Heterogeneous Information and Trade Policy*

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Abstract

Protectionism enjoys surprising popular support, in spite of deadweight losses. At the same time, trade barriers appear to decline with public information about protection. This paper develops an electoral model with heterogeneously informed voters which explains both facts and predicts the pattern of trade policy across industries. In the model, each agent endogenously acquires more information about his sector of employment. As a result, voters support protectionism, because they learn more about the trade barriers that help them as producers than those that hurt them as consumers. In equilibrium, asymmetric information induces a universal protectionist bias. The structure of protection is Pareto inefficient, in contrast to existing models. The model predicts a Dracula effect: trade policy for a sector is less protectionist when there is more public information about it. Using a measure of newspaper coverage across industries, I find that cross-sector evidence from the United States bears out my theoretical predictions.

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1 Introduction

The efficiency of free trade is among the least controversial propositions in economics. Surveys of economists have consistently found that opposition to trade barriers is the single issue on which the strongest consensus exists in the profession (Kearl et al. 1979; Alston, Kearl, and Vaughan 1992; Fuller and Geide-Stevenson 2003; Whaples 2006; Klein and Stern 2007). Trade restrictions are understood to be wasteful redistributive measures that benefit special-interest groups but harm the average citizen. Yet, protectionism enjoys a puzzling popularity among the general public. In international surveys, most respondents report protectionist views (Mayda and Rodrik 2005). In the United States, Taussig (1888) argued that politicians supported high tariffs in response to their constituents' protectionist feelings and convictions. In recent elections, protectionist promises have been at least as prominent on the campaign trail as in subsequent policy choices (Leonhardt 2008). The 2008 presidential race witnessed a paradoxical trade-policy scandal. The Obama campaign was accused of privately reassuring Canadian officials of the candidate's support for free trade, acknowledging that his public criticism of NAFTA was meant to pander to protectionist sentiment among the domestic audience (DeMora 2008).

Despite the surprising popular appeal of protectionist policies, Bhagwati (1988, p. 85) asserts that "the mere act of recognizing [protectionism] will help trigger a more corrective response. In these matters, we can count on assistance from ... the Dracula Effect: exposing evil to sunlight helps destroy it." This conviction might appear optimistic, but the cross-country pattern of tariff rates and citizens' access to the mass media bears out this insight. In an unbalanced panel of 162 countries from 1975 to 2003, the average level of import duties is 9%, signalling an overall protectionist bias. However, consistent with the Dracula effect, tariffs are significantly lower the higher the rate of television ownership. This relationship is illustrated by Figure 1.[1] The raw correlation is not merely due to the fact that the widespread availability of television sets may proxy for a country's overall development. Table 1 shows that the result holds when controlling for income per capita and for the quality of political institutions, as well as including fixed effects that control for all constant country-specific characteristics. The finding is economically as well as statistically significant. Including the full set of controls, the specification in column 4 shows that an increase in 10 televisions per 100 people corresponds to a reduction in tariffs by 1.20 percentage points. Gawande, Krishna, and Olarreaga (2009) also find that trade policy is closer to welfare maximization in countries with greater literacy and urbanization. They interpret this pattern as evidence

[1] Data sources are discussed in Appendix A. For readability, the plot excludes the observations for Sudan from 1975 to 1982, which have customs duties above 100% of imports and fewer than 5 television sets per 100 people.

that governments enact better policy when voters are more informed.

In this paper, I present a model of tariff formation that accounts for both the popular support for protectionism, the observed protectionist bias in trade policy, and the Dracula effect. I derive the equilibrium structure of trade policy across industries from an electoral model, focusing on endogenous heterogeneity in voters' information. Greater knowledge endows a voter with greater political power, because office-seeking politicians offer policies that cater to those voters who are most likely to be aware of their proposal, as Strömberg (2004) shows in the context of the allocation of public spending.

Crucially, I show that information and thus political influence vary systematically across sectors for the same individual. In particular, each agent is more likely to be informed of policy proposals for his own industry of employment. My model presents two parallel mechanisms that generate this endogenous asymmetry in voters' information. First, agents gain political knowledge through social networks in the workplace, and co-workers are more likely to share information concerning their own sector. Second, every agent can make costly efforts to acquire information about an industry. Producers pay to learn about their own sector ex ante, in order to optimize investments in production capacity; but consumers do not share this need to forecast prices in advance.

In equilibrium, voters support a protectionist proposal, because each citizen is more aware of the trade barriers that benefit him as a producer than of those that harm him as a consumer. Catering to the voters' preferences and information, politicians offer positive tariffs to every sector. The overall protectionist bias is Pareto inefficient, because each agent has power only over the specific policies he has superior knowledge of. Producers in each industry vote for politicians who offer them import tariffs. The same agents are not informed about other sectors, and thus do not vote against politicians who offer protection to those industries as well. Because of this voting behavior, politicians do not internalize the cost that protecting politically influential producers in one sector imposes onto equally influential producers in other sectors. If more public information is available about an industry, however, the asymmetry between producers' and consumers' knowledge in that industry is reduced. As a consequence, trade barriers for the sector are also reduced, in accordance with the Dracula effect.

I test my theory using data on non-tariff barriers for U.S. manufacturing industries in 1983.[2] The model predicts a protectionist bias that is lower in sectors for which more public information is available, and also in sectors with greater employment, since more numerous

[2]The sample and the method of my empirical analysis follow previous empirical studies of the cross-sector structure of U.S. trade policy (Goldberg and Maggi 1999; Gawande and Bandyopadhyay 2000; Eicher and Osang 2002; Matschke and Sherlund 2006; Mitra, Thomakos, and Ulubaşoğlu 2006; Bombardini 2008).

insiders internalize a greater share of the deadweight loss from trade barriers. The empirical evidence supports these theoretical predictions. I construct a measure of newspaper coverage of trade policy for each industry, using the ProQuest Historical Newspaper Database. I find that protection is significantly lower for sectors exposed to higher media scrutiny, and for industries with a greater number of skilled employees. As implied by the model, both effects are inversely proportional to import demand elasticity and import penetration, which measure the size of the deadweight loss. The sensitivity analysis establishes the robustness of the Dracula effect across sectors, which is unaffected, in particular, by controlling for the presence of an industry lobby offering political contributions.

Neither the popular appeal of protectionism, nor a Pareto-inefficient protectionist bias, nor the Dracula effect are accounted for by the preeminent theory of trade policy, Grossman and Helpman's (1994) model of protection for sale. In their framework, lobbies offer politicians strategic cash contributions, and in return they obtain favorable policies at the expense of the average citizen. Models of lobbying are inconsistent with protectionist campaign rhetoric because they depict, implicitly (Hillman 1982; Grossman and Helpman 1994) or explicitly (Magee, Brock and Young 1989; Mayer and Li 1994; Grossman and Helpman 1996), a political trade-off between the increased funding from lobbies profiting from protection and the diminished electoral appeal of policies that burden citizens with a deadweight loss. Politicians should then hide any distortions from voters as much as possible, rather than proudly trumpeting their protectionist platform.

Moreover, protection for sale does not imply an inefficient protectionist bias. Lobbies bargain efficiently with the government: each demands protection for its own sector and opposes protection for all other industries. Grossman and Helpman (1994) predict a Pareto-efficient equilibrium in which industries represented by lobbies receive protective tariffs, but all sectors without a lobbying organization are subject instead to an import subsidy.[3]

Finally, lobbying does not account for the Dracula effect across industries. Greater public information about a sector does not have any mitigating impact on the inefficiency of protection for sale. It plays no role in Mitra's (1999) model of lobby formation, nor in Bombardini's (2008) model of participation in lobbying efforts. A subtler question is whether a lobbying model might account for better policies when all voters are more informed about all issues, a pattern that would imply a Dracula effect across countries but not across sectors. Grossman and Helpman (1996, 2001) microfound the weight of lobbies' contributions in the politicians' objective function: providing favors to special interests alienates strategic voters who respond to policy choices, but contributions pay for campaign ads that generate sup-

[3]If all voters in all sectors are represented by an organized interest group, free trade is the equilibrium outcome of protection for sale.

port among impressionable voters who respond to advertising. Then policy-making is closer to welfare maximization when strategic voters are more numerous relative to impressionable voters. The two groups of voters actually differ in their rationality; yet Baron (1994) originally labelled strategic voters "informed" and impressionable voters "uninformed." The assumption that information and rationality coincide is questionable. Even if we accepted it, this approach could not account for the impact of sector-specific information on sector-specific policies.

The remainder of the paper has the following structure. Section 2 develops my theoretical model of electoral competition with heterogeneously informed voters. I describe the equilibrium structure of trade policy and discuss its Pareto inefficiency when voters are not equally knowledgeable about all sectors. I prove that in every industry producers are more informed than consumers, which determines a universal protectionist bias and underpins the Dracula effect. Section 3 presents the empirical test of the model. I describe the data and the construction of my measure of media coverage, and I show that my theoretical predictions are consistent with cross-sector evidence. Section 4 outlines two extensions. First, I show how organized interest groups can influence policy by controlling the sharing of information among their members. Second, I discuss how my framework can account for systematic differences in the trade-policy proposals of competing parties, and connect the long-run decline of protectionism to a gradual shift from economic to cultural factors as the main determinants of partisan polarization. Section 5 concludes.

2 Tariff Formation with Imperfectly Informed Voters

2.1 Setup of the Model

The first component of my model is a standard description of the underlying structure of the economy (Grossman and Helpman 1994). A small open economy is populated by agents with identical preferences, described by a quasi-linear utility function defined over consumption of a numeraire (indexed by 0) and G other goods:

$$u(\mathbf{c}) = c_0 + \sum_{g=1}^{G} u_g(c_g). \tag{1}$$

Each sub-utility function $u_g(.) \in \mathcal{C}^2$ is monotone increasing and concave. Let every agent have sufficient income y to consume a positive amount of the numeraire in equilibrium. Then the price of each non-numeraire good uniquely determines its consumption per person $c_g(p_g) = u_g'^{-1}(p_g)$, which is homogeneous across agents. Every individual therefore derives

identical consumer surplus

$$s_g(p_g) = u_g(c_g(p_g)) - p_g c_g(p_g) \tag{2}$$

and indirect utility can be written

$$v(y, \mathbf{p}) = y + \sum_{g=1}^{G} s_g(p_g). \tag{3}$$

The production technology has constant returns to scale, and domestic producers are perfectly competitive. The numeraire is produced employing one unit of labor per unit of output. The endowment of labor in the economy is assumed to be sufficiently large that a positive amount of the numeraire is produced in equilibrium, fixing the wage at unity. Each non-numeraire good g is produced employing both labor and an industry-specific input. The specific factors are in exogenous, inelastic supply, so that the only adjustments to the structure of production come from the allocation of the single mobile factor, i.e., labor. For a fixed wage rate, the price of each good determines the labor intensity of its production, and therefore the aggregate reward accruing to owners of the sector-specific factor. The latter is described by the monotone increasing and convex function $\pi_g(p_g) \in \mathcal{C}^2$. By Hotelling's Lemma, the competitive domestic supply function for each non-numeraire good is $x_g(p_g) = \pi'_g(p_g)$, a function of own price alone.

