Explaining Compensation Failure: Trade, Partisan Collusion, and the Underprovision of Compensation

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Abstract

Why has there not been more compensation for the losers of globalization? I argue that there has been a failure of compensation because political elites have tacitly colluded to avoid compensation. Because compensation is costly, political elites can be made better off by implicitly agreeing to compete over other issues and not increase compensation. I develop a formal model to show that tacit collusion is essentially possible when political elites value future electoral competition enough to make avoiding the cost of compensation worth it. I then use latent variable analysis to provide estimated probabilities for the possibility of tacit collusion in 22 European countries from 1980 to 2022. Finally, I calculate plausibly exogenous shift-share instruments to show that the probability that tacit collusion is possible moderates the causal effect of import shocks on a measure of compensation. Specifically, as tacit collusion becomes more possible import shocks cause less compensation to occur.

1 Introduction

Globalization, and in particular trade, increases aggregate economic welfare but has distributional consequences. In the United States (U.S.), for example, an estimated 87% of the population gained real income from a rise in imports from China while some may have lost up to four times the average gain (Galle, Rodriguez-Clare, and Yi 2023, 349). More generally, the losers from free trade have been concentrated in "the 'old-rich' countries of Western Europe, North America, [and] Oceania," where the real incomes of lower to middle class citizens grew the least compared to any other group in the world from 1988 to 2008 (Milanović 2016, 20).

There is a growing body of evidence that these distributional consequences have political implications. Specifically, negative import shocks are associated with reduced vote share for political incumbents in the U.S. (Jensen, Quinn, and Weymouth 2017; Margalit 2011) and increased vote share for populist right-wing parties across Europe (e.g., Colantone and Stanig 2018; Milner 2021). Thus, the distributional consequences of free trade have contributed to an electoral backlash from the losers that has largely hurt incumbents and favored right-wing populists.

It is also well known theoretically that compensation can alleviate the distributional consequences of trade. By redistributing some of the gains from trade to the losers, free trade with compensation can still increase aggregate welfare yet leave no one worse off (i.e., a Pareto welfare improvement) (e.g., Feenstra and Lewis 1994). However, there has been a "failure of compensation" (Frieden 2019, 182), where the supply of compensation has been less than demand in Western democracies. Consequently, a lack of compensation has made the backlash to globalization "perfectly predictable" (Rodrik 2018, 12).

It is puzzling why incumbent political elites in these countries have failed to compensate the losers of globalization. Scholars have long been aware of free trade's distributional impacts and of the ability for compensation to generate Pareto gains. By failing to compensate those hurt by free trade, incumbent political elites appear to have harmed themselves

by contributing to an electoral backlash that has benefited populist challengers. Thus, it is surprising that incumbent political elites did not anticipate the electoral backlash and compensate the losers of globalization more. Why has there not been more compensation?

I argue that there has not been more compensation because political elites competing for office have tacitly colluded to avoid compensating the losers. Tacit collusion is often used to describe anti-competitive behavior between firms, where it means that firms can come to an implicit agreement through reward and punishment strategies to supply the amount of goods that jointly maximizes profits. I model the decision by political elites to supply compensation as a repeated prisoner's dilemma between two competing coalitions of political parties. I show that if the two coalitions expect to compete in an indefinite number of elections, then it is possible for them to tacitly collude to restrict the supply of compensation and maximize their joint utility.

I test my argument by assessing how the estimated probability that tacit collusion is possible moderates the effect of plausibly exogenous import shocks on compensation. Following a common approach in the international political economy literature, I construct original shift-share instruments at the country-year level for imports from China and low-wage countries, respectively. The instrument is imports to the U.S., which allows me to capture variation in import exposure due to supply-side changes in import competing countries (Autor, Dorn, and Hanson 2013; Acemoglu et al. 2016). Results show that an increase in the probability of tacit collusion being possible decreases the amount of compensation caused by import competition.

In the next section I discuss the literature surrounding compensation failure and why it should be considered puzzling. In section 3 I advance my argument and formal model. Section 4 details my identification strategy and how I constructed the shift-share instruments and the estimated probability of tacit collusion. I conclude by discussing the results in section 5.

2 Why Is Compensation Failure Puzzling?

In 2019, the Organisation for Economic Cooperation and Development (OECD) described "a widespread decline in income redistribution across OECD countries" (Causa, Browne, and Vindics 2019, 13). In the U.S., Autor, Dorn, and Hanson (2016, 231) conclude that there has been "limited regional redistribution of trade gains from winners to losers." In general, scholars claim that there has been a failure in developed democracies to compensate the losers of globalization (Frieden 2019; Rodrik 2018).

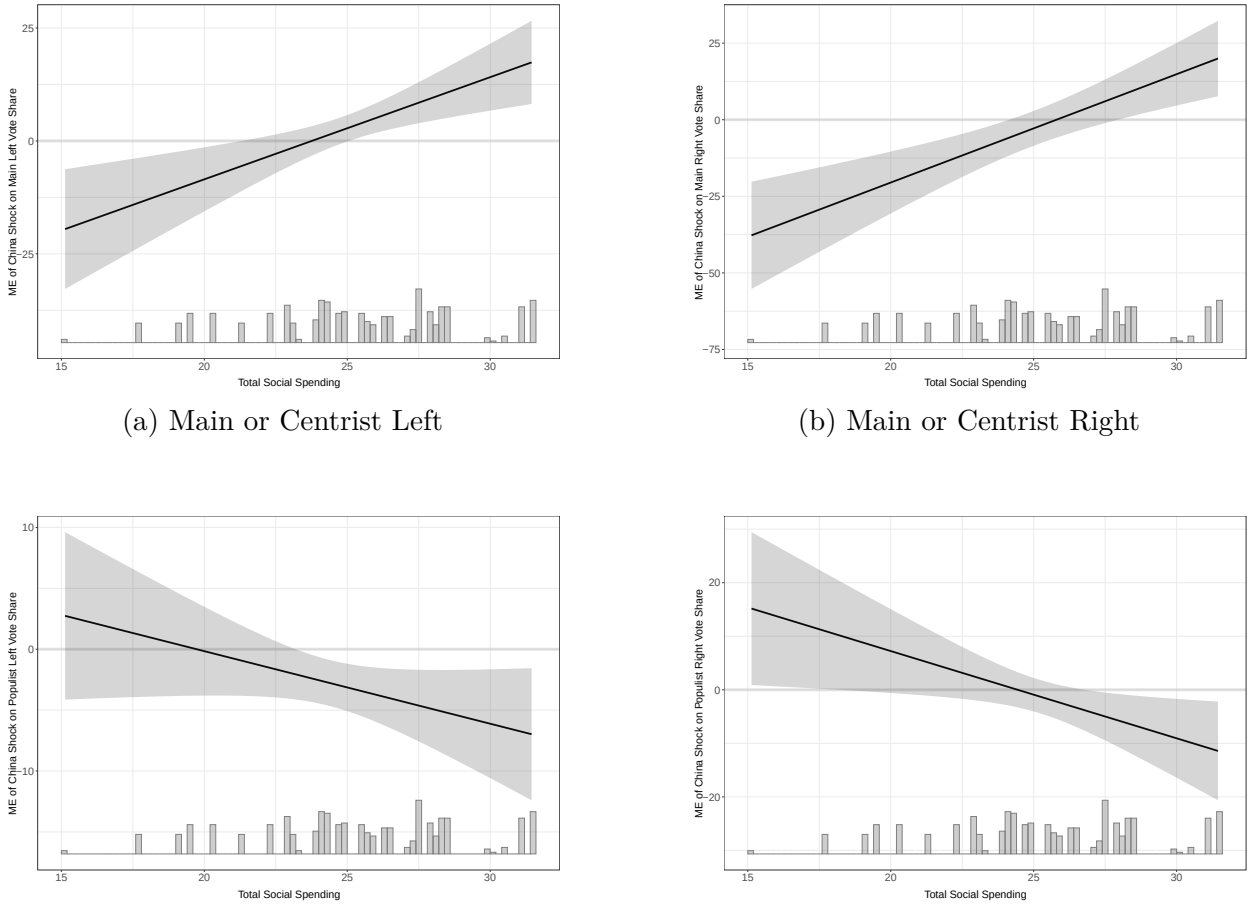
There are several reasons why compensation failure is puzzling. Firstly, it is not obvious that governments are unable to compensate the losers. The literature has largely failed to find conclusive evidence that globalization has negatively affected capital tax rates or government expenditures (Adam, Kammas, and Lagou 2013; Meinhard and Potrafke 2012; Dreher, Sturm, and Ursprung 2008; Dreher 2006; Garrett and Mitchell 2001; c.f. Busemeyer 2009). Thus, it does not appear to be the case that governments are so constrained by globalization as to not compensate the losers that globalization causes.

