Asset specificity, corporate protection, and trade policy[1]

– Firm-level evidence from antidumping petitions in 22 countries

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Abstract

We examine the role of firms in shaping trade protection. Firms with specific assets find it more costly to reorganize production in the face of international competition, which makes them lobby more intensively for protection. But decision-makers will not grant unlimited trade protection. This forces companies to compete for protection, which causes it to diffuse within groups of same-good producers. To test this argument, we combine antidumping petitions with financial data on the firms filing them in a unique dataset. Using spatial autoregressive models, we show that companies with specific assets are more likely to be successful when petitioning for antidumping protection and that this decreases protection afforded to competing firms.

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1 Introductions

Since the 1980s, two key trends have characterized trade developments between nations in the global economy (Martin 2015; Milner 1999). The first is a move towards liberalization of trade policies in the form of lower tariffs and abolishment of barriers to trade. The second is a steady increase in the volume of international trade flows and integration of countries into the world economy. However, in recent years, this has been accompanied by an increase in the use of more subtle forms of domestic trade policies designed to provide protection for selected industries (Bown 2015; Gawande and Krishna 2003). Antidumping policies constitute one of the most prominent measures of such trade protection, and have become an increasingly popular means of protecting domestic producers from international competition (Blonigen and Prusa 2003; Bown 2015).

Antidumping measures are temporary tariffs that importing countries impose on foreign products, and which are intended to provide protection to domestic producers against predatory pricing. However, antidumping measures also constitute a potent political weapon that governments employ as protectionist measures favorable to targeted domestic industries, companies, or even specific products. Domestic authorities and trade jurisdictions have a relatively high level of discretion on decisions concerning antidumping measures. In some cases, this implies that government and industry interests may align, since antidumping measures provide protection to import-competing industries and allow governments to increase electoral support by shielding labor-intensive industries from international competition. However, even in cases where government and industry interests do not overlap, governments may come under substantial pressure from industry interests to impose antidumping measures protecting domestic producer interests. Indeed, the prospect of being shielded against the forces of international competition under the auspices of antidumping policies creates strong incentives for domestic companies to lobby for the imposition of antidumping measures on foreign products.

While the literature on the political economy of trade policy largely agrees that – for

better or worse – antidumping duties are invoked as a protectionist policy instrument, we know little about which companies receive protection and why they do so. In this paper, we address this question empirically by using firm-level financial data to investigate the relation between asset specificity and antidumping protection. Our argument departs from an influential view in the literature on asset mobility, which holds that companies with highly mobile assets are more likely to receive favorable treatment by governments, because mobile companies can credibly threaten to exit the domestic economy. According to this argument, asset mobility restrains the opportunities of governments to pursue public policies that work against the interests of companies with large stocks of mobile capital (Genschel and Schwarz 2011; Sassen 1996), and shifts the burden of taxes and trade policy towards immobile factors of production (Bates and Lien 1985). While there is little doubt that transnational capital flows and increasingly mobile corporate assets puts downward pressure on corporate taxation, our argument emphasizes that companies with immobile assets are not 'lame ducks', but can leverage strategies to mitigate their structural disadvantage. We argue that companies with large endowments of specific assets should be more – not less – likely to receive protection from their international competitors than companies endowed with highly mobile assets.

To see why, we unfold a two-step argument. First, differences in asset mobility affect the strategies companies use to gain political leverage. For highly immobile firms – that is, firms with capital fixed in specific assets like factories and buildings – the costs to reorganizing production or liquidating their assets and moving abroad are high. In such cases, companies are better off pursuing a lobbying strategy aimed at getting protection that raises the domestic price of competing imported products (Alt et al. 1999, 1996; Goodhart 2015). More intensive lobbying campaigns should raise the level of antidumping protection afforded to firms with specific assets. Second, inter-firm dynamics should accentuate the effect of asset specificity. We theorize antidumping protection as a two-level game, where protection takes the form of a local public good (Stiglitz 1977, 1982; Tiebout 1956; Westhoff 1977, 1974) in the first stage, and a common pool resource (Gardner et al. 1990; Ostrom 1990) in the second.

In the first stage, the level of antidumping protection afforded to each product is decided, and implicit cooperation arises between same-good producers. Successful petitions create exploitable precedents for other companies seeking protection for the same good, making it more likely that they also become beneficiaries of protectionist measures, simply because they seek protection for the same good. In this way, the success of immobile companies in gaining trade protection diffuses to same-good producers, raising the general level of trade protection afforded to an entire group of producers. In contrast, in the second stage of the game, when the amount of protection afforded to each product is decided, same-good producers compete amongst themselves for protection. In this case, antidumping duties take the form of a common pool resource and firms compete in a zero-sum game where protection afforded to one company drains from the pool of protection available to other same-good producers. Thus, we expect different diffusion dynamics between and within groups of same-good producers. When comparing different groups, successful petitions by immobile companies will raise the probability that same-good producers are protected. But when constraining focus to be within same-good producers only, successful petitions by immobile companies diffuses negatively into protective measures available to competing companies.

To illustrate the implications of the diffusion of antidumping duties, Figure 1 shows the connections between protection-seeking firms included in our data. Firms are represented by black nodes and connections between two companies are shown by grey edges. We consider any two firms to be linked to each other if they have filed separate antidumping petitions to get protection for the same product (we discuss this more in the section describing the spatial econometrics we employ).

Figure 1 clearly shows the dense clustering of firms in their pursuit of antidumping protection. Producers of the same products tend to seek protection separately and do so recurrently. Very few companies are alone in seeking protection for their products. Because of the sheer density of the network of protection-seeking firms, antidumping duties shielding firms with specific assets may have vast consequences. Most obviously, it distorts the