The world prices of all non-numeraire goods are exogenously given by the vector $\mathbf{p}^*$, which is not affected by domestic conditions. However, the government can influence the domestic price vector $\mathbf{p}$. The policy instrument available to politicians is precisely the creation of a wedge between the domestic and international price of each good. When positive, $t_g = (p_g - p^*)/p^*$ represents an import tariff for importing sectors and an export subsidy for exporting ones; when negative, respectively an import subsidy and an export tax. Each sector then generates tariff revenue per capita

$$r_g(p_g) = \frac{1}{N}\left(p_g - p_g^*\right) m_g(p_g), \tag{4}$$

where N denotes the size of the population and

$$m_g(p_g) = N c_g(p_g) - x_g(p_g) \tag{5}$$

is the net import demand function, which is monotone decreasing. Government revenues are rebated homogeneously to all citizens through a lump-sum payment, or government

expenditures are defrayed through a uniform poll tax. Each agent thus receives a net transfer in the amount $\sum_{g=1}^{G} r_g(p_g)$.

Individuals differ in their factor endowments. Agent i inelastically supplies an amount $l^i > 0$ of labor, and owns a fraction $\kappa_g^i \geq 0$ of the specific input for sector g. The sector-specific factors represent specialized human capital that, like labor, cannot be traded by their owners. Every agent's income is the sum of the government transfer, his wage, and his share of specific-factor rewards in each sector whose specific input he supplies:

$$y\left(\mathbf{p}, \boldsymbol{\kappa}^i, l^i\right) = l^i + \sum_{g=1}^{G} \left[\kappa_g^i \pi_g(p_g) + r_g(p_g)\right]. \tag{6}$$

World prices and factor endowments define a bounded feasible set of domestic prices. Arbitrary price support cannot be sustained with the finite resources available in the economy. Moreover, every citizen needs to be able to pay the homogeneous levy that finances industry subsidies. This upper bound on feasible subsidies lacks both practical relevance and theoretical interest. Therefore the analysis is carried out under the maintained assumption that domestic prices are in the feasible set

$$\mathcal{F} = \left\{ \mathbf{p} > 0 : y\left(\mathbf{p}, \boldsymbol{\kappa}^i, l^i\right) > \sum_{g=1}^{G} p_g c_g(p_g) \text{ for all } i \right\}, \tag{7}$$

ensuring that every agent has sufficient income net of government transfers to consume a positive quantity of the numeraire.

Individual utility can be expressed as

$$U\left(\mathbf{p}, \boldsymbol{\kappa}^i, l^i\right) = l^i + \sum_{g=1}^{G} U_g\left(p_g, \kappa_g^i\right), \tag{8}$$

where the contribution of each sector g to agent i's welfare is

$$U_g\left(p_g, \kappa_g^i\right) = \kappa_g^i \pi_g(p_g) + r_g(p_g) + s_g(p_g). \tag{9}$$

The welfare impact of a marginal policy change is then

$$\frac{\partial U}{\partial p_g} = \left(\kappa_g^i - \frac{1}{N}\right) x_g(p_g) + \frac{1}{N}\left(p_g - p_g^*\right) m_g'(p_g) \tag{10}$$

This expression highlights the two effects of any policy intervention: on distribution and on efficiency. The first term shows redistribution from consumers to producers, and thus from the general population to the owners of the sector-specific factor. It is positive if and

only if $\kappa_g^i > 1/N$, namely for individuals with a greater than average ownership share in the sector. The second term captures the deadweight loss arising from a distortion of the price system. Since $m_g' < 0$, the term is negative for $p_g > p^*$ and positive for $p_g < p^*$, showing that efficiency always increases when the domestic price is brought into closer alignment with the world price.

The social optimum coincides with the preferred policy of a hypothetical average citizen owning a fraction $1/N$ of every sector-specific factor, which is free trade. It is well known that in a small open economy whose domestic markets are free of distortions this is the first-best policy to maximize aggregate real income. However, unequal factor ownership implies that efficiency-reducing policies are advantageous for some agents who benefit from the resulting redistribution of resources. Intuitively, the desired amount of protection for a sector is increasing in the individual's ownership stake of the sector-specific factor κ_g^i. Agents who own little or no sector-specific human capital conversely desire import subsidies that lower the price of the good for domestic consumption, thereby extracting the factor reward from the owners of the specific input.

Enacted trade policies depend on the aggregation of citizens' heterogeneous preferences. My novel theoretical contribution lies in deriving trade-policy choices from an electoral process with heterogeneously informed voters. The election is contested by two parties, labelled L and R, whose only goal is to win office and which accordingly choose their policy proposals to maximize the probability of obtaining a majority of the votes cast. The electorate consists of a measure-N continuum of voters $i \in \mathcal{I}$. Following the probabilistic-voting approach (Lindbeck and Weibull 1987), voters' preferences for the competing parties comprise two independent elements. Each voter i derives utility $U(\mathbf{p}, \boldsymbol{\kappa}^i, l^i)$ from the policy vector $\mathbf{p}$ enacted by the winner of the election. Moreover, the two parties have fixed characteristics, such as ideology or the personal qualities of party leaders, that cannot be credibly altered with the choice of an electoral platform; and the voters have individual tastes, respectively ξ_L^i and ξ_R^i, for these characteristics.

In the standard probabilistic-voting model, parties choose binding policy platforms $\mathbf{p}^L$ and $\mathbf{p}^R$, and all voters perfectly observe these proposals. I relax the assumption of perfect information, and assume instead that each voter i reaches the election with rational beliefs $\hat{\mathbf{p}}^{P,i}$ about the policies endorsed by either politician $P \in \{L, R\}$, based on incomplete and heterogeneous information according to the timeline detailed below. As we shall see, by the time of the election each element of $\hat{\mathbf{p}}^{P,i}$ is either the actual policy proposal p_g^P or the ex-ante rational expectation $\bar{p}_g^P$. Given his information, voter i votes for party R if and only if

$$U\left(\hat{\mathbf{p}}^{L,i}, \boldsymbol{\kappa}^i, l^i\right) + \xi_L^i \leq U\left(\hat{\mathbf{p}}^{R,i}, \boldsymbol{\kappa}^i, l^i\right) + \xi_R^i. \tag{11}$$

An individual's relative assessment of the two parties can be disaggregated into a common and an idiosyncratic component: $\xi_L^i - \xi_R^i = \Psi + \psi^i$. Both Ψ and ψ^i are unobservable to the parties, and independently drawn from common-knowledge probability distributions. The common shock Ψ accounts for the aggregate uncertainty in the electoral outcome. The idiosyncratic shock ψ^i provides the intensive margin of political support, and is assumed to be i.i.d. across agents with uniform distribution on a support $\left[-\bar{\psi}, \bar{\psi}\right]$ sufficiently wide that each voter's ballot is not perfectly predictable on the basis of policy considerations only.

Before receiving any information, all citizens have rational expectations $\bar{\mathbf{p}}^L$ and $\bar{\mathbf{p}}^R$ about the policy vector that either party will endorse. Then each voter updates these beliefs on the basis of information that reaches him according to the following timeline.

1. The two parties simultaneously choose their platforms $\mathbf{p}^L$ and $\mathbf{p}^R$.

2. Each voter i is informed of the proposals p_g^L and p_g^R for sector g with probability θ_g^i. For every sector for which he does not observe the actual proposals, he maintains the original beliefs $\bar{p}_g^L$ and $\bar{p}_g^R$. The arrival of information is independent across voters.

3. Each voter i observes the realization of ξ_L^i and ξ_R^i, independent of his information. The election is held.

4. The winning party $W \in \{L, R\}$ implements its policy $\mathbf{p}^W$.

There are J types of citizens $j = 1, ...J$ (with J a large number), such that all agents of type j have an identical endowment of specific factors $\boldsymbol{\kappa}^j$ and identical information-acquisition probabilities $\boldsymbol{\theta}^j$. Each type j comprises fraction α^j of the population, with $\sum_{j=1}^J \alpha^j = 1$. Since there is a continuum of agents in every type and the arrival of information is independent across agents, when the election takes place each group comprises a share θ_g^j of agents who have observed the true proposals, so their beliefs about the sector are $\left(\hat{p}_g^{L,i}, \hat{p}_g^{R,i}\right) = \left(p_g^L, p_g^R\right)$. The remainder share $1 - \theta_g^j$ of group members have not observed the proposals and rely instead on their priors, so their beliefs about the sector are $\left(\hat{p}_g^{L,i}, \hat{p}_g^{R,i}\right) = \left(\bar{p}_g^L, \bar{p}_g^R\right)$. Given the independent realizations of the uniform idiosyncratic shock ψ^i, the fraction of citizens of type j who vote for party R equals

$$\phi_R^j = \frac{1}{2} + \frac{1}{2\bar{\psi}} \left(\sum_{g=1}^{G} \left\{ \begin{array}{l} \theta_g^j \left[U_g\left(p_g^R, \kappa_g^j\right) - U_g\left(p_g^L, \kappa_g^j\right) \right] \\ + \left(1 - \theta_g^j\right) \left[U_g\left(\bar{p}_g^R, \kappa_g^j\right) - U_g\left(\bar{p}_g^L, \kappa_g^j\right) \right] \end{array} \right\} - \Psi \right), \tag{12}$$

as a function of the common shock Ψ. Thus the realization of Ψ fully determines the number

of ballots cast for each politician: party R receives more votes than party L if and only if

$$\Psi < \sum_{j=1}^{J} \alpha^j \sum_{g=1}^{G} \left\{ \begin{array}{l} \theta_g^j \left[U_g \left(p_g^R, \kappa_g^j \right) - U_g \left(p_g^L, \kappa_g^j \right) \right] \\ + \left(1 - \theta_g^j \right) \left[U_g \left(\bar{p}_g^R, \kappa_g^j \right) - U_g \left(\bar{p}_g^L, \kappa_g^j \right) \right] \end{array} \right\}. \tag{13}$$

Hence, for any distribution of the unobservable common shock Ψ, party R seeks to maximize the right-hand side, and party L to minimize it.

Information about a specific policy choice p_g is the source of political power over the choice itself. Since all voters have rational expectations, even those who do not receive any information can correctly anticipate the equilibrium platforms of the two parties with perfect foresight ($\bar{\mathbf{p}}^P = \mathbf{p}^P$ for $P \in \{L, R\}$). Politicians' optimal strategies, however, are driven by heterogeneous information off the equilibrium path. With probability θ_g^j an agent of type J would notice a deviation from the expected policy choice $\bar{p}_g$, and react to the deviation when casting his vote. With probability $1 - \theta_g^j$, the agent would fail to notice an unexpected deviation, and thus could not react to it. Parties optimally set p_g to cater to the preferences of voters with high θ_g^j, who are likely to respond pivotally to actual proposals for the industry.

