treaties with a hegemon trade more, not just with the hegemon, but also with other countries that are aligned with the hegemon.

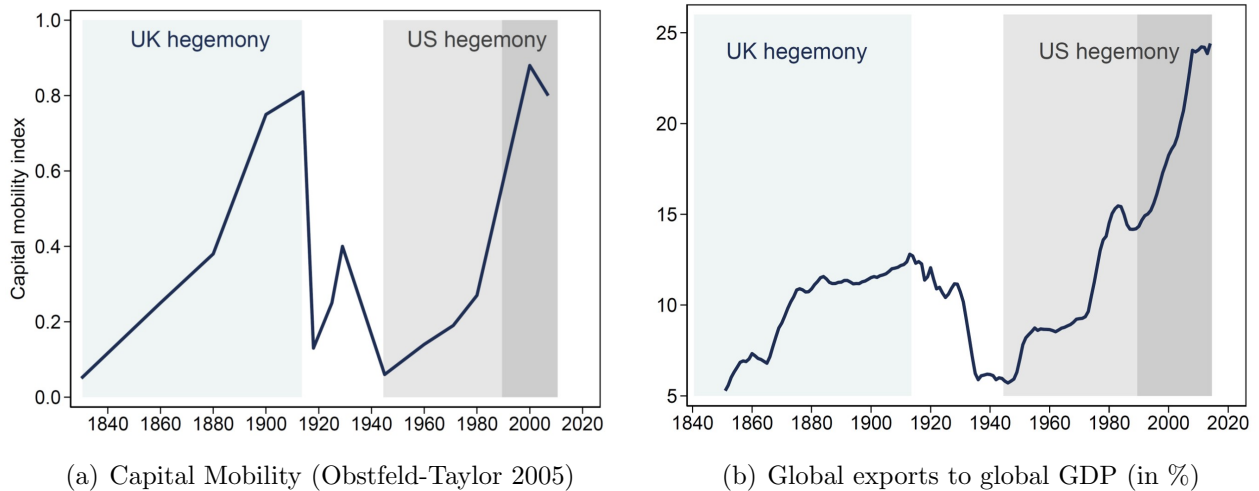
Keywords: Hegemon, globalization, trade integration, international coercion, international treaties, cooperation, multipolar world.

*Broner, Martin - CREI, UPF and BSE, Meyer - DIW Berlin, and Trebesch - Kiel Institute and Kiel University. We thank our discussants Thierry Mayer and Chenzi Xu, as well as participants at the NBER Summer Institute, at the CEPR-Kiel Conference in Geoeconomics, at the BSE Summer Forum and at the Annual Meetings of the SED. Broner and Martin acknowledge financial support from the Spanish Ministry of Economy and Competitiveness, through the Severo Ochoa Programme for Centres of Excellence in R&D (CEX2019-000915-S), from the Generalitat de Catalunya through CERCA and SGR Programme (202117-SGR-15991393). Martin acknowledges financial support from the European Union (ERC, MACROTRENDS&FINANCE, 101052964) and so does Trebesch (ERC, Great.Power.Finance, 101087838). Views and opinions are however those of the authors only and do not necessarily reflect those of the European Union of the European Research Council Executive Agency. Neither the European Union nor the granting authority can be held responsible for them. Jacob Bradaczek, Arnold Kinzel, Moritz Nigg, Alberto Pobbe, Emanuele Properzi, and Jiaxian Zhou Wu provided excellent research assistance.

1 Introduction

Recent decades have been characterized by significant globalization, i.e., the increasing trade and financial integration of world economies. Global trade, for instance, has grown from 25% of GDP in 1970 to 63% of GDP in 2022. Global external assets and liabilities have tripled between 1995 and 2015, from approximately 60% to close to 200% of global GDP. Although spectacular, this process of globalization is not wholly unprecedented: in many respects, at the end of the 19th century, developing and emerging countries were as integrated into international markets as they are today (see Figure 1). Although the first and second waves of globalization differ in many respects, they share a potentially important common factor: they both took place under the shadow of a hegemonic power. Britain was the dominant power in the late 19th century – a period known as *Pax Britannica* – and the United States in the late 20th century – a period commonly referred to as *Pax Americana*.

Figure 1: **Global trade and financial integration, 1840-2015**



We are not the first to notice a relationship between the presence of a hegemon and economic integration. In political science, at least since Kindleberger’s (1973) notion of “hegemonic stability,” it has been argued that an integrated global economic system may require a hegemon to underpin it. Gilpin (1975) and Krasner (1976) further developed Kindleberger’s ideas, stressing that the hegemon’s interest in sustaining integration was driven by self-interest and not by altruism. In particular, a hegemonic power with a large, efficient economy was bound to benefit from economic integration, and this led it to uphold such integration by using its military and political power.

Despite their appeal, these ideas remain vague and raise a number of key questions. What exactly is the relationship between hegemonic power and globalization? Is globalization more or less likely in a multipolar world? Who gains and who loses in the transition from a unipolar to a multipolar world? In this paper, we propose a novel theory to address these questions and examine it in light of a new database of 200 years of international treaty-making.

We develop a model of hegemonic power and globalization, with three central features. First, countries trade in goods and financial assets. Second, countries have heterogeneous preferences over political “actions,” such as the type of government (democracy vs. autocracy), the rule of law (including international law), industry standards and regulations, human rights records, the choice of currency, etc. Third, goods and financial trade between any two countries increases in the similarity of the actions that they adopt. In this regard, we can think of the actions outlined above as providing common regulations or standards that reduce or remove non-tariff barriers that limit trade in goods and financial assets across borders.

We study the role of hegemons in this world. Hegemons are defined by size: in a nutshell, they are attractive economic partners for other countries, and this appeal enables them to influence the behavior of others. In this regard, we follow Gunitsky (2017), who defines a hegemon as *a leading power, or a state that comprises a “pole” in the international system...The salient characteristic of a pole is that it is not merely a major power, but a leading state with the capacity to impose regimes, influence other great powers, and inspire institutional imitators...* Note that, according to this definition, there can be more than one hegemon at any point in time, something that we will return to in the empirical section.

We first analyze a model with a single hegemon, which delivers a number of key results. First, equilibrium choice of actions in the global economy – and thus gains from trade – result from the balance between heterogeneity in country preferences and the strength of complementarity in actions. In this context, the emergence of a hegemon with a large economy increases the relative strength of complementarities, prompting alignment in actions and increasing trade and financial integration. A sufficiently large hegemon can facilitate the transition from a fragmented economy, in which each country chooses its preferred action, to a globalized economy, in which all countries choose a common action that is aligned with the preferences of the hegemon. This integration increases global trade and welfare, but not everyone benefits. In particular, countries whose preferences are very different from those of the hegemon stand to lose the most. If given the choice, these countries may prefer the fragmented to the globalized world: conditional on all other countries aligning with the hegemon, however, they may find it optimal to align with the hegemon themselves.

We then turn to a multipolar world with an incumbent and a “rising” hegemon. The first key question that emerges is, does the rising hegemon prefer fragmentation or globalization? The answer depends on the size of the incumbent and on the degree of heterogeneity in preferences. The second key question is whether the rising hegemon can force the equilibrium in line with its preferences. When the rising hegemon is small, it cannot influence the actions of other countries and its preferences are immaterial: in this case, the analysis is as before. This is no longer true once the rising hegemon is large enough, however, as it may strengthen globalization or impede it by aligning with the incumbent or not. We characterize the conditions under which the transition to a multipolar leads to more globalization or more fragmentation, and show that the unraveling of globalization in the latter case reduces global welfare.

Finally, we ask whether these results are robust to the potential use of coercion. To do so, we return to the unipolar world but allow the hegemon to announce a “punishment” before other countries choose their actions. In particular, the hegemon can threaten not to trade with other countries that do not choose a specific action or that trade, directly or indirectly, with others that do not choose that specific action. When deciding whether or not to use coercion, the hegemon trades-off higher trade with some countries – those that align with the hegemon – against no trade with others – those that do not. We show that only a hegemon of intermediate size will use threats in equilibrium: intuitively, the hegemon needs to be large enough to prompt the alignment of sufficiently many countries through the use of threats, but not so large that it would attain complete alignment even without threatening. In terms of welfare, the use of threats may lead to “excessive” globalization, in the sense that it enables the hegemon to attain globalization even when it is detrimental for global welfare. Even here, though, the welfare effects of coerced globalization are distributed unevenly around the world: while countries that are closer to the hegemon benefit, countries that are farther from the hegemon suffer. In the multipolar world, coercion may help keep the rising hegemon in line while it is small, but we show that – if it prefers fragmentation to globalization – it eventually deviates regardless of the incumbents’ threats.

We focus on three key empirical implications of the theory. First, hegemons constitute an important force for globalization, fostering integration, prompting alignment in actions, and ultimately increasing trade flows. Second, alignment with a hegemon increases trade flows with the hegemon, but also with countries that are more aligned with the hegemon. Conversely, alignment with a hegemon reduces trade flows with countries that are less aligned with the hegemon.

To take these predictions to the data, we proxy alignment between any two countries with

the number of treaties that they both sign. To this end, we gather data on the near-universe of international treaties between 1800 and 2023, based on multi-national and country-specific treaty sources, e.g. the United Nations Treaty Collection. In constructing the database, we build on the vast literature on international law. Our contribution is to create the first 200-year picture on both the incidence and characteristics of treaties worldwide. The resulting database contains approximately 6,000 multilateral and 68,000 bilateral treaties. We use treaty descriptions and/or titles to categorize them into seven economic and non-economic predefined subject areas, building on Posner and Miles (2008).

The dataset offers rich new possibilities for quantifying linkages between countries in history and today. Thus far, the large literature on international relations has typically relied on either military alliances or UN voting as proxies of alignment. A main advantage of our approach is that the treaties cover the full range of policy domains and all aspects of international cooperation. Indeed, our data includes treaties on topics as diverse as technological standard setting, cultural exchange, railways, biodiversity, or bilateral taxation. This is much broader than focusing on military agreements and also conceptually very different from using UN votes. As explained by Voeten (2012), UN votes are a rather specific proxy of alignment because they capture country preferences on “global issues, on which there tends to be more agreement, rather than on bilateral relations and tensions.”¹

Our analysis reveals unique insights into the past and present of international cooperation. First, there has been a drastic decline in international treaty-making since the early 2000s, akin only to the collapse during WW1 and WW2. The rise of China and the relative decline in US dominance have gone hand in hand with a collapse in international cooperation via treaties. Second, we find that the majority of international treaties are on economic issues, such as trade, investment, transportation or taxation. This is particularly the case after WW2, when economic treaties account for 65% of the sample. Third, we find striking patterns of international (re-)alignment as captured in the number and share of treaties signed between countries. In the late 19th century, South America reorients its treaty-making away from the UK and towards the US. During the Cold War, the US gains ground across the globe and – by the 1980s – surpasses the Soviet Union as the main treaty partner even in countries previously linked closely to Moscow, e.g. in Africa. In recent decades, China has played an increasingly active role as a treaty-maker, overtaking the United States as a partner in new treaties in most countries by the 2010s.

The data generally show a close link between hegemony and treaty-making. We measure

¹As an example, Voeten (2012) highlights that more than a third of all UN votes of the past decades concern the Israel-Palestine conflict.

hegemonic power empirically by relying on the comprehensive Global Power Index (GPI) by Moyer et al. (2024). The data show that the UK is the dominant power over much of the 19th century while the US is dominant afterwards, especially post-1945. In these two eras, the UK and the US are not just the most powerful countries, but also active international treaty-makers. By the late 19th century, more than 50% of countries had closely aligned themselves with the UK via treaties. In the aftermath of WW2, the US became the main treaty partner to most countries around the globe. These findings are confirmed in a regression framework, which combines our treaty data with the GPI data. Hegemonic power is a significant predictor of global treaty-making, even after controlling for the economic and demographic size of the hegemon as well as for time trends.

In the last part of our empirical analysis, we turn to the main implications of the theory. To test for the trade-enhancing effect of (treaty) alignment and hegemony, we estimate a state-of-the-art gravity model across two centuries, thus combining long-run bilateral trade data with our newly combined treaty data.

Our long-run gravity models yield three central insights: (i) countries that sign more treaties with each other also trade more bilaterally, both when they sign economic treaties (e.g. on trade matters, taxation, labor migration, or infrastructure) and non-economic treaties (e.g. on border issues, the military, or educational exchange). The coefficient of treaty intensity between countries is large, positive, and significant; (ii) this result holds across time, especially during the "Pax Britannica" pre-WW1 and during the "Pax Americana" after WW2, but also - less pronounced - during the interwar years; (iii) countries that sign more treaties with a hegemon trade more with that hegemon, and they also trade more (less) with other countries that are closely aligned (not aligned) with the hegemon.

These results give strong empirical support for our notion of action-based hegemonic globalization, i.e. the idea that hegemons create a network of cooperation which fosters economic integration and trade worldwide, especially among countries more closely aligned with the hegemon.

Related literature: hegemony and globalization

Our work relates to an influential literature in economic history (e.g. Kindleberger 1986), political science (e.g. Gilpin 1981) and the "world system" school of sociology (e.g. Braudel 1984, Wallerstein 1989) that analyzed the relation between hegemony and financial and economic openness during the 1960s and 1970s, against the backdrop of the Cold War. Kindleberger (1973), in particular, developed the concept of "hegemonic stability" according to which an integrated global economic system requires a hegemon to underpin it. His main argument is that

the type of stability required for an integrated global economic and financial system was best provided by a hegemon. Gilpin (1975) and Krasner (1976) further developed this idea, stressing that hegemons favor integration out of self-interest and not altruism. A hegemonic power with a large, efficient economy is bound to benefit from integration, which then leads it to uphold integration by using military and political power bloc. Albeit thought-provoking, this strand of analysis has made few advances in recent decades, partly because it lacks formalization and rigorous empirical tests (Lake, 1993).

In economics, our work complements the rising interest in the roles that hegemony and dominance play in the world economy. This research has mostly been concerned with the forces that drive the emergence and persistence of a global reserve currency, in particular the dominant role of the US Dollar in trade and financial markets (Gourinchas et al., 2019, Ilzetzki et al., 2019, Farhi and Maggiori, 2018 and 2019, Maggiori et al., 2019, Gopinath et al., 2020, Mukhin 2022, Coppola et al., 2023). Recent work by has focused more specifically on “geoeconomics” and block formation, analyzing how large powers can play a crucial enforcement role to safeguard payments in international markets (e.g. Clayton et al. 2023 and 2024, Bianchi and Sosa-Padilla 2023, Camboni and Porcellacchia, 2023, Itskhoki and Mukhin 2023).

Finally, our work is also closely related to the trade literature that analyzes the drivers of bilateral trade flows, the size and drivers of border effects, and the relationship between trade and international relations. Important examples of this work include Mansfield and Bronson (1997), Estevadeordal et al. (2003), Findlay and O’Rourke (2003), Martin et al. (2008), Mitchener and Weidenmier (2008), Head et al. (2010), Ventura (2019), Gokmen et al. (2020), Kleinman et al. (2024), Neri-Laine (2023) and Thoenig (2023). Like us, some of this work emphasizes the positive correlation between “alignment” and trade. Mitchener and Weidenmier (2008), for instance, show that empires increased trade by lowering transactions costs and by establishing trade policies that promoted trade within empires. Kleinman et al. (2024) show that countries that become more economically dependent on a trade partner also realign politically towards that trade partner.

Perhaps the papers closest to ours are Alesina and Spolaore (1997, 2000) and Gancia et al. (2020, 2022), all of which analyze the endogenous formation of countries. Their work emphasizes the trade-off between the benefits of large countries, due to higher trade and economies of scale, and the costs of large countries, due to the presence of heterogeneous preferences regarding public goods. Our framework shares this tension between sustaining higher trade through actions that are costly in a world of heterogeneous preferences, but it takes the number of countries as given and it does not rely on increasing returns. Instead, we focus on the drivers

of country alignment, emphasizing the importance of complementarity in actions or policies across countries to mitigate border effects and boost the gains from trade.

The paper is organized as follows. Section 2 develops a model of hegemonic globalization. Section 3 extends the framework to allow for coercion and for a multipolar world. Sections 4 and 5 contain the empirical analysis and Section 6 concludes.

2 A model of hegemonic globalization

This section develops a model of hegemonic globalization, with three central features. First, countries trade in goods and financial assets. Second, countries have heterogeneous preferences over political actions, such as the type of government or industrial or regulatory standards. Third, goods and financial trade between any two countries increases in the similarity of the actions that they adopt. We analyze how the presence of a hegemon affects equilibrium outcomes.