Secondly, in a competitive democracy the political costs of not compensating the losers likely outweigh the economic costs for political elites. Although compensation generates deadweight losses through taxes (Rodrik 2018) and may negatively affect growth, failing to compensate the losers may cause incumbent political elites to lose vote share to populist challengers (e.g., Colantone and Stanig 2018). While procuring economic growth for voters is a priority for political elites (e.g., Lewis-Beck and Stegmaier 2013), it is not obvious that political elites are willing to risk losing office to avoid the costs of compensation.

Thirdly, there is reason to doubt the argument that more compensation has not occurred because it is ineffective (Frieden 2019; Rodrik 2018). If compensation's ineffectiveness is due to it being underfunded, as with trade adjustment assistance (TAA) in the U.S. (Autor, Dorn, and Hanson 2016), the lack of funding itself begs the question of why political elites have not compensated more. There is also some evidence that compensation is effective at moderating the effect of import shocks on vote share. I use data from Milner (2021)

to show that one measure of compensation, total public social spending as a percentage of GDP, moderates the effect of the China shock on the vote shares of different party families in Europe. In particular, when social spending is high the China shock increases vote share for centrist parties and decreases vote share for populist parties (see Figure 1). Thus, it is puzzling why incumbent political elites (i.e., centrists) have failed to compensate the losers of globalization.

For these reasons, it is unclear how extant arguments explain the lack of compensation. Rodrik (2018) argues that commitment problems hinder compensation since politicians no longer have the incentive to compensate losers once trade deals have been secured with their approval. However, it is not clear why the threat of losing an election does not provide enough incentive to overcome this commitment problem. Menendez (2016, 669) argues that political elites may weigh the demands of globalization winners more when the losers are concentrated geographically, but also notes that "[s]imply ignoring the demands of concentrated trade losers is unlikely to maximize electoral returns..."



(a) Main or Centrist Left

(b) Main or Centrist Right

(c) Populist Left

(d) Populist Right

Figure 1: The effect of the China shock (OLS) on party vote share, moderated by total spending as a measure of compensation. At higher levels of total spending, the China shock is associated with populists losing vote share and centrist parties gaining vote share.

In sum, it is not ex-ante clear that compensation failure is rational for political elites when there exists a threat of electoral backlash from the losers. To prelude, I will essentially argue in the next section that tacit collusion enables political elites to minimize this threat of an electoral backlash. If political elites can implicitly agree to adopt similar positions on compensation, they can make rational voters indifferent between them on that issue. Thus voters, not preferring any candidate on the issue of compensation, cannot punish any one candidate for not offering more compensation. They will instead vote based on the issues where candidates choose to differentiate themselves, allowing political elites to avoid competing over compensation.

3 Theory

3.1 My Argument

Free trade has aggregate and distributional consequences. Because countries tend to specialize in what they have a comparative advantage in producing, countries are more productive when they trade with each other and average incomes rise. But how factors of production are reallocated within countries to best respond to comparative advantage pressures generates distributional effects. According to the classical Heckscher-Ohlin model, countries have a comparative advantage in producing goods that intensively use the factor of production they are relatively abundant in (Feenstra and Taylor 2020). For instance, if a country is abundant in labor but scarce in capital they will tend to specialize in and export goods that intensively use the factor of labor. The Stolper-Samuelson theorem then predicts that if factors of production are freely mobile, people will reallocate the factors they own towards the production of labor-intensive goods and labor will gain real income while capital loses real income.

Many developed democracies tend to be relatively abundant in capital while developing countries, like China, tend to be relatively abundant in labor. As trade has increased between the two sets of countries, the Stolper-Samuelson theorem implies that people who own labor in many developed democracies have lost real income while the owners of labor in developing countries have gained real income. Indeed, this phenomenon is one of the reasons that global equation has decreased but at the expense of middle to lower class citizens of developed democracies (Milanović 2016).

All else equal, I assume that these citizens prefer compensation for the real income they have lost from free trade. A manufacturing worker who was laid off due to import competition, for example, may not be able to regain the pride associated with their old job or expect to earn an identical income in the future. But this assumption means that they would still prefer to receive material compensation for being laid off than to be fired without

compensation.

Moreover, I assume that these citizens hold incumbent political elites responsible for their lost income and compensation. Classic economic voting literature largely concludes that the average voter is myopic, retrospective in their evaluation of the government, and particularly sensitive to negative shocks (e.g., Nannestad and Paldam 1994; Lewis-Beck and Stegmaier 2013). This assumption also enjoys support from studies that find a relationship between negative import shocks and anti-incumbent voting effects (Margalit 2011; Jensen, Quinn, and Weymouth 2017). It is not necessary for citizens to understand economics for them to understand that they are not as well off as they used to be, and it does not seem unreasonable that they would at least partially hold the government responsible.

I assume that the relevant political elites for my argument are political parties. Parties craft policy, including on trade and compensation, and have reputations that extend beyond an individual leaders' tenure. Any single government or administration may not be responsible for compensating the losers that have been hurt over decades of free trade. But parties have an interest in their brand and reputation with voters beyond particular governments, such that they are likely to be particularly concerned about an electoral backlash from losers in the future. Furthermore, I assume that political parties prefer to win elections. Even if they would like to pass specific legislation, they must first win elections to do so. Lastly, for the sake of the argument I assume that there are two main parties or coalitions of parties that compete in elections. While this is a restrictive assumption, there are multiparty countries that credibly fit this assumption (e.g., Germany over the last few decades with the SPD and CDU parties). However, I do expect that my argument holds in countries with more coalitions of parties although it is likely more difficult, and I attempt to take this into account in the empirical analysis.

I argue that under these assumptions, an incumbent political coalition of parties will compete with a challenging political coalition over proposing compensation to the losers. If the losers prefer compensation, they should vote for the party that compensates them

most in expectation, *ceteris paribus*. The coalition that fails to compete over increasing compensation will experience an electoral backlash and lose votes from the losers.

However, compensation can be very costly. While political parties or individual elites may not directly pay for compensation, the taxes required for compensation likely create deadweight losses that affect economic growth. If budget surpluses are high, this cost may be less consequential. When budget deficits occur, however, the cost of raising additional revenue to pay for compensation is likely high (also known as a high marginal cost of public funds).