Suppose that a candidate's proposal for sector g is mostly observed by producers from the industry, who desire protectionism. The whole electorate rationally expects the politician to promise trade barriers for the sector. If unexpectedly he endorsed free trade for industry g, many of its producers would be informed and disappointed, and would thus withdraw their support for the candidate. Instead, the rest of the electorate is less likely to be informed of the deviation, and thus the politician would gain few new supporters among consumers. Hence, deviating from the expected protectionist proposal is unprofitable for the politician.

The assumption of rational expectations is standard, and it allows a clear distinction between voters' rationality and their information. Moreover, it lends an intuitive interpretation to the ensuing equilibrium structure. The equilibrium outcome, however, is robust to arbitrary alternative specifications of initial beliefs. The additive separability of equation 13 implies that a politician's optimal policy proposal is independent both of the opponent's platform and of voters' initial beliefs. All that is required is for voters to react to subsequently observed policy proposal in the manner specified by the model. The same results hold identically if voters ignore the precise values of $\boldsymbol{\theta}^j$ and thus lack perfect foresight, or even if their initial expectations are not fully rational.

2.2 The Structure of Trade Policy

The parties' problem from equation 13 implies immediately that a purely office-seeking politician strategically behaves as if he were maximizing sector by sector a weighted average

of citizens' sub-utility functions, with weights equal to the likelihood that each voter is informed of the policy proposal for the sector.

Lemma 1 *The optimal policy proposal is*

$$p_g = \arg\max_p \sum_{j=1}^{J} \alpha^j \theta_g^j U_g\left(p, \kappa_g^j\right) \text{ for } g = 1, 2, ..., G.$$

This result embodies formally the notion that policies are chosen to maximize a political support function that attaches different weights to the preferences of different agents. Introduced by Stigler (1971) and Peltzman (1976) in the context of economic regulation, this approach was explicitly applied to tariff policy by Hillman (1982). Long and Vousden (1991) assumed in reduced form that politicians maximize a weighted average of the welfare of the average citizen and that of powerful special-interest groups. Grossman and Helpman (1994) derive such a weighted social welfare function from their model of protection for sale.

In my model, political support does not come from organized lobbies, but rather—consistent with Becker's (1976) insight—from looser groupings of voters, characterized less by a shared special interest than by their members' privileged access to political information. This source of influence has long been recognized in the economic analysis of the political system (Downs 1957). It can explain the influence on government spending of the mass media, since these enable voters to judge whether their interests are being served and hold the government accountable (Besley and Burgess 2002). Closest to the present analysis, Strömberg (2004) shows that public spending is skewed towards constituencies with greater political information. Glaeser, Ponzetto and Shapiro (2005) stress that each individual need not be equally informed about different political parties. Such heterogeneity can explain the divergence of party positions, since rival politicians are concerned with pleasing different audiences of partisan voters.[4]

The main novelty of the present setup is that I emphasize the role of differences in a single voter's information about different industries. The objective functions depicted by Lemma 1 differ crucially from those of existing models because the do not aggregate up to an overall weighted social welfare function. Formally, θ_g^j need not equal θ_h^j for $g \neq h$. The same agent's influence varies across policy areas, because every individual wields political power only over the issues about which he is disproportionately knowledgeable. As a consequence, equilibrium policy will generally not be Pareto efficient. It does not maximize an overall

[4]Different strands of the literature have also considered forms of political knowledge other than information about policy decisions: the ability to estimate politicians' quality from the observation of their actions (Lohmann 1998, 2003; Myerson 1999); or to assess the indirect effects of observed policies (Grossman and Helpman 2001, §3.2).

weighted social welfare function, but rather weighs agents' preferences separately sector by sector, using different weights for the policy choice in each industry. A group can be extremely influential in the determination of trade policy for a particular sector that its members are especially informed about, while having marginal influence over policy decisions for other sectors. Pareto inefficiency arises because heterogeneous information gives agents the power to demand policy favors for themselves, but not to oppose the granting of favors to others.

This result contrasts with Grossman and Helpman's (1994) model of lobbying. Organized special-interest groups rationally offer strategic contributions contingent on the entire vector of policy outcomes. Hence, solving the collective-action problem and forming a lobby grants a group identical power over all policy choices. Protection for sale leads to a Pareto-efficient equilibrium that maximizes a weighted social welfare function, with higher weight on lobby members' welfare. Every agent also has the same influence over all policy choices in electoral models of tariff formation with homogeneous information, in which a voter's political power depends on his likelihood of being pivotal (Mayer 1984; Yang 1995; McLaren and Karabay 2004). In the textbook model of probabilistic voting (Persson and Tabellini 2000, ch. 3) equilibrium policy maximizes a weighted social welfare function with higher weight on swing voters' welfare.

Both protection for sale and electoral competition with homogeneous information predict Pareto efficient policies, and in particular free trade when all agents are equally active—respectively, equally represented by lobbies or equally likely to be pivotal. On the contrary, as we are about to see, my model predicts a Pareto inefficient protectionist bias when every agent is identically well-informed about his own sector of employment and poorly informed about other industries. Such a pattern is the key to explaining the Dracula effect across industries.

Equation 10 and Lemma 1 characterize for each sector the trade policy proposal that each party makes in equilibrium. Assuming that the prices belong to the feasible set $\mathcal{F}$, the following characterizes equilibrium platforms (all proofs are provided in Appendix C).

Proposition 1 *The optimal policy proposal satisfies*

$$\frac{p_g - p_g^*}{p_g} = \rho\left(\theta_g^j, \kappa_g^j\right) \frac{\sigma}{\mu}\left(\theta_g^j\right) \frac{\sigma}{\mu}\left(\kappa_g^j\right) \frac{x_g\left(p_g\right)}{m_g\left(p_g\right)} \frac{1}{e_g\left(p_g\right)} \text{ for } g = 1, 2, ..., G,$$

where ρ denotes the correlation coefficient and σ/μ the coefficient of variation of the population distribution of information θ_g^j and human capital κ_g^j; while $e_g\left(p_g\right) \equiv -p_g m_g'\left(p_g\right)/m_g\left(p_g\right)$ denotes the import demand elasticity.

The structure of protection is determined by the joint distribution of factor ownership and access to information, which in turn determines political influence. An industry is protected if and only if there is positive correlation between a person's ownership share of the specific factor and her knowledge of policy proposals affecting prices in the sector ($\rho\left(\theta_g^j, \kappa_g^j\right) > 0$). Therefore, a protectionist bias emerges across the board when each agent is very informed about his own sector of employment, but has less knowledge of policy proposal for other industries. Microfoundations of precisely such a distribution of information are given below.

Evidence on the role of heterogeneous information as a determinant of trade policy is provided by Hall, Kao and Nelson's (1998) historical analysis. The introduction of women's suffrage throughout the United States in 1920 was associated with a decline in average tariff rates. This development was related to specialization within the American household in the early twentieth century. The husband was uniquely concerned with, and informed of, the effect of policy on factor rewards. It was instead the wife who was aware of consumer prices and the negative impact protectionism had on them. In the terms of the model, the enfranchisement of women then corresponds to the introduction of voters whose information is uncorrelated with household factor ownership. It follows that politicians would strategically endorse lower levels of protection for all sectors.

Proposition 1 shows that whenever trade policy is distorted away from free trade ($\rho\left(\theta_g^j, \kappa_g^j\right) \neq 0$), the magnitude of the distortion is also proportional to the coefficient of variation of the population distributions both of specific-factor ownership and of information. While the correlation of the two variables dictates whether producers or consumers have the upper hand in the distributional conflict, the heterogeneity of knowledge determines the margin of victory and the dispersion of factor ownership measures the height of the stakes.

If information is almost homogeneous, agents with an informational advantage can obtain only minimal policy favors. At the opposite extreme, if there is a group of agents who receive information about a sector while all other voters do not, then the equilibrium tariff in that sector will be exactly the one preferred by the informed agents.

If ownership of the specific factor is widely dispersed, the average citizen not only coincides with the average consumer, but is also close to being the average producer. The desire for redistribution is then muted. Nobody wishes to deviate much from free trade, because everyone internalizes the deadweight loss, while anticipating no more than a small change in incomes. If instead factor ownership is very concentrated, the preferences of producers and consumers diverge. Changes in factor rewards are large, and overshadow the deadweight loss. Each producer is very keen on protection to increase his earnings, while every consumer desires a substantial import subsidy to extract producers' revenues.

Thus the model suggests that among protected sectors, those with greater industrial concentration should have higher tariffs, a pattern that has ample support in empirical evidence (Pincus 1975; Saunders 1980; Marvel and Ray 1983; Godek 1985; Trefler 1993; Bombardini 2008). Moreover, information asymmetry is naturally connected to the regional concentration of a sector, whose positive impact on the level of protection is also well documented (Pincus 1975; Caves 1983; Godek 1985).

Finally, any deviation from the first best is inversely proportional to the absolute elasticity of import demand ($e_g \equiv -p_g m_g'/m_g$) and to the import penetration ratio (m_g/x_g). Higher-elasticity industries receive less distortive policies because they would incur greater deadweight losses, as in the Ramsey rule of commodity taxation. Similarly, trade penetration reflects the weighting of distributive and efficiency considerations. Redistribution is proportional to the size of domestic output (x_g), while the deadweight loss is proportional to the amount of international trade (m_g). Every agent incorporates these considerations in his preferences, which follow the universal pattern $p_g - p_g^* \propto -x_g/m_g'$, up to a proportionality coefficient varying with factor ownership. Hence enacted policy shares this pattern as a direct consequence of Lemma 1, and also in any model in which equilibrium policy maximizes a weighted sum of citizens' welfare, such as Mayer's (1984) and Grossman and Helpman's (1994).

Unlike those previous models, however, Proposition 1 describes an equilibrium structure of trade policy that typically embodies a Pareto-inefficient bias, according to the intuition set out in Lemma 1. For a simple and stark illustration of Pareto inefficiency, consider an economy that consists of G symmetric industries with identical international prices p^* and identical domestic supply and import demand functions $x(p)$ and $m(p)$. Each sector employs an identical share N/G of agents, who own each an identical amount of the sector-specific human capital, and no specific factor for any other industry. The joint distribution of information and factor ownership is identical for all industries, with $\rho\left(\theta^j, \kappa^j\right) > 0$. Then in equilibrium identical positive tariffs are offered instead of free trade: $p_g = p > p^*$ for all g.

Any reduction in tariffs by the same amount in all industries would make all agents strictly better off than the equilibrium policy. Everyone experiences a welfare change $dU = (G/N)(p - p^*) m'(p) dp > 0$ for an across the board tariff cut $dp < 0$. Nonetheless, a free-trade platform would not garner electoral support because candidates cannot credibly signal commitment to imperfectly informed voters. Each citizen would probably observe and dislike the proposal of low tariffs for his own sector. Likely failing to observe proposals for other sectors, he would rationally infer that they are being offered protection behind his back, further cementing his dislike of the politician's platform.