2.1 Setup

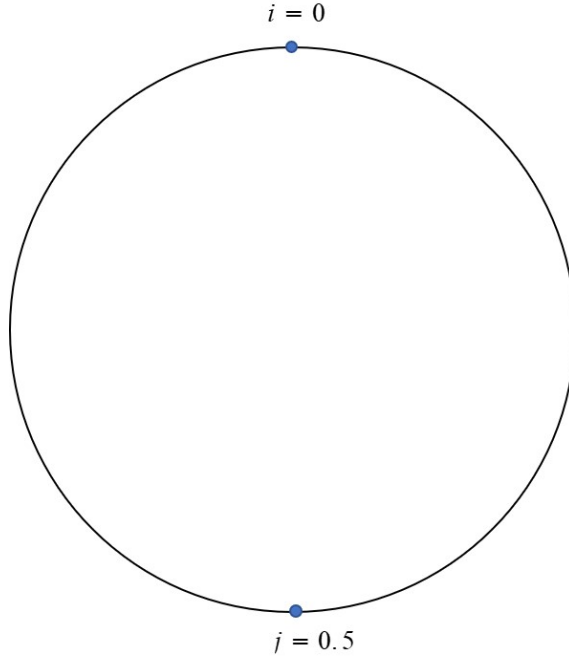
The world lasts for two periods, $t \in \{0, 1\}$ and it is composed of a set of countries located on a circle of length 1. There is a set I of “small” countries with total mass one, plus a finite set H of “large” countries. Each country is populated by a representative agent and by a benevolent government. Small countries are uniformly distributed throughout the circle and are indexed by their location, $i \in (-0.5, 0.5]$. Large countries are also indexed by their location and have positive mass. Let us denote the mass of each country $i \in H$ by $\eta_i > 0$. Let h_n denote the location of the n^{th} largest country in H .

At $t = 0$, the government of each country i adopts a political action $a_i \in (-0.5, 0.5]$. Actions have both a direct and an indirect effect. The direct effect reflects the fact that countries derive utility from taking actions consistent with their own, heterogeneous preferences. The preferred action of country i is equal to i , and utility falls with distance $d(a_i, i)$. The indirect effect is that the potential gains of trade between any two countries, i and j , is decreasing in the distance between their political actions $d(a_i, a_j)$, as explained below. Figure 2 illustrates the case of two countries, $i = 0$ and $j = 0.5$.

We allow large countries to choose their actions early.² This allows them to act strategically

²This could be motivated assuming that countries can pay a cost $c > 0$ to choose their action at an early stage. Small countries would never pay this cost since they cannot affect the actions of other countries.

Figure 2: Countries $i = 0$ and $j = 0.5$



and influence the choice of others. In case two or more large countries choose their actions early, we assume that actions are decided in order of size (i.e., larger countries decide first).

At $t = 1$, production, trade, and consumption take place. Each country i receives a per-capita endowment ω of differentiated good i .³ Trade in goods is modeled in a simple fashion by assuming a love of variety that increases in similarity of actions. Letting c_{ij} denote consumption of good j by residents of country i , the consumption aggregator of country i is given by

$$c_i = \int_{j \in I} u(c_{ij}; \bar{c}_{ij}) \cdot dj + \sum_{j \in H} u(c_{ij}; \bar{c}_{ij}) \cdot \eta_j,$$

where utility is subject to an endogenous level of “satiation.” In particular,

$$u(c_{ij}; \bar{c}_{ij}) = c_{ij} + T \cdot \min\{c_{ij}, \bar{c}_{ij}\} \quad \text{for } \bar{c}_{ij} = 1 - \beta \cdot d(a_i, a_j). \quad (1)$$

Equation 1 says that the first \bar{c}_{ij} units of good j consumed by a resident of country i have a marginal utility of $1 + T$. Beyond this satiation point, the marginal utility falls to 1. Crucially, the satiation point itself is endogenous and depends negatively on the distance $d(a_i, a_j)$ between

³For now we assume that there is no uncertainty. The model can be easily extended to include uncertainty and trade in contingent assets.

the actions adopted by countries i and j .

Utility depends on both consumption and the distance between a country's action and its political preference. The utility of a resident of country i is

$$U_i = c_i - \alpha \cdot d(a_i, i)$$

where $\alpha \cdot d(a_i, i)$ denotes disutility of choosing $a_i \neq i$. Thus, the utility of residents of country i depends on the consumption aggregator c_i and on the distance between the country's adopted and preferred actions, $d(a_i, i)$. The parameter α captures the intensity of this preference for a specific action, and thus the heterogeneity of preferences over actions across countries.

The more novel aspect of our framework is the presence of country actions a_i , which affect utility both directly and indirectly. We think of a_i as any action that affects country i 's utility directly but also its relationship with others, such as the form of government (i.e., democracy vs. autocracy), the country's position on military affairs (i.e., neutral vs. militaristic), or its membership to a specific international organization (i.e., NATO). There are two key assumptions regarding this choice of action. The first is that country i has preferences over actions, so that it derives more utility from some actions than from others: in particular, its preferred action is to set $a_i = i$, and deviations from this preferred action create a disutility. This implies that countries have heterogeneous preferences, and that we can think of countries with "similar" indices as being also alike in their preferences. The second assumption is that the gains from trade between any two countries i and j are increasing in the similarity of their actions. We can think of alignment in actions as capturing the adoption of similar regulations or standards that reduce or remove non-tariff barriers that limit trade in goods and financial assets across borders.

We can now characterize the equilibrium of the economy. Before doing so, we make three parametric assumptions that we maintain throughout the paper.

$$\text{A1. } \omega > 1 + \sum_{j \in H} \eta_j$$

$$\text{A2. } \alpha \geq \beta \cdot T$$

$$\text{A3. } \beta < 2$$

Assumption A1 implies that the endowment of each variety j is sufficiently high for all countries i to set $c_{ij} = \bar{c}_{ij}$. Assumption A2 places a lower bound on how costly it is for countries to deviate from their "optimal" action: this is useful to rule out certain forms of

multiplicity. Finally, assumption A3 guarantees that there are always positive gains from trade between two countries, no matter how large the distance between their actions is.

2.2 Equilibrium actions and gains from trade

Given the linearity of preferences, optimal consumption may be indeterminate for some relative prices. Whenever this is the case, we break the tie in favor of the consumption that minimizes trade.

We solve the equilibrium by backward induction. First, we determine optimal consumption choices $\{c_{i,j}\}$ at $t = 1$ as a function of the set of actions $\{a_i\}$, for $i, j \in I \cup H$. We then solve for optimal actions at $t = 0$.

A first observation is that, given symmetry and linearity of preferences, the relative price between any two goods in equilibrium must be equal to 1. Suppose not, so that there exist countries $i, j \in I \cup H$ such that the relative price of variety i to variety j is higher than 1. It is immediate that residents of i will optimally set c_{ij} as high as possible, selling all their endowment if necessary to increase their consumption of variety j . This cannot be an equilibrium, however, because at such a price residents of j will at most set $c_{ji} = \bar{c}_{ji}$.

Once established that all relative prices are equal to one, it follows immediately that all world residents set $c_{ij} = \bar{c}_{ij}$, for all $i \neq j$ and $i, j \in I \cup H$. Setting $c_{ij} < \bar{c}_{ij}$ cannot be optimal because it would imply that, for residents of i , the marginal utility of consuming variety j equals $1 + T$ and is thus higher than its price.

The following proposition summarizes this discussion:

Proposition 1 *Given a set of actions $\{a_i\}_{i \in I \cup H}$, equilibrium consumption equals*

$$c_{ij} = \bar{c}_{ij} = 1 - \beta \cdot d(a_i, a_j)$$

for $i, j \in I \cup H$, $i \neq j$, and

$$c_{ii} = \omega - \int_{j \in I \setminus i} \bar{c}_{ij} \cdot dj - \sum_{j \in H \setminus i} \bar{c}_{ij} \cdot \eta_j$$

for $i \in I \cup H$. The consumption aggregator of country i equals

$$c_i = \omega + \int_{j \in I} T \cdot (1 - \beta \cdot d(a_i, a_j)) \cdot dj + \sum_{j \in H} \eta_j \cdot T \cdot (1 - \beta \cdot d(a_i, a_j)) \quad (2)$$

Proposition 1 characterizes equilibrium consumption and welfare as a function of a set of actions. We can now build on it to complete the characterization of equilibrium. At $t = 0$, governments choose their respective actions. Given actions $\{a_j\}_{j \neq i}$, the per-capita utility of country i can be expressed as

$$U_i(\{a_j\}_{j \in I \cup H}) = \omega + \int_{j \in I} T \cdot (1 - \beta \cdot d(a_i, a_j)) \cdot dj + \sum_{j \in H} \eta_j \cdot T \cdot (1 - \beta \cdot d(a_i, a_j)) - \alpha \cdot d(a_i, i)$$

where we have replaced c_i with its equilibrium value in Equation 2. The trade-off faced by the government of country i is clear. On the one hand, there are gains from setting a_i close to the actions of other countries, thereby increasing the gains from trading with the rest of the world. On the other hand, doing so is costly if it entails setting a_i far from the country's own preferences as captured by i .

The previous discussion points to the presence of strategic complementarities in the choice of actions. The higher the proportion and size of countries that choose a specific action, the larger the gains of choosing that same action for other countries. This may give rise to multiple equilibria. We assume that, whenever there are multiple equilibria, actions are coordinated by a sunspot $s \in [0, 1]$ that is revealed before countries choose their actions.

We are left with a final issue: large countries may have an incentive to choose their actions early in order to influence the behavior of others. We capture this by using \bar{a}_i to denote large country i 's early choice of action, where we use the notation $\bar{a}_i = W$ if country i decides to wait and choose its action simultaneously with the small countries.⁴ We use \bar{U}_i to denote large country i 's utility at the early stage, i.e., which reflects expectations regarding other countries' subsequent choices.

Definition 1 *An equilibrium is characterized by a set of early actions by large countries $\{\bar{a}_{h_n}^*\}_{h_n \in H}$ and actions by all countries $\{a_i^*\}_{i \in I \cup H}$, such that*

$$\bar{a}_{h_n}^* = \arg \max_{\bar{a}_{h_n} \in (-0.5, 0.5] \cup W} \bar{U}_{h_n}(\bar{a}_{h_n}, \{\bar{a}_{h_m}^*\}_{m < n})$$

for all $h_n \in H$ and

$$a_i^* = \begin{cases} \bar{a}_i^* & \text{if } i \in H \text{ and } \bar{a}_i^* \neq W \\ \arg \max_{a_i} U_i(a_i, \{a_j^*\}_{j \neq i}) & \text{otherwise} \end{cases}$$

⁴Waiting may be beneficial because, in the presence of multiple equilibria, there is value in waiting to observe the sunspot s .

for all $i \in I \cup H$.

Proposition 1 allows us to characterize the equilibrium solely in terms of the set of actions. Taking this into account, we now characterize equilibria in a “unipolar” world, i.e., in which there is only one large country, and in a “multipolar” world, i.e., with more than one large country. Throughout the paper, we disregard equilibria that are unstable, in the sense that they would unravel if a pivotal country were to change its action.

2.3 Globalization and welfare in a unipolar world

We begin by assuming that the world has only one large country, indexed by $i = 0$, with size η_U . This provides a useful benchmark to think about a world with a single hegemon, which we refer to as U .

In this world, there are only two types of stable equilibria: “fragmentation”, in which each country sets its preferred action $a_i = i$, and “globalization”, in which all countries choose the preferred action of the hegemon. As the next proposition shows, sometimes both equilibria are possible. Whenever this is the case, we assume that globalization is played with probability $p \in (0, 1)$.

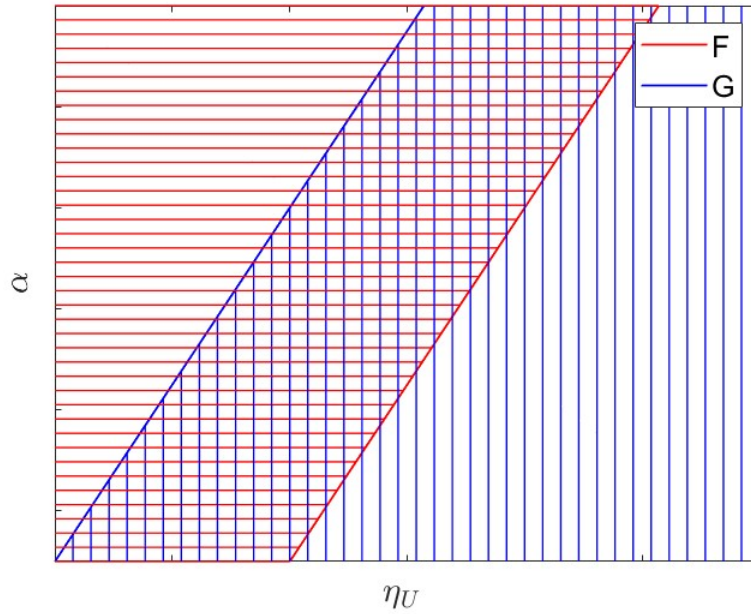
Proposition 2 *Consider a world with a single large country of size η_U indexed by $i = 0$. There exist at most two equilibria, fragmentation, in which each country $i \in I \cup H$ sets $a_i^* = i$, and globalization, in which all countries $i \in I \cup H$ set $a_i^* = 0$:*

1. *If $\eta_U < \frac{\alpha}{\beta \cdot T} - 1$, the unique equilibrium is fragmentation.*
2. *If $\eta_U \in \left[\frac{\alpha}{\beta \cdot T} - 1, \frac{\alpha}{\beta \cdot T} \right]$, there are multiple equilibria, globalization and fragmentation.*
3. *If $\eta_U > \frac{\alpha}{\beta \cdot T}$, the unique equilibrium is globalization.*

Proposition 2 is intuitive. In the presence of a hegemon, there can only be two types of equilibria. The fragmentation equilibrium exists as long as cross-country heterogeneity in preferences, as captured by α , is large relative to the gains from trade of drawing closer to the hegemon, as captured by η_U and $\beta \cdot T$. The red area in Figure 3 depicts the region of existence of fragmentation equilibrium in the (α, η_U) -space given assumptions A1-A3.

The globalization equilibrium exists instead whenever cross-country heterogeneity in preferences, as captured by α , is small relative to the gains from trade of drawing closer to *all* other

Figure 3: Fragmentation and globalization equilibria



countries, as captured by $(\eta_U + 1) \cdot \beta \cdot T$. The blue area in Figure 3 depicts the region of existence of globalization equilibrium in the (α, η_U) -space.

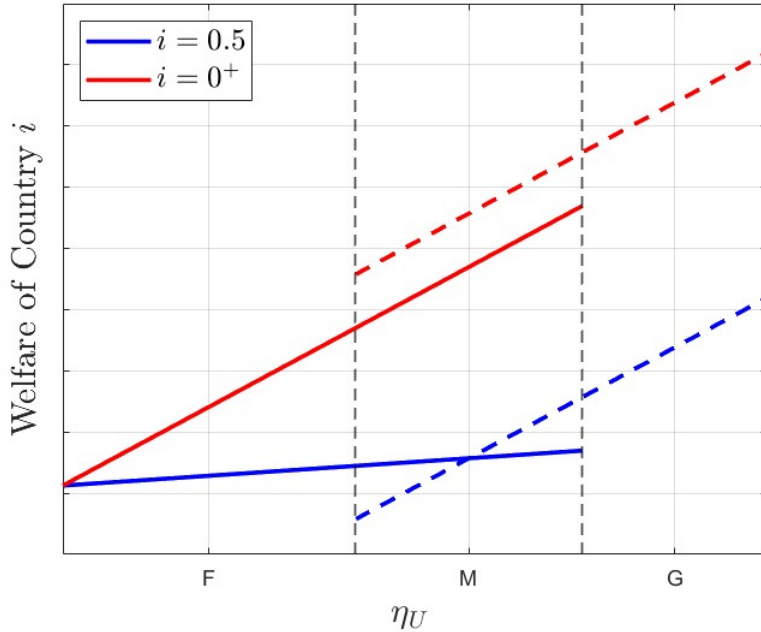
As Figure 3 shows, that the existence of the different equilibria depends crucially on η_U . When η_U is small, only the fragmentation equilibrium exists; as η_U increases, there is a region of multiplicity as the globalization equilibrium becomes possible; eventually, once η_U is large enough, the fragmentation equilibrium disappears and only the globalization equilibrium remains.

Figure 4 depicts welfare for the countries that are closest to and farthest from the hegemon as a function of η_U . There are two forces that affect welfare as η_U increases. The first is that, conditional on actions, bilateral gains of trade with the hegemon rise for all countries: this is true both in the fragmented and in the globalization equilibrium. The second effect derives from all countries aligning their actions with that of the hegemon's in the globalization equilibrium. From the perspective of any given country i , this alignment may or may not be beneficial. For countries close to the hegemon, $i \approx 0$, alignment increases gains of trade with all other countries but it entails no disutility in terms of the action that is chosen. For countries far from the hegemon, $i \approx 0.5$, alignment also increases gains from trade with all other countries but it entails a disutility in terms of the action that is chosen. This is why, initially, country $i = 0.5$ suffers a welfare loss when the globalization equilibrium is played: this is nonetheless

an equilibrium because country $i = 0.5$ finds it optimal to align with the hegemon if all other countries do so.

The previous discussion implies that the net effect of globalization is always positive for countries close to the hegemon. For countries far from the hegemon, however, the net effect of globalization may be negative as the higher gains of trade come at the expense of choosing an unattractive action: this is why, as shown in Figure 4, the welfare of country $i \approx 0.5$ is not monotonic in η_U and may decline once the globalization equilibrium exists.