When compensation is costly, both the incumbent and challenger coalitions would be better off if they could compete over issues other than compensation. If they adopt similar policies on compensation while differentiating themselves on other issues, they can make it difficult for the losers to manifest a backlash about the lack of compensation. When the incumbent and challenger have similar policies, voters may choose between them based on the policies where they are distinguishable. If the incumbent and challenger differentiate themselves by adopting different positions on cultural issues, for example, the losers may vote based on their preference for these issues rather than vote against the incumbent for failing to compensate them when the challenger is just as likely to do the same.

Thus, when both the incumbent and challenger do not offer compensation, the incumbent's expected cost of not compensating the losers (i.e., backlash) decreases because it is less likely that voters will vote against them on the issue of compensation. The incumbent can then focus on maintaining free trade without increasing compensation, providing economic benefits for the majority of voters who do win from free trade and competing with the challenger on less costly issues.

There are two important things to note before I introduce the formal model. Firstly, readers may find it incredible that political parties tacitly collude in well-established and developed democracies. Anti-competitive behavior between political elites is possible because voters do not have complete control over which candidates run for office or what they run on.

Again, if all of the candidates vying for office adopt the same policy position on a particular issue, a rational voter should be indifferent between candidates on that issue. Voters would instead use information on the positions where candidates differ to make their vote choice. This logic is similar to Riker's "dispersion principle" (1996, 104–9). Studying the U.S., Riker argued that political elites can abandon competition on an issue that is disadvantageous to them or that they agree on.

Indeed, I follow in a tradition of scholars who have studied elite behavior in democracies and noted noncompetitiveness. In Europe, Kitschelt (1997) argued that voters may support populist parties because they are disillusioned with mainstream parties that appear to collude and converge on certain issue dimensions (see Golder 2016). In Mali, a relatively democratic country at the time, Gottlieb (2015) documented explicit collusion between political parties. I contribute to this literature by further clarifying how tacit collusion is possible for political elites in developed democracies.

Secondly, I have thus far ignored ideology. This is largely because the issue of compensation is independent of other policy positions in my argument. For example, it is entirely possible for a left-leaning incumbent to pursue an ideologically consistent agenda on other issues while implicitly adopting the same position on the costly issue of compensation as their right-wing challenger. Doing so effectively takes this costly issue off the table during an election while still allowing for ideological competition on other issues. Evaluating the possibility of tacit collusion when issue positions are dependent is a question I leave for future work, although I attempt to account for the effect of ideology in the empirical analysis.

In conclusion, my explanation for the puzzling compensation failure is that political parties have tacitly colluded to compete over issues other than compensation. By doing so, they effectively reduced the probability that an electoral backlash would fall on either one of them. The benefit of tacit collusion is that parties could continue the status quo of free trade with little compensation to minimize the potential costs of compensation on economic growth and the benefits accumulated to the winners of trade. Thus, parties can ensure that

most citizens benefit from their policies and compete with each other on issues that are less costly.

3.2 Game-Theoretic Analysis of the Argument

Let Γ_δ be a game where $\Gamma_\delta = \Big(N, (\mathcal{B}_i^\infty)_{i\in N}, (\gamma_i^\delta)_{i\in N}\Big)$ (Maschler, Solan, and Zamir 2020, 552). The set of players, $N = \{I, Ch\}$, consists of an incumbent (I) and challenger (Ch) party or coalitions of parties that are competing to win an election. $\mathcal{B}_i^\infty$ is the set of mixed strategies available to player i, where each strategy specifies an action that player i takes at every $t \in \infty$ stage of the game. The actions that players can take is the set $A = \{C, \neg C\}$, where players decide to propose compensation (C) to the losers during the election or not $(\neg C)$. I assume that the proposal is binding, such that the winner of the election must pay the cost of compensation (c) proposed during the election. γ_i^δ is the utility function that associates each strategy with a total payoff for each player i. It is a discounted utility function, where the utility (u) for actions played in stages $t > 1$ is discounted by a factor of $0 < \delta < 1$. Specifically, the discounted utility function for a strategy $\tau_i \in \mathcal{B}_i^\infty$ is $\gamma_i^\delta(\tau_i) = \mathbb{E}\Big[(1-\delta)\sum_{t=1}^{\infty}\delta^{t-1}u_i^t\Big]$.

Figure 2 displays the base game that is infinitely repeated. The first or row player is the incumbent party which must decide between proposing compensation or not. The second or column player is the challenger party facing the same decision. If they both choose not to compensate, the incumbent earns a payoff of $p\psi$ or the probability that they get the payoff of winning. The challenger would also earn a payoff associated with the probability that they win office, or $(1-p)\psi$.

However, if the incumbent proposes to compensate the losers while the challenger does not, the incumbent wins the election with certainty (ψ) while the challenger earns a payoff normalized to 0. If the challenger instead proposes compensation while the incumbent does not, they win the election with certainty and earn the same payoff from winning office (ψ) while the incumbent earns 0.

Lastly, if both players compensate then the incumbent has the same probability of winning office as before (p) but now will have to pay the cost of compensation c if they win. The challenger's payoff would be $(1-p)(\psi - c)$ if they also chose to offer compensation. The key idea here is that when both players adopt identical policies on compensation, voters are indifferent between them on that issue. Thus, in both situations (C, C) and $(\neg C, \neg C)$, the players will be competing for office based on their other policy positions and their probabilities of winning will be similar.

The base game is a prisoner's dilemma when $0 < c < \psi$ and $0 < p < 1$. Each party has an incentive to propose compensation regardless of what the other party does. If one party is not proposing compensation, the other party would win the election with certainty. And to avoid losing the election with certainty, each party has an incentive to propose compensation to at least compete for office with some probability. By iterated elimination of dominated strategies ($\neg C$), the only Nash equilibrium of the base game is (C, C).

		Ch	
		$\neg C$	C
I	$\neg C$	$p\psi,\ (1-p)\psi$	$0,\ \psi$
	C	$\psi,\ 0$	$p(\psi - c),\ (1-p)(\psi - c)$

Figure 2: PD

However, in the infinitely repeated base game it can be rational for the players to not propose compensation $(\neg C, \neg C)$. If each player adopts a punishment strategy such that it is not profitable for the other player to deviate from $(\neg C, \neg C)$, then it can be an equilibrium of the game Γ_δ. Let τ^{GT} represent a pair of grim trigger strategies, $(\tau_I^{GT}, \tau_{Ch}^{GT})$, that instructs the players to $\neg C$ in the first stage and all subsequent stages of the game unless the other player C. Once a player C's, the other player will punish them by playing $\neg C$ and holding them to the minmax value (see Appendix).