2.3 Information Acquisition and Protectionism

Proposition 1 describes how a Pareto-inefficient protectionist bias emerges when information about a sector and ownership of its specific factor are positively correlated ($\rho\left(\theta_g^j, \kappa_g^j\right) > 0$). We shall now prove that this positive correlation emerges systematically for every industry from an endogenous process of information acquisition. Two parallel channels lead to this outcome. First, the spontaneous acquisition of information through social interactions. Second, the deliberate acquisition of information through purposeful and costly learning.

Let each agent own at most one type of sector-specific human capital, corresponding to his occupation in a single sector. Each sector g employs a fraction $\alpha_g > 0$ of the total population. Every agent exogenously receives information about policy proposals $\left(p_g^L, p_g^R\right)$ for sector g with homogeneous probability $\underline{\theta}_g \in (0,1)$. This baseline level of public information reflects, in particular, coverage of the industry by the mass media.

In addition to receiving information directly from politicians and the media, each voter acquires further political knowledge by interacting with informed fellow citizens (Granovetter 1973; Cialdini 1984; Zaller 1992; Beck et al. 2002). The workplace plays a crucial role in this process of social formation of political awareness: people are more likely to discuss politics with their co-workers than in almost any other context (Finifter 1974; Beck 1991; Mutz and Mondak 2006). The work-based aggregation of information explains an occupational bias in agents' political knowledge, as conversations among colleagues focus on their shared concern for their industry of employment.

To capture this intuition, I assume that every member of sector g belong to a network of $n_g > 1$ colleagues. Within this workplace network, information regarding the industry itself is perfectly shared. If any one of the n_g co-workers has been exogenously informed of the policy proposals $\left(p_g^L, p_g^R\right)$, he communicates it with certainty to the entire network. Instead, individuals do not share with their colleagues any information concerning other sectors; nor do they share any political information when interacting with people outside of the workplace.

These assumptions describe in the simplest manner how information is acquired along industry lines through spontaneous interactions in the workplace. Analogous results would obtain if we assumed that co-workers share sector-specific knowledge with probability less than one, and also share information unrelated to the industry with probability greater than zero. What matters is simply that colleagues are more likely to share sector-specific information. Furthermore, we could consider that agents also share some information outside of the workplace, but do so independently of their factor endowment. The following results would be qualitatively unchanged.

Proposition 2 *The equilibrium policy proposal satisfies*

$$\frac{p_g - p_g^*}{p_g} = \frac{1-\alpha_g}{\alpha_g + \underline{\theta}_g / \left(\Theta_g - \underline{\theta}_g\right)} \frac{x_g\left(p_g\right)}{m_g\left(p_g\right)} \frac{1}{e_g\left(p_g\right)},$$

where Θ_g denotes the endogenous probability that a member of sector g is informed about policy proposals for the sector itself. Insiders' information increases with the size of their workplace network ($\partial\Theta_g/\partial n_g > 0$); it is always greater than public information ($\Theta_g > \underline{\theta}_g$) and increases with it ($\partial\Theta_g/\partial\underline{\theta}_g > 0$).

Every industry is offered positive protection ($p_g > p_g^*$). The distortion is lower in sectors for which more widespread information is available ($\partial p_g/\partial\underline{\theta}_g < 0$), and higher in industries whose members are fewer ($\partial p_g/\partial\alpha_g < 0$) and more connected ($\partial p_g/\partial n_g > 0$).

Protectionism is a winning electoral platform because workers' social interactions and thus their knowledge are specialized by occupation. Voters' awareness of economic policy is disproportionately acquired as producers. Therefore, a protectionist policy proposal is more likely to be noticed by the factor owners whose income it supports than by the consumers who bear the burden of a price increase (Lohmann 2003). Each agent is disproportionately aware of the elements of a protectionist platform that bring him private benefits, and not of those that merely affect him through their social costs. This asymmetry can explain why a majority of voters report protectionist sentiments in opinion polls (Mayda and Rodrik 2005). In the terms of Proposition 1, the diffusion of information through social networks centered in the workplace induces a positive correlation between sector-specific knowledge and sector-specific factor ownership ($\rho\left(\theta_g^j, \kappa_g^j\right) > 0$). Hence, strategic office-seekers offer a positive import tariff to every industry, generating a universal protectionist bias ($p_g > p_g^*$ for all g).

This prediction accords with an apparent real-world feature of trade policy. Observed deviations from free trade almost invariably aim at constraining imports rather than subsidizing them (Rodrik 1995). The proposition accounts for a uniquely extreme form of this bias. The literature has explored an average protectionist bias in the choices of legislatures elected with a majoritarian system (Grossman and Helpman 2005; Fredriksson, Mathscke, and Minier 2011). The ruling party represents a majority of regions, thus intuitively a majority of industries; as a consequence, a majority of sectors receive positive tariffs. Although the expected tariff is positive for each sector, ex post the minority of industries represented by the opposition is typically hit by import subsidies. Proposition 2 predicts instead positive tariffs for all industries.[5] What is more, the bias is expected to be Pareto inefficient, according to the intuition set out above. On the contrary, previous models have predicted Pareto

[5] This outcome may also obtain in Grossman and Helpman's (2005) model, depending on the extent of

efficient policies, which result from the combination of electoral models with homogeneously informed voters (including in a majoritarian system) and "protection for sale" to lobbies.

The most important result in Proposition 2 is the presence of a Dracula effect across industries. Given greater public awareness of a policy proposal, there is a correspondingly lower scope for asymmetric knowledge, so producers' informational advantage over consumers wanes ($\partial p_g / \partial \underline{\theta}_g < 0$). In the terms of Proposition 1, the higher the amount of information about a sector that reaches the entire population ($\underline{\theta}_g$), the lower the heterogeneity of information ($\frac{\sigma}{\mu}\left(\theta_g^j\right)$) and the lower the induced equilibrium tariff. Public information, sector by sector and policy by policy, counteracts the baseline protectionist bias.

The proposition also shows that trade barriers are higher for sectors that have a smaller number of producers and thus more concentrated ownership of sector-specific human capital (lower α_g implying higher $\frac{\sigma}{\mu}(\kappa_g)$). This result derives from the preferences of producers, whose ideal policy for their own sector satisfies

$$\frac{p_g - p_g^*}{p_g} = \frac{1-\alpha_g}{\alpha_g} \frac{x_g(p_g)}{m_g(p_g)} \frac{1}{e_g(p_g)}. \tag{14}$$

The lower the fraction of the population employed in the sector, the lower the share of the deadweight loss they have to bear, and thus the more extreme their protectionist demands. The endogenous distribution of knowledge determines to what extent politicians are responsive to these requests. For a given information asymmetry in producers' favor ($\Theta_g - \underline{\theta}_g$), more concentrated sectors desire and obtain higher protection

Finally, Proposition 2 establishes that trade policy is more distorted in favor of industries whose members are connected to a wider social network. A greater ability to share information increases the members' aggregate knowledge and therefore their political clout. This intuitive mechanism can be connected to two economic-policy biases that have prevailed historically in developing countries: an anti-trade bias (Edwards 1993) and an anti-rural bias (Lipton 1977). In terms of the model, both follow from the fact that urban manufacturing is the import-competing sector, and at the same time its workers are better placed than rural voters to obtain, share and aggregate political information.

In the limit as their number of workplace connections diverges, agents become perfectly informed about the sector whose specific human capital they are endowed with ($\lim_{n_g \to \infty} \Theta_g =$

party discipline. It is a possibility in Grossman and Helpman's (1994) model of lobbying, though not an especially likely outcome. Willmann (2005) shows it is likely in a model of strategic legislative delegation, although it depends on the distribution of the specific factor across agents.

1). The equilibrium condition in Proposition 2 then becomes

$$\frac{p_g - p_g^*}{p_g} = \frac{1-\alpha_g}{\alpha_g + \underline{\theta}_g / \left(1-\underline{\theta}_g\right)} \frac{x_g\left(p_g\right)}{m_g\left(p_g\right)} \frac{1}{e_g\left(p_g\right)}. \tag{15}$$

This prediction forms the basis of the empirical analysis in Section 3. It coincides with the equilibrium in Proposition 3 below, which portrays the outcome of the second channel of information acquisition: deliberate investment in costly learning activities.

2.4 Costly Information Acquisition

Proposition 2 has shown how a protectionist bias and the Dracula effect across industries emerge from the spontaneous social diffusion of political information. The mechanism reflects the lack of incentives to exert any effort to acquire political knowledge. This is a facet of the paradox of the rational voter, which is put into sharp relief by probabilistic-voting models with a continuum of agents. Every atomistic citizen has probability zero of influencing the outcome of the election, and therefore no instrumental reason to invest in making a more informed voting decision. Consistent with this theoretical perspective, Graber (1984) finds that for the majority of Americans being informed about politics is a consumption decision, not an investment with economic payoffs.

Producers, however, routinely invest in acquiring information that helps them assess and forecast industry trends, including knowledge of policy proposals affecting the sector. Consumers, instead, do not typically need advance information about market conditions. These asymmetric incentives for engaging ex ante in costly information acquisition constitute the second channel that leads to a protectionist bias in trade policy, and to lower trade barriers for industries exposed to greater coverage in the mainstream media.

To capture this mechanism analytically, assume that international prices $\mathbf{p}^*$ are volatile. Domestic prices $\mathbf{p}$ reflect this volatility, and may incorporate additional uncertainty resulting from the policy-making process. We shall focus on price movements around an election, distinguishing an ex-ante stage before the election and an ex-post stage after the election. Ex post, all agents costlessly observe the domestic price vector $\mathbf{p}$, and can make their consumption decisions accordingly. Owners of the specific factors, however, cannot wait to make their production decisions ex post. Instead, they must hire labor ex ante, on the basis of their private expectation of future prices. When price information eventually becomes fully public, they are no longer able to adjust employment and output.