Figure 4: Country welfare as a function of hegemon size

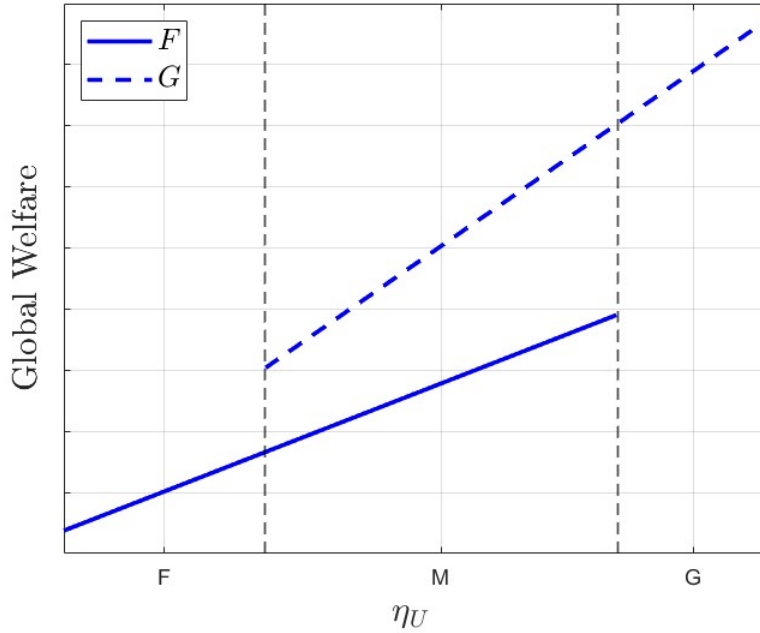


Even though not all countries benefit when globalization becomes possible, global welfare necessarily increases. This is illustrated in Figure 5, which depicts global welfare as a function of η_U . Why is fragmentation possible even though globalization yields higher global welfare? The reason is that there is complementarity in actions, which means that countries fail to internalize the full benefits of their alignment. This implies, as the following Lemma shows, that there is too little globalization from a global welfare point of view.

Lemma 1 *If $\eta_U \in \left(\frac{1}{2} \cdot \left(\frac{\alpha}{\beta \cdot T} - 1\right), \frac{\alpha}{\beta \cdot T}\right]$, fragmentation is possible, and for $\eta_U < \frac{\alpha}{\beta \cdot T} - 1$ actually unique, even though globalization yields higher global welfare.*

This section delivers a number of key results. First, equilibrium choice of actions in the global economy – and thus gains from trade – result from the balance between heterogeneity in country

Figure 5: Global welfare as a function of hegemon size



preferences and the strength of complementarity in actions. In this context, the emergence of a hegemon with a large economy increases the relative strength of complementarities, prompting alignment in actions and increasing trade and financial integration. A sufficiently large hegemon can facilitate the transition from a fragmented economy, in which each country chooses its preferred action, to a globalized economy, in which all countries choose a common action that is aligned with the preferences of the hegemon. This transition necessarily raises global gains from trade and global welfare. Not all countries benefit initially, however. In particular, countries whose preferences are very different from those of the hegemon stand to lose the most. If they could choose, these countries would prefer to stay in the fragmented world when globalization becomes possible: conditional on all other countries aligning with the hegemon, however, they also find it optimal to do so.

2.4 Globalization and welfare in a multipolar world

We now add a second large country at 0.5, that we refer to as C , with size $\eta_C < \eta_U$. The key difference relative to the previous analysis is that now the ability of large countries to move early becomes relevant. U always sets $\bar{a}_U = 0$, which rules out a globalization equilibrium in which all countries set $a = 0.5$. Thus, the set of stable equilibria is as before: fragmentation, in which each country sets its preferred action $a_i = i$, and globalization at 0. Whenever both

equilibria are possible, we assume that globalization is played with probability $p \in (0, 1)$.

The equilibrium now depends crucially on whether C prefers globalization or fragmentation, and on whether it has the ability to influence the equilibrium outcome. C 's preferred outcome is independent of its size, and depends instead on the gains of trade with U – as captured by η_U , β and T – relative to the costs of aligning with U – as captured by α . C 's ability to influence the equilibrium outcome depends on its size. If η_C is large enough C can, by setting $\bar{a}_C = 0$ or $\bar{a}_C = 0.5$, respectively guarantee globalization or fragmentation. If η_C is small, C prefers to wait to observe the sunspot and coordinate its action with countries $i \in I$. Proposition 3 formalizes this discussion.

Proposition 3 *Consider a world with two large countries indexed by $i_U = 0$ and $i_C = 0.5$, with sizes η_U and η_C where $\eta_U > \eta_C$. There exist at most two equilibria, fragmentation, in which each country $i \in I \cup H$ sets $a_i^* = i$, and globalization, in which all countries $i \in I \cup H$ set $a_i^* = 0$.*

1. *If $\eta_U \leq \frac{\alpha}{\beta \cdot T} - \frac{1}{2}$, then:*

- (a) *If $\eta_C \leq 1 + \eta_U - \frac{\alpha}{\beta \cdot T}$, there are multiple equilibria, fragmentation and globalization.*
- (b) *If $\eta_C > 1 + \eta_U - \frac{\alpha}{\beta \cdot T}$, the unique equilibrium is fragmentation.*

2. *If $\eta_U > \frac{\alpha}{\beta \cdot T} - \frac{1}{2}$, then:*

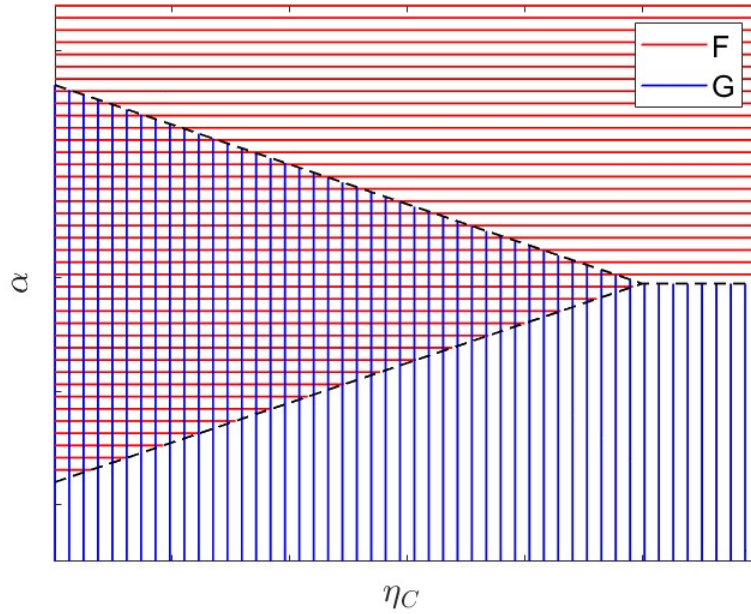
- (a) *If $\eta_C \leq \frac{\alpha}{\beta \cdot T} - \eta_U$, there are multiple equilibria, fragmentation and globalization.*
- (b) *If $\eta_C > \frac{\alpha}{\beta \cdot T} - \eta_U$, the unique equilibrium is globalization.*

Figure 6 illustrates how, as η_C rises, C is increasingly able to guarantee its preferred outcome. As a consequence, the region of multiplicity is reduced, in favor of more globalization if C values trade with U highly relative to the cost of aligning with U , and in favor of more fragmentation otherwise. Since the economy features excessive fragmentation to begin with, the transition to globalization in the former raises global welfare while the transition to fragmentation in the latter reduces it.

3 The role of coercion

So far, we have assumed that all countries trade with one another. We now allow countries to use trade as a tool for coercion, to induce others to adopt specific actions. To do so, we modify the setting as follows.

Figure 6: Fragmentation and globalization and size of rising hegemon



Assume that, at $t = 1$, countries can only trade with their “trading partners”. Countries i and j are trading partners if they both establish and maintain trading links with each other at $t = 0$. In particular, after actions have been chosen, there are two stages in which links are created and destroyed. In the first stage, countries choose which links to create (possibly contingent on actions) at zero cost. In the second “sanction” stage, countries choose which links to break (possibly contingent on actions and links created), also at zero cost. Countries i and j are trading partners if they both create links with each other in the first stage and none of them breaks their link in the second stage. If they are not trading partners, they cannot trade at $t = 1$. Note that this modification by itself does not affect our previous analysis since, regardless of the actions chosen, it is weakly dominant for any country to establish and maintain links with all other countries.⁵ But things change once we allow countries to use trade as a vehicle for coercion.

Assume that, at the beginning of $t = 0$, each large country i can – in addition to choosing its action a_i early – commit to cut its trade link with any country j that is connected – either directly or indirectly through a chain of trading partners – with a country j' with $a_{j'} \neq i$. We refer to this as country i making a “threat.” Note that if i threatens, it is not enough for country j to choose $a_j = i$ to be able to trade with i and its “trading bloc;” it must also refrain

⁵To avoid unappealing no-trade equilibria, we assume that countries establish and maintain links whenever they are indifferent.

from trading with any other countries not in i 's trading bloc. This implies that countries cannot bypass trade restrictions via third countries.⁶

In order to analyze the effects of coercion, we first characterize its implications for the unipolar world. We then return to the case of a multipolar world, in which a dominant hegemon is potentially challenged by a second “rising” power.

3.1 Coercion in the unipolar world

Consider first the unipolar economy, in which there is a unique hegemon $i = 0$. The following proposition characterizes the equilibrium in the event that this hegemon decides to make a threat.

Proposition 4 *Suppose that the hegemon chooses action $a_0 = 0$ and threatens not to trade with any country i that is connected directly or indirectly with any country i' with $a_{i'} \neq 0$. In all equilibria, a fraction μ of countries closest to the hegemon set $a = 0$ while all other countries i set $a_i = i$:*

1. *If and only if $\eta_U \leq 1 - \frac{\beta}{4}$, there exists an equilibrium with $\mu = 0$*
2. *If and only if $\eta_U \geq \frac{\alpha}{2T} - 1$, there exists an equilibrium with $\mu = 1$*
3. *If $\alpha \geq (4 - \beta) \cdot T$, there exist thresholds $\underline{\eta}_U \leq 1 - \frac{\beta}{4}$ and $\bar{\eta}_U \geq \frac{\alpha}{2T} - 1$ such that, for $\eta_U \in (\underline{\eta}_U, \bar{\eta}_U)$, there exists one equilibrium with $\mu^* \in (0, 1)$ that is implicitly defined by*

$$\mu^* \equiv \{\mu \in (0, 1) : g(\mu^*) = 0, g'(\mu^*) < 0\}$$

where

$$g(\mu) \equiv \begin{cases} (\eta_U + \mu) \cdot T - (1 - \mu) \cdot T + \frac{\beta}{4} \cdot T - \beta \cdot \frac{\mu^2}{2} \cdot T - \alpha \cdot \frac{\mu}{2} & \text{if } \mu \leq \frac{1}{2} \\ (\eta_U + \mu) \cdot T - (1 - \mu) \cdot T + \beta \cdot \frac{(1-\mu)^2}{2} \cdot T - \alpha \cdot \frac{\mu}{2} & \text{if } \mu > \frac{1}{2} \end{cases} \quad (3)$$

Proposition 4 is depicted in Figure 7, which shows the share of countries μ that align with the hegemon as a function of its size for different values of α . When α is sufficiently high, the equilibrium under coercion is unique and the share of countries μ that align with the hegemon is increasing in η_U . As α declines, strategic complementarities become stronger and multiple equilibria arise. In particular, for $\alpha < (4 - \beta) \cdot T$, there may be equilibria where none, all, or an

⁶Note that threats are non-discriminatory, in the sense that either all countries are threatened or none are.

intermediate share of countries decide to join the hegemon’s “bloc” depending on what others do.

Figure 7: Alignment under coercion

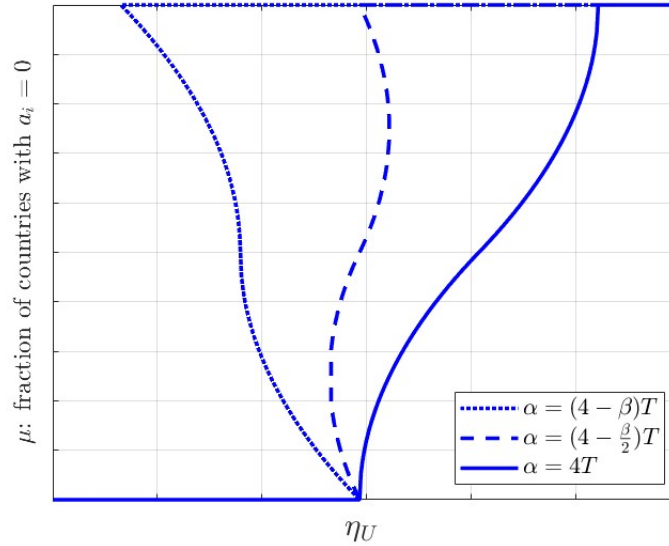
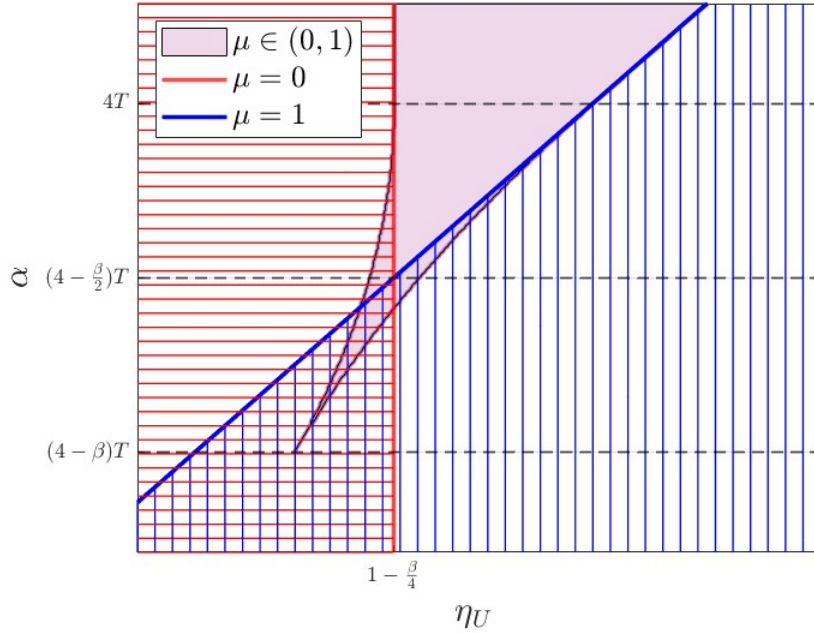


Figure 8 depicts the set of equilibria under coercion in the (η_U, α) -space. For any given level of α , the share of countries that aligns with the hegemon is weakly increasing in η . For $\alpha > 4 \cdot T$, the equilibrium is unique. When $\alpha \in ((4 - \frac{\beta}{2}) \cdot T, 4 \cdot T)$, there are multiple equilibria but $\mu = 0$ and $\mu = 1$ are never simultaneously possible. When $\alpha \in ((4 - \beta) \cdot T, (4 - \frac{\beta}{2}) \cdot T)$, all types of multiplicity are possible. Finally, for $\alpha < (4 - \beta) \cdot T$ there is no equilibrium with $\mu \in (0, 1)$.

To determine whether to use threats in equilibrium or not, the hegemon compares its welfare with and without threats. Coercion has two effects. First, it expands the region in which the globalization equilibrium exists and it contracts the region in which the fragmentation equilibrium exists. This effect is always positive for the hegemon. Second, it affects the gains from trade in the fragmentation equilibrium, increasing them with countries that align with the hegemon and decreasing them with countries that do not. This effect may be positive or negative for the hegemon, depending on the share of countries that align with it. Which effect dominates depends on the hegemon’s size η_U .