τ^{GT} is an equilibrium if and only if for all players $i \in N$ the payoff from the strategy

pair is greater than or equal to the payoff player i could get from playing any other strategy while player $-i$ still plays τ_{-i}^{GT} (Maschler, Solan, and Zamir 2020, 552):

$$\gamma_i^{\delta}(\tau^{GT}) \geq \gamma_i^{\delta}(\tau_i, \tau_{-i}^{GT}). \tag{1}$$

The best alternative strategy a player can consider is C for all stages $t \in \infty$. Since the other player will play $\neg C$ in the first stage per the grim trigger strategy, player i can earn a larger payoff that stage by compensating. In all other stages, it would be best to compensate since the other player with the grim trigger strategy will also be playing C. Thus, for the strategy pair τ^{GT} to be an equilibrium it must be greater than or equal to the strategy pair of playing all C:

$$\gamma_i^{\delta}\Big((p\psi, (1-p)\psi)_{t=1\to\infty}\Big) \geq \gamma_i^{\delta}\Big((\psi,\psi)_{t=1} + \Big(p(\psi-c), (1-p)(\psi-c)_{t=2\to\infty})\Big) \tag{2}$$

Solving for δ (see Appendix), the equilibrium condition for not compensating in every stage of the game is:

$$(\delta_I^*, \delta_{Ch}^*) \geq \left(\frac{\psi - p\psi}{\psi - p(\psi-c)}, \frac{\psi-(1-p)\psi}{\psi-(1-p)(\psi-c)}\right) \tag{3}$$

Note that the base game specified $0 < c < \psi$ and $0 < p < 1$ as requirements for the model to be a prisoner's dilemma. It is important to also note that the punishment strategies discussed above ensure that there are many equilibria possible in the infinitely repeated game (i.e., the Folk Theorem, see Appendix). It is possible to construct a learning model to predict which equilibrium will be selected by players (e.g., Jindani 2022), but it is reasonable to expect that players will choose the "best" equilibrium they can. τ^{GT}, the equilibrium of interest, is Pareto dominant and thus can be expected to be the equilibrium of choice for players.

3.3 Implications

Equation (3) essentially states that both political coalitions need to value future election outcomes enough to make avoiding the future costs of compensation worth it. When this is true, tacit collusion is possible between the coalitions. The possibility of tacit collusion is a function of the parameters in the model, namely the cost of compensation (c), the payoff of winning office (ψ), the probability of each coalition winning office (p, $1-p$), and the extent to which the coalitions value future election outcomes (δ_I, δ_{Ch}).

Figure 3 displays the comparative statics for the first three parameters, which appear on the right hand side of the equilibrium condition in equation (3). The graphs in Figure 3 show how a change in one of the parameters, while holding the other two fixed, affects the right hand side of equation (3) and thus how much the coalitions need to value the future to make tacit collusion possible. For each parameter being varied, I hold the others at reasonable values (e.g., the cost of compensation may be positive but less than the payoff from office). The following implications generally hold unless one or more parameters are at their extrema (e.g., if cost equals 0, there is no combination of the other two parameters that make the equilibrium possible). I will describe the intuition behind each parameter's effect on the possibility of tacit collusion before detailing my research design.

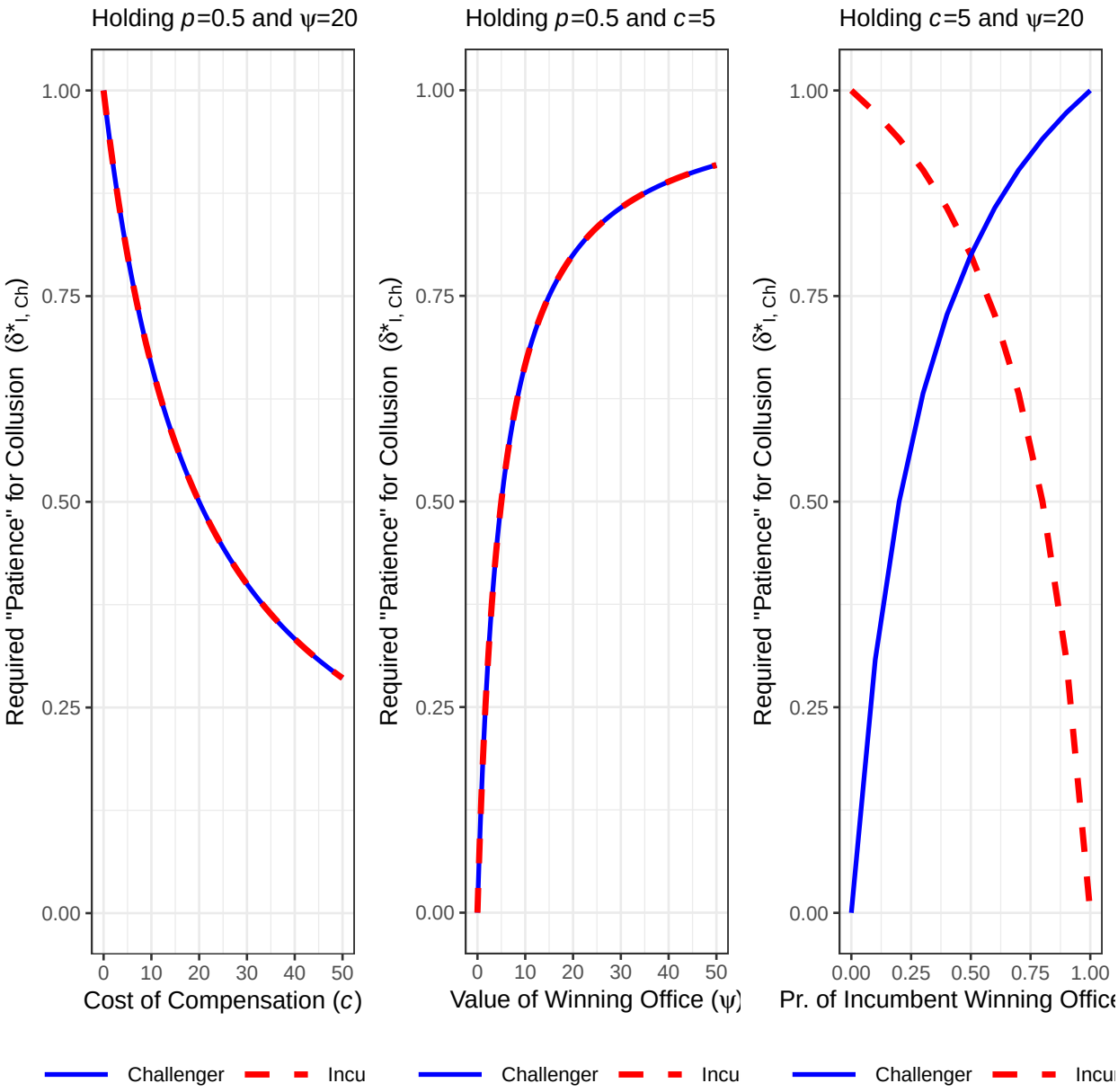


Figure 3: The potential for collusion is greater when the required patience (or required value placed on the future) for colluding (eq. 3) is lower. From left to right, these graphs imply that the potential for collusion increases in the cost of compensation, decreases in the value of winning office, and increases (decreases) in the probability of the incumbent (challenger) winning office. Thus, eq. 3 is easiest to satisfy when compensation is costly, the payoff from winning office is relatively low (i.e., a one-shot defection to maximize the chances of winning is outweighed by future possibilities of winning office without having to compensate), and both the incumbent and challenger have similarly high chances of winning.

Ceteris paribus, increasing the cost of compensation (c) decreases the right-hand side

of equation (3) and makes tacit collusion more possible (left graph). This is the most straightforward implication since the more costly compensation is, the greater the incentive is for coalitions to avoid it. As mentioned before, I interpret the cost of compensation to be a deadweight loss from taxes needed to increase compensation. This is especially costly when a country is already running budget deficits, where increasing spending and inefficient taxes harms economic performance more than when there is a budget surplus.