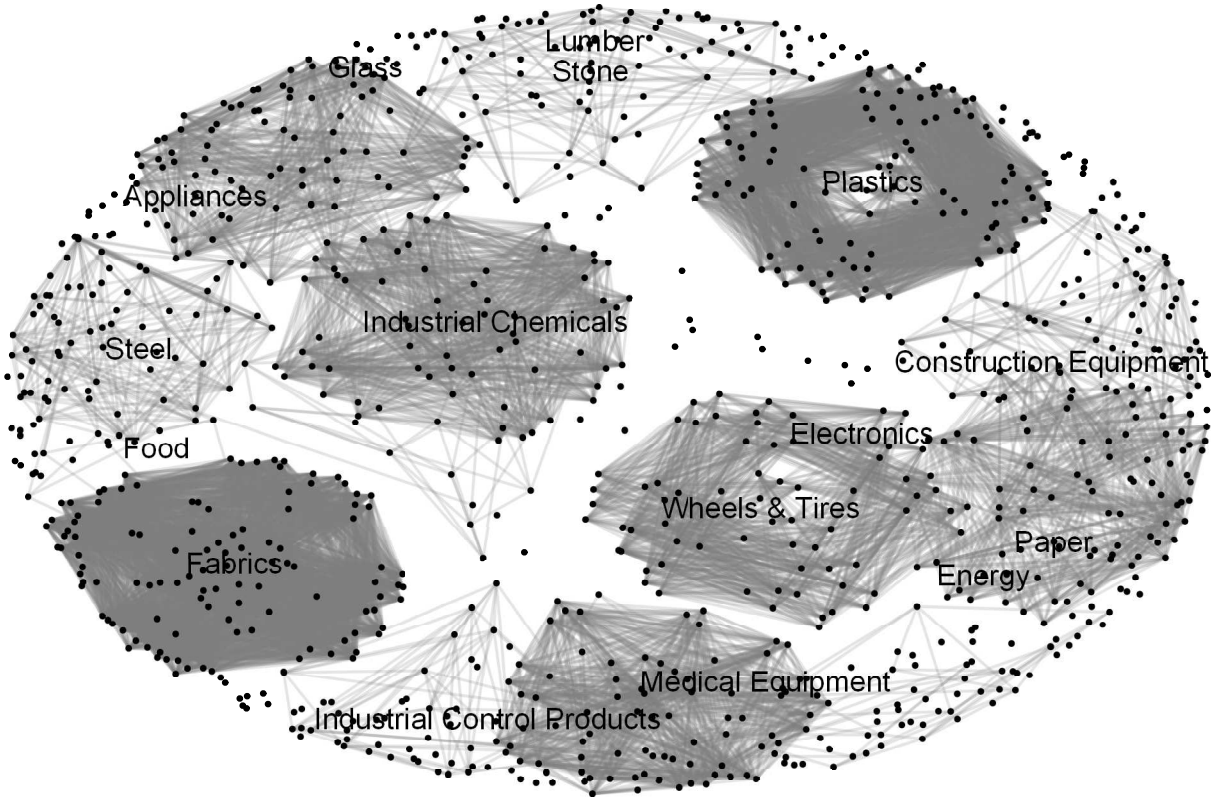

Figure 1: A Network of Firms Seeking Protection for the same Product. *Note: Nodes represent firms seeking antidumping protection for a good they produce. Edges are connections between firms. Two firms are connected if they have the same home-country, and have filed separate antidumping petitions for the same product against different competitors within the same year. Network layout is produced with the Kamada-Kawai algorithm. Firms clustered together in communities located using Clauset-Newman-Moore fast-greedy modularity optimization.*

competitive environment by keeping foreign competition to immobile domestic firms out. However, since the immobile firm's same-good producers are protected, while other firms are not, the diffusion of antidumping protection distorts the domestic competitive environment beyond the initial first-order effect.

To substantiate these claims, we marshal empirical evidence from a uniquely granular dataset of antidumping petitions and combine it with financial data on the firms filing them – a total of more than 1,000 company complaints from 22 WTO countries. These data allow us to examine the relationship between the share of fixed assets held by companies and

their success in petitioning for antidumping protection. They also allow us to investigate the dynamics among protection-seeking companies producing the same goods. By utilizing spatial autoregressive (SAR) models, we are able to estimate how the protection afforded to one company affects the likelihood that same-good producers will receive protection as well.

In this way, our paper makes three contributions to the existing literature. First, using firm-level data, we show that petitions to receive protection – in the form of antidumping measures – are more successful for companies with larger endowments of fixed assets. Second, in doing so, we extend the study of firm-level political influence into the realm of trade policy. Existing studies within this field have shown that the political activities of firms can improve financial performance (Hillman 2005), lower taxation (Richter et al. 2009), lead to more lax enforcement (Gordon and Hafer 2007, 2005), and even improve the terms of government contracts (Ferris and Houston 2016). We contribute by showing that firms' political activities – petitioning for protection – directly affect policy outcomes (in this case, trade policy). Third, we show empirically that petitions for protection by a single immobile firm can raise the trade protection afforded to entire groups of companies. This kind of spatial diffusion of lobbying success has not previously been investigated. Overall, these findings suggest that national governments – and trade jurisdictions like the EU – are highly susceptible to pressures from special interest groups.

To the best of our knowledge, this makes our paper the first to provide comprehensive evidence on the link between firm-level asset mobility and antidumping trade protection, as well as to document how it diffuses into the overall protection afforded to producer groups. In this way, our paper is related to the general literature on the political economy of international trade policy – which is nicely reviewed by Bown (2015), Gawande and Krishna (2003), and Rodrik (1995). By highlighting the role of company lobbying for protection, our research is also related to the seminal work of Grossman and Helpman (1994) and Hillman (1982) on how and when companies (successfully) engage in lobbying for trade protection. Our paper is also affiliated with the work of Alt et al. (1999, 1996) who emphasize that

asset mobility is a central component in companies' decisions on whether to lobby for trade protection. While Alt et al. (1999) provide evidence on the link between assets specificity and lobbying strategies for companies in Norway, our data allow us to conduct a much more comprehensive analysis of how asset specificity affects the likelihood that those strategies are successful. As we open up the black box of firm-level trade protection and investigate how it relates to protection afforded to all actors within an industry, our work also feeds into the emerging literature on the political cleavages within industries regarding trade policy (Kim 2017). Finally, our paper is related to work on the nexus between globalization and the welfare state, which emphasizes that governments in countries exposed to trade and international competition tend to compensate the losers from globalization (Garrett 1995; Rodrik 1998; Walter 2010). In a similar way, granting trade protection to targeted companies or industries through the use of antidumping measures can be viewed as a means of shielding and compensating domestic losers from globalization.

The remainder of the paper is organized as follows. The next section outlines how asset mobility is linked to trade protection and antidumping measures. Furthermore, we describe why, we should expect one company's success in achieving protection to affect the success of its peers. We then briefly describe antidumping policies, and why they are an ideal setting for us to investigate. In the third section, we present our data and estimation strategy. The fourth section presents the main findings and tests of alternative explanations for the patterns we observe. We conclude with a discussion of our study's implications.

Asset specificity and firm-level trade protection

To explain how asset specificity affects trade protection, it is useful to depart from the classic Heckscher-Ohlin and Ricardo-Viner models of trade (Goodhart 2015; Hiscox 2002b; Rogowski 1989). In the Heckscher-Ohlin model, factors of production (capital and labor) are assumed to be mobile and able to move smoothly across sectors in the economy. In this

case, trade protection increases the income of the factor of production (e.g. labor) that is relatively scarce in the economy, while the factor that is relatively abundant (e.g. capital) loses. Similarly, trade liberalization increases the returns to the factor that is relatively abundant, while income drops for the factor that is relatively scarce. As shown by Rogowski (1989), this implies that conflict over trade policy will form along class lines, and pits capital firmly against labor in terms of trade policy preferences (Gawande and Krishna 2003; Milner 1999). In contrast, the Ricardo-Viner model assumes that at least one factor of production is immobile and fixed to a specific sector of the economy. This means that import-competing sectors will gain from trade protection, while export sectors win from trade liberalization (Gawande and Krishna 2003; Hiscox 2002b; Milner 1999). In this case, trade policy coalitions form along industry lines in the sense that both labor and capital in import-competing sectors will favour protection from international trade, while labor and capital in the exporting sectors will favour trade liberalization. Allowing for some level of factor immobility therefore implies that political conflict over trade policy is no longer class based, but occurs between different sectors and industries in the economy (Hiscox 2002a).