Proposition 5 *Let μ denote the share of countries that align with the hegemon in the event that it threatens. Then, letting p denote the equilibrium probability of globalization in the absence of*

Figure 8: Equilibria under coercion



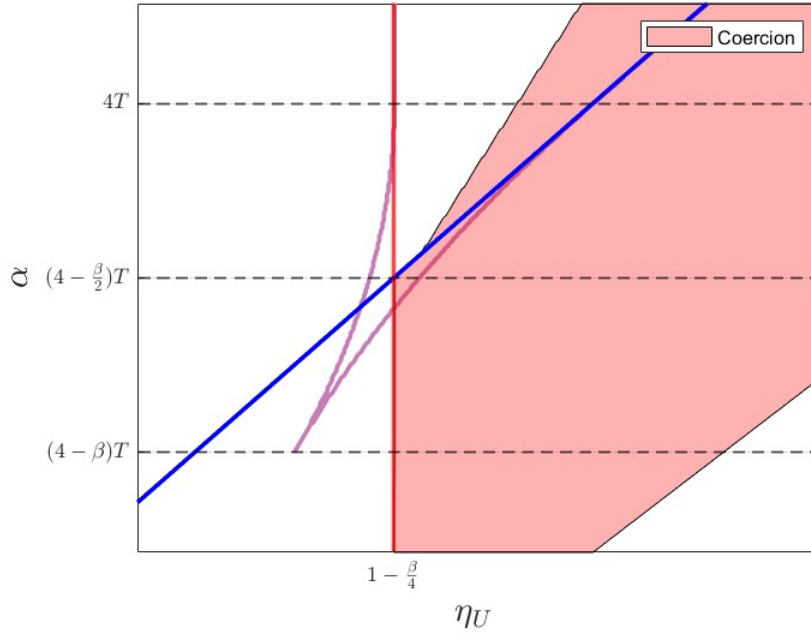
threats, the hegemon threatens if and only if

$$E[\mu] > p + (1 - p) \cdot \left(1 - \frac{\beta}{4}\right). \quad (4)$$

The previous results are intuitive: the benefits of coercion depend on the share of countries that align with the hegemon when threatened, μ , relative to the expected gains from trade in the absence of threats. When η_U is relatively small, the equilibrium in the absence of threats is fragmented and the gains from trade are proportional to $1 - \frac{\beta}{4}$. As η_U rises, the globalization equilibrium becomes possible and this raises the gains from trade in the absence of threats. Finally, once η_U is sufficiently large, only the globalization equilibrium exists in the absence of threats: at this point, it is no longer optimal to threaten, since it entails no additional benefits in terms of trade. These different equilibria are depicted in Figure 9, which illustrates whether the hegemon threatens or not in equilibrium as a function of parameters (η_U, α) .

Figure 10 depicts the welfare of countries closest and farthest from the hegemon as a function of η_U . The figure depicts both the welfare with and without threats (solid and dashed lines, respectively), where the latter reflects both globalization and fragmentation depending on the region. The main insight relative Figure 4 is that coercion can initially reduce the welfare of countries farther from the hegemon. There are two reasons for this. The first is that coercion

Figure 9: Equilibrium coercion



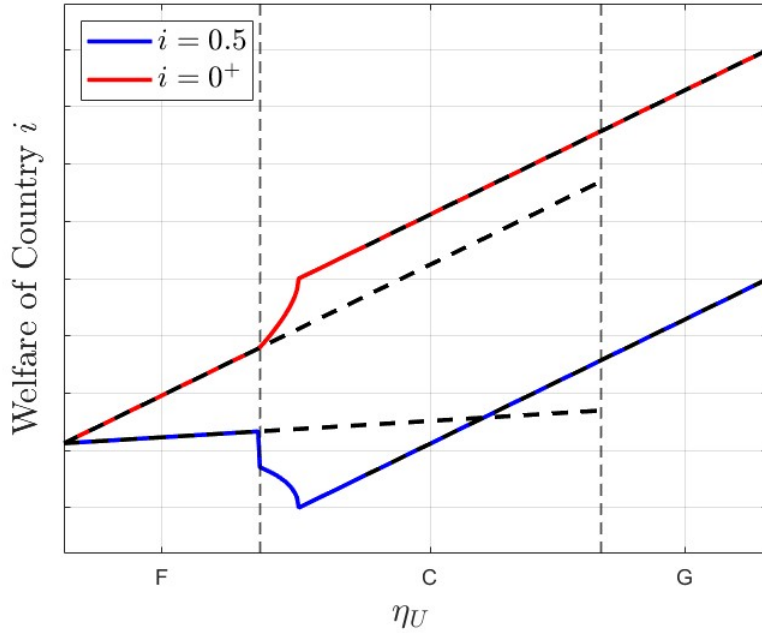
may give rise to globalization or eliminate fragmentation. In addition, within fragmentation, coercion implies that the countries farthest from the hegemon do not trade with the hegemon or with the μ countries that do align with the hegemon.

Finally, Figure 11 depicts global welfare with (solid line) and without coercion (dashed lines). The key result is that, whereas without coercion there was too little globalization, with coercion there can be too much globalization.⁷ In particular, coercion leads to globalization when η_U is relatively small, so that the losses of countries that are far from the hegemon exceed the gains of countries that are close to the hegemon.

The possibility of using coercion gives the hegemon, as a large country, the ability to influence the global equilibrium. Moreover, coercion changes the pattern of trade, creating a “bloc” around the hegemon with high trade flows among members of the bloc, but with little or no trade with the outside world. Relative to a world without coercion, this increases the welfare of countries close to the hegemon but can reduce the welfare of countries that are far from it. In a sense, coercion enables the hegemon to extract rents from the rest of the world by forcing it to align to its own preferences.

⁷The figure assumes that $\alpha = 4 \cdot T$.

Figure 10: Country welfare with coercion as a function of hegemon size



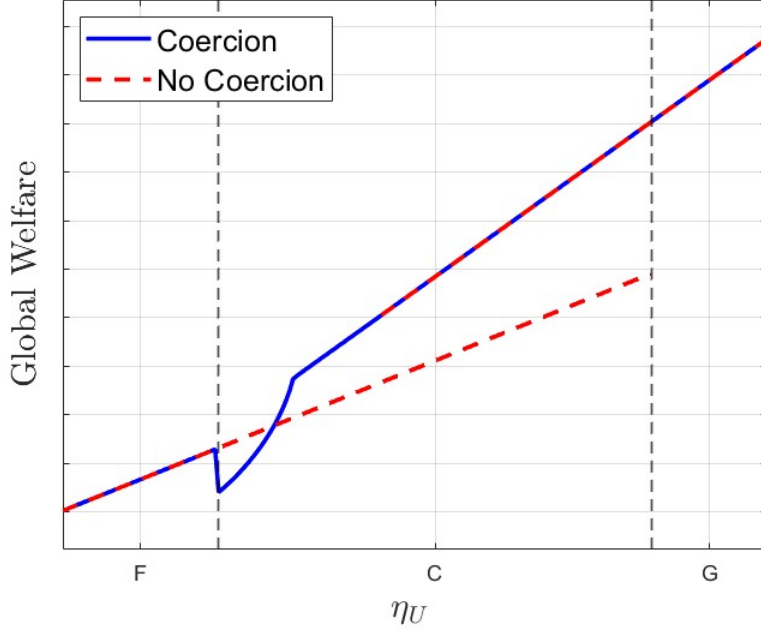
3.2 Coercion in a multipolar world

We now return to the world of Section 2.4 with more than one hegemon, an incumbent hegemon at 0 of size η_U , and a “rising” hegemon at 0.5 of size $\eta_C < \eta_U$. We allow the incumbent hegemon to use coercion, however, and threaten not to trade with any country j that is connected through the trading network with another country j' that sets $a_{j'} \neq 0$.⁸

The key takeaway is that coercion does not fundamentally change the results of Section 2.4: namely, the rising hegemon may facilitate or impede globalization, depending on whether it aligns with the incumbent hegemon or not. When α is low and/or η_U is large, the rising hegemon will tend to align with the incumbent and lead to more globalization. This may require more or less coercion, however. For low values of η_U , the alignment of the rising hegemon may make it worthwhile for the incumbent to coerce, by ruling out the possibility that $\mu = 0$ even with coercion. For high values of η_U , the alignment of the rising hegemon may also reduce coercion by making it unnecessary. When α is high and/or η_U is low, the rising hegemon will find it costly to align with the incumbent and – for η_C sufficiently high – will find it optimal to set $a_C = 0.5$ despite the use of coercion. The reason is that, once it is large enough, the rising hegemon understands that by deviating it affects the choices of small countries inducing some of them to deviate as well. The main difference with Section 2.4 is that, when the incumbent

⁸We conjecture that the rising hegemon would never use coercion if given the chance, given that $\eta_C < \eta_U$.

Figure 11: Country welfare with coercion as a function of hegemon size



hegemon uses coercion in equilibrium, the world is split up into “blocs”: a fraction μ of countries align with U and do not trade at all with C , while the remaining countries break ties with U ’s bloc to trade with each other and with C .

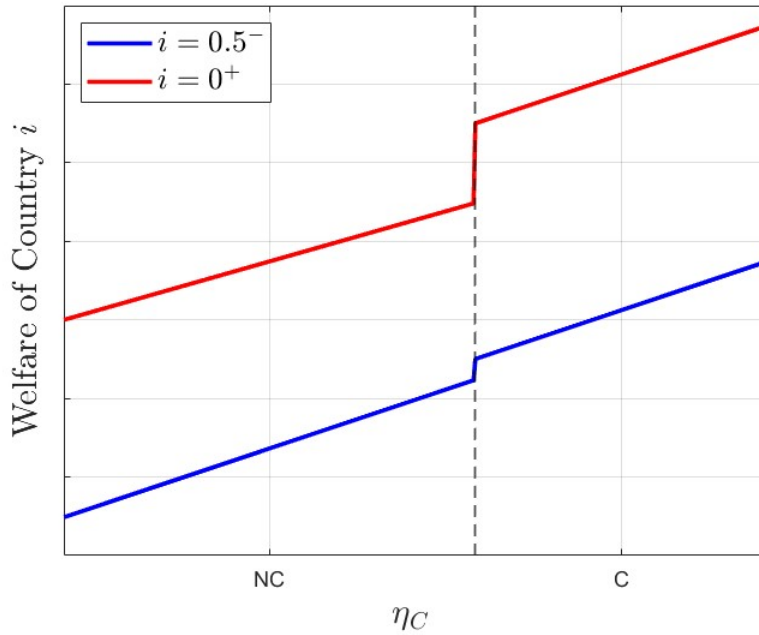
Proposition 6 *Consider a world with two large countries, U with $i_U = 0$ and size η_U , and C with $i_C = 0.5$ and size $\eta_C < \eta_U$. Let expected globalization be defined as the expected share of countries $i \in I$ that set $a_i = 0$. Then:*

1. *If $\eta_U > \frac{\beta}{2} \left(\frac{\alpha}{\beta \cdot T} - \frac{1}{2} \right)$, the set (α, η_U) with globalization expands as η_C increases.*
2. *If $\eta_U \leq \frac{\beta}{2} \left(\frac{\alpha}{\beta \cdot T} - \frac{1}{2} \right)$, the set (α, η_U) with globalization contracts as η_C increases.*

Proposition 6 can be summarized with a pair of comparative static exercises on η_C . Figure 12 depicts the welfare of countries closest and farthest from the incumbent hegemon as a function of the size of the rising hegemon η_C . The figure illustrates the first case in the proposition (i.e., low α and/or high η_U), in which globalization is preferred by all countries. Initially, the economy is in a region where U does not find it optimal to coerce: although η_U is large, there is a likelihood that $\mu = 0$ even with coercion. As a consequence, C decides to wait when η_C is small, playing fragmentation or globalization depending on the realization of the sunspot. Once η_C is large enough, however, U coerces and C sets $a_C = 0$. C understands that, once

it aligns with U , the only remaining equilibrium under coercion is $\mu = 1$; U anticipates this and coerces. At this point, there is full globalization and all countries benefit as illustrated in Figure 12.

Figure 12: Welfare, equilibrium coercion (C) and no coercion (NC), and size of rising hegemon

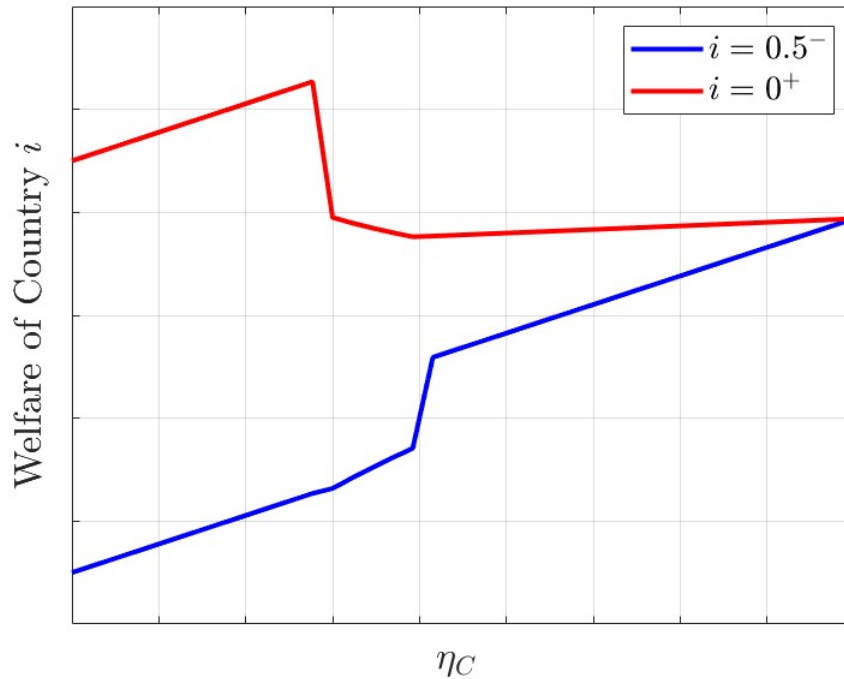


C prefers to case in which As long as the rising hegemon is relatively small, it “plays along” and sets $a_{0.5} = 0$, aligning itself with the hegemon: by doing so, it makes the globalization equilibrium even stronger. At some point, η_C is large enough that the “deviation” equilibrium exists, in which the rising hegemon sets $a_{0.5} = 0.5$ despite the threat of the incumbent hegemon. By deviating, it attracts enough countries from the hegemon’s bloc to compensate for the lack of trade with the bloc itself. In this deviation equilibrium, the incumbent hegemon may initially continue to use threats or abandon them immediately depending on parameter values. Crucially, the rising hegemon never finds it optimal to use threats, since by abstaining from doing so it makes it more attractive for other countries to challenge the incumbent hegemon as well. Finally, once η_C is large enough, the rising hegemon sets $a_{0.5} = 0.5$ and the incumbent hegemon does not use threats.

Figure 13 illustrates instead the second case of Proposition 6 (i.e., high α and/or low η_U), in which globalization is not beneficial for C . Here, U initially punishes, and C “plays along” and sets $a_C = 0$ when it is relatively small. At some point, η_C is large enough that the “deviation” equilibrium exists, in which C sets $a_C = 0.5$ despite U ’s threats. By deviating, it attracts

enough countries from U 's bloc to compensate for the lack of trade with the bloc itself. At this point, C and the countries close to it benefit, whereas U and the countries close to it suffer from the unraveling of their trading bloc. In this deviation equilibrium, U may initially continue to use threats or abandon them immediately depending on parameter values. Finally, once η_C is large enough, U no longer finds it optimal to coerce and the world shifts to full fragmentation.

Figure 13: Welfare, equilibrium coercion (C) and no coercion (NC), and size of rising hegemon



4 Hegemony and alignment in the data: Global Treaties Database

We have developed a theoretical framework to study the interplay between hegemonic power and globalization. There are three main insights of the theory that we want to analyze using historical data. First, hegemons constitute an important force for globalization, fostering integration, prompting alignment in actions, and ultimately increasing trade flows. In a nutshell, hegemons foster alignment, and alignment fosters trade. Second, alignment with a hegemon increases trade flows with the hegemon, but also with countries that are more aligned with the

hegemon. Conversely, alignment with a hegemon reduces trade flows with countries that are less aligned with the hegemon.

Taking these insights to historical data requires addressing a few central questions. What exactly is a hegemon? And how do we measure alignment between any two countries? We turn to these questions next.

4.1 Measuring hegemony

What is a hegemon? This section presents our empirical approach to measuring hegemonic power, as a prelude to our analysis on hegemonic alignment.

Conceptually, and as stated above Gunitskiy (2017) defines a hegemon as “a leading power, or a state that comprises a “pole” in the international system. The salient characteristic of a “pole” is that it is not merely a major power, but a leading state with the capacity to impose regimes, influence other great powers, and inspire institutional imitators.” This definition is in line with leading thinkers on international relations, like Gilpin (1981), Keohane (1984), or Nye (2011). In this school of thought, hegemony can encompass more than one state, and hegemony should be understood as a relative rather than an absolute concept.⁹

The United Kingdom, for example, was the world’s dominant hegemon in the 19th century. But it was rivaled by France and the rising powers of Germany and the US, who exerted growing hegemonic power in their spheres of influence. During the Cold War of 1946-1990 there is broad consensus in the literature that the United States was the predominant hegemonic power but the period is also characterized by intense rivalry with a second “pole” - the Soviet Union. In recent decades, the US remains the main hegemonic power, but China has been catching up quickly.