Increasing ψ, or the payoff that players get from winning office, increases the right-hand side of equation (3) *ceteris paribus* (middle graph). A greater payoff from winning office makes the equation harder to satisfy and implies that a greater payoff from winning office makes players less willing to tacitly collude with one another. This is largely due to the fact that a larger payoff from winning office enhances the incentive to defect. If ψ is large enough, players would rather "take the money and run" by defecting for one period and foregoing the gains from collusion in the future. One way to interpret this is to consider ψ as the time in office or power gained from holding office. If the winner was able to stay in power for a very long time or change the rules of the game after winning, then they have no need to tacitly collude with a competitor in the future. Thus, the larger ψ is the less likely it is that equation (3) is satisfied and tacit collusion is possible.

Holding all else constant, increasing the probability of the incumbent winning the election (p) decreases the right-hand side of equation (3) for the incumbent (right graph, red dashed line) but increases it for the challenger (right graph, blue solid line). Mechanically, a higher (lower) probability of winning increases (decreases) the expected payoff from future elections and decreases (increases) the attractiveness of a one-shot defection. Thus, increasing p makes the incumbent party more willing to tacitly collude but the challenger party less willing. Somewhat intuitively, this means that political coalitions need to be competitive for tacit collusion to be worthwhile. Like the classic example of a duopoly, tacit collusion only matters because one firm's decisions affect the profits of the other. Similarly, the decision by one coalition to offer more compensation needs to affect the payoff for the other coalition for

tacit collusion to matter. For example, if the incumbent were to win every election with certainty, then the campaign proposals made by the challenger do not induce competition on that issue and thus does not make the incumbent pay a cost. Since tacit collusion is about implicitly agreeing to avoid incurring costs for one another, political coalitions need to be competitive enough for that agreement to matter.

Summarily, the possibility of tacit collusion is highest when compensation is expensive, the probability of winning elections is high for both coalitions, and when the payoff from winning is not prohibitively high for either coalition. This implies that both coalitions need to value future elections and expect to win them for tacit collusion to be possible. If any one election yields such a high payoff that future elections do not matter or if one coalition never expects to win, then the utility that a coalition receives from competing in future elections is not affected by the other coalition's behavior. Thus, there would be no benefit to tacit collusion.

4 Research Design

I have argued that coalitions of political parties in developed democracies have not compensated the losers of globalization more because they have tacitly colluded to compete on other issues. Simply put, increasing import competition should cause less compensation when tacit collusion is possible. To test this hypothesis, I aim to estimate the effect of import competition on compensation and evaluate how the possibility of tacitly collusion moderates this effect. My identification strategy is to use plausibly exogenous import shocks to isolate the causal effect of import competition on compensation and interact the shocks with a measure of tacit collusion. I begin by describing my measure for the outcome of compensation before detailing the treatment and moderator.

4.1 Outcome: Compensation

I use total public social spending (henceforth total spending) as a measure of compensation in developed democracies (OECD 2023). Total public social spending is a commonly employed measure of welfare spending and is consistent with Rodrik's (2018, 18) definition of "actual compensation" in the form of "generous safety nets." Total spending is less politically contentious than targeted redistribution and more holistic, making it a relatively convenient and thus likely supply of compensation (Rodrik 2018).

4.2 Treatment: Import Shocks

I follow a common approach in the international political economy literature by calculating a shift-share instrument to identify the effect of an import shock. Specifically, I first calculate a shift-share variable that captures how a change in imports from low-wage countries affects workers in import competing industries in a given country-year, it. Low-wage countries are defined as those that have a GDP per capita less than 5 % of the U.S.'s (Bernard, Jensen, and Schott 2006). I also calculate a similar shift-share variable but just for imports stemming from China. Equation (2) displays the calculation for a one year shock in imports from China. Import data comes from UN Comtrade (United Nations 2025).

$$\frac{\text{Manufacturing Employment}_{it}}{\text{Total Employment}_{it}} \times \Delta_{t-1}^{t} \text{Imports from China}_{i} \tag{4}$$

I then create the instrument by replacing imports to country i by imports to the U.S. Motivated by Autor, Dorn, and Hansen (2013), the idea is that instrumenting imports to country i with imports to the U.S. circumvents endogeneity from unobserved demand for imports. The assumption is that demand for imports in the U.S. is independent of the demand for imports in country i, and thus the instrument captures plausibly exogenous supply-side variation in imports. Country-year specific variation in the share of import-competing workers then weights the common import shock to the U.S., providing a country-

year instrument. Equation (3) shows how such an instrument is calculated for a one year shock in imports from China.

$$\frac{\text{Manufacturing Employment}_{it}}{\text{Total Employment}_{it}} \times \Delta_{t-1}^{t} \text{Imports from China}_{U.S.} \tag{5}$$

4.3 Moderator: Probability That Tacit Collusion is Possible

In section 3.3, I described the equilibrium condition for tacit collusion to be possible and the effects that theoretical parameters have on this possibility. My goal is to use observational indicators of these parameters to estimate the probability that tacit collusion is possible in any given country-year. I first create a linear function of the observed indicators that produces a summary value of how the indicators affect the possibility of collusion. I then feed this function into the logistic CDF to get probabilities.

I use 5 observed indicators to capture my theoretical concepts. The first is elections_{ie}, which is the average number of past elections that the effective number of parties in a country-election (ie) have competed for (Doring and Manow 2024). The idea is that this provides information on how long parties can expect to compete for in the future. If the effective parties in a country have a long history of competing, and thus a high value of elections_{ie}, it may be reasonable for these parties to expect to compete for a long time going forward. Thus, this gives insight into how much coalitions value the future and is a measure of δ from section 3.

The second indicator is seats_{ie}. For each effective party in a country-election year, I calculated the average seat share that party has won in the lower house in all past elections in which they have competed (Doring and Manow 2024). I then average over effective parties to get seats_{ie}, which gives information on how competitive each effective party is in an election based on their past performance. The more competitive the parties are, the more that other parties' decision to increase compensation matters and the greater the incentive to tacitly collude. seats_{ie} can be interpreted as a measure for the combination of p and $1-p$

from section 3.

The third indicator is balance$_{it}$, which describes the budget deficit or surplus that a governments runs in any country-year (IMF 2021). This captures the theoretical cost of compensation for those who win government (c from section 3), as a larger deficit means that it is more costly to spend on compensation. A main cost of compensation is the raising of inefficient taxes to pay it. If budget surpluses are high, this cost is relatively low. When budget deficits occur, the cost of raising additional revenue to pay for compensation is high (also known as a high marginal cost of public funds). Intuitively, the greater the cost of compensation the greater the incentive to implicitly agree to avoid competing over increasing it.

The fourth indicator is time$_{ie}$, which is the average number of years that a coalition can stay in office for if they win (Hellstrom et al. 2024). This captures the payoff from winning (ψ in section 3) since a longer maximum time in office means that winning that election is more valuable. The more valuable it is to win office, the greater incentive there is to forgo the long-term benefits of avoiding the cost of compensation by tacitly colluding.

The final indicator is enpp$_{ie}$ and is simply the number of effective parties competing in a country-election year (Hellstrom et al. 2024). I measure this to account for the idea that the more political coalitions there are competing, the more difficult it probably is to enforce tacit collusion.