To see how asset mobility affects trade policy, we argue that asset specificity drives a company's incentives to lobby for trade protection. Similar to earlier work relating capital mobility to corporate lobbying for trade protection (Alt et al. 1999, 1996; Grossman and Helpman 1994), we assume – along the lines of the Ricardo-Viner model – that company assets vary in their degree of mobility and that some types of assets are fixed while others can be relocated with relative ease. Asset mobility can therefore be conceived as the cost with which capital can be put to alternative use by moving into another sector of the economy or to another country (Alt et al. 1996, p. 690). These costs can be very low, e.g. in the case of international financial transactions, or they can be very high, e.g. in the case when a company moves an entire production plant to another country. When companies encounter high costs to putting their capital to alternative use, they will be disproportionately threatened by international competition. This, in turn, shapes their preferences for trade protection,

pitting them against more mobile companies that may benefit from efficiency gains from international competition.

However, the degree of asset mobility not only affects the composition of coalitions for or against trade liberalization, it also affect the strategies that companies and industries pursue in order to gain political influence and affect trade policy. In crude terms, companies and industries can employ two basic strategies to gain political leverage over trade policy (Alt et al. 1996; Grossman and Helpman 1994): They can either exit the domestic economy and move their capital to another jurisdiction offering more attractive trade policies, or they can lobby the domestic government for protection against international competition. However, while lobbying is costly for all companies, the cost of exit that companies incur varies with the mobility of assets. This implies that the strategy a company chooses is affected by the mobility of its capital stock. Companies have weaker incentives to engage in costly lobbying if assets are mobile and can be transferred to another jurisdiction at low costs. In contrast, if capital is highly immobile, domestic companies are not only more vulnerable to international competition from cheaper imported goods, but also face higher costs of exiting the domestic economy. Assuming that the costs of exit surpass the costs of lobbying, companies endowed with large amounts of fixed assets therefore have strong incentives to invest resources in lobbying the government for favorable trade policies and protection against international competition (Alt et al. 1999, 1996).

There is a wide variety of reasons why the lobbying activities of protection-seeking companies are likely to influence decision-makers in the political system (e.g. Adolph (2013), Blanes I Vidal et al. (2012), Godwin et al. (2012), Hall and Deardorff (2006), and LaPira and Thomas (2017)). A key reason is that lobbyists transfer money to politicians in the form of campaign contributions (Gordon and Hafer 2007, 2005; Grossman and Helpman 1994) or even bribes. For resource-extracting politicians, lobbying on trade policy presents a close to ideal situation. Because trade policies are continually negotiated (especially in the antidumping setting we describe below), it presents them with an opportunity to extract a

steady flow of resources from lobbying groups. The firms that lobby, on the other hand, can use this promise of future payoffs to keep the decision-maker acting as a loyal agent of the firm.

While we cannot directly test the mechanism – company lobbying – that links asset specificity to antidumping protection, we emphasize that our argument is consistent with previous empirical work showing that less mobile companies lobby more intensively for trade protection, as well as a growing body of literature which points to the effectiveness of lobbying for securing protection against international trade. For instance, using data from Norway, (Alt et al. 1999) shows that companies with highly immobile assets are more likely to lobby the political system for subsidies. In a US context, empirical evidence shows that both campaign contributions by companies (Evans and Sherlund 2011) and lobbying expenditures (Drope and Hansen 2004) are related to the success in achieving antidumping protection. Ultimately, we argue, the intensity of lobbying by companies with immobile assets improves the protection they are afforded against international competitors. Against this background, our first hypothesis is:

H1: Companies with larger stocks of specific assets are more likely to successfully petition for antidumping protection.

Asset specificity and the competition for protection

Protectionism entails large negative welfare effects and is a costly means of redistributing resources (Feenstra 1995; Rodrik 1995). These welfare costs constrain decision-makers' use of antidumping measures, and implies that they will not grant unlimited trade protection. Instead, they trade off the level of protection against consumer welfare (Grossman and Helpman 1994; Rodrik 1995). Every time a company is successful in having duties placed on its international competitors, it drains from the common pool of protective measures (cf. Gardner et al. (1990) and Ostrom (1990)). This gives rise to a competitive dynamic where some companies are protected at the expense of others.

Following Godwin et al. (2012)'s conceptualization of lobbying coalitions, we view the quest for antidumping protection as a two-level game. In the first stage of the competition for antidumping, companies use the success of other same-good producers to make their own cases for protection. When a company manages to convince political decision-makers that it is being harmed by foreign competition, it creates an exploitable precedent for same-good producers, where they can pursue similar arguments to gain protection as well. When immobile firms manage to raise their own protection, it spills over to other firms that produce the same good, making it easier for them to gain protection as well – even though they may not lobby as intensively. In the second stage of the game, producers take the level of protection afforded to each good as given, and a competitive dynamic arises among firms seeking protection for the same good, where the success of immobile firms decreases the likelihood that their peers will gain protection as well (Austen-Smith and Wright 1994; Godwin et al. 2012). In such a non-cooperative dynamic, immobility has the initial effect of increasing the firm's trade protection. This increase gives it an edge in the competition for antidumping measures by decreasing the protection afforded to everyone else. This leads to two complementary hypotheses:

H2a: Comparing all companies, antidumping protection afforded to companies with specific assets increases the probability that same-good producers are protected as well (positive diffusion).

H2b: Comparing producers of the same good only, antidumping protection afforded to companies with specific assets decreases the probability that same-good producers are protected as well (negative diffusion).

Antidumping measures: The empirical context

On April 6 2017, the EU Commission decided that a number of Chinese companies were charging predatory prices for hot-rolled flat steel they exported to Europe, and imposed

large antidumping duties on their products (Blenkinsop 2017; Commission 2017). The duties targeted what had been standard Chinese practice for at least fifteen years (Rapoza 2017). The increased protection afforded to European steel was not only very sudden and sharp; it also affected producers from a wide range of different countries. In a similar fashion, on October 6 2017, the US Commerce Department announced its intent to impose a punitive tariff of nearly 300 pct. on the Canadian company Bombardier's CSeries jet. The decision came after pressure from Boeing, who claimed that Bombardier had dumped its price in a recent sale to the Delta Airline, and that this had caused significant injury – even though Boeing were not competing for the order (Scott 2017).

Antidumping measures – like those used in the examples from the EU and the USA – are imposed by national governments and trade jurisdictions as temporary tariffs on import-competing products and companies from foreign countries. Ideally, they are construed as a means of protecting companies against predatory pricing by foreign competitors. However, although the outcome of an antidumping investigation is decided bureaucratically, the regulators are not insulated from these political pressures. For firms, pressuring the bureaucracy (Gordon and Hafer 2007), or even enlisting sympathetic politicians to do so on their behalf (Hall and Miler 2008) is an effective means of gaining leeway over the bureaucracy. This also holds for the bureaucratic agencies that decide on antidumping investigations. Indeed, Blonigen and Prusa (2003, p. 253) argue that antidumping "no longer has anything to do with predatory pricing ... it is simply another tool to improve the competitive position" of the domestic industry. Antidumping measures help domestic companies increase their market power to such a degree that they are among the costliest trade protection measures in the US (Blonigen and Prusa 2003, p. 271) and have been linked to large suppressions of international trade in general (Bown and Crowley 2007).