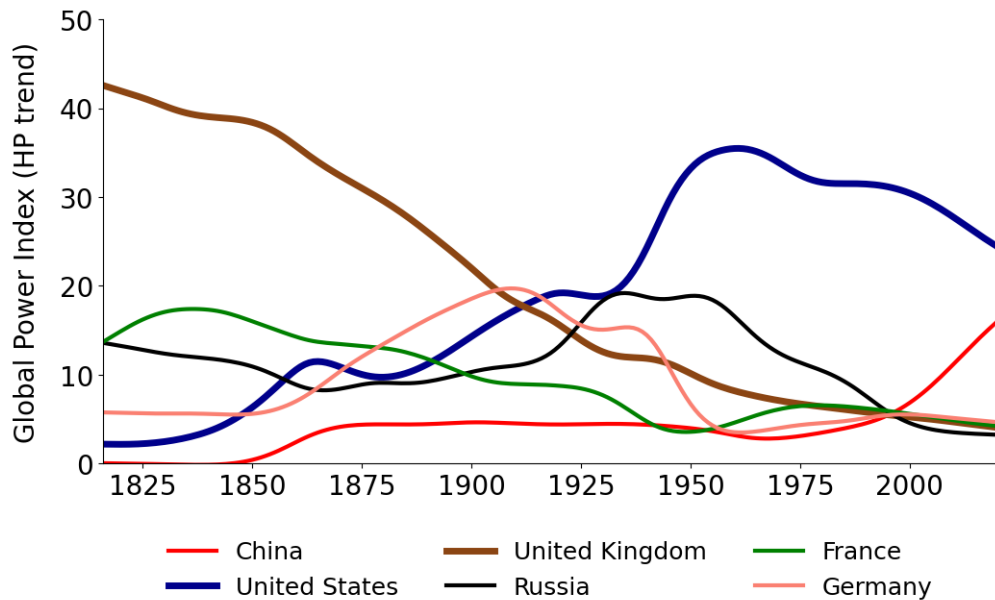
Empirically, the most useful proxy of hegemonic power for our purposes is the one developed by Moyer et al. (2024). Their “Global Power Index” (GPI) measures relative national power on a scale from 0 (no global power) to 100 (complete global power by a single state). Compared to other indices of international power, the GPI has two main advantages. First it is very comprehensive in its coverage, with a yearly, global panel spanning 1816-2022 and up to 188 countries. Second, it is conceptually broad and well-suited to capture shifts in hegemonic power over the long-run, including in recent decades. In fact, the GPI builds on much richer data than older, more established measures like the “Composite Index of National Capability (CINC)” by the Correlates of War Project, which was developed in the 1960s. The CINC focuses solely on raw, material power as captured, for example, by the number of soldiers or steel production,

⁹Gilpin (1981), for example emphasizes “no state has ever completely controlled an international system”

and is therefore less useful to measure power in the post-industrial age (see Heim and Miller 2020).¹⁰ In contrast, Moyer et al. (2024) consider not just the material capabilities of a state and its demography, but also the size of a nation’s economy (GDP), its technological capacity (R&D expenditures), fiscal capacity (government revenues), and the scope of its diplomatic networks. In total, the GPI uses 21 sub-indicators as inputs.

Figure 14 shows the long-run trends in the global distribution of power according to the GPI data. To remove short-term fluctuations in the national power time series, e.g. due to wars, we separate cycle from trend using the Hodrick-Prescott filter. Moreover, we show only countries that we will consider to have been hegemons: namely, those that surpassed 10% of global power at some point since 1815.¹¹

Figure 14: Share of Global Power, 1815-2020



Source: Moyer et al. (2024) Global Power Index Database. HP-filtered trends in country-level power indices over time.

According to the GPI data, the UK was by far the most powerful nation during the early and

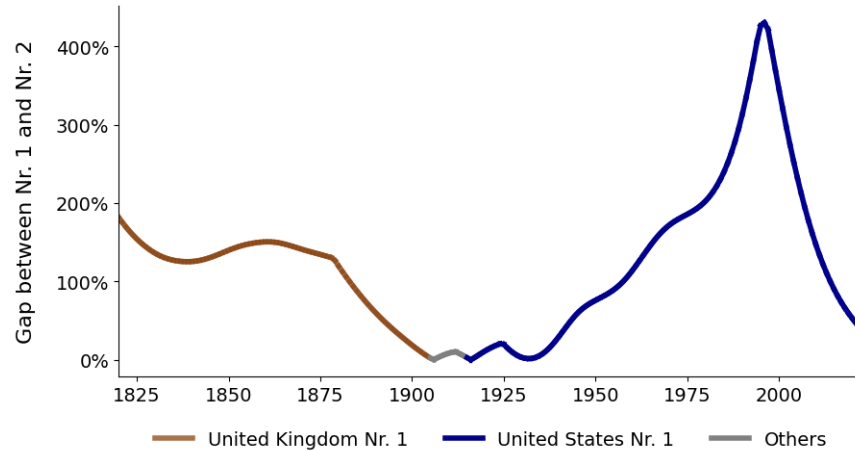
¹⁰Specifically, the CINC uses six indicators: (1) total population, (2) urban population, (3) military personnel, (4) military expenditures, (5) primary energy consumption, and (6) iron and steel production (see Singer 1987). Due to its focus on heavy industry and demography, the CINC ranks China as by far the biggest global power as of 2018, having surpassed the US already in the 1990s. This result is at odds with much of the literature and debate in international relations.

¹¹This choice is inspired by the methodological paper of Moyer et al. (2024) who use a 9% threshold to define “major powers”. The sample of countries included is the same whether we use a threshold of either 9% or 10% in the GPI trend series.

mid-19th century, but its relative power decreased gradually over the course of the century. In the early 20th century, the UK is then finally surpassed in its relative power, first by Germany and then by the US. More generally, the period between 1900 and 1945 can be characterized by a lack of hegemonic dominance, with five countries having roughly similar national power (Germany, France, UK, US, and the Soviet Union). This changes markedly after the end of WW2, when the US quickly rises to become the world's main hegemonic power. The Soviet Union ranked second between 1945 and the 1980s, while China has seen a rapid rise in relative power since the 1990s, now reaching a power level comparable to that the Soviet Union in the 1950s and 60s.

Figure 15 illustrates the scope of hegemonic dominance over time. We calculate the percentage difference in the GPI index between the first and second most powerful country. In the 19th century, the distance value exceeds 100%, indicating that the United Kingdom was more than twice as powerful as the second-ranked country. This dominance quickly eroded in the 1870s as the distance to France and especially Germany shrank. The United States, in turn, gradually became more dominant over the course of the 1940s, 1950s, and 1960s, with its Power Index exceeding that of the Soviet Union by 100 to 200%. In the 1990s, the gap widened even more, with a difference exceeding 400% - a record high. This trend in the US accumulation of power has sharply reversed, mostly due to the rise of China. By 2022, the power gap between the United States and China has narrowed to less than 50%, thus approaching the low gap levels of the interwar years. These data suggest that we live in an increasingly multipolar world, similar to the period between the 1910s and 1930s.

Figure 15: Hegemonic dominance - distance between 1st and 2nd most powerful country (in %)



Source: This figure captures distance in relative power as the difference between the first and second most powerful country according to the GPI data. A value of 100% means that the most powerful country is twice as powerful as the country ranked second.

4.2 The Global Treaties Database covering 75,000 treaties

This section introduces the “Global Treaties Database”, a newly constructed dataset of international treaties signed between sovereign countries and other international entities (such as colonies) between 1800 and 2020.¹²

We build on a vast body of scholarship on international treaty-making, in particular from law and political science (for overviews see Hollis 2012 or Shaffer and Ginsburg 2012). This literature, however, is largely qualitative in nature and/or focuses on specific treaty types, e.g. military, trade, or human rights agreements (e.g. Mitchell 2003, Gibler 2009, Simmons 2009), or studies specific eras and countries (e.g. Keene 2012).

Our contribution is to take a long, global view and to create the first 200-year picture on the incidence and characteristics of treaties signed worldwide. We start in 1800 because this is the time when international diplomacy becomes more formalized and, as a result, treaty-making

¹²According to the United Nations “The term “treaty” has regularly been used as a generic term embracing all instruments binding at international law concluded between international entities, regardless of their formal designation. Both the 1969 Vienna Convention and the 1986 Vienna Convention confirm this generic use of the term “treaty”. [...] In order to speak of a “treaty” in the generic sense, an instrument has to meet various criteria. First of all, it has to be a binding instrument, which means that the contracting parties intended to create legal rights and duties. Secondly, the instrument must be concluded by states or international organizations with treaty-making power. Thirdly, it has to be governed by international law. Finally the engagement has to be in writing.” See definitional details here.

takes off, with a notable uptick in newly signed treaties (Keene 2012). Treaty-making further accelerated after the Congress of Vienna in 1814/15 and then saw a steady increase throughout the 19th century.

To create the final dataset, we collected, cleaned and combined information on international treaties from a wide range of archival treaty collections and treaty databases. Our aim was to cover all state entities, all years, and to include both multilateral and bilateral agreements. For each time period and country, we searched for the most comprehensive and most widely cited sources on treaties. To digitize the treaty information in a coherent format, we relied both on manual coding and on automated methods such as scraping and OCR recognition software. In the following we list our data sources by time period.

4.2.1 Main sources on treaties

Post-WW2 (1946-2020): For treaties concluded after 1944, we rely on the United Nations Treaty Series (UNTS), which can be seen as a “census” of modern international treaties. The UNTS is so comprehensive because Article 102 of the United Nations Charter mandates that all international treaties by UN member states need to be registered with the UN Secretariat.¹³ The UNTS treaty data is rich in detail and freely accessible through a clumsy website. The online database covers both bilateral and multilateral treaties - and we gather more than 60.000 “main treaties” from this source.

Interwar and WW2 (1919-1945): For the interwar period, we rely on the predecessor to UNTS, namely the League of Nations Treaty Series. The collection contains the universe of treaties and other international agreements registered with and published by the Secretariat of the League of Nations between 1920 and 1944. Registration was similarly binding as today, and regulated in Article 18 of the Covenant of the League of Nations.¹⁴ The collection was originally published in more than 200 book volumes. The best and most comprehensive digitized version is provided by the World Legal Information Institute, a non-profit global legal research facility. This source includes a total of 4,816 bilateral and multilateral treaties, including by countries that were not members of the League of Nations or never ratified their membership, such as

¹³The Article says: “1. Every treaty and every international agreement entered into by any Member of the United Nations after the present Charter comes into force shall as soon as possible be registered with the Secretariat and published by it. 2. No party to any such treaty or international agreement which has not been registered in accordance with the provisions of paragraph 1 of this Article may invoke that treaty or agreement before any organ of the United Nations. ”

¹⁴The Article states: “Every treaty or international engagement entered into hereafter by any Member of the League shall be forthwith registered with the Secretariat and shall as soon as possible be published by it. No such treaty or international engagement shall be binding until so registered.”

the United States. Building on the PDF documents of each of these treaties, we systematically extract key treaty details, in particular treaty titles, relevant dates, and parties involved.

Pre-1919 Period (1800-1919): For the period before 1919, we use several sources. For multilateral treaties we primarily rely on the “Multilateral Agreement and Treaty Record Set”, a comprehensive historical treaty series compiled by Denmark and Hoffmann (2008), which adds 714 treaties for 1800-1919. The second key source on multilateral treaties pre-1919 is the online database “Oxford Historical Treaties” which largely builds on the excellent “Consolidated Treaty Series” compiled under the editorship of Clive Parry in 234 volumes that were published between 1969 and 1980. This source adds 1,100 bilateral and multilateral treaties between 1800 and 1919. To avoid double counting when merging treaty data from these two sources, we drop double entries if two treaty entries show the same date and have at least one common participant. When in doubt we retain the record from the MARTS dataset.

On bilateral treaties we again rely heavily on the Oxford Historical Treaties database, drawing a total of 7,945 treaties between 1919 and 1800. For the two main hegemonic powers - the UK and the US, there are however excellent country specific sources that are even richer than the Oxford database. Specifically, For the US, we rely on data compiled by Charles Bevans, hosted by the Library of Congress. The Bevans collection covers bilateral and multilateral agreements to which the US is or was a party in the period 1776-1984. From this source, we add 387 US treaties between 1800 and 1919. For the United Kingdom, we build on the United Kingdom Treaties Library hosted by the British and Irish Legal Information Institute building on the treaty collection of the Foreign & Commonwealth Office. From this source we add 1,139 UK treaties pre-1919.

4.2.2 Data cleaning and treaty classification

To create the final database we focus on what the United Nations lists as “original treaties” thus excluding more than 16,000 “subsequent agreements”, which are primarily amendments to existing treaties. We also drop about 2000 treaties from the database for which we lack the most essential treaty features, namely the date, the participants, and/or the title.

The resulting final database includes a total of 74,147 treaties, of which 68,536 are bilateral treaties and 5,611 are multilateral treaties. The majority of these treaties were signed after WW2 (57,981 treaties). In the interwar (1919-1945) period we collected 4,816 treaties and 11,285 treaties in the period 1800-1919. The dominant type of treaty in this final dataset is an agreement (>70%) but we also include acts, charters, declarations, conventions and protocols.

Using this consolidated database, we then classify the type of treaty by topic. The sub-

ject and type of treaties are very diverse and heterogeneous, ranging from trade agreements, educational exchange, peace agreements, to joint infrastructure projects such as bridges or telecommunication cables. For a systematic classification, we rely on the detailed description of each treaty in the treaty title (titles are often long, extending up to paragraph of text) as well as in the subject terms, treaty descriptions, and keywords gathered in the treaty collections and database we use.

For the topic categories we closely follow the classification proposed in Miles and Posner (2008) but extend their list with additional subject terms building on the classification by the World Legal Information Institute¹⁵ as well as prevalent subject terms from the UNTS database. Of the 22 main subject categories we classify 9 as mainly “economic” and 13 as “non-economic”. Specifically we code treaties as economic if they are classified in the following categories: “Trade”, “Investments, Expropriation, Investment Arbitration”, “Labor Migration & Remittances”, “Lending & Financing”, “Development Aid”, “Telecommunication”, “Transportation & Infrastructure”, “Postal Services”, “Patents, Trademarks, Innovation, Inventions” as well as “Taxation”. The final list of main treaty subjects is shown in Table 1.

Treaties are classified into these 22 subject categories based on their title, subject terms, and other available descriptions using Chat GPT4 turbo (and OpenAI’s API). Each category is first listed and explained in a GPT prompt with examples.¹⁶ To increase accuracy, we asked the model to assign only one subject category per treaty and to select “other” in case of uncertainty.¹⁷ To further increase accuracy and to reduce the likelihood of hallucinations, we set *Temperature* = 0, which instructs GPT to keep interpretations to a minimum. Table 1 shows the results.

¹⁵The list of WorldLII subject terms can be found here.

¹⁶The classification inputs depend on the treaty source. For treaties from the UN Treaty Series, we let Chat GPT4 interpret treaty categories based on both the title and subject terms. For treaties retrieved from the Oxford Historical Treaty database and for UK treaties we use the title alone because they are very extensive and provide sufficient information for the GPT model. Finally, for the 2,804 treaties from the US Library of Congress data we lack treaty titles and therefore use detailed treaty descriptions.

¹⁷Allowing the model to assign two or more categories increased the probability of misclassification. 2.2% of treaties are assigned to the remaining subject category “Other”.

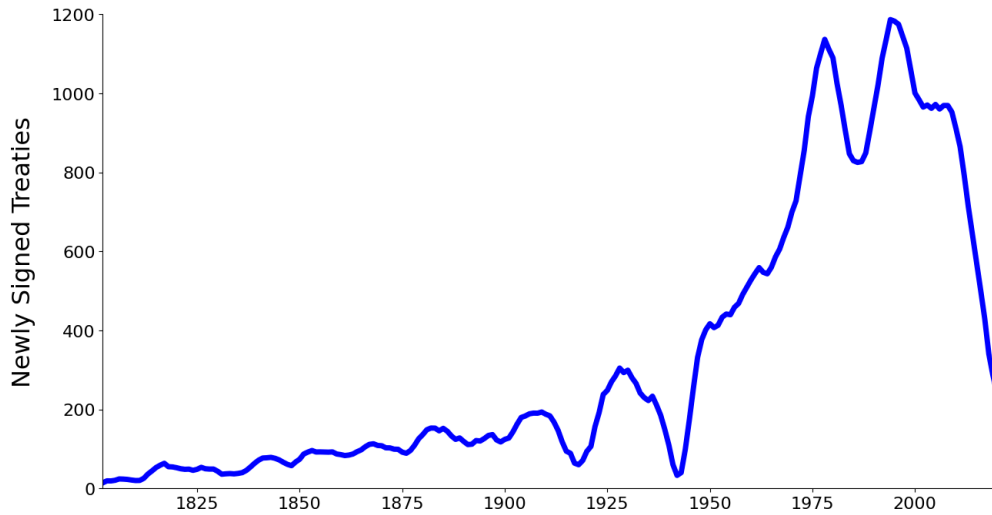
Table 1: Treaty categories and topics

Category	Frequency	Share (%)
Lending & Financing	16,432	22.16
Trade	6,975	9.41
Diplomacy & Consular Relations	6,174	8.33
Development Aid	5,936	8.01
Transportation & Infrastructure	5,602	7.56
Education & Science	3,541	4.78
Military Alliances & Peace Treaties	3,529	4.76
Cross-Border Legal Disputes	3,435	4.63
Taxation	2,979	4.02
Telecommunication & Postal Services	2,935	3.96
Territory & Borders	2,736	3.69
Culture & Heritage	2,002	2.70
Investments, Expropriation, Investment Arbitration	1,906	2.57
Environment, Climate & Animal Protection	1,690	2.28
Other	1,601	2.16
Labor Migration & Remittances	1,410	1.90
Terrorism & Extradition	1,360	1.83
Nuclear Energy, Weapons & Non-Proliferation	1,232	1.66
Health Care	976	1.32
Patents, Trademarks, Innovation, Inventions	656	0.88
Human Rights	549	0.74
Outer Space	302	0.41
Refugees & Asylum	189	0.25
Total	74,147	100.00

4.2.3 Key facts from the treaties data

This section summarizes key facts from the “The Global Treaties Database” that we assembled. Figure 16 shows the total number of international treaties signed per year across the globe, as a 5-year moving average. The graph shows a strong upward trend in international treaty-making, and especially after 1945. This upward trend is partly due to the growing number of independent, sovereign countries that have the ability to sign such treaties, especially during the independence waves in the 1945-2020 period.