With these indicators in hand, the linear predictor is given in Equation (4). The final thing to note is the direction of each indicator's impact on the latent possibility of tacit collusion. The more competitive the effective number of parties in a country are and the longer they have been competing makes tacit collusion more likely, so these indicators have a positive coefficient (i.e., 1). Since balance$_{it}$ is positive for budget surpluses and negative for deficits, it should be inversely related to the possibility for tacit collusion. The more negative balance$_{it}$ is the more costly compensation is indicated to be and thus it receives a negative coefficient (i.e, -1). Finally, the greater the payoff from winning office (time$_{ie}$) is

and the more coalitions there are the harder it should be to collude, and these indicators have a negative coefficient as a result.

$$\text{LP}_{it} = \Big(\text{elections}_{ie} + \text{seats}_{ie} - \text{balance}_{it} - \text{enpp}_{ie} - \text{time}_{ie}\Big) \tag{6}$$

Equation (5) specifies the logistic inverse link function for the linear predictor or the logistic CDF. This function gives probabilities between 0 and 1 while taking into account ceiling and floor effects of the linear predictor. A change in an already high liner predictor, for example, should have a smaller impact on the probability for tacit collusion than a change at a middling linear predictor.

$$\pi_{it} = \text{logit}^{-1}(\text{LP}_{it}) = \frac{1}{1 + \exp(-\text{LP}_{it})} \tag{7}$$

The ultimate result of this process is displayed in Figure 4. The probabilities reported have some face value, which gives me more confidence that the latent variable approach is capturing the theoretical concept of tacit collusion. Specifically, the United Kingdom consistently reports a high probability for the possibility of tacit collusion, which fits with intuition since it is a country dominated by two parties with a long history of competing. This should translate into both parties valuing future electoral competition highly since each party knows it has a fair chance at winning an election and that this will be the case for perhaps an indefinite number of future elections. The country has also ran a budget deficit on average for the sample period, meaning that spending more on compensation is likely relatively costly.

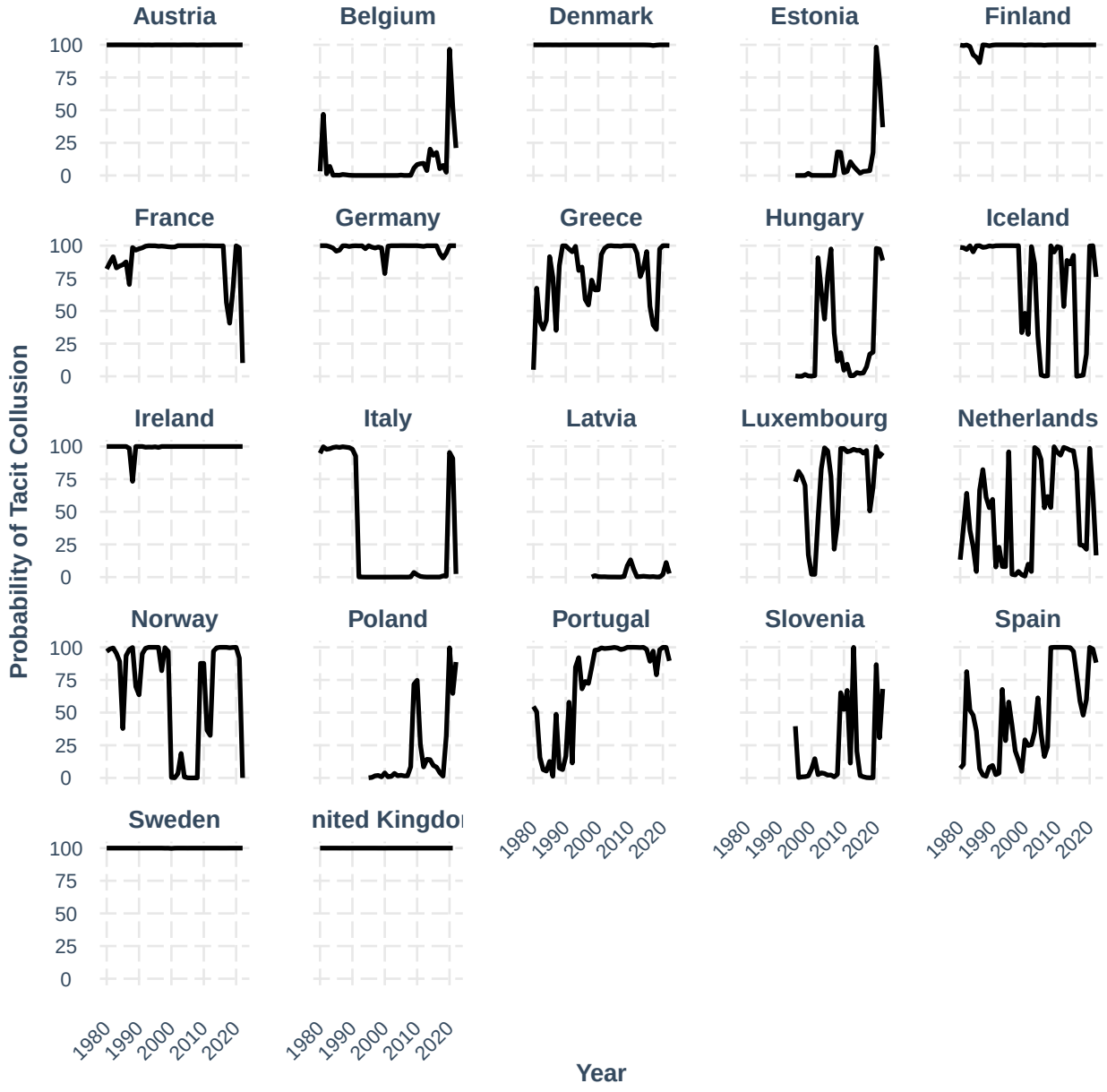


Figure 4: The estimated probability for tacit collusion to occur in each country-year in my analysis.

Besides the arbitrary choice of observed indicators, which I hope to have provided theoretical justification for, there are two obvious shortcomings of this approach. The first is the choice of weights on each indicator that goes into the linear predictor. I opt to equally weight each indicator at unity, meaning that the linear predictor is simply the sum of the observed indicators. This is largely because I am agnostic as to how much each indicator

should matter for the possibility of tacit collusion.

However, this perhaps amplifies the second problem which is the arbitrary choice for each indicator's scale. As with any linear function, the summary value produced is sensitive to the scale of the inputs. My "solution" in this case is to manipulate the data as little and as transparent as possible. This problem mostly affects seats_{ie} and time_{ie}, since shares can be manipulated in scale and time can be reported in different units. For the former, I opted to keep the shares at their original scale (e.g., $\frac{\text{seats a party won}}{\text{total seats}} = 0.5$). Unfortunately, the scale of time_{ie} is more so due to the fact that the `exp` function in `R` reports a value of 0 for numbers less than -745. If I measured time_{ie} in months or days, for example, the linear predictor would be so small that there would reportedly be 0 probability for tacit collusion to be possible for any country-year.