Antidumping investigations are initiated when a domestic firm files a complaint against a foreign competitor. At their own discretion, domestic authorities can impose duties with an extremely high level of granularity, singling out the company mentioned in the complaint,

but also specific products it exports. Under the WTO Agreement, a company is said to be dumping a product when it sells it at a lower price in the importing country than on the company's home market in the ordinary course of trade (WTO 2018). When no such data is available, domestic authorities make their antidumping rulings based on constructed normal prices (WTO 2018). Imposition of antidumping measures are allowed insofar as it has been established that an exporting company is dumping the price of its product, and that this is causing injury to companies on the importing market. They are repealed after a period of five years (WTO 2018). It is precisely the granularity with which antidumping measures can be targeted at foreign competitors, their effectiveness in depressing competition, and the discretion of domestic authorities in their imposition, that make them ideal targets for companies that seek to use political means to shield themselves against international competition.

Figure 2 describes how prevalent protection is across countries in our sample. Almost all decisions end up affirming that dumping has occurred, with the number of dumping cases being largest in India, USA, and the EU. Looking at the size of antidumping duties, Canada is at least as harsh as those countries, while Argentina dwarfs them in the harshness with which dumping is penalized. A in the online appendix provides further description of how antidumping measures are introduced in different settings.

The empirical strategy

To test the effect of asset mobility on the use of antidumping measures – and how they diffuse to other companies – we rely on a firm-level dataset comprising 1,030 antidumping petitions from 22 WTO countries in the period 2006-2015. We have gathered this from the Bown (2016) Global Antidumping Database and combine it with financial data on the firms filing them. Coverage on firm-level financial data is highly variable, and we were able to obtain data on one-fifth of firms recorded in (Bown 2016). To make sure this does not bias

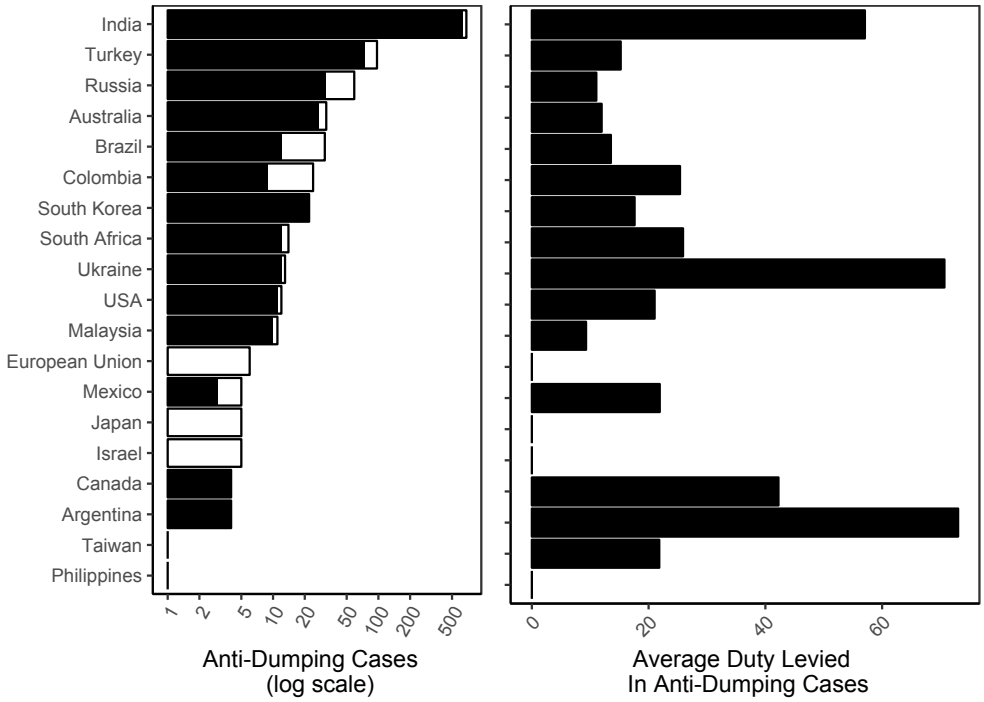

Figure 2: Anti-Dumping Cases and their successfulness across the world. *The left-hand panel shows the total number of anti-dumping cases (white), and how many of them that are successful (black), across the 22 countries in our dataset. The points in the right-hand panel shows the average percent of original sales price that the anti-dumping duty comprises. Whiskers show, respectively, one standard deviation above and below the country means.*

our results, we have checked that missingness is approximately balanced across firm-level covariates.

Dependent variables: Imposition and extent of antidumping measures

To measure firm-level antidumping protection, we rely on two dependent variables. The first is a binary indicator, which takes the value one (1) if the regulator decides that the foreign competitor has dumped its prices, and zero (0) otherwise. However, this measure does not include information about the extent to which companies receive antidumping protection. Therefore, we also use the duties levied on its foreign competitors. Specifically, we use the proportion of the sales price, which is added as duty. Whenever the initial ruling states

that the foreign competitor was not dumping its prices, no duties are imposed. In those situations, the variable takes the value zero.

Explanatory variable: Asset specificity

To measure asset specificity, we use the ratio Fixed Assets/Total Assets for each firm that has filed an antidumping complaint throughout the period of investigation. While the concept of asset specificity is sometimes quite broadly defined (Williamson 1983, p. 526), at its core is the notion that there are costs associated with shifting production to a new market or producing a different good (Alt et al. 1999, 1996). The larger these costs are, the more difficult it will be for the firm to reorganize its production in response to, e.g., foreign competition. This measure captures the fact that as the ratio of fixed assets – investments in factories, inventories, machines, etc. – to total assets increases, so do the costs of relocating production. Quite simply, relative to, e.g., financial capital, it is costly to put fixed assets to use somewhere else or use them to produce different goods than the current ones. Figure 3 presents the distribution of asset specificity.

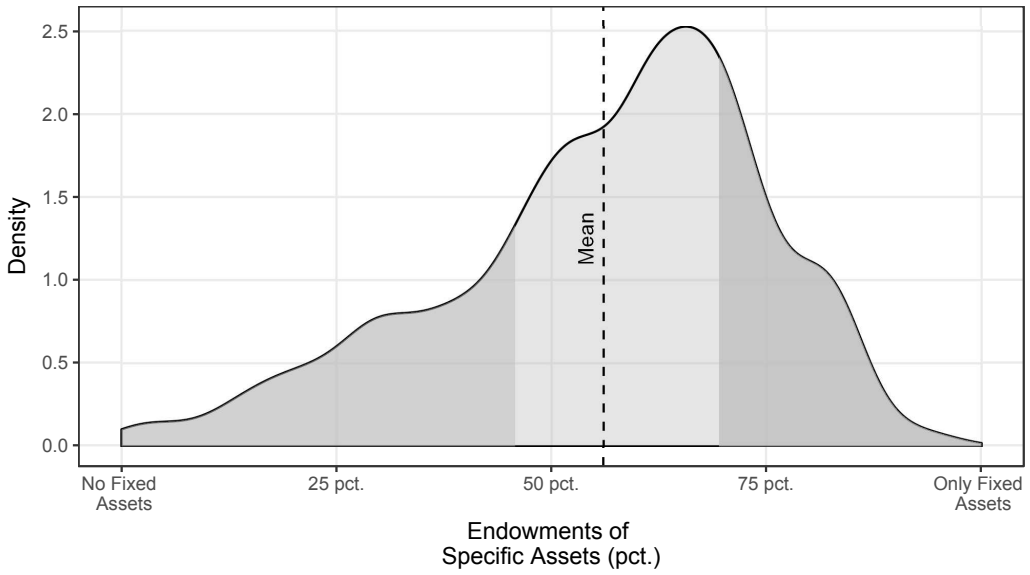

Figure 3: Distribution of Asset Specificity. *Dashed line at the mean. Dark shaded areas are below the 25th and above 75th percentiles.*