Figure 16: Trends in global treaty-making - the post-2001 collapse



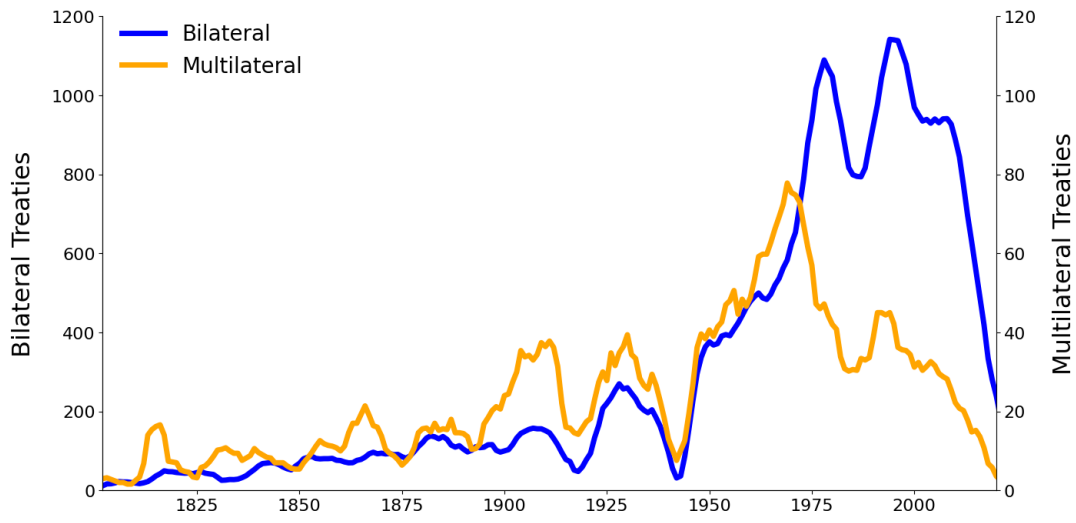
Note: Number of newly signed treaties per year (5-year moving average).

Another key insight is the drop in international treaty making after 2001. In the bigger 200-year picture, the current decline is exceptional, and only comparable to the collapse of international treaty-making around WW1 and WW2. According to the data, we live in an era in which international law and treaties play a far less important role in interstate relations than 20 or 30 years ago.

The post-2001 treaty decline in our data is very much in line with the view of influential legal scholars like Goldsmith and Posner, who state: *“International law moves in cycles, with periods of enthusiasm and advance followed by periods of decay and retrenchment. [...] The post-Cold War enthusiasm for international law has now collapsed as well. This collapse can be traced through a series of crises that began twenty years ago and that are now wearisomely familiar: the 9/11 terrorist attacks, [...] a war in Afghanistan [...] the Iraq War [...] the financial crises that began in 2008 [...] the European debt crisis that reached its peak in 2010 and 2011 [...] a refugee crisis in Europe that began around 2015; the Brexit referendum, [...] and the global pandemic and recession of 2020.”* (Goldsmith and Posner 2021, p.10)

As shown in Figure 17 the overwhelming majority of international treaties in our database are bilateral, with a ratio of about 10 to 1 when compared to multilateral treaties. Given this difference, we show the incidence of new multilateral treaties per year as a separate, orange line and scale these on the right axis. Multilateral treaty-making began declining even earlier than 2001, having reached a peak during the 1970s.

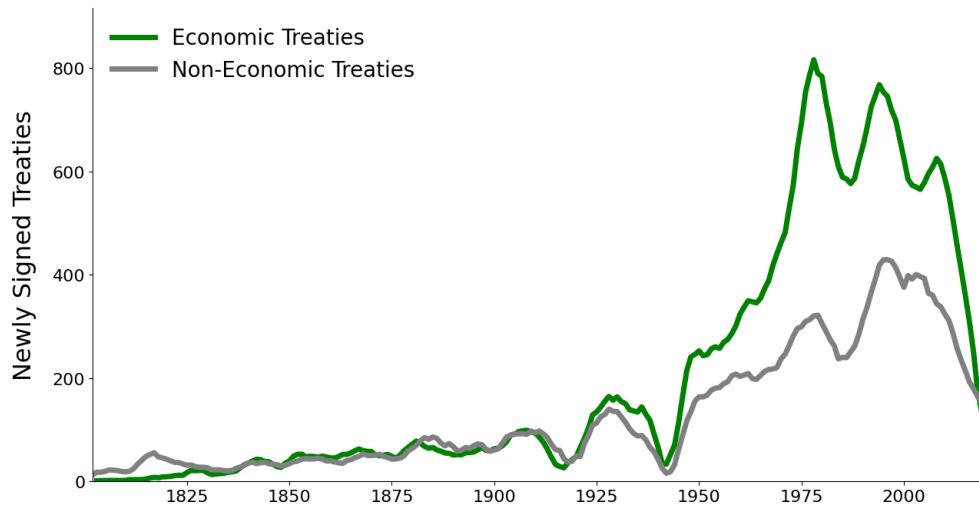
Figure 17: Bilateral vs multilateral - new treaties per year, 1800-2020



Notes: Number of newly signed treaties per year and worldwide (5-year moving average). The number of newly signed multilateral treaties is shown in orange, for bilateral we use blue.

We find that the majority of treaties focus on economic issues, especially after WW2. In Table 1 above, four out of the top five most important treaty categories relate to economics, namely agreements on finance, trade, development aid, as well as transportation and infrastructure. Figure 18 shows the global trends over time. Prior to WW2, economic and non-economic treaties were similarly frequent (50% each). Since WW2, however, economic treaties clearly dominate, with a share of 65% of new treaties signed.

Figure 18: Treaties are mostly about economic issues



Notes: Number of newly signed treaties per year and worldwide (5-year moving average). The number of economic treaties is shown in green, the non-economic ones in gray.

4.3 Treaties measure (re-)alignment

In this section we use the rich treaty data to measure alignment and realignment between countries.

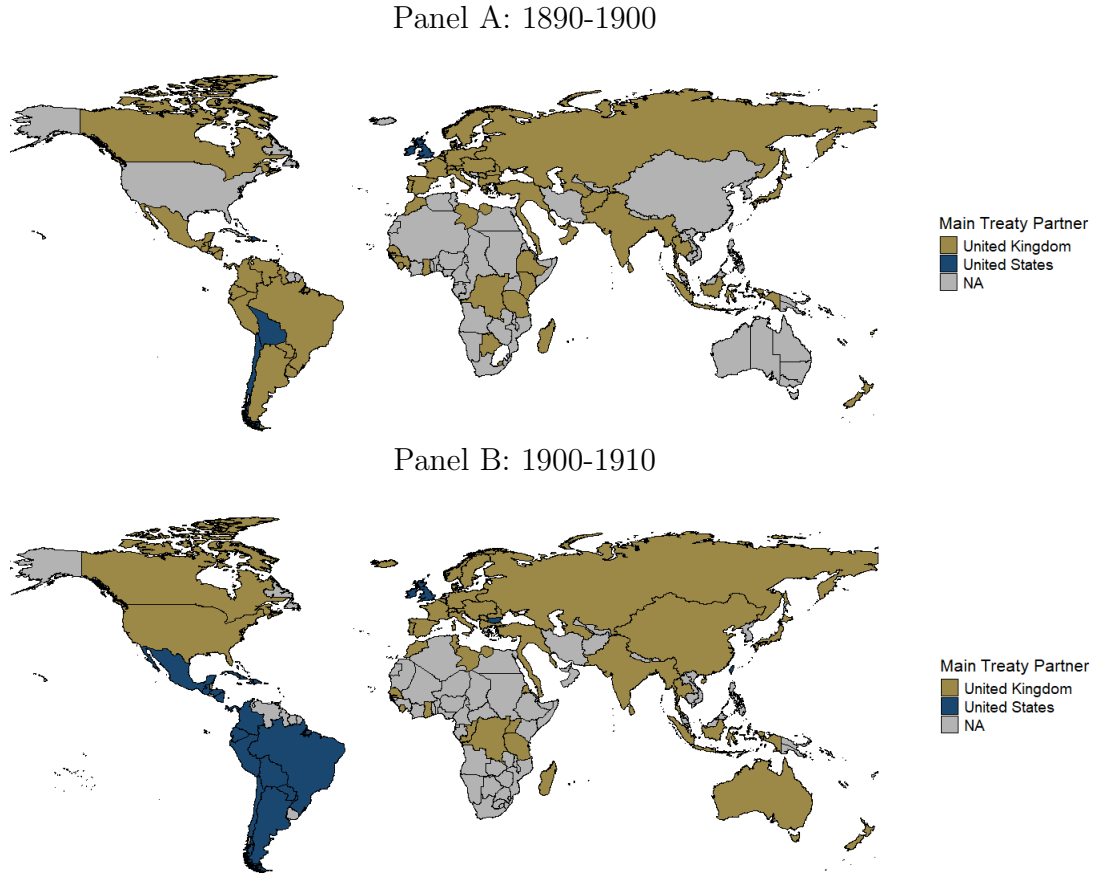
The world maps in Figure 19 to 21 give a first illustration of what we find when using treaty data as a proxy of alignment. Due to our focus on hegemony, we zoom into periods of growing rivalry between hegemon and the related shifts in country alignment over time. To visualize alignment, we simply count the number of treaties each country signs with the respective hegemon over that decade. Countries are colored on the map depending on whether they concluded more joint treaties with one hegemon rather than the other, considering both bilateral and multilateral treaties.

Figure 19 starts by comparing treaty alignment towards the US and the UK in the two decades 1890-1900 and 1900-1910. During this period, the US became significantly more assertive in its foreign policy, in particular towards South America.¹⁸ This fundamental shift of US foreign policy between the 1890s and 1900s is clearly visible in the treaty data, as the United States turns into the dominant treaty-partner to most South American countries. Great Britain

¹⁸The US “imperialist school” advocated for more foreign interventions throughout the 1890s. This was followed by the US victory in the Spanish-American War of 1898 and the famous Roosevelt Corollary of 1904 according to which the US had the right to intervene in the domestic affairs of Latin American countries in case of “chronic wrongdoing” (see e.g. LaFeber 1998).

remains the main treaty partner in much of the world in the 1910s, but no longer in the Southern Cone.

Figure 19: Global treaty alignment - US vs. UK

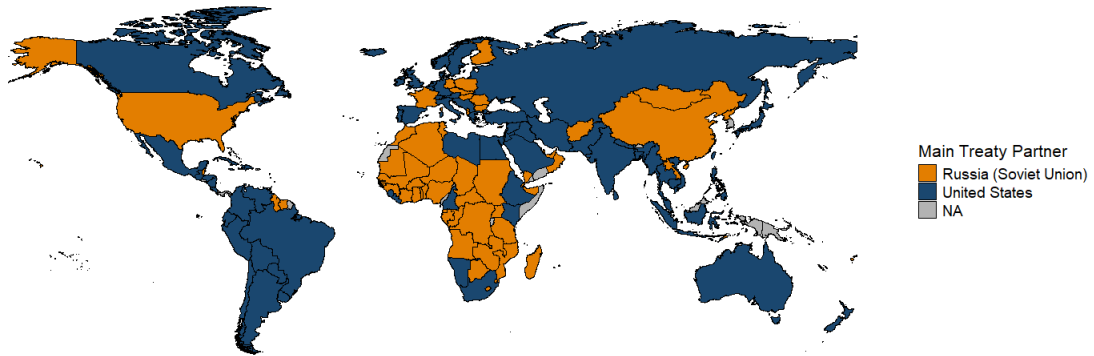


Notes: We capture alignment by comparing the number of treaties a country signs with the US and UK, respectively. Countries are colored in brown if they signed more treaties with the UK and blue if they signed more with the US. “NA” in case no treaties were signed in that decade (mostly colonies).

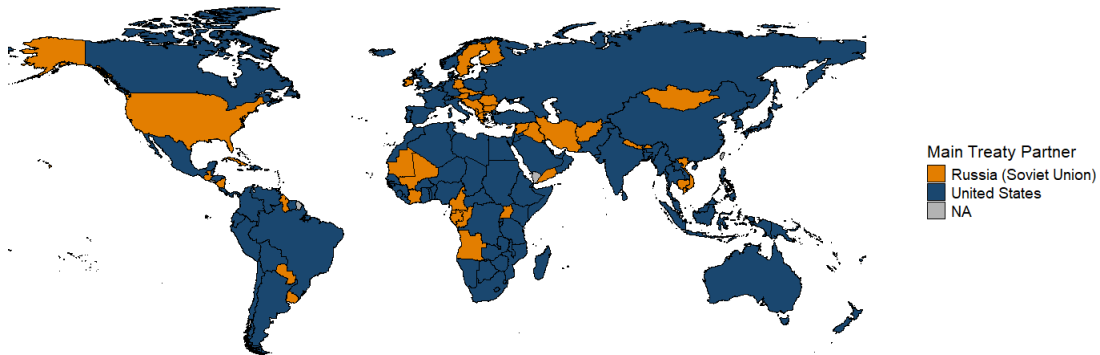
Figure 20 traces treaty-based (re-)alignment during the Cold War. In the early stages, in the 1950s, the Soviet Union and the United States roughly divided the world between them. Most African and Eastern European countries signed more treaties with the Soviet Union, while Latin America, the Commonwealth, and most Western European countries oriented toward the US. By the 1980s, the Soviet Union had lost much of its dominance in international treaty making. Many African countries had shifted toward the U.S., as had major powers such as China and France. Exceptions to this trend include the realignment of revolutionary Iran, Saddam Hussein’s Iraq, and post-war Vietnam, all of which shifted to more intensive treaty-making with the Soviet Union rather than the US.

Figure 20: Global treaty alignment - US vs. Soviet Union

Panel A: 1950-1960



Panel B: 1980-1990

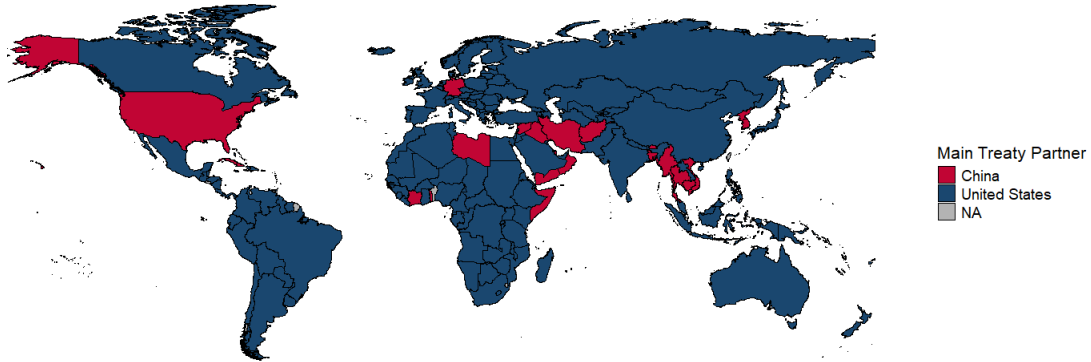


Notes: We capture alignment by comparing the number of treaties a country signs with the US and the Soviet Union, respectively. Countries are colored in orange if they signed more treaties with the Soviet Union and blue if they signed more with the US. “NA” in case no treaties were signed in that decade.

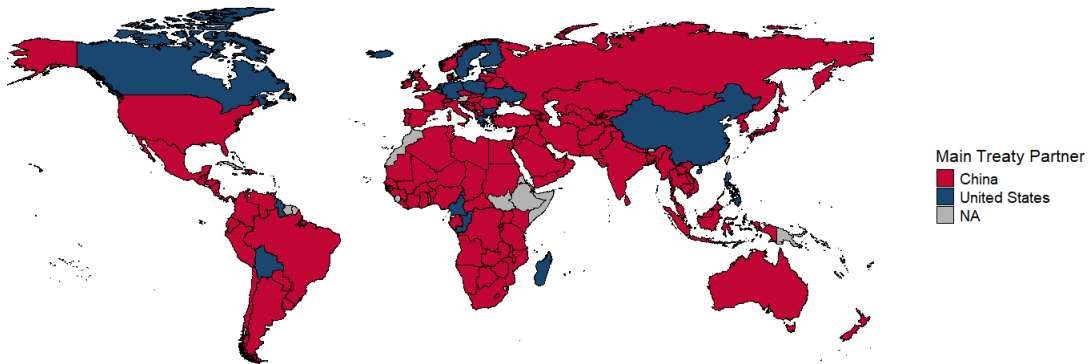
Figure 21 shows what is arguably the most striking shift in global treaty-making patterns in our database. As can be seen, the US clearly dominates during the 1990s, with most countries aligned more closely with the US as measured by the number of treaties signed. Within just 20 years, however, the map flips from predominantly blue to red, as the US retreats from international treaty-making in the 2010s while China becomes more active, especially in what is now called the Global South.