4.4 Statistical Model and Sample

After describing the shift-share instruments and my measure for tacit collusion, the statistical model used and effect of interest is given by the 2SLS Equations (6) and (7). The within estimator is my preferred choice because it is consistent under the assumptions that country-level heterogeneity is related to the independent variables but that countries are independent from one another. To account for dependence within countries, I cluster at the country level.

$$\text{total}_{it} = \alpha\text{total}_{it-1} + \beta_1\text{shock}_{it} + \beta_2\pi_{it} + \beta_3\text{shock}_{it} \times \pi_{it} + \gamma_i + \varepsilon_{it} \tag{8}$$

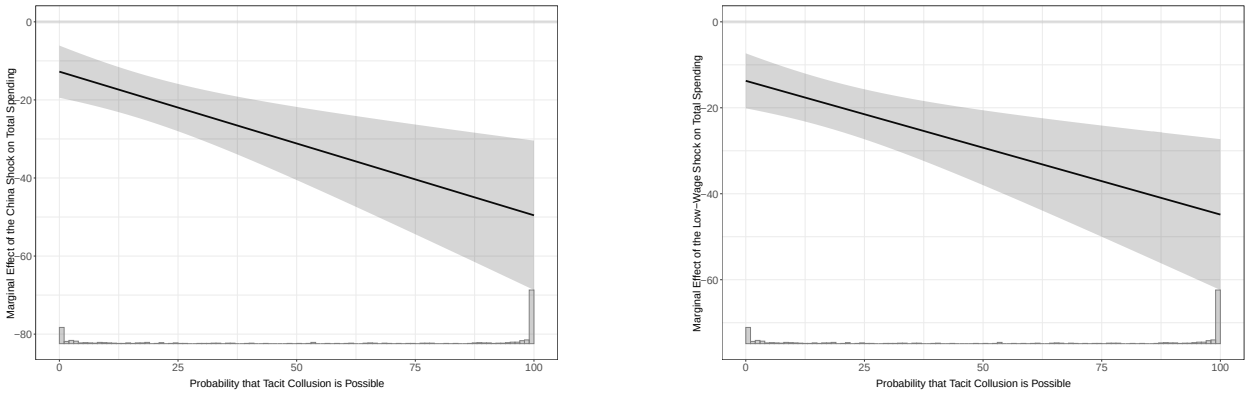
$$\text{shock}_{it} = \alpha\text{total}_{it-1} + \beta_1\text{shock to U.S.}_{it} + \beta_2\pi_{it} + \beta_3\text{shock to U.S.}_{it} \times \pi_{it} + \gamma_i + u_{it} \tag{9}$$

The sample used is delimited by my theory and data availability. Theoretically, compensation failure is a phenomena limited to developed democracies as this is where is claimed to be happening. Mostly due to the observed indicators used to construct the probability of tacit collusion being possible, the sample is an unbalanced panel of 22 European countries

from 1980 to 2022.[1]

5 Results and Discussion

Figure 5 displays the results for the effect of the China shock (left) and low-wage shock (right) moderated by the probability that political coalitions can tacitly collude. The results are based on the estimation of instrumental variable Equations (6) and (7) and include fixed effects and clustered standard errors by country. The full regression results are given in Table 1 in the Appendix.



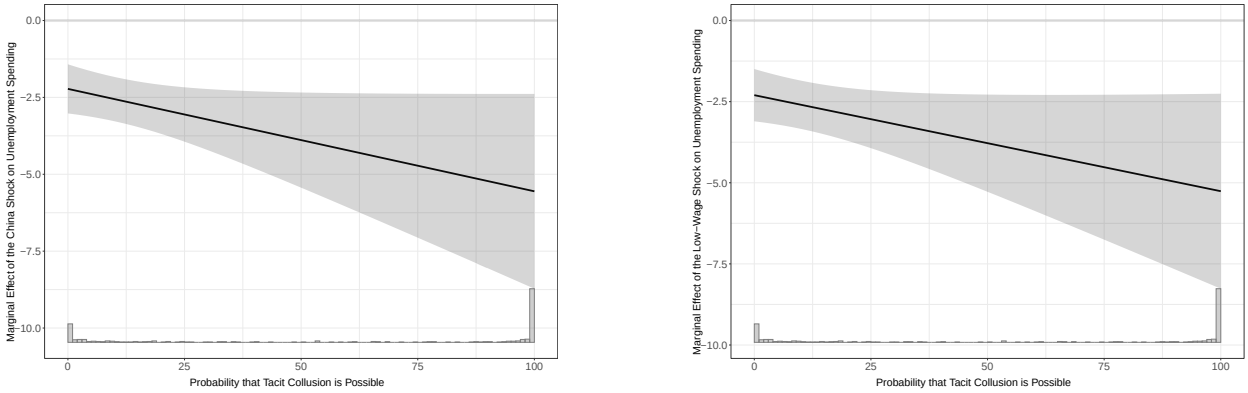
(a) China Shock (2SLS) (b) Low-Wage Shock (2SLS)

Figure 5: The effect of import shocks on total spending, moderated by the probability that tacit collusion is possible. As this probability increases, import shocks cause less spending or compensation to occur.

The graphs show that for both the China shock and Low-Wage shock, import competition generates less compensation as the probability that tacit collusion is possible increases. I also conduct the same analysis but use unemployment spending as a percentage of GDP instead of total public spending as the measure of compensation. The moderation effect is again plotted in Figure 6 while the full regression results are given in Table 2 in the Appendix. The results are similar yet less precise, only being distinguishable from 0 at the 10 % significance

[1]The countries used are Austria, Belgium, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Luxembourg, Netherlands, Norway, Poland, Portugal, Slovenia, Spain, Sweden, and the United Kingdom.

level.



(a) China Shock (2SLS) (b) Low-Wage Shock (2SLS)

Figure 6: The effect of import shocks on unemployment spending, moderated by the probability that tacit collusion is possible. As this probability increases, import shocks cause less spending or compensation to occur.

A particularly interesting feature of these results is the fact that the effect of import competition on compensation is always negative. This contradicts my theoretical expectation that when tacit collusion appears improbable, import competition should cause more compensation. Therefore, while I find some evidence that tacit collusion reduces compensation for the losses incurred from globalization, it remains unexplained why compensation appears to always be decreasing in import competition. It is possible that globalization does indeed reduce government's ability to compensate despite previous evidence to the contrary, as Busemeyer (2009) contends.

6 Conclusion

In conclusion, I have argued that it is puzzling why political elites have failed to compensate the losers of globalization. It has been well-known both what the effects of globalization would be and how compensation can lead to Pareto gains under free trade. By failing to compensate the losers, incumbent political elites have made themselves vulnerable to a backlash against globalization from the right.

I argue that compensation failure can be explained by political elites refusing to compete over compensation. When the elites that partition the political sample space for voters take the same position on an issue, it ceases to be a factor in deciding who to vote for. If both an incumbent and challenger party promise the same policy on an issue during an election, then no matter who is elected the policy on that issue will be the same. Thus, rational voters will cast their votes based on the issues where political competitors differentiate themselves. This would explain why- even if voters demand more compensation- compensation failure can occur. If political elites adopt the same position of free trade with little compensation, voters have no one to vote for that could implement more compensation. They will then vote on other issues where elites have different policy positions.

I developed a simple formal model to demonstrate that it is rational for political elites to adopt similar positions on the issue of compensation when compensation is particularly costly, the payoff from a one-shot election win is not prohibitively large, and the political incumbent and challenger have relatively equal chances of winning the election. In this case, it is possible for elites to improve their utility by competiting over less costly issues and adopting the same policy on compensation.

I evaluated the implications of my model by constructing original shift-share instruments to measure import shocks and probabilities for the possibility of tacit collusion using latent variable analysis. To the extent that imports from low-wage countries and China to the U.S. are independent of imports to countries in Europe, my identification strategy captures the causal effect of a negative shock to imports and how it is moderated by the tacit collusion.