Producer i's profit-maximization problem then implies that labor demand per unit of the

specific factor is a function of his price expectation $\mathbb{E}^i p_g$ alone:

$$l_g\left(\mathbb{E}^i p_g\right) = \mathbb{E}^i p_g \pi'_g\left(\mathbb{E}^i p_g\right) - \pi_g\left(\mathbb{E}^i p_g\right). \tag{16}$$

The output of the sector-g good by agent i with a share $\kappa_g^i > 0$ of its specific factor and an expectation $\mathbb{E}^i p_g$ of its price is determined ex ante as

$$q_g\left(\kappa_g^i, \mathbb{E}^i p_g\right) = \kappa_g^i \pi'_g\left(\mathbb{E}^i p_g\right). \tag{17}$$

Aggregate domestic output in sector g, which will be denoted by x_g, thus depends on the expectations $\mathbb{E}^i p_g$ of all agents with $\kappa_g^i > 0$. It does not depend directly on the ex post realization of p_g, which determines individual income

$$\begin{aligned} &y\left(\mathbf{p}, \mathbf{x}, \mathbb{E}^i \mathbf{p}, \boldsymbol{\kappa}^i, l^i\right) = \\ &\quad = l^i + \sum_{g=1}^{G} \left\{ \kappa_g^i \left[\pi_g\left(\mathbb{E}^i p_g\right) + \left(p_g - \mathbb{E}^i p_g\right) \pi'_g\left(\mathbb{E}^i p_g\right)\right] + \left(p_g - p_g^*\right) \left[c_g\left(p_g\right) - \frac{1}{N} x_g\right] \right\}, \end{aligned} \tag{18}$$

consumption, and therefore utility

$$U\left(\mathbf{p}, \mathbf{x}, \mathbb{E}^i \mathbf{p}, \boldsymbol{\kappa}^i, l^i\right) = l^i + \textstyle\sum_{g=1}^{G} U_g\left(p_g, x_g, \mathbb{E}^i p_g, \kappa_g^i\right), \tag{19}$$

where the contribution of each sector g to agent i's welfare is

$$\begin{aligned} &U_g\left(p_g, x_g, \mathbb{E}^i p_g, \kappa_g^i\right) = \\ &\quad = \kappa_g^i \left[\pi_g\left(\mathbb{E}^i p_g\right) + \left(p_g - \mathbb{E}^i p_g\right) \pi'_g\left(\mathbb{E}^i p_g\right)\right] + \left(p_g - p_g^*\right) \left[c_g\left(p_g\right) - \frac{1}{N} x_g\right] + s_g\left(p_g\right). \end{aligned} \tag{20}$$

Ex post, the welfare impact of a marginal policy change is

$$\frac{\partial U}{\partial p_g} = \kappa_g^i \pi'_g\left(\mathbb{E}^i p_g\right) - \frac{1}{N} x_g + \left(p_g - p_g^*\right) c'_g\left(p_g\right). \tag{21}$$

Everyone suffers from deadweight losses when prices are distorted away from the efficient level p_g^*. This confirms the optimality of free trade. Artificially higher prices are an inefficient mechanism to redistribute towards producers. Since production is planned ex ante, each agent's stakes in the distributional game are given directly by his predetermined output $(\kappa_g^i \pi'_g\left(\mathbb{E}^i p_g\right))$ compared to industry output per capita (x_g/N), rather than indirectly by factor ownership as in the baseline model.

Citizens have rational expectations $\bar{\mathbf{p}}^L\left(\mathbf{p}^*\right)$ and $\bar{\mathbf{p}}^R\left(\mathbf{p}^*\right)$ about the strategies that the

parties will follow to formulate their platforms conditional on the realization of $\mathbf{p}^*$. The realization is privately observed by the politicians, but the distribution of $\mathbf{p}^*$ is common knowledge. Its components are independently distributed, and none is deterministic. The timing of the policy-making game takes into account the ex-ante hiring of labor, and a preceding stage of costly information acquisition. Acquiring information requires an optional investment of effort that linearly reduces an agent's labor supply, and therefore his income and utility. The timeline is the following.

1. The two parties privately observe the realization of $\mathbf{p}^*$ and choose simultaneously their platforms $\mathbf{p}^L(\mathbf{p}^*)$ and $\mathbf{p}^R(\mathbf{p}^*)$.

2. Each voter i makes a costly investment $\iota_g^i \geq 0$ in learning about each sector g. This determines the probability $\theta_g\left(\iota_g^i\right)$ that he is informed of $\left(p_g^*, p_g^L, p_g^R\right)$. The arrival of information is independent across voters and sectors.

3. Agents with specific capital $\kappa_g^i > 0$ hire labor and thus predetermine individual output.

4. Each voter i privately observes the realization of ξ_L^i and ξ_R^i, independent of his information. The election is held.

5. The winning party $W \in \{L, P\}$ implements its policy $\mathbf{p}^W$, which is publicly observed. Agents make their consumption decisions.

The problem faced by either party is identical. There are no economic linkages across sectors, as utility is quasilinear, there is a single mobile factor, and all random shocks are independently distributed. Thus we shall focus on an equilibrium in which voters rationally expect the parties to follow symmetric strategies and the proposed price for each sector to depend only on the international market price for the sector itself:

$$\bar{p}_g^L(\mathbf{p}^*) = \bar{p}_g^R(\mathbf{p}^*) = \bar{p}_g\left(p_g^*\right). \tag{22}$$

In addition, both voters and politicians have rational expectations that agents invest in acquiring information about each sector depending on their ownership of the respective specific factor, according to a function $\bar{\iota}_g\left(\kappa_g^i\right)$. For ease of notation, let $\bar{\theta}_g^j = \theta_g\left(\bar{\iota}_g\left(\kappa_g^j\right)\right)$ and denote by

$$\bar{\omega}_g = 1 - N\sum_{j=1}^{I} \alpha^j \bar{\theta}_g^j \kappa_g^j \in [0,1] \tag{23}$$

the fraction of the specific factor that is expected to belong to uninformed producers.

Denote by $\tilde{m}'_g(p_g) = Nc'_g(p_g)$ the sensitivity of net imports to unexpected price changes, and recall that $x_g(\mathbb{E}p_g) = \pi'_g(\mathbb{E}p_g)$ is aggregate domestic supply as a function of expected price. Given expectations about citizens' information acquisition, the optimal platform admits a characterization analogous to Proposition 1.

Lemma 2 *The optimal policy proposal satisfies*

$$\frac{p_g - p_g^*}{p_g} = \left\{ \rho\left(\bar{\theta}_g^j, \kappa_g^j\right) \frac{\sigma}{\mu}\left(\bar{\theta}_g^j\right) \frac{\sigma}{\mu}\left(\kappa_g^j\right) + \bar{\omega}_g \left[1 - \frac{x_g(\mathbb{E}\bar{p}_g)}{x_g(p_g)}\right] \right\} \frac{x_g(p_g)}{m_g(p_g)} \frac{1}{\tilde{e}_g(p_g)},$$

where ρ denotes the correlation coefficient and σ/μ the coefficient of variation of the population distribution of information $\bar{\theta}_g^j$ and human capital κ_g^j; while $\tilde{e}_g(p_g) \equiv -p_g \tilde{m}'_g(p_g)/m_g(p_g)$ denotes the elasticity of import demand to unexpected price changes.

The only difference between this policy proposal and the equilibrium platform described by Proposition 1 for the baseline model consists in a desire to increase customs revenues by exploiting uninformed producers ($\omega_g > 0$) who cannot adjust ex post to the eventual price realization. When prices are higher than expected, these producers cannot increase output, which implies greater net imports and higher tariff revenues than in the baseline model. For a given tariff rate, net imports and tariff revenues are conversely lower than the baseline when prices are below their expected value. As a consequence, it becomes more difficult in this setting for free trade to be politically feasible. It is no longer the politicians' preferred policy whenever information is uncorrelated with factor ownership ($\rho\left(\bar{\theta}_g^j, \kappa_g^j\right) = 0$). For free trade to prevail almost surely in sector g, it is now necessary that all citizens are perfectly informed about the respective policy proposals ($\bar{\theta}_g^j = 1$ for all j, which is the same as $\rho\left(\bar{\theta}_g^j, \kappa_g^j\right) = 0 = \bar{\omega}_g$).

In equilibrium, for an agent with factor ownership κ_g^i, learning ex ante the true price p_g instead of retaining the rational expectation $\mathbb{E}\bar{p}_g$ is worth an increase in income equal to

$$\Delta_g\left(p_g, \kappa_g^i\right) = \kappa_g^i \left[\pi_g(p_g) - \pi_g(\mathbb{E}\bar{p}_g) + (p_g - \mathbb{E}\bar{p}_g)\,\pi'_g(\mathbb{E}\bar{p}_g)\right]. \tag{24}$$

The expected value of acquiring information about a sector is proportional to an agent's ownership share of the respective factor. The gain per unit of ownership is

$$v_g = \mathbb{E}\pi_g(\bar{p}_g) - \pi_g(\mathbb{E}\bar{p}_g), \tag{25}$$

which is positive for every non-degenerate distribution of $\bar{p}_g$ and every convex profit function π_g.

When perfect political information can be acquired at a small but positive cost, the framework illustrates starkly the emergence of an aggregate protectionist bias and of a cross-sector Dracula effect.

Proposition 3 *Let all agents with a positive ownership share of the specific factor for sector g own at least a minimum $\underline{\kappa}_g > 0$ (for all $i \in \mathcal{I}$, $\kappa_g^i > 0 \Rightarrow \kappa_g^i \geq \underline{\kappa}_g > 0$). Let there be a level of investment $\hat{\iota}_g > 0$ that yields perfect knowledge about sector g ($\theta_g(\hat{\iota}_g) = 1$), while any lower investment $\iota_g^i \in [0, \hat{\iota}_g)$ implies an exogenous probability of receiving information $\underline{\theta}_g \in [0, 1)$.*

Then there is a threshold $\bar{\iota}_g > 0$ such that for all $\hat{\iota}_g \in (0, \bar{\iota}_g)$, in equilibrium all consumers with $\kappa_g^i = 0$ invest $\iota_g^i = 0$ and are informed with probability $\underline{\theta}_g$, while all producers with $\kappa_g^i > 0$ invest $\iota_g^i = \hat{\iota}_g > 0$ and are informed with certainty. Enacted policy satisfies

$$\frac{p_g - p_g^*}{p_g} = \frac{1 - \alpha_g}{\alpha_g + \underline{\theta}_g / \left(1 - \underline{\theta}_g\right)} \frac{x_g(p_g)}{m_g(p_g)} \frac{1}{\tilde{e}_g(p_g)}.$$

Every industry is offered positive protection with certainty ($p_g > p_g^*$). The distortion is lower in sectors for which more widespread information is available ($\partial p_g / \partial \underline{\theta}_g < 0$), and higher in industries whose members are fewer ($\partial p_g / \partial \alpha_g < 0$).

Advance information about sector g provides consumers only with an opportunity to cast a more knowledgeable ballot. Their consumption decision is made ex post, when full information is publicly available at no cost. Thus consumers have no incentives to become informed ex ante. Any positive cost of early information acquisition suffices to hold them to their exogenous probability of information $\underline{\theta}_g$, which represents the likelihood of learning about trade policy for the sector via the non-directed consumption of general-interest news.

Instead, it is profitable for every producer to acquire information ex ante, when he must invest in production capacity. Thus producers are willing to pay a strictly positive cost to obtain a perfect price forecast for their own industry. If the effort required to obtain such knowledge is sufficiently low, the unique equilibrium is for every owner of the specific factor to become perfectly informed in advance. The ex-ante information asymmetry between producers and consumers is then endogenously maximized.

The structure of protection described by Proposition 3 shows how factor owners obtain political clout even without solving the collective-action problem and organizing as a lobby. Each producer is privately motivated to acquire information for his own hiring decision. As a by-product of these uncoordinated individual actions, the industry becomes politically influential. However, producers' influence is then limited to policy choices that directly affect the determinants of their investment. This endogenous limitation stands in contrast

to the classic analysis of special interest groups that have managed to solve the collective-action problem and forming a lobby. Grossman and Helpman (1994) show that bidding for protection for sale is an efficient way of exerting political power.