Figure 21: Global treaty alignment - US vs. China

Panel A: 1990-2000



Panel B: 2010-2020



Notes: We capture alignment by comparing the number of treaties a country signs with the US and China, respectively. Countries are colored in red if they signed more treaties with China and blue if they signed more with the US. “NA” in case no treaties were signed.

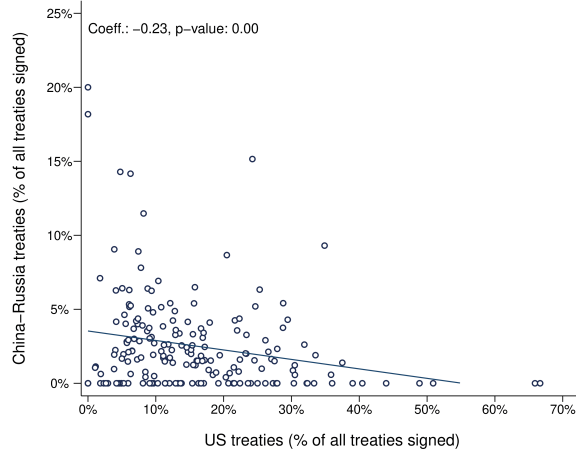
We next compare treaty-making patterns more systematically. For this purpose, we create a dyadic country-to-country dataset and then compute treaty intensity between countries as the share of treaties signed between them in percent of all treaties signed in a given time period.

Panel A of Figure 22 shows that countries which sign a large share of their treaties with the US typically sign fewer treaties with the China and Russia, which are both US rivals. The correlation of treaty-making shares between the US and China/Russia is negative and statistically significant.

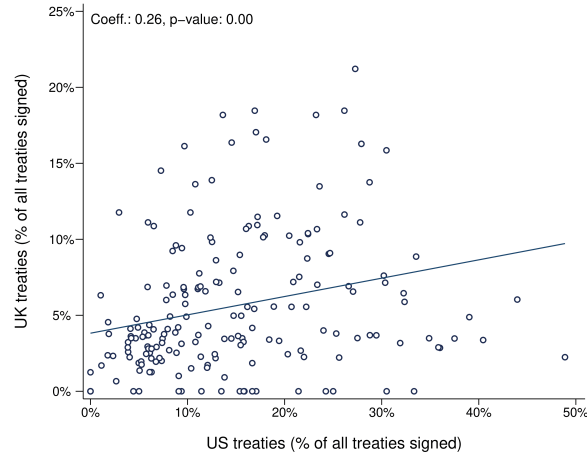
The opposite is true when comparing treaty shares toward the US and the UK. Panel B shows that the correlation is now positive and statistically significant. Countries that sign many treaties with the US also sign more treaties with the UK, a close US ally. These findings suggest that treaties are a useful proxy for country alignment along hegemonic “poles”.

Figure 22: Correlation of treaty shares, 1946-2020

Panel A: US vs. China/Russia



Panel B: US vs. UK



Note: Scatter plot of the share of treaties signed with the US on the horizontal axis, as well as with China and Russia (Panel A) or with the UK (Panel B) on the vertical axis. Each dot represents the treaty composition of one country, computed as share of all treaties signed in the post-WW2 period (1946-2020).

4.4 Benchmarking with other alignment measures

How does our alignment measure (treaty intensity) compare to existing measures of international alignment? Thus far, the large literature on national rivalry and alignment relied on two main empirical measures: (i) similarity in UN voting (e.g. Signorino and Ritter 1999, Gopinath et al. 2024, Kleinman et al. 2024), and (ii) data on military alliances between countries (e.g.

Long 2003, Eichengreen et al. 2019).

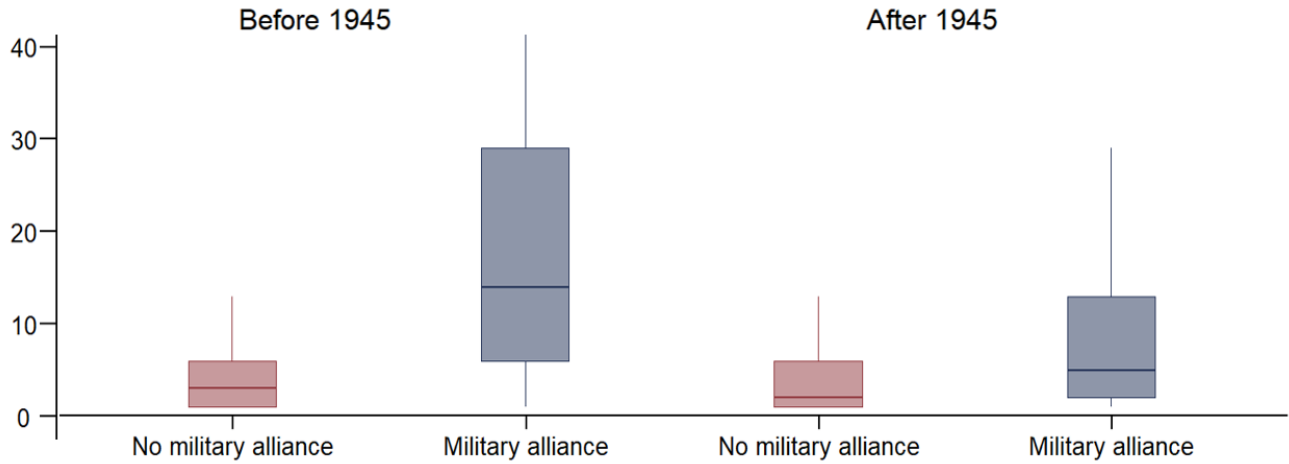
We start by benchmarking treaty intensity with the incidence of military agreements. For this purpose we draw on the much-cited ATOP dataset by Leeds et al. (2002), which provides comprehensive data on military alliance agreements signed by all countries worldwide 1815-2018.¹⁹ We then link the dyadic military alliance data with our dyadic “share of treaties” variable between countries that we described in the previous section.

Figure 23 shows the resulting histogram of treaty shares for country pairs with and without a military agreement. To account for shifts in military alignment, we distinguish by historical era (pre and post WW2). This means that we collapse both the alliance and the treaty data in two sub-samples: 1800-1945 and 1946-2020. A country pair is coded as having a military alliance if this was the case at any point in these sub-periods (the results are similar if we use narrower time samples).

Countries that are military allies also tend to sign considerably more treaties. This is particularly true in the pre-1945 sample, where the median treaty share is more than three times higher for countries with a military alliance than for countries without. The difference is less pronounced but still large in the post-WW2 era, with military allies signing about twice as many treaties as non-allies. These findings are surprising, but give assurance that treaty-making is a useful alternative to existing measures of country alignment.

¹⁹ATOP measures military alliances as offense, defense, non-aggression, neutrality, and consultation pacts.

Figure 23: Military alliances and treaty incidence



Note: This figure shows a histogram of the average number of treaties signed between countries in the pre-WW2 or post-WW2 period, respectively. We differentiate between country pairs that had a standing military alliance pre- or post-WW2 (blue) and those that did not (red). Data on military alliances comes from the ATOP database.

A second, widely used indicator of alignment is joint voting in the United Nations General Assembly (UNGA), as discussed above. We next combine data on joint UN voting as collected by Bailey et al (2017), with our measure of bilateral treaty shares.

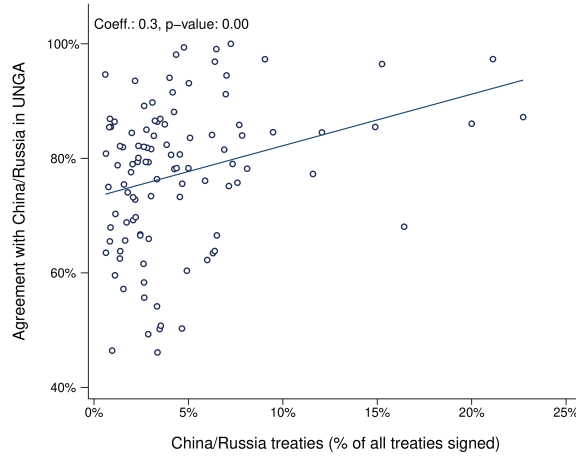
Figure 24 shows a positive correlation between UN voting agreement and treaty intensity during the Cold War (1946-1990). Countries that tend to agree more with China and Russia in the UNGA also sign a higher share of treaties with China and Russia (Panel A). For the US, the correlation between UN voting overlap and treaty-making intensity is also positive, but not statistically significant (Panel B).

Overall, however, the relationship between the two measures is weaker than in the comparison with military agreements. The correlation coefficient between UN voting and treaty shares is typically low, ranging from slightly positive to slightly negative depending on the sample of years and countries chosen. The correlation coefficients are also often not statistically significant. The likely explanation is that the two measures are conceptually so different. As discussed above, UNGA voting largely concerns global foreign policy issues and is therefore a very specific proxy of bilateral alignment, while treaties concerns a wide range of topics, including domains that are predominantly domestic or regional. In addition, the two variables have very different statistical properties. The UNGA voting overlap between countries tends to be generally quite high (above 50%), with limited variation. In fact, Voeten (2012) explains that even rival countries such as

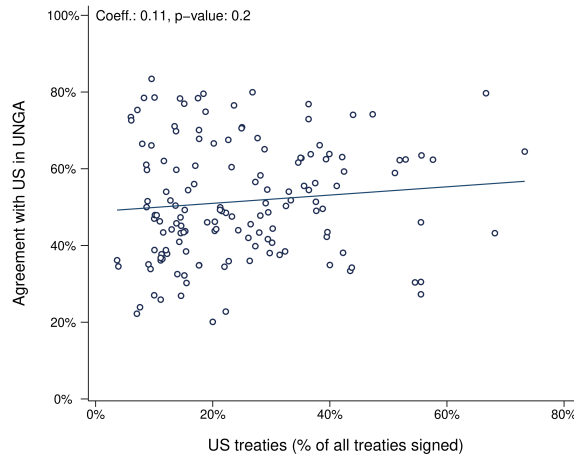
India and Pakistan or Eritrea and Ethiopia have surprisingly high shares of joint UNGA voting, because they agree on many global issues. In contrast, treaty intensity between countries (as a share of all treaty relationships) is much more dispersed, with values close to zero in the large majority of country pairs.

Figure 24: UN voting agreement vs. treaty shares, 1946-1990

Panel A: China/Russia - UN votes vs. treaties



Panel B: United States - UN votes vs. treaties



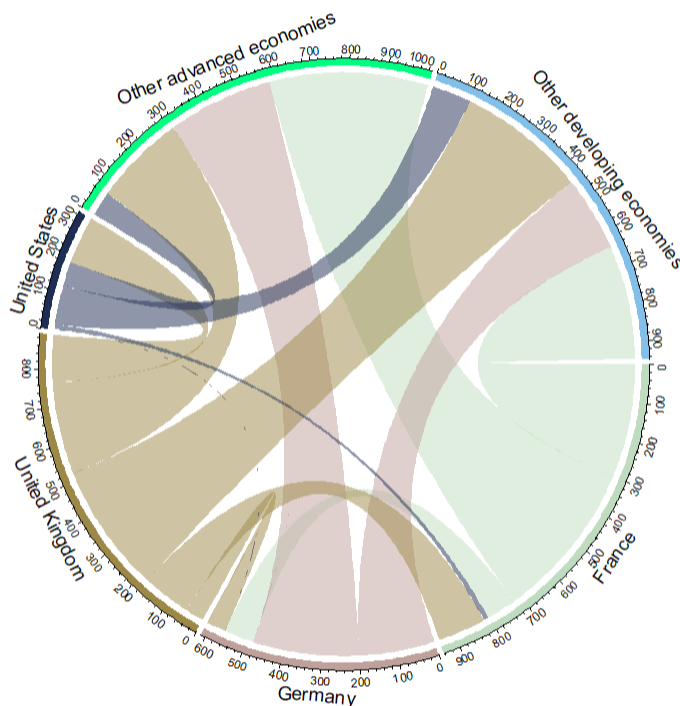
Note: Scatter plot of UNGA voting agreement towards the US or China/Russia (horizontal axis) with treaty intensity towards these countries (on the vertical axis - share of treaties signed with the US or China/Russia as percent of total treaties). Each dot represents one country in the Cold War period (1946-1990).

4.5 Hegemons drive treaty-making

In this section we show that hegemonic powers are particularly active treaty-makers. They create a broad network of international agreements, thus fostering international cooperation.

Figure 25 shows a Chord Diagram on international treaty linkages by the largest Western powers and the rest of the world pre-WW1. As can be seen, the United Kingdom, as the primary hegemon of the time, dominates international treaty-making, especially towards developing countries in the periphery. The UK is closely followed by France, the second-largest power of the imperial age. In contrast, Germany and the United States play a considerably lesser role.

Figure 25: The UK dominates treaty-making pre-WW1

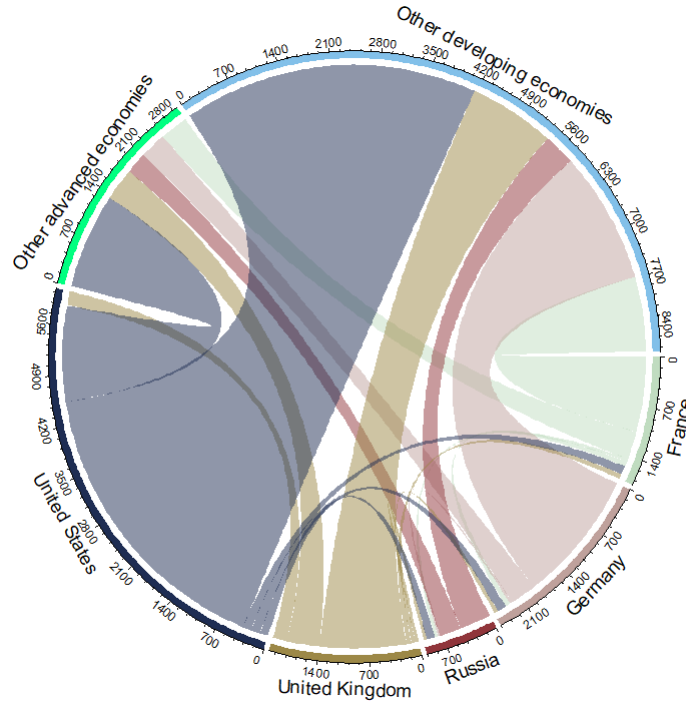


Note: Newly signed bilateral treaties involving the US, UK, France, Germany and the Soviet Union in the period 1870-2013.

This changes remarkably in the post-WW2 era, as shown in Figure 26. During the Cold War, the US is both the largest hegemonic power (see GPI ranking above) and the dominant global treaty-maker, according to our data. Indeed, as illustrated in the Chord Diagram, the US signed more international treaties during the Cold War than the UK, Germany and France combined. Surprisingly, however, the Soviet Union (Russia) lags far behind in international treaty-making during the Cold War. The likely explanation is that the Soviets had a skeptical

view on international law as a tool of the bourgeoisie and never fully embraced the principle that “diplomacy shall proceed always frankly and in the public view.” (one of Woodrow Wilson’s famous 14 points of 1918). Despite this, the Soviet Union signed thousands of international treaties since its foundation, especially with developing countries (Imam 1983).

Figure 26: The US dominates treaty-making in the Cold War



Note: Newly signed bilateral treaties involving the US, UK, France, Germany and the Soviet Union in the period 1945-1990.

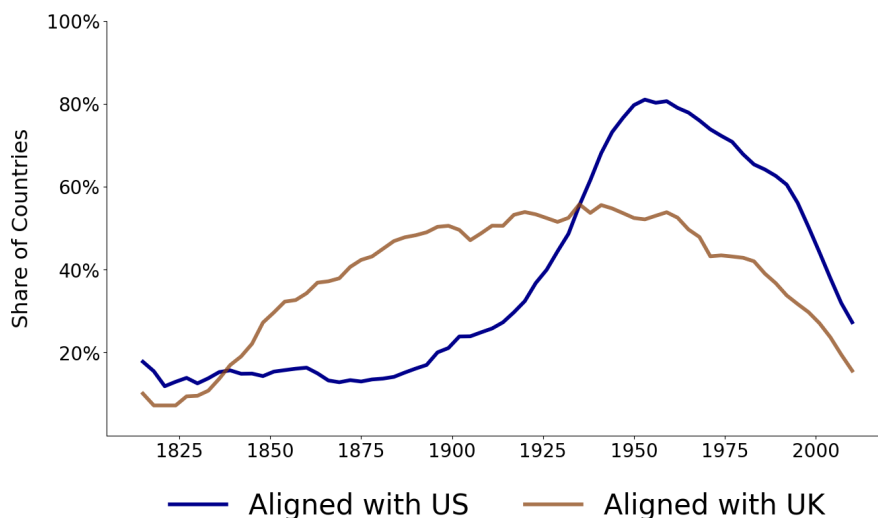
As a next step we measure “treaty alignment” of countries vis-a-vis hegemonic powers. For this purpose, we define a country as being “aligned” if the share of treaties with that country exceeds 5% of all treaties signed in that period. This 5% threshold is a high bar and roughly corresponds to the median treaty share that countries sign with the hegemon of their time.²⁰

Using this definition, we find that about 50% of countries were aligned with the UK by the late 19th century. Figure 27 shows the trend over time, with a gradually increasing share of UK-aligned countries between the 1830s and the 1890s. The United States has much fewer “treaty allies” in the 19th century but then sees a rapid increase in the number and share of aligned countries during the interwar years and around WW2. During the 1950s a whopping

²⁰The median treaty share in the full dyadic sample is 6.3% with the UK between 1800 and 1945, and 8.6% with the US between 1945 and 2020.