B and C in the online appendix show variable definitions, descriptive statistics and pairwise correlations. Controls are also described there. The logic behind their inclusion is described in detail in the analysis.

Estimating antidumping diffusion between firms

Protection afforded to immobile companies should affect the likelihood that their domestic competitors are protected as well. To capture this dynamic, we construct a 1030x1030 (NxN) connectivity matrix, where two firms are connected if they a) have filed separate antidumping petitions to b) have the same product protected against c) different foreign companies, and d) have done so in the same year and home-country. This creates the network of firms we depicted in Figure 1.

To estimate the proposed competitive dynamics between protection-seeking companies, we utilize spatial autoregressive (SAR) models (Anselin 2001). By using the connectivity matrix to include the spatial lag of the dependent variable, this class of models allows us to estimate not only how the immobility of the average firm's assets is related to the antidumping protection it experiences itself, but also how its own protection is associated with that of other same-good producers. This allows us to a) estimate the direct impact of asset immobility on the company's own trade protection, and b) distinguish it from the indirect effect it has, because the immobile company's own success changes the likelihood that other producers of the same good are successful in petitioning for antidumping protection (LeSage and Pace 2014).

It is important to consider what these estimates of diffusion do and do not capture. First of all, this captures how antidumping protection diffuses among import competing firms that are active on the same domestic market, but have different foreign competitors. Thus, it would be safe to assume that these companies are competitors on the domestic market – if one gains protection against foreign competition, but the other does not, this will change domestic competitive dynamics. Second, these companies do not lobby together (at least

in the cases we rely on here). If they did, they would file their petitions together. Third, most studies of endogenous trade protection have assumed homogeneous interests at the industry-level. Thus, an alternative would be to simply assume that all companies within the same industry are connected. But even within industries, companies differ drastically in their preferences regarding free trade (Kim 2017). Our measure of connectivity at the product-level allows us to estimate highly granular diffusion dynamics, instead of assuming that heterogeneous firms from the same industry compete for the same protective measures.

In addition, we use fixed effects for product to control the comparison that is being made. When they are not included, the estimated diffusion captures competition for antidumping protection among all firms. But when they are included, comparisons are constrained to be among companies that seek protection for the same good. This mimics the dynamics we expect – between all groups of firms, we should observe positive diffusion. But when the baseline level of protection afforded to a product is taken as given (through the inclusion of product fixed effects), diffusion should be negative.

Model specification

We consider variations of the following SAR model with spatial lags of the covariates:

$$y_{fct} = \rho(\omega y_{fct}) + \gamma M_{fct} + \beta_1 X_{fct} + \beta_2(\omega X_{fct}) + \lambda_{fc} + \phi_t + \alpha_{fct} + \epsilon_{fct} \quad (1)$$

Where y_{fct} represents the regulator's response to company f's complaint, c, at time t. This can either be a binary decision of whether dumping has occurred or not, or the (logged) duty levied on the foreign competitor's product. M represents the asset mobility of the firm. γ measures the association between antidumping protection and asset specificity.

ωy_{fct} is the spatially lagged dependent variable, which allows us to estimate inter-firm dynamics. ρ is the estimate of the spillover effect from company f's success in its antidumping complaint to its neighboring firm's chance of gaining protection as well. Due to a very high

number of parameters relative the number of observations, we estimate the model using a linear link function. Using the spatial probit estimator in this case would either cause severe bias due to incidental parameters, or cause the estimation not to converge at all.

We also include ωX which is a full set of spatial lags of the covariates. Besides allowing us to estimate spatial dynamics, this model is also appealing from a causal inference point of view. Less mobile companies are likely to be clustered together in industries where trade protection in the aggregate evolves together according to a common trend. Estimating a spatially autoregressive model with distributed spatial lags of the covariates accommodates this potential confounder by allowing firms that produce the same product to follow such similar trends in antidumping protection, and by allowing firm characteristics to affect the outcomes of other companies.

λ is a set of country fixed effects, capturing the home country of the complainant. This removes the influence of all time-invariant confounders at the country-level (Justesen 2015). ϕ is a set of year fixed effects, controlling away the effect of common shocks with homogeneous effects. α, the full set of fixed effects for the products. While industry fixed effects could deal with the fact that industries vary in their baseline levels of protection, they would leave out the important complication that there are large intra-industry differences. Since no product changes industry in our sample, including product fixed effects also controls away industry-invariant factors. Finally, ϵ constitutes a random error term.

Results

In Table 4, we present results from a number of SAR models. Results without spatial lags are shown in D of the online appendix. Columns (1)-(3) show the results from models with dumping decision as the outcome, estimated using spatial maximum likelihood. Columns (4)-(6) show models with duty size as the dependent variable. To interpret results, we use the coefficients to simulate average direct and indirect effects using the parametric bootstrap

procedure outlined in LeSage and Pace (2014). Panel A and B show direct and indirect effects, respectively.[4]

Column 1 shows the bivariate relationship between asset immobility and the regulator's dumping decision, while column 4 shows the results with duty size as the dependent variable. For the models with dumping decision as the outcome variable, the coefficient is moderately sized and statistically significant at the five pct. level. When modelling duty size, however, the coefficient is negatively signed, but statistically insignificant. The spatial lag in both models is highly significant, statistically speaking, which translates into an additional indirect effect of immobility, which in both cases is actually larger than the direct effect, but very noisily estimated in panel B of column four.

It should be noted, however, that large companies are often more politically influential (Bennedsen et al. 2009) , and have made larger investments in factories and less liquid asset types. Additionally, because companies that pay a lot of taxes are likely to be more influential (Bates and Lien 1985; Tilly 1985) – and companies with many fixed assets are taxed differently. Therefore, both firm size and taxation could potentially be driving our results. Additionally, because there is a strong spatial dynamic these factors are likely to not only affect the protection afforded to the firm itself. Even if the economic resources of a firm do not directly increase the probability that it successfully gains antidumping protection for itself, through e.g. counteractive lobbying (Austen-Smith and Wright 1994) they can change the probability that other firms receive protection.