Costly information acquisition implies an additional inefficiency in policy-making, beyond the Pareto inefficient protectionist bias already highlighted in Propositions 1 and 2. Producers invest in learning about platforms merely because trade policy distorts ex ante investments. If instead politicians offered redistribution through non-distortive lump-sum transfers, there would be no differential incentives for the beneficiaries to learn about them in advance. Hence politicians deliberately choose to redistribute through inefficient mechanisms, such as trade barriers, production subsidies, and price supports, that distort prices and economic activity.

My model thus provides a microfoundation for Magee, Brock, and Young's (1989) suggestion that trade policy is preferred to efficient transfers for reasons of "optimal obfuscation." Indirect transfers have the advantage of attracting their recipients' attention, rather than being more obscure than direct hand-outs for the voters who bear their cost. The emphasis on the beneficiaries' information instead of the victims' allows the theory to account for the political expediency of transfers that are unambiguously inefficient. This feature provides a more intuitive fit to trade policy than a model in which special interests can obtain disguised favors because taxpayers are unsure if an intervention is in fact efficient (Coate and Morris 1995).

Not only the aggregate protectionist bias ($p_g > p_g^*$ for all g), but also the comparative statics mirror those of Proposition 2. The Dracula effect operates across industries: producer capture of trade policy, and the ensuing trade barriers and inefficient distortions, all decrease when more public information is available about a sector ($\partial p_g / \partial \underline{\theta}_g < 0$). Moreover, protectionist demands and equilibrium tariffs are decreasing in the number of producers in an industry ($\partial p_g / \partial \alpha_g < 0$). These properties embody the fundamental intuition conveyed by my theoretical analysis. They obtain equally in Proposition 2 with a simpler modelling of information sharing among colleagues, and here with a more complex structure of ex ante investment. Appendix B further establishes the robustness of these theoretical implications to different assumptions on the cost of acquiring information in advance. The identical equilibrium prediction of equation 15 and Proposition 3 underpins the empirical test of the model in Section 3.

3 The Dracula Effect Across Industries

3.1 Empirical Model

I estimate a linearized version of the equilibrium condition in equation 15 and Proposition 3. My goal is simply to test the theoretical predictions for the signs of partial derivatives, and to gauge the economic significance of the associated coefficients. I do not try to recover precise functional forms and estimate structural parameters. Such an attempt would be implausibly ambitious, given that not only is the equilibrium condition highly nonlinear, but we also do not directly observe three main variables: the tariff equivalent of trade barriers t_g, the level of public information $\underline{\theta}_g$, and the share of specific-factor owners α_g. As detailed below, the observable proxies for these variables are respectively the non-tariff barrier coverage ratio τ_g, a measure of newspaper coverage a_g, and skilled employment N_g. While each theoretical variable is a monotone increasing function of the relative empirical measure, we cannot confidently assume exact functional forms for these relationships, save possibly for the case of employment.

From the equilibrium condition

$$\frac{t(\tau_g)}{1+t(\tau_g)} = \frac{1-\alpha(N_g)}{\alpha(N_g)+\underline{\theta}(a_g)/[1-\underline{\theta}(a_g)]}\frac{x_g}{e_g m_g}, \tag{26}$$

linearizing and introducing an additive error term ε_g yields the estimation equation

$$\tau_g = \beta_0 + \beta_1 \frac{x_g}{e_g m_g} + \beta_2 a_g \frac{x_g}{e_g m_g} + \beta_3 N_g \frac{x_g}{e_g m_g} + \varepsilon_g. \tag{27}$$

For all monotone increasing functions $t(\tau_g)$, $\underline{\theta}(a_g)$, and $\alpha(N_g)$, this specification yields sign restrictions on three coefficients, which correspond precisely to the empirical predictions of the theory in Section 2.[6]

1. $\beta_1 > 0$ captures the prediction of an overall protectionist bias, which results from producers' activities to acquire information about their own sector.

2. $\beta_2 < 0$ captures the fundamental prediction of a Dracula effect across sectors. Industries exposed to greater newspaper coverage are subject to lower trade barriers, because protectionism in those sectors is more likely to be noticed by voters who suffer from it as consumers.

3. $\beta_3 < 0$ captures the moderating effect of the size of an interest group. When owners of industry-specific human capital are more numerous, they internalize to a greater extent

[6] Details of the linearization are provided in Appendix C.

the social cost of trade distortions. Thus they are less keen on protection, regardless of the countervailing influence of informed consumers.

All three effects are proportional to the Ramsey-rule term $(x_g/m_g)/e_g$, as always in the literature, because the preferences of all agents react linearly to the magnitude of the deadweight loss captured by the import elasticity and import penetration. These terms can be directly measured in the data, though for import elasticity (e_g) there is some imprecision in the estimates. Accordingly, among the robustness tests I also estimate the model with the elasticity on the left-hand side.

3.2 Data

Cross-sector data on trade barriers in the United States are available for a sample of manufacturing industries in the year 1983. This sample has been used by all empirical studies of U.S. trade policy inspired by Grossman and Helpman's (1994) lobbying model (Goldberg and Maggi 1999; Gawande and Bandyopadhyay 2000; Eicher and Osang 2002; Matschke and Sherlund 2006; Mitra, Thomakos, and Ulubaşoğlu 2006; Bombardini 2008).

The measure of protection adopted in the literature is the coverage ratio for non-tariff barriers (τ_g), constructed by Gawande and Bandyopadhyay (2000) from the UNCTAD database on trade control measures, using the methodology detailed in Leamer (1990). The trade barriers included in the definition consist of price instruments such as anti-dumping duties, quantity instruments such as quotas and voluntary export restraints, and other instruments such as trade investigations. The focus on non-tariff barriers is appropriate because the theory in Section 2 describes the outcomes of a purely domestic political process. Instead, U.S. tariffs are determined in multilateral negotiations in the context of the WTO, and previously the GATT. Admittedly, the coverage ratio is an imprecise measure of protection which does not map exactly onto the wedge between domestic and international prices predicted by the model. Nonetheless, it has been recognized as a valid and standard proxy for the extent of protection measured theoretically by the price wedge.

The import demand elasticity (e_g) is estimated by Gawande and Bandyopadhyay (2000) for each three-digit SIC industry group; the values are replicated for all component four-digit industries. Their estimates derive from the original ones by Shiells et al. (1986), purged of measurement error by means of the correction procedure described in Gawande (1997). Import penetration is computed as the ratio of the value of gross imports (c.i.f.) to the value of shipments (f.o.b.) from all domestic plants.[7] Imports (m_g) are provided by

[7] In the regressions, the import penetration ratio is scaled by 10,000 for presentational convenience.

the NBER Trade Database (Feenstra 1996), and domestic output (x_g) by the NBER-CES Manufacturing Industry Database (Bartelsman and Gray 1996).

In addition to standard data on industry output, international trade, and trade barriers, testing empirically the predictions of Section 2 as set out in equation 15 and Proposition 3 requires measures of public information about policy for each industry ($\underline{\theta}_g$), and of the fraction of the population who owns industry-specific human capital (α_g).

I measure the number of specific-factor owners by the employment of skilled workers in each industry (N_g).[8] The underlying assumption is that unskilled workers provide raw labor that is fungible across sectors, while skilled workers are endowed with sector-specific skills. On the one hand, this hypothesis might over-estimate ownership of industry-specific human capital, since workers' skills could be generic, or occupation- but not sector-specific. On the other hand, it might under-estimate specific-factor ownership, if workers classified as unskilled nonetheless have a positive, albeit small, endowment of industry-specific human capital. To mitigate such concerns, I include as robustness tests alternative measures, such as total employment in the sector. All my measures are derived from employment figures from the *Annual Survey of Manufacturers*, which include officers of corporations but not proprietors and partners of unincorporated businesses. The latter are surely endowed with industry-specific capital, but their omission causes at most a small under-estimate in the context of U.S. manufacturing, for which only 2% of employment consists of unincorporated self-employment.

Finally, I construct a measure of the level of public information based on coverage of a sector in the five major U.S. newspapers from 1980 to 1983. This approach is consistent with Graber's (1984) finding that at the time Americans predominantly acquired their knowledge of political news from reading the newspaper.

Specifically, I exploit the ProQuest Historical Newspapers database, which archives the full text of the *Chicago Tribune*, *Los Angeles Times*, *New York Times*, *Wall Street Journal*, and *Washington Post*. I search for documents identified in the database as "articles", "editorial articles" or "front pages". First, I identify documents that discuss international trade by searching for

("international trade" OR export* OR (import* AND NOT important*)),

a search that returns 94,306 results. Then I select articles that discuss trade policy by adding

[8] Total employment is provided by the NBER-CES Manufacturing Industry Database, and the fraction of unskilled workers by Gawande and Bandyopadhyay (2000).

the restriction

AND ("trade pol*" OR protectionis* OR tariff* OR quota OR anti-dump*
OR (trade W/3 barrier*) OR (import* W/3 dut* AND NOT duty-free)
OR ((import* OR export*) W/3 (restrain* OR subsid*))).

The resulting 10,246 documents constitute the starting universe for my sector-specific searches.[9]

For each industry, the 1972 *Standard Industrial Classification Manual* records both a full official title and an abbreviated short title. For each of the two, I search for documents that mention in the same paragraph all the words describing at least one of the products composing the title. I use minimal word stemming, to include both the singular and the plural of nouns, and both the *-ing* and the *-ed* form of verbal adjectives, while complying with the limitations on query length imposed by the ProQuest interface.[10] E.g., industry 2033, "Canned Fruit and Vegetables," corresponds to the search restriction:

AND ((canning OR canned) W/PARA (fruit OR fruits OR vegetable*))

and its full official title "Canned Fruits, Vegetables, Preserves, Jams and Jellies" to:

AND ((canning OR canned) W/PARA (fruit OR vegetable*)
OR preserve OR jam OR jelly)

For every sector, the average number of documents retrieved by the two searches constitutes my baseline estimate of the number of articles providing newspaper coverage of the industry ($\bar{A}_g$). Among my robustness checks, I use estimates based on either of the searches alone.

Inevitably, such estimates are imprecise, as the ability of SIC titles to identify newspaper coverage does not seem homogeneous across sectors. E.g., the title of industry 2082, "Malt Beverages," does not include the name of its main product, beer. On the other hand, searches for industry 3576 "Scales and Balances, Exc. Laboratory," will identify all documents that refer to its products, but also those mentioning the trade balance. Despite these drawbacks, SIC titles provide an objective, impartial description of each industry, and they should not introduce any systematic bias. Therefore, the number of articles returned by searches based on SIC titles provides a valid proxy for the number of articles conveying information about

[9] The operator W/3 indicates that two search terms are no more than three words apart: thus (trade W/3 barrier*) finds not only "trade barrier" but, e.g., "barriers to international trade." I exclude the term "duty-free" because it identifies articles about leisure travel rather than trade policy.

[10] Personal communication with ProQuest representatives indicates that the search interface should automatically include both the singular and the plural of nouns, and both American and British spelling variants. However, a precise documentation of automatic query extension is not made available to the end user.

a sector to the average newspaper reader.