80% of sovereign countries worldwide had close treaty ties with the United States. The share then starts to drop to about 50% in the 1990s and to less than 40% in the 2010s, also because this measure only considers newly signed treaties but not standing ones. The overall pattern looks similar if we define alignment by *number* of treaties, or if we are even more restrictive and allow countries to be aligned only to a single country - the one with which the country signed the highest number of treaties.²¹

Figure 27: Treaty alignment with the UK and the US (% of countries)



Note: This figure shows the global share of sovereign countries that are aligned with the US and UK, respectively. We define two countries as aligned if the share of treaties in a dyad exceeds 5% (treaty share of partner >5% of all treaties). 10-year moving-averages.

Table 2 shows results of a more systematic test on the role of hegemonic powers for global treaty-making. We run simple regressions on the determinants of treaty-making by using a country’s share in all international treaties per decade as the dependent variable. The main explanatory variables are proxies for hegemonic power. Specifically we use the Global Power Index (HP trend) as well as binary variables derived from it. “Hegemony dummy 1” is coded 1 for all countries whose GPI trend index exceeds 0.1 (the GPI threshold for “major power”), and zero otherwise. The alternative, “Hegemony dummy 2”, is coded as 1 only for the single largest power (with the highest GPI trend index in that year). To control for classic gravity forces in international trade and linkages, we also control for a country’s population size and

²¹With this “largest treaty partner” definition the UK also sees a strong increase in countries aligned to it over the course of the 19th century, while the US sees a strong post-WW2 peak.

total trade (exports+imports) using the long-run TradeHist and Ricardo dataset.

The results confirm that hegemonic power and international treaty-making are closely related. Hegemons sign over-proportionately many treaties, after controlling for their economic and demographic size as well as time trends. The coefficients of the dummies in Columns 1 and 2 indicate that hegemons account for a three percentage point higher share of treaties globally. This is sizable given that even the largest powers only account for between 10 and 25 percent of all global treaties signed per decade. The GPI coefficient in Column 6, in turn, suggests that a one percentage point increase in global power is associated with a 0.1 percent higher share in all global treaties, after controlling for trade size, population, as well as country and year fixed effects.

Table 2: Hegemonic power and treaty making

	Dep. Var.: Share of global treaties per decade				
	(1)	(3)	(4)	(5)	(6)
Hegemony dummy 1 (GPI>10)	2.967*** (0.434)				
Hegemony dummy 2 (Nr. 1 power as of GPI)		2.168*** (0.534)			
Global Power Index (HP trend value)			0.141*** (0.023)	0.136*** (0.025)	0.110*** (0.037)
Population (log)	0.059*** (0.005)	0.070*** (0.007)	0.043*** (0.005)	0.045*** (0.009)	0.034 (0.031)
Trade (log)	0.011*** (0.001)	0.011*** (0.001)	0.011*** (0.001)	0.015*** (0.002)	0.007*** (0.002)
Fixed effects				Year	Country & Year
Observations	3,164	3,164	3,164	3,164	3,164
R2	0.236	0.173	0.248	0.260	0.060

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

Note: The dependent variable captures the country share of newly signed global treaties per decade.

5 Treaties and trade flows – action-based globalization?

This section presents evidence consistent with our central notion of “action-based” hegemonic globalization. For the analysis, we combine our new treaty dataset with yearly, long-run data on bilateral trade from 1830 until 2010. We then estimate a state-of-the-art gravity model that closely follows the established gravity toolkit first proposed in Santos Silva and Tenreyro (2006) and further elaborated in Head and Mayer (2014). Specifically, we rely on the standard Poisson-pseudo maximum likelihood (PPML) estimator for gravity model, using annual bilateral trade flows as dependent variable.

The long-run trade data comes from the widely used TradeHist dataset (Fouquin and Hugot 2016), complemented with data from the RICardo datasets in the 19th century (Dedinger, and Girard 2017). All trade flows are converted into USD using the exchange rates provided in TradeHist and RICardo, respectively. To account for country mergers, border changes, or the break-up of empires, we build on the GeoPolHist dataset, which is a comprehensive record of the evolution of nation states and non-sovereign entities from 1816 to 2022 (Dedinger and Girard 2021). We focus on sovereign countries only and drop those with a population of less than 1 million (as of 2010) as well as those that did not sign a single treaty over the 200 year sample period (this eliminates 79 entities such as Lesotho, Samoa, Tuvalu, or the Vatican, and reduces the number of zeros in the dyadic dataset).

Our main measure of alignment is the cumulative number of bilateral treaties signed between two countries over the past 20 years. The results are overall similar if we shorten or expand this time span of treaty signing and also if we further differentiate between treaty stocks vs flow (number of total treaties signed vs. newly signed treaties).

Table 3 shows the baseline results. The main take away is that treaty-making strongly correlates with bilateral trade flows. Based on the results in Column 1, we find that one additional new treaty signed (in the past 20 years) is associated with 2% higher annual trade flows between these countries. The treaty coefficient remains highly significant once we add country-pair fixed effects (Column 2), although its size is notably smaller. This is not surprising as pair fixed effects capture much of the variation of interest here, in particular on the cross-sectional variation in alignment between countries (being “friends” or not). However, this finding alleviates concerns about reverse causality and confounders. We also checked results without pair-fixed effects and adding dyadic controls instead, such as a dummy for bilateral or regional trade agreements (for which data is available for the past few decades), joint borders, joint language, or colonial linkages, which had little impact on our main coefficients of interest.

The main focus of our framework is on bilateral alignment and bilateral treaties, but the

results hold when we add multilateral treaties as well, with results shown in Column 3. To add multilateral treaties in this gravity framework, we recoded the participant network of each multilateral treaties into bilateral pairs among all the treaty participants. This coefficient for "all treaties" is larger than for bilateral treaties only and also highly statistically significant.

The results are similar when we distinguish between economic and non-economic treaties, based on our classification approach explained above (Columns 4 and 5). The coefficient for economic treaties is larger and also more robust to changes in specification and sample. Given the large literature on the impact of trade agreements on trade (e.g. Rodrik 2018), we also present a breakdown of economic treaties into those related to trade and those focused on other economic arenas, such as investment or tax agreements (Columns 6 and 7). We find a larger coefficient for trade-specific treaties than for other economic treaties. However, the coefficient for other economic treaties remains large and significant. This further underscores the value of looking beyond trade agreements alone.

Table 3: Treaties and bilateral trade: full sample PPML gravity model, 1830-2010

	Bilateral Treaties	With pair fixed effects (FE)	With multilateral treaties	Econ. vs other	Econ. vs other (FE)	Trade vs other econ.	Trade vs other econ. (FE)
Dep. var.:	Exports	Exports	Exports	Exports	Exports	Exports	Exports
Treaties (sum of past 20 years, log)	0.255*** (0.0285)	0.0548*** (0.0155)	1.092*** (0.131)				
Economic treaties (sum of past 20 years, log)				0.191*** (0.0391)	0.0356*** (0.0126)		
Other treaties (sum of past 20 years, log)				0.126*** (0.0444)	0.0291* (0.0150)	0.113*** (0.0429)	0.0311** (0.0149)
Trade-related treaties (sum of past 20 years, log)						0.281*** (0.0509)	0.0478*** (0.0168)
Other economic treaties (sum of past 20 years, log)						0.110*** (0.0325)	0.0179 (0.0127)
Distance (log)	-0.658*** (0.0272)		-0.550*** (0.0290)	-0.654*** (0.0263)		-0.633*** (0.0220)	
Constant	27.45*** (0.244)	22.59*** (0.0814)	22.29*** (0.738)	27.47*** (0.232)	22.60*** (0.0802)	27.31*** (0.206)	22.61*** (0.0801)
Observations	950,811	936,255	932,887	950,694	936,144	950,811	936,255
Pseudo R^2	0.930	0.988	0.935	0.930	0.988	0.931	0.988
Exporter-year FE	yes	yes	yes	yes	yes	yes	yes
Importer-year FE	yes	yes	yes	yes	yes	yes	yes
Country-pair FE		yes			yes		yes

Note: This table shows results from a PPML gravity estimation using bilateral trade flows from 1830 to 2010 as dependent variable. All specifications include exporter-year and importer-year fixed effects. The variables denoted as "treaties" capture the sum of treaties signed between exporter and importer in the past 20 years. Columns 1 and 2 focuses on the correlation between bilateral treaties and trade flows (with and without country-pair fixed effects). Column 3 extends the analysis by including multilateral treaties. Columns 4 and 5 distinguish between economic treaties and other treaty types (e.g., military and diplomatic), while Columns 6 and 7 compare results for trade-related treaties versus other economic treaties (e.g., taxation and financial agreements).

We next explore whether and how the results change across our 200 year sample. Table 4 shows estimation results for three main sub-periods: the "Pax Britannica" from 1830 until the start of WW1, the interwar years spanning 1919-1939, and the "Pax Americana" between 1945 and 2010. As can be seen, the coefficient for treaty alignment is highly significant in each of these sub-samples. The coefficient is largest for the pre-WW1 period, especially for economic treaties, and smallest during the interwar years, when non-economic treaties seem more pertinent.

Table 4: Treaties and trade across eras (pre-WW1, interwar, post-WW2)

Dep. var.:	Pax Britannica (1830–1914)		Interwar Period (1919–1939)		Pax Americana (1945–2010)	
	Exports	Exports	Exports	Exports	Exports	Exports
Treaties (sum of past 20 years, log)	0.303*** (0.0491)		0.137*** (0.0524)		0.255*** (0.0287)	
Economic treaties (sum of past 20 years, log)		0.303*** (0.0740)		-0.0644 (0.0729)		0.192*** (0.0393)
Other treaties (sum of past 20 years, log)		0.0610 (0.0548)		0.161*** (0.0541)		0.126*** (0.0446)
Distance (log)	-0.237*** (0.0551)	-0.229*** (0.0560)	-0.446*** (0.0525)	-0.456*** (0.0515)	-0.659*** (0.0272)	-0.655*** (0.0263)
Constant	18.62*** (0.493)	18.61*** (0.495)	21.09*** (0.486)	21.28*** (0.473)	27.49*** (0.245)	27.51*** (0.233)
Observations	58,917	58,917	48,294	48,294	830,194	830,194
Pseudo R^2	0.823	0.822	0.805	0.804	0.928	0.929
Exporter-year FE	yes	yes	yes	yes	yes	yes
Importer-year FE	yes	yes	yes	yes	yes	yes

Note: This table shows results from a PPML gravity estimation using bilateral trade flows for three main historical sub-periods. All specifications include exporter-year and importer-year fixed effects. The variables denoted as "treaties" capture the sum of treaties signed between exporter and importer in the past 20 years.

As a last, crucial step of the empirical analysis we bring one of the model's central insights to the data. We test whether alignment with a hegemon increases trade both directly as well as indirectly, meaning between countries that are aligned with the hegemon. To test for these channels of hegemonic alignment we focus on the post-WW2 sample of the "Pax Americana", because both the number of independent countries and the number of treaties increases considerably after 1945. The rich dyadic variation in hegemonic ties and treaties in this era is an important basis to isolate the third-party effects we are interested in.

It is straightforward to capture the direct alignment effect of hegemons. We focus on a specification in which we interact a US dummy, which is 1 in case the US is part of the dyadic pair, with a continuous measure of treaty intensity, namely the share of treaties signed with the US over the past 20 years (as percent of all new treaties signed). The result is shown in Column 1.

In a next step, we test for a third-country hegemony channel based on several complementary interaction models. The central idea underlying each of these models is to interact measures of US treaty intensity of both the importer and exporter country. In Column 2 we proxy US

alignment simply as the share of treaties signed with the US over the past 20 years and then interact this continuous measure of both country 1 (exporter) and country 2 (importer) in the dyad. Furthermore, we create a dummy for US alignment which turns 1 if the share of bilateral treaties signed with the US exceeds 10% of all treaties signed in the preceding 20 years.²² We then interact this dummy for importer and exporter, and show the estimated coefficient in Column 3.

Columns 4 to 6 show further variations. In Column 4 we interact the continuous US treaty share measure used in Column 1 and 2 (of country 1) with the dummy variable of US alignment used in Column 3 (of country 2). In Column 5 we show results based on a ranking of US alignment intensity, specifically by constructing a dummy that turns 1 in case country 2 is more closely tied with the US than country 1 (measured by their respective treaty shares). This dummy variable for country 2 is then interacted with the US treaty share of country 1. Lastly, in Column 6 we interact the continuous US treaty share measure with a dummy that turns 1 for countries that are *less* aligned with the US, specifically if they show a US treaty share of below 5% in the past 20 years).

The results provide strong support for the theoretical predictions that hegemon fosters trade, not just bilaterally (Column 1), but also indirectly between countries that align with the hegemon (Columns 2-5). The more closely aligned a country is to the hegemon via treaties, the larger the predicted trade flows with the hegemon and also with other countries aligned with the hegemon. Finally, Column 6 shows evidence consistent with the view that closer US allies trade less with those countries distant to the US.

²²This 10% threshold is close to the 10% median US share in the time-varying 20-year share measure in the post-WW2 sample.

Table 5: Treaties and trade – the role of hegemonic alignment, 1945-2010

	US trade (direct)	US treaty shares	US alignment Interaction I	US alignment Interaction II	US alignment Interaction III	US alignment Interaction IV
Dep. var.:	Exports	Exports	Exports	Exports	Exports	Exports
US dummy (in dyadic pair) ×Treaty share with US (country 1)	1.272*** (0.463)					
US treaty share (country 1) ×US treaty share (country 2)		1.315*** (0.381)				
US alignment dummy (country 1) (=1 if US treaty share >10%) ×US alignment dummy (country 2)			0.281*** (0.0840)			
US treaty share (country 1) ×US alignment dummy (country 2) (if US treaty share >10%)				0.662*** (0.165)		
US treaty share (country 1) ×US ranking dummy (country 2) (=1 if country 2 is closer to US)					0.612* (0.330)	
US treaty share (country 1) ×US distance dummy (country 2) (=1 if country 2 has US treaty share <5%)						-0.470*** (0.152)
Treaties (sum of last 20 years, log)	0.233*** (0.306)	0.223*** (0.0321)	0.239*** (0.0292)	0.227*** (0.0303)	0.246*** (0.0295)	0.240*** (0.0293)
Distance (log)	-0.659*** (0.0298)	-0.657*** (0.0271)	-0.649*** (0.0250)	-0.648*** (0.0251)	-0.658*** (0.0273)	-0.658*** (0.0265)
Constant	27.36*** (0.264)	27.47*** (0.247)	27.36*** (0.226)	27.38*** (0.229)	27.48*** (0.246)	27.54*** (0.244)
Observations	830,194	830,194	830,194	830,194	830,194	830,194
Pseudo R^2	0.928	0.929	0.929	0.929	0.928	0.929
Exporter-year FE	yes	yes	yes	yes	yes	yes
Importer-year FE	yes	yes	yes	yes	yes	yes

Note: This table shows results from a PPML gravity estimation using bilateral trade flows for the post-WW2 period. All specifications include exporter-year and importer-year fixed effects. The variable "US treaty share" captures the share of treaties signed with the US in percent of all treaties signed in the past 20 years.

6 Concluding remarks

This paper has developed a theoretical framework to analyze the relationship between hegemonic power and globalization. The theory is built on two key premises: (i) countries have heterogeneous preferences over political actions, such as the type of government (democracy vs. autocracy), industry standards, or the rule of law; (ii) trade between any two countries increases in the similarity of their actions. The presence of a hegemon, i.e., a large economy, prompts alignment in actions and facilitates the transition to a globalized world. In contrast, the shift to a multipolar world may cause an unraveling of globalization, which may benefit some countries and harm others.

To test the theory’s key insights, we construct “The Global Treaty Database”, a novel dataset on the near-universe of international treaties and agreements signed worldwide over the past two centuries. Using the number of treaties signed between any two countries to proxy for the alignment between them, we find broad empirical support for key implications of the theory. Namely, hegemons drive a disproportionate share of treaty-signing; bilateral treaty-signing is significantly correlated with bilateral trade, and; countries that sign more treaties with a hegemon trade more with other countries that are strongly aligned (measured through treaties signed) with the hegemon, and trade less with other countries that are not aligned (measured through treaties signed) with the hegemon.

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