7 Appendix

7.1 Solving for equation (3)

$$
\begin{aligned}
(1-\delta)\Big(\big(p\psi,(1-p)\psi\big)(1+\delta+...+\delta^{\infty})\Big) &\geq (1-\delta)\Big(\big(\psi,\psi\big)(1) \\
&\quad + \big(p(\psi-c),(1-p)(\psi-c)\big)(\delta+...+\delta^{\infty})\Big) \\
(1-\delta)\Big(\big(\frac{p\psi}{1-\delta},\frac{(1-p)\psi}{1-\delta}\big)\Big) &\geq (1-\delta)\Big(\big(\psi,\psi\big)+\big(\frac{\delta p(\psi-c)}{1-\delta},\frac{\delta(1-p)(\psi-c)}{1-\delta}\big)\Big) \\
\big(p\psi,(1-p)\psi\big) &\geq (1-\delta)\Big(\psi+\frac{\delta p(\psi-c)}{1-\delta},\psi+\frac{\delta(1-p)(\psi-c)}{1-\delta}\Big) \\
\big(p\psi,(1-p)\psi\big) &\geq \big(\psi-\psi\delta+\delta p(\psi-c),\psi-\psi\delta+\delta(1-p)(\psi-c)\big) \\
\big(\psi\delta-\delta p(\psi-c),\psi\delta-\delta(1-p)(\psi-c)\big) &\geq \big(\psi-p\psi,\psi-(1-p)\psi\big) \\
\Big(\delta\big(\psi-p(\psi-c)\big),\delta\big(\psi-(1-p)(\psi-c)\big)\Big) &\geq \big(\psi-p\psi,\psi-(1-p)\psi\big) \\
(\delta_I^*,\delta_{Ch}^*) &\geq \Big(\frac{\psi-p\psi}{\psi-p(\psi-c)},\frac{\psi-(1-p)\psi}{\psi-(1-p)(\psi-c)}\Big)
\end{aligned}
$$

7.2 Folk Theorem

Denote the minmax value of player i as $\bar{v}_i$, where $\bar{v}_i = \min_{s_{-i}\in S_{-i}}\max_{s_i\in S_i}U_i(s_i,s_{-i})$.[2] In words, the minmax value is the result of player $-i$ choosing the strategy (s_{-i}) that gives player i the smallest of their best response payoffs $(\max_{s_i\in S_i}U_i(s_i,s_{-i}))$.

$$
\begin{aligned}
\bar{v}_I &= \min_{s_{Ch}\in S_{Ch}}\max_{s_I\in S_I}U_I(s_I,s_{Ch}) \\
&= \min_{s_{Ch}\in S_{Ch}}\{\psi,p(\psi-c)\} \\
&= p(\psi-c)
\end{aligned}
$$

[2](Maschler, Solan, and Zamir 2020, 112)

$$\begin{aligned}\bar{v}_{Ch} &= \min_{s_I \in S_I} \max_{s_{Ch} \in S_{Ch}} U_{Ch}(s_{Ch}, s_I) \\ &= \min_{s_I \in S_I} \{\psi, (1-p)(\psi - c)\} \\ &= (1-p)(\psi - c)\end{aligned}$$

Denote a payoff as x and the set of players as N. The set of "individually rational" payoffs is denoted as V, where $V = \{x_i \geq \bar{v}_i \ \forall \ i \in N\}$.[3] V is simply the list of each individual's payoff that is greater than or equal to their minmax value. For this game, $V = \{p(\psi), \psi_I, p(\psi - c), (1-p)\psi, \psi_{Ch}, (1-p)(\psi - c)\}$.

Denote the set of feasible payoffs as F, where $F = \text{conv}\{U(s), s \in S\}$.[4] It is the smallest vector of numbers that contains the pair of payoffs for each strategy in the game. In this game, it is simply the list of payoff pairs for each action: $F = \{\Big(p(\psi, (1-p)\psi)\Big), \Big(0, \psi\Big), \Big(\psi, 0\Big), \Big(p(\psi - c), (1-p)(\psi - c)\Big)\}$.

Thus, the set of individually rational and feasible payoffs is $F \cap V$, also known as W (see Figure 5).[5]

[3](Maschler, Solan, and Zamir 2020, 538)
[4](Maschler, Solan, and Zamir 2020, 538)
[5](Maschler, Solan, and Zamir 2020, 548)

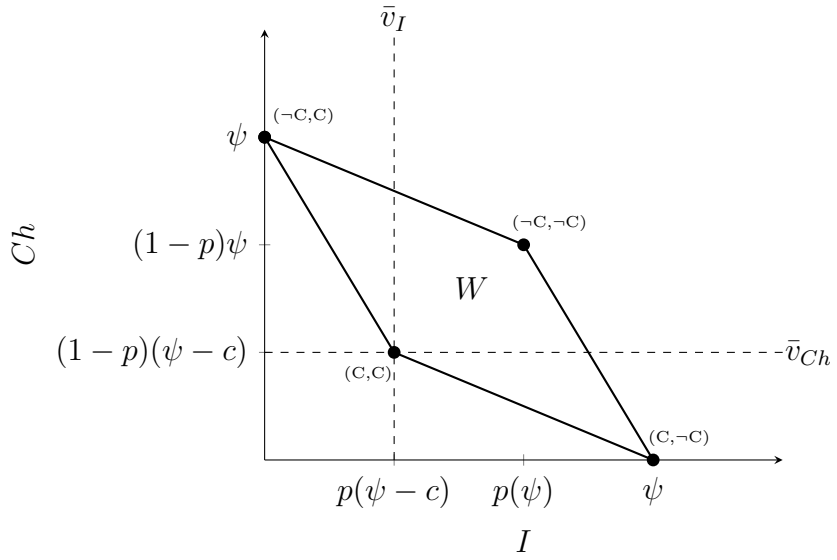


Figure 7: W is the set of payoffs that can be approximated in equilibrium via the Folk Theorem.

7.3 Full Results

Table 1

	Dependent variable:		
	Total		
	OLS	*instrumental variable*	*OLS*
	(1)	(2)	(3)
Total_{t-1}	0.807***	0.776***	0.817***
	(0.024)	(0.026)	(0.023)
China Shock, 1 Yr	−6.828***	−12.761***	
	(1.734)	(3.200)	
Low-Wage Shock, 1 Yr			−8.387***
			(2.088)
Probability Tacit Collusion Possible	0.015***	0.017***	0.015***
	(0.002)	(0.003)	(0.002)
China Shock, 1 Yr × Probability Tacit Collusion Possible	−0.108***	−0.368***	
	(0.038)	(0.104)	
Low-Wage Shock, 1 Yr × Probability Tacit Collusion Possible			−0.128**
			(0.054)
FE:	Country	Country	Country
SE's clustered by:	Country	Country	Country
First Stage F-Stat		62.28	
Observations	477	477	477
R^2	0.950	0.930	0.952
Note:			*p<0.1; **p<0

Table 2

	Dependent variable:		
	Unemployment		
	OLS	*instrumental variable*	*OLS*
	(1)	(2)	(3)
Unemployment$_{t-1}$	0.843***	0.856***	0.842***
	(0.043)	(0.044)	(0.044)
China Shock, 1 Yr	−1.765***	−2.223***	
	(0.577)	(0.382)	
Low-Wage Shock, 1 Yr			−2.092***
			(0.567)
Probability Tacit Collusion Possible	0.001***	0.001**	0.001***
	(0.001)	(0.001)	(0.001)
China Shock, 1 Yr × Probability Tacit Collusion Possible	−0.011	−0.033**	
	(0.012)	(0.016)	
Low-Wage Shock, 1 Yr × Probability Tacit Collusion Possible			−0.009
			(0.014)
FE:	Country	Country	Country
SE's clustered by:	Country	Country	Country
First Stage F-Stat		55.758	
Observations	415	415	415
R^2	0.949	0.944	0.949
Note:			*p<0.1; **p<0

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