The amount of media coverage is subject to decreasing returns in generating public information. A greater number of articles may indicate that more details are revealed about a sector, but also that the same information is repeated across multiple articles. Repetition increases the probability that each reader is informed, but also the chance that a given reader is exposed to redundant further mentions of facts he was already aware of. To capture decreasing returns to newspaper coverage, I use the simplest concave transformation and define my measure of public information as $a_g = \log\left(1 + \bar{A}_g\right)$.

This measure captures the amount of public information available about trade policy for a sector, but not its quality and its particular focus. In the theoretical model of Section 2, information concerns policy commitments made during electoral campaigns. Coverage of trade policy in a campaign context is captured in my newspaper sample, which spans from 1980 to 1983. The four-year window includes articles published during the campaigns for both the 1980 general election and the 1982 mid-term election, which determined the executive and the congressional majorities responsible for determining policy in 1983.

Moreover, my searches capture media coverage of enacted policy. According to the strictest reading of the model, policy interventions would not be newsworthy, since they should be entirely determined by previous electoral commitments. In practice, however, campaign platforms are not exhaustive. Politicians, and particularly incumbents, run on their past record as much as on their explicit promises for the future. At the time of the 1984 election, voters' expectations of the trade-policy stance of a second Reagan administration would be shaped in part by the observed level of protection under the first Reagan administration, and thus in the year 1983 for which data are available. A broader interpretation of my theory implies that the predictions of Proposition 3 should apply to the level of protection in 1983 not only as an outcome of promises made in 1980 and 1982, but also as an implicit plank of the 1984 campaign platform.

The latter reading mirrors Strömberg's (2004) finding that state governors allocated public funds in 1933–35 to counties with more radio listeners in 1930, so that the incumbent's largesse would be rewarded by the votes of informed recipients in subsequent elections in 1934–36. His analysis focuses on information reaching the beneficiaries of New Deal spending. Conversely, I measure the disclosure of protectionist policies to the general public that they harm. Therefore I predict that the government should set lower trade barriers in 1983 for industries that received more media coverage in 1980–83, to gain the votes of informed consumers in 1984.

In the theoretical framework, information is truthful and perfectly understood by voters who receive it. A final concern is that in the real world neither journalists nor newspaper

readers necessarily live up to such a standard of objectivity. In particular, reporting and editorializing about trade policy could be distorted by a protectionist bias. It might drum up support for trade barriers among readers whose self-interest as rational economic agents favors free trade. Although we cannot rule out that such media bias may exist and succeed at shaping public opinion, the possibility does not create serious problems for the empirical analysis, since the bias would tend to counteract the theoretical prediction. Therefore, the finding of a Dracula effect validates both the theoretical prediction of Section 2, and the jointly tested hypotheses that U.S. newspapers convey reasonably objective political information, and that their readers are capable of interpreting it fairly accurately.

3.3 Estimation Methodology

The coverage ratio (τ_g) on the left-hand side of equation 27 is an index restricted by definition to the interval $[0, 1]$. In fact, slightly more than half of the observations in our sample lie on the boundaries of the interval. Hence, to estimate equation 27 I specify a Tobit model with two-sided censoring.

Furthermore, the right-hand-side variables are known to contain an endogenous component. At a minimum, not only does import penetration determine the level of protection in the political equilibrium, but in turn equilibrium trade barriers influence import penetration. In the long run, trade policies also influence patterns of human-capital accumulation, and thus the number of specific-factor owners in each sector. Newspaper coverage could be endogenous as well. An intuitive conjecture is that higher levels of protection may be more newsworthy, generating reverse causation whose sign counteracts that of the hypothesized direct effect from media attention to policy choices. As a consequence, I treat each of the regressors as endogenous, as did previous empirical studies of trade policy based on lobbying. Instrumental variables have the further advantage of controlling for measurement error in the endogenous variables, and thus in the measures of media coverage (a_g) and specific-factor ownership (N_g).

Following the standard approach in the literature, I use as instruments for the endogenous variables measures of factor composition and of market structure in product and labor markets. Like Goldberg and Maggi (1999), I obtain from Trefler (1993) factor shares for physical capital, inventories, engineers and scientists, white-collar labor, skilled labor, semiskilled labor, cropland, pasture, forest, coal, petroleum, and minerals; as well as seller concentration, buyer concentration, seller number of firms, buyer number of firms, plant scale, geographic concentration, unionization, and average worker tenure. In addition, Gawande and Bandyopadhyay (2000) provide the skill composition of the labor force (percentage of scientists

and engineers, managers, and unskilled workers), and the share of industry output that is sold downstream as intermediate goods. Finally, I compute directly from the NBER-CES Manufacturing Industry Database measures of capital intensity (total real capital stock per employee), capital composition (share of structures in the capital stock), energy intensity (share of electricity and fuel in the total cost of materials), and economies of scale (share of production workers in total employment). Just as in previous studies, the instruments have significant predictive power in the first stage, and they capture a reasonable amount of the variation in the endogenous variables.[11]

I estimate the instrumental-variable Tobit model with Newey's (1987) efficient two-step minimum chi-squared estimator. I use block-bootstrap standard errors, adjusting for clusters at the level of three-digit SIC industry groups, and implementing the bootstrap with 100 replications.

3.4 Empirical Results

The data on production, trade, and trade policy, as well as all the instruments, are available for 194 four-digit SIC industries. For 34 of these, my measure of media coverage cannot be constructed, since the SIC title defines the sector residually, by indicating that it comprises products "Not Elsewhere Classified" in the respective three-digit industry group. As a consequence, my sample is composed of 160 manufacturing industries.[12] Descriptive statistics are given in Table 2.

Table 3 presents the estimation results. The first column provides the baseline estimates of equation 27. The signs of the coefficients are consistent with the theoretical predictions of Section 2. The data are particularly supportive of the hypothesis of a Dracula effect across sectors. The coefficient on information (β_2) is significantly negative at the one percent confidence level. The point estimate describes an economically significant effect. An increase in $a_g x_g / (m_g e_g)$ by one standard deviation corresponds to a decrease in τ_g by 1.7 standard deviations. At the sample mean of $x_g / (m_g e_g)$, a ten percent increase in the number of newspaper articles about a sector is associated with a decline in its non-tariff barrier coverage ratio by 1.4 percentage points. The standardized coefficient on employment (β_3) is larger. An increase in $N_g x_g / (m_g e_g)$ by one standard deviation corresponds to a decrease in τ_g by 5 standard deviations. At the sample mean of $x_g / (m_g e_g)$, an increase in skilled employment by ten thousand workers corresponds to a decline in the non-tariff barrier coverage ratio by

[11] The instruments perform best for my most important and novel variable, the Dracula-effect term $a_g (x_g / m_g) e_g$, which has a first-stage R^2 of 0.31.

[12] The sample size rises to 167 when I rely only on the search for the full SIC title, which in seven cases resolves in greater detail what the short title presents as a residual category.

2.7 percentage points. The point estimate of β_3, however, is less precise than that of β_2, and only significant at the ten percent confidence level. As to the overall protectionist bias, the point estimate for β_1 is positive as predicted, but not statistically significant. The Wald test confirms the overall explanatory power of the model, rejecting the null hypothesis that all coefficients are jointly insignificant.

Columns 2 to 4 confirm the basic findings, and provide additional support for the Ramsey-rule specification of equation 27, theoretically predicted by equation 15 and Proposition 3. The level of public information (a_g) and the size of skilled employment (N_g) are added to the right-hand side without interacting them with the elasticity term ($x_g/(e_g m_g)$). As predicted, these additional regressors are insignificant, and they do not detract from the explanatory power of the interacted variables suggested by the theory. In all columns but the first, the coefficient estimate for β_1, denoting an overall protectionist bias, also becomes significant at the five percent confidence level.

Table 4 explores the sensitivity of the results to different measures of the right-hand side variables. Overall, the findings of Table 3 are robust to such alterations. The first two columns change the measure of public information (a_g), each relying on searches based on only one of the titles of the sector in the SIC manual. The point estimates for all coefficients hardly react to these changes, and the key finding of a Dracula effect ($\beta_2 < 0$) always remains significant at the five percent level. The estimates for the other coefficients are insignificant in column 1, but all the signs predicted by equation 27 are significant in column 2, which uses only searches based on the full title of an industry, and which therefore benefits from a slightly expanded sample.

Similar results obtain in columns 3 and 4, which change the measure of factor ownership (N_g). The third column considers total employment in each sector. The point estimates are only slightly affected, and the coefficient on information (β_2) remains significantly negative. The lower overall fit of the regression suggests that the baseline measure of skilled employment may be better at capturing ownership of sector-specific human capital. The coefficient on employment (β_3) is again significant in the fourth column, which further restricts the focus to employees classified as scientists or managers.

Further robustness checks are reported in Table 5, which presents modifications to the estimation strategy. The first column displays results obtained by estimating equation 27 with the import demand elasticity (e_g) on the left-hand side. The results from this alternative specification are analogous to those in Table 3. The point estimates are very similar to the baseline, and each coefficient is significant.

The second and third columns include a dummy variable (I_g) intended to capture whether the sector is politically organized as a special interest group. The additional regressor

$(I_g (x_g/m_g)/e_g)$ is the main variable of interest in the literature on lobbying for protection, whose methodology I have followed in my empirical analysis. Column 2 uses the indicator for political organization constructed by Goldberg and Maggi (1999), and column 3 the one by Gawande and Bandyopadhyay (2000). In both cases, the baseline results are preserved. The coefficient estimates for my original variables all show only small changes, and there is significant evidence of a Dracula effect ($\beta_2 < 0$). The additional lobbying variables are themselves insignificant in this regression.[13]

The fourth column presents the estimates of equation 27 obtained by linear two-stage least squares instead of IV Tobit. The predictions of Section 2 are again validated. All coefficients have the predicted signs ($\beta_1 > 0$, $\beta_2 < 0$, and $\beta_3 < 0$), and all estimates are significant, most strongly in the case of the Dracula effect ($\beta_2 < 0$).[14] Tables 6, 7, and 8 further assess the robustness of the entire sensitivity analysis to a linear specification, estimated by two-stage least squares with clustered sandwich standard errors.[15] A linear model may be preferred over a nonlinear alternative for its greater simplicity, standardization, transparency, and robustness, particularly for use with instrumental variables (Angrist and Pischke 2009). All the results and robustness checks discussed above are substantially unaffected by the use of the linear two-stage least squares estimator.

Overall, the empirical findings constitute robust evidence consistent with the implications of my theoretical model. The data provide particularly strong support for the prediction of a Dracula effect across industries, which is consistently validated using different measures of newspaper coverage, different measure of human-capital ownership, and different estimation strategies.

4 Extensions

4.1 Information Management by Lobbies

Section 2 has shown that special interests can acquire political influence without organizing into lobbies, thanks to the power of individual agents' uncoordinated policy knowledge.

[13] Goldberg and Maggi (1999) and Gawande and Bandyopadhyay (2000) use not only different estimation strategies, but also different and larger samples of industries for which data other than media coverage are available.