[4]Note that due to collinearity problems, the bootstrap procedure failed for the models with binary dependent variable and robust standard errors, when introducing country fixed effects. Therefore, we only compute robust standard errors for the model including fixed effects for product. In E of the online appendix, we show the model coefficients with robust standard errors. The results are not sensitive to the choice of standard errors.

Table 1: SAR results: Direct and indirect effects of asset specificity on antidumping protection

	Dumping Decision				*Duty Size (logged)*	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Direct Effects						
Asset Specificity	0.046**	0.285***	0.269***	-0.198	1.047***	0.746***
	(0.017, 0.244)	(0.276, 0.542)	(0.209, 0.352)	(-0.741, 0.393)	(0.617, 1.785)	(0.698, 1.905)
Revenue (logged)		0.088***	0.115***		0.695***	0.528***
		(0.081, 0.176)	(0.070, 0.166)		(0.466, 0.965)	(0.485, 1.087)
Total Assets (logged)		-0.171**	-0.138***		-0.680***	-1.231***
		(-0.176, -0.079)	(-0.192, -0.084)		(-0.981, -0.443)	(-1.253, -0.631)
Taxation (logged)		-0.068**	-0.121***		-0.185**	-0.634**
		(-0.077, -0.028)	(-0.175, -0.089)		(-0.312, -0.075)	(-0.654, -0.253)
Total Capital (logged)		-0.026**	-0.006		-0.065**	-0.106
		(-0.028, -0.001)	(-0.016, 0.005)		(-0.117, -0.000)	(-0.114, 0.021)
Panel B: Indirect Effects						
Asset Specificity	0.059**	0.559***	0.023	-1.227	3.176***	-0.344**
	(0.023, 0.512)	(0.536, 8.906)	(-0.041, 0.322)	(-6.113, 2.421)	(1.080, 17.151)	(-0.353, -0.101)
Revenue (logged)		0.171***	0.001		2.049***	-0.187**
		(0.166, 2.431)	(-0.020, 0.176)		(0.927, 14.304)	(-0.200, -0.078)
Total Assets (logged)		-2.062**	-0.012		-2.03***	0.100***
		(-2.585, -0.149)	(-0.208, 0.023)		(−14.517, -0.892)	(0.155, 0.237)
Taxation (logged)		-0.672**	-0.010		-0.522**	0.045**
		(-0.277, -0.048)	(-0.124, 0.021)		(-4.515, -0.183)	(0.039,0.119)
Total Capital (logged)		-0.230**	-0.001		-0.189	-0.000
		(-0.356, -0.001)	(-0.005, 0.002)		(-1.205, 0.004)	(-0.004, 0.019)
ρ	0.016***	0.017***	0.001	0.017***	0.017***	-0.015***
	(0.000)	(0.000)	(0.01)	(0.000)	(0.000)	(0.003)
Spatial lag of X?	Yes	Yes	Yes	Yes	Yes	Yes
Country FE?	Yes	Yes	Yes	Yes	Yes	Yes
Year FE?	Yes	Yes	Yes	Yes	Yes	Yes
Product FE?	No	No	Yes	No	No	Yes
Observations	1,030	1,030	1,030	1,030	1,030	1,030
Log Likelihood	-216.706	-160.762		-1784.534	-1737.064	-978.678

*Note: Columns (1)-(3) and (4)-(6) show, respectively, results from models with Dumping Decision and Duty Size (logged) as the dependent variable. Panels A and B show direct and indirect effect estimates, respectively. Point estimates are medians of bootstrapped distributions. CIs (95 pct.; in parentheses) are from the relevant percentiles of the bootstrapped distributions. For the spatial autocorrelation parameter (ρ), standard errors are in parentheses. ** and *** indicate statistical significance at the 5 and 1 pct. levels, respectively. Intercept included in all models, but not shown to save space. Model in column (3) estimated using spatial 2SLS – no log likelihood estimated.*

To deal with these potential confounders, in columns 2 and 5 we add revenue, total assets, tax payments and total capital to deal with direct effects of economic resources, as well as their spatial lags to deal with counterlobbying. The coefficient on immobility increases very substantially, and we now estimate that completely immobile firms have a 28.5 percentage point higher probability of receiving protection and, on average, have 105 pct. higher duties placed on their foreign competitors than completely mobile firms. Such large differences in immobility are rare, however, and it can be useful to compare more typical firms.

According to such a comparison, firms that are one standard deviation (approx. 18 pct.) more mobile than another firm, will on average have a 6 percentage points higher probability of successfully gaining antidumping protection and experience an additional duty of approximately 1/10 of a standard deviation compared to the less mobile firm. Additionally, the associations become statistically significant at the 1 percent level.

By looking at Panel B, we can inspect the diffusion dynamic more closely. Compared to producers of other products, the protection initially afforded to the immobile firm raises the general level of protection for all same-good producers – this is documented by the positive and statistically significant diffusion parameter. Besides making it easier for same-good producers to gain protection, this has the indirect effect of further increasing the level of protection experienced by the initially successful immobile firm. Specifically, we estimate that the 1 standard deviation higher immobility additionally increases the probability of filing a successful petition by 6 percentage points and the duty size by 1/4 of a standard deviation, compared to the less mobile firms. This comes about because of the diffusion dynamic. It should be noted that the indirect effect makes up the bulk of the total impact of immobility.

Finally, in columns 3 and 6 we constrain comparisons to be among the companies, who produce the same goods by introducing product fixed effects. The estimate of the direct effect of asset specificity on the dumping decision remains largely unchanged – even among same-

good producers, the immobile firms receive much more antidumping protection than mobile ones. Our estimates suggest that the most immobile firms are approximately 27 percentage points more likely to receive protection than the most mobile ones. The product fixed effects decreases the differences in the model with duty size as the outcome. We estimate that – compared to same-good producers – being 1 standard deviation more immobile should, on average, be accompanied by a 13.5 pct. larger the duty size on foreign competition. It is still substantial, economically speaking, and we can reject the null of no effect at a high level of confidence. The intra-product comparison, however, changes the diffusion dynamic drastically. In the spatial LPMs, the introduction of product fixed effects decreases the estimate of ρ markedly, and it becomes statistically insignificant. Interestingly, however, we now estimate the diffusion parameter to be -.015 for the models with duty size as dependent variable. This indicates that when one company is successful in its petition for antidumping duties, the protection afforded to same-good producers drops. This translates into negative estimates of the indirect effects. Thus, when only comparing same-good producers, increasing asset immobility by one standard deviation (roughly 18 pct.) leads to a drop in the protection of other companies in the sector amounting to 4 pct. This comes about because of the initial positive impact immobility has on the company's own level of antidumping protection, which decreases the duties other companies in its industry obtain. Thus, when only comparing companies that produce the same goods, the feedback loop from increasing duty size becomes negative. This also indicates that spatial diffusion only exists between industries, when it comes to the antidumping decision, while it exists both within and between industries for duty size – but with vastly different dynamics.

This conforms well with our expectations: when immobile firms are successful, this raises the overall level of protection afforded to the good they produce, making same-good producers more likely to receive protection as well, but diverting duties away from producers of other goods. Those same-good producers, however, still have to fight the immobile company for the duties allocated for the specific product, they produce. Therefore, when

only comparing same-good producers, the success of immobile firms leaves less antidumping protection available for it direct competitors on the home-market.

Testing alternative mechanisms

The key mechanism we have highlighted to explain the link between asset mobility and trade protection is lobbying by companies (cf. Goodhart (2015) and Grossman and Helpman (1994)). This differs from another prominent explanation of trade policy based on the median voter theorem (Mayer 1984; Mukherjee et al. 2009). In these models, governments' prime concern is re-election, which implies that trade policy is determined by the median voter. Since the median voter's endowment of capital is almost always lower than the mean capital endowment, trade policy will favor labor interests (Gawande and Krishna 2003; Mayer 1984). Similarly, the median voter will also prefer trade protection as his/her main factor endowment – labor – becomes increasingly immobile (Mukherjee et al. 2009). However, if governments mainly respond to electoral interests – rather than corporate lobbying – we should expect the correlation between immobility and protection to come about, because jobs in immobile companies are more vulnerable. When an immobile company, that also employs a lot of people, claims to be injured by international competition the government is likely – out of concern for its re-election chances – to heed its wishes and grant it protection.

In Panels C and D of Figure 4, we address this issue by interacting asset specificity and number of employees. We plot the marginal effect of asset immobility on Dumping Decision (Panel C) and Duty Size (Panel D) for varying levels of number of employees. It is clear that the fitted line is almost completely flat – it does not appear that a company's labor intensiveness moderates the effect of asset specificity. Additionally, we are unable to reject the null of no interaction.

A different – but more general – way of thinking about this alternative mechanism is that decision-makers only accommodate companies that are fiscally consequential. Because politicians are dependent on taxes they can extract from the private sector (Bates and Lien

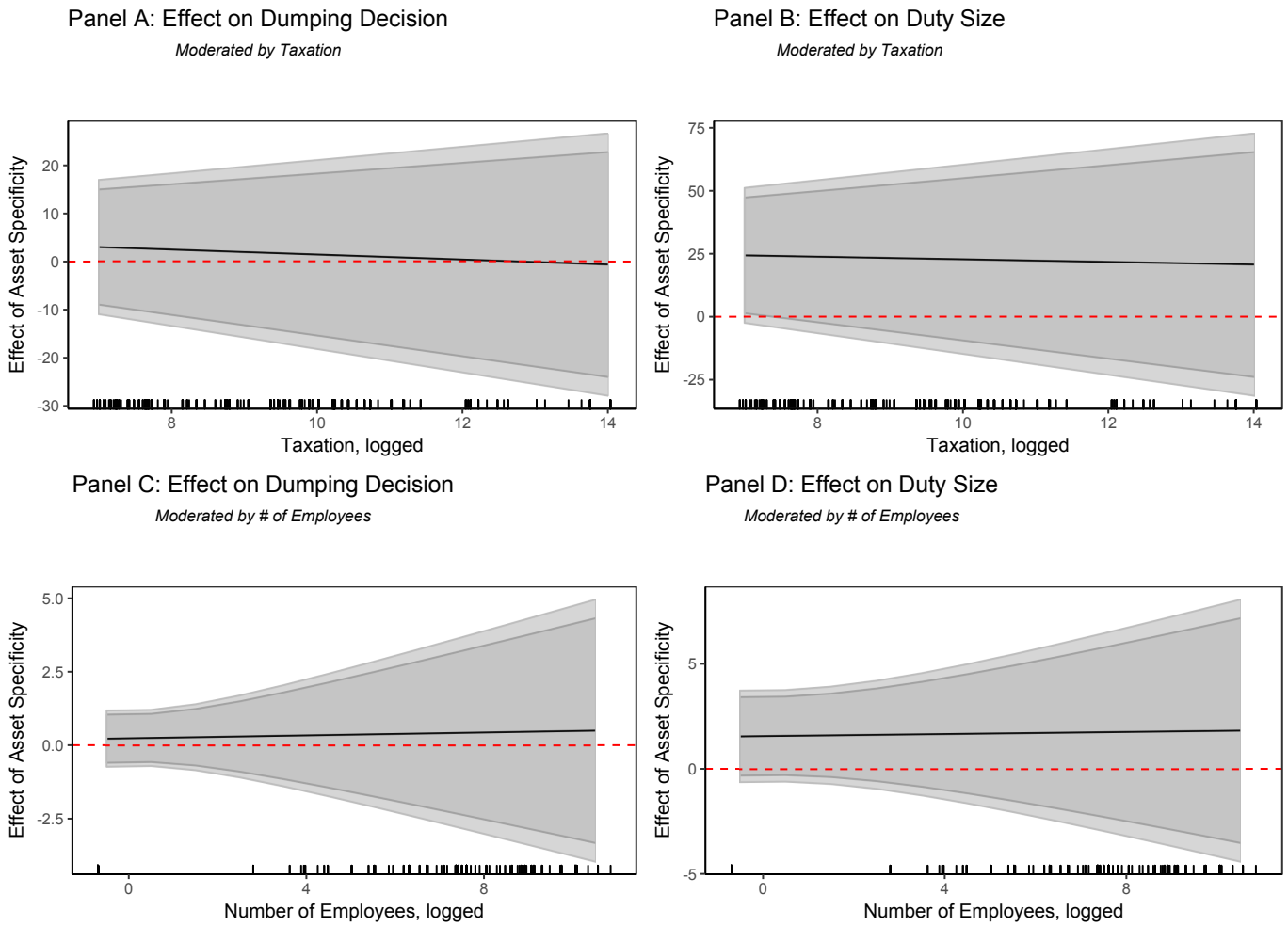

Figure 4: Assessing Alternative Mechanisms. *Note: The figure plots the marginal effects of asset specificity with taxation (Panels A and B) and number of employees (Panels C and D), respectively, held constant at varying levels. Effects on Dumping Decision are shown in Panels A and C, while effects on Duty Size are shown in Panels B and D. Marginal effects calculated using bootstrapped coefficients. Shaded grey areas are, respectively, 90 pct. (dark) and 95 pct. (light) pointwise confidence intervals. Country and year fixed effects as well as all covariates included.*

1985; Tilly 1985), the taxes a company pays are a highly salient way to gain political leverage. Politicians may simply disregard the preferences of immobile companies, if they do not also pay a lot of taxes. Thus, if the association between immobility and protection is driven by high-taxed companies, it would indicate that it is not be due to lobbying, but to the decision-maker's fiscal concerns. In panels A and B, we test this by interacting the log of taxation with asset immobility. Note that we exclude one outlying observation with negative

tax payments, which would otherwise have skewed our results. Again, we are unable to reject the null of no moderating effect, and because of the flat slope, we are similarly unable to provide evidence supporting the claim that highly taxed companies drive the association.

Additionally, there are a number of supply-side factors that could potentially be driving our results. If, for instance, democracies are more attuned to the preferences of their citizens, they may be more likely to use antidumping measures to circumvent inequalities induced by international trade. If our firm-level results were driven by different political systems being more susceptible to corporate lobbying, it would be an indication that company lobbying is not the main mechanism behind our results. Should this be the case, however, we would expect the effect of asset specificity to vary markedly across countries, while being comparable in the context of similar political regimes. In Figure 5 we test this proposition by using hierarchical mixed effects models with random slopes by country, baseline controls and country fixed effects. This provides us with a general test of all supply-side explanations that would cause different effects across countries. To get uncertainty estimates for each country level coefficient that takes country-specific variation into account, we simulate 100 draws from the model posterior distribution. We use this to generate credible intervals around each estimate.

The results show that across most countries there is little variation in the effect of asset specificity – the bulk of coefficients, no matter political contexts, are clustered around very similar sizes. Three countries (Russia, Malaysia and Colombia) stand out in that they have negative coefficients, and four (Brazil, USA, Ukraine and Turkey) have somewhat larger positive coefficients than the rest. The estimates in all cases are very noisy, however. Furthermore, there are no clear commonalities in the political systems within these two groups of countries, nor are the differences between them systematic. Hence, it is not clear that these differences can be ascribed to factors at the regime level instead of simple country-level idiosyncrasies.

We have provided evidence against the alternative supply-side mechanisms which at

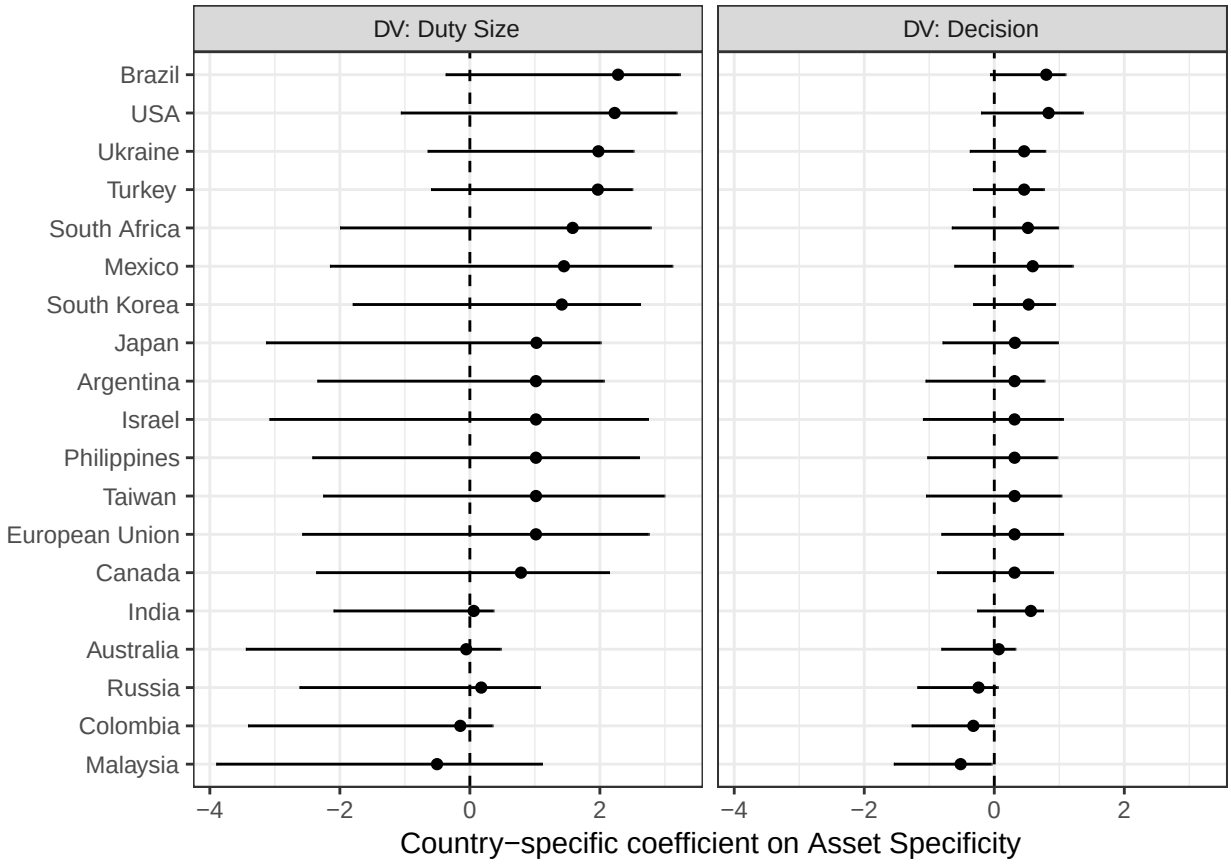

Figure 5: Random slopes by country. *Note: Point estimates are from a linear mixed effects model with random slopes by country and all baseline controls and fixed effects included. Uncertainty estimates are 95 pct. credible intervals, which were computed by simulating 100 draws from the model, using the arm package in R.*

least indirectly supports the lobbying mechanisms as the key driver explaining the relationship between asset immobility and antidumping measures. While data constraints in the cross-national setting makes it impossible for us to provide a positive test of the mechanism, we also reiterate the point that previous work has connected asset specificity to increased lobbying intensity (Alt et al. 1999), which again has been found to be associated with increased antidumping protection (Drope and Hansen 2004; Evans and Sherlund 2011).

Conclusion

Commenting on the distributional conflict among special interest groups, Mancur Olson (1982, p. 44) noted that instead of using the familiar allegory of "slicing the social pie", a more apt portrayal would be that of "wrestlers struggling over the contents of a china shop", destroying more of the shop's content than what they can steal for themselves. In this paper, we have documented one important way import-competing firms can divert societal resources towards themselves: through political activities they can receive trade protection under the auspices of antidumping duties. This raises non-uniform barriers to entry, protecting firms against foreign competition, without protecting their domestic competitors.

We have shown that companies with large endowments of specific assets are more likely to be successful in their antidumping petitions. These results run counter to a large body of literature, which expects holders of the most mobile assets to shape public policy, while companies with capital fixed in specific assets should, at best, be politically disadvantaged, but at worst fall prey to predatory behavior of the state. Our results indicate that firms with specific assets can use political strategies to overcome their structural disadvantage – at least within the field of trade policy. However, since political decision-makers are not willing to grant unlimited protection to domestic produces, this forces protection-seeking firms to compete for the scarce resource of antidumping. Our results show that this causes positive diffusion among same-good producers, when comparing all companies, but that this diffusion is either negative or zero, when only comparing companies that seek protection for the same good. This is consistent with the proposed two-level game, where protection-seeking firms implicitly collude with same-good producers to have their good protected at the expense of producers of other goods, but compete with those same-good producers to be the final beneficiary of the duty, when the level of protection is decided.

Our results lend credence to the view that decision-makers choose trade protection not because electoral concerns, but because it furthers the interest of a specific group of companies. Importantly, because some domestic producers are shielded against competition

from foreign markets – but their competitors are not – this will not only have the effect of depressing international trade, but also distort the competitive environment on the firms' home-market. Therefore, while international trade redistributes economic resources both within and across countries – leaving some groups worse off than they otherwise would have been (Autor et al. 2016, 2013; McGillivray 2004; Milanovic 2016) – antidumping policies also contributes to create rents to those immobile forms in the domestic economy that can best afford to invest in petitioning for protection.

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