[14] In the linear model, the coefficients β_1, β_2, and β_3 are all smaller in absolute value than in the Tobit baseline. This difference is intuitive, because half the observations lie on the bounds $\tau_g = 0$ and $\tau_g = 1$. The linear fit is then flatter than the one of the Tobit model, which imputes latent coverage ratios below zero and above unity. The intercept β_0 is higher in the linear model because almost all the boundary observations have $\tau_g = 0$ rather than $\tau_g = 1$.

[15] A comparison of Table 5, column 4, and Table 6, column 1, highlights that block bootstrap and clustered sandwich standard errors are very close for the two-stage least squares model.

This does not mean that organized interest groups are irrelevant for policy formation. On the contrary, the very mechanism of endogenous information heterogeneity presented above highlights a new strategy they can exploit to influence the political process. In addition to offering pecuniary contributions to politicians, lobbies can gain power by increasing the flow of information to their members. Empirically, both are major activities of organized lobbies (Schlozman and Tierney 1986, Grossman and Helpman 2001). Murphy and Shleifer (2004) suggest in particular that entrepreneurs purposefully construct social networks to derive political benefits from their operation. In the formal setting of Proposition 2, one of the most intuitive determinants of the size of workers' social networks is the presence of organizations such as trade unions and industry associations.

Suppose for analytical convenience that factor ownership among group members follows a Pareto distribution with shape parameter $\eta_g > 1$ (i.e., Gini coefficient $1/\left(2\eta_g - 1\right)$). The operation of industry lobbies is then characterized by the following result.

Proposition 4 *Let all sector-g producers be represented by an organized interest group. The group controls access to a network that links a continuum of workers, and thus provides all available information about the sector* (p_g^L, p_g^R).

The group chooses to connect to the network all agents whose ownership share of sector-g specific capital is more than λ_g *times the population average. For* $\underline{\theta}_g < \alpha_g$ *there exists a threshold* $\bar{\eta}_g\left(\underline{\theta}_g, \alpha_g\right) > 1$, *with* $\partial\bar{\eta}_g/\partial\underline{\theta}_g < 0$ *and* $\partial\bar{\eta}_g/\partial\alpha_g > 0$, *such that for all* $\eta_g \leq \bar{\eta}_g\left(\underline{\theta}_g, \alpha_g\right)$ *the interest group obtains its preferred level of protection. If* $\eta_g > \bar{\eta}_g\left(\underline{\theta}_g, \alpha_g\right)$ *or* $\underline{\theta}_g \geq \alpha_g$, *the group can obtain a maximum price described by*

$$\frac{p_g - p_g^*}{p_g} = \left[\lambda_g\left(\underline{\theta}_g, \alpha_g, \eta_g\right) - 1\right] \frac{x_g\left(p_g\right)}{\left|m_g\left(p_g\right)\right|} \frac{\left|m_g\left(p_g\right)\right|}{\left|m_g'\left(p_g\right)\right| p_g},$$

for an optimal threshold $\lambda_g\left(\underline{\theta}_g, \alpha_g, \eta_g\right) \geq \left[\underline{\theta}_g + \left(1 - \underline{\theta}_g\right)\alpha_g\right]^{-1} > 1$ *such that* $\partial\lambda/\partial\underline{\theta}_g \leq 0$, $\partial\lambda/\partial\alpha_g \leq 0$ *and* $\partial\lambda_g/\partial\eta_g \leq 0$.

By acting as the gatekeeper for a capillary social network, the interest group controls the flow of information about its sector. Its optimal strategy excludes from the network those group members who are not sufficiently keen on protection, due to their low level of factor ownership. This ensures that the political debate on protection for the sector is dominated by producer interests, so that politicians are going to support high tariffs. At a minimum, if all industry-g producers are included in the network the equilibrium policy proposal is the same as in equation 15 and Proposition 3.

When the distribution of factor ownership is sufficiently skewed, and precisely for $\eta_g < 1 + \alpha_g/\left[\left(1 - \alpha_g\right)\underline{\theta}_g\right]$, controlling the access to information gives the interest group even

more political power then the members would obtain by independently acquiring complete information. The optimal network does not include all the owners of the specific factor. The comparative statics then hold with strict inequality: the optimal discrimination is more restrictive and more effective when public information is scarce (low $\underline{\theta}_g$), factor ownership is heavily concentrated (low η_g), and the interest group is small (low α_g). These results correspond to intuitive changes in the potential to leverage information asymmetry. When the opaqueness of the policy environment dominates the extremism of the group's preferences ($\underline{\theta}_g < \alpha_g$: group size is a measure of the alignment of consumers' and producers' preferences) a sufficiently high degree of concentration enables producer interests to succeed in controlling entirely the policy decisions affecting their industry, by exploiting the joint asymmetries in information availability and factor ownership. The interest group then induces its preferred protectionist policy, described by equation 14.

Proposition 4 shows that a special-interest group can obtain trade barriers for its sector by managing political information, just as it could by offering cash contributions to politicians. The simultaneous recourse to these two channels of lobbying helps explain why U.S. trade policy appears to provide large industry profits (and large deadweight losses) for small equilibrium contributions by industry lobbies (Gawande and Bandyopadhyay 2000; Gawande and Krishna 2003). Information management can be an especially powerful strategy for a special-interest group. If maintaining a social network is either inexpensive or independently useful for other purposes than gaining political influence, its obvious appeal is that it yields benefits that need not be shared with politicians.

These results fit within a broader literature that highlights the ability of interest groups to influence policies by disseminating information. Previous studies have analyzed in particular the behavior of lobbyists strategically conveying to politicians their private knowledge about the welfare outcomes of policy decisions (Potters and van Windend 1992; Lohmann 1993, 1995; Austen-Smith 1995; Ball 1995; Krishna and Morgan 2001; Battaglini 2002). Proposition 4 highlights the additional role of communication within the group itself. Not only can an informed lobbyist benefit from transmitting information to the agents he represents (Grossman and Helpman 2001, ch. 6). Group organization is beneficial even when knowledge is dispersed across members instead of concentrated among the leaders. Extending Murphy and Shleifer's (2004) insights on social entrepreneurship, the role of the lobby is to create and manage a network that allows rank-and-file members to share their individual information.

4.2 Party Divergence

My analysis has focused, both theoretically and empirically, on the cross-sector structure of trade policy. Another notable feature of the real-world political landscape is the presence of sharp partisan divisions. In American politics, the tariff defined party differences for more than a hundred years, from the early nineteenth century to the Smoot-Hawley Act of 1930. First the Whigs and then the Republicans were identified with support for protective tariffs, which the Democratic Party naturally came to oppose. These division resulted in sharp swings in tariff rates as parties alternated in power (Epstein and O'Halloran 1996). Although no longer as acute, partisan divisions over protectionism persist both in the United States and around the world. Dutt and Mitra (2005) document a significant influence of the partisan ideology of governments on the cross-national variation in protection. The differences in rhetoric between right-wing and left-wing parties are even starker (Milner and Judkins 2004).

The most common explanation for divergence is that different parties represent owners of different factors: specifically, the left represents labor and the right capital. A Heckscher-Ohlin model then predicts that protectionism should be favoured by the party representing the domestically scarce factor, which in the United States was capital in the nineteenth century but labor in the second half of the twentieth (Rogowski 1987; Keech and Pak 1995; Milner and Judkins 2004; Dutt and Mitra 2005). However, Grossman and Helpman (1996) show that such an identification between one factor and one party should not occur if politicians are influenced only by the contributions offered by organized lobbies. Political action committees can and do support politicians of either party, targeting their contributions towards incumbents, and even towards winners who defeated a loser they previously supported (Magelby and Nelson 1990).

Instead, in the model of heterogeneous information presented in Section 2, equilibrium policies reflect the preferences of informed voters. Different parties then optimally choose different policies if they have different partisan audiences (Glaeser, Ponzetto and Shapiro 2005). This view is consistent with the notion of rational partisanship (Alesina 1987; Alesina and Rosenthal 1995): changes in the identity of the ruling party have real economic consequences because political parties are not mere conduits used by special-interest groups to exercise their influence, but independent determinants of policy variation (O'Halloran 1994; Brady, Goldstein and Kessler 2002). Voters' ideological preferences may induce them to pay more attention to the proposals of one of the parties, and therefore to become more influential in the determination of its policy choices than in those of its opponent.

An investigation of the determinants of voters' partisanship is beyond the scope of this paper. Party affiliation may simply derive from ideological cleavages inherited from the

past (Lipset and Rokkan 1967). However, my theoretical framework points to a suggestive explanation of the changes in the trade-policy stances of American political parties during the twentieth century. After 1970, Republicans and Democrats switched their historic roles, the former becoming the more explicit advocates of free trade (Keech and Pak 1995). Since the 1970s, right-wing identification in the United States has become increasingly correlated with religious belief (Layman 1997, 1999, 2001). Today, individual religiosity is arguably a better predictor of Republican partisanship than income (Fiorina 2005). On the other hand, the Democratic party has retained its association with organized labor (Dark 2001), and union members remain more likely to affiliate with the Democrats (Freeman 2003). If social conservatism is uncorrelated with ownership of sector-specific human capital, the theory implies that Republicans should present a less protectionist platform, because the preferences of their partisan audience are more representative of the whole electorate in so far as trade policy is concerned. On the other hand, Democratic candidates should veer towards protectionism to please unionized workers with industry-specific human capital. This sketch is consistent with political platforms for the 2008 U.S. presidential election. The Republican ran as a free-trader, emphasizing the negative consequences of protection for consumers: "McCain will lower barriers to trade ... to control the rising cost of living that hurts our families.". Instead the Democrat sounded a skeptical note on free-trade agreements, focusing on the negative effect of foreign competition on workers: "Obama will work ... to fix NAFTA so that it works for American workers."

5 Conclusion

Does greater transparency lead to better policies? For trade policy, this paper has presented a theoretical model and empirical evidence consistent with a Dracula effect: industries for which more public information is available have lower trade barriers.

I have modelled tariff formation as the outcome of an electoral competition in which office-seeking politicians seek the support of heterogeneously informed voters. In equilibrium, the policy proposal for each sector caters to the preferences of those voters who are more informed about the sector itself. An overall protectionist bias results from an endogenous distribution of information that favors producers over consumers, industry by industry. I have highlighted two sources of this systematic asymmetry. It arises from workplace interactions that provide agents with knowledge of the industry they work in. It also emerges from costly learning. Rational voters are unwilling to spend resources to gain political knowledge as such. Producers, however, need to anticipate prices to optimize their production decisions. In equilibrium, all agents acquire greater knowledge of proposed tariffs for their own

industry of employment than for those in which they are only consumers.

When more public information is available about a sector, the difference between its producers' and its consumers' information is reduced. As a consequence, protection for the industry declines. I have tested the empirical predictions of the model with cross-sector data for the United States, constructing a measure of newspaper coverage of trade policy for each industry. The empirical evidence accords with the theory. Greater media scrutiny of a sector is associated with a lower level of protection. Moreover, industries with a greater number of skilled employees have lower trade barriers, since their insiders internalize a greater share of the deadweight loss from trade policy and thus mitigate their demands for protection.

While my analysis supports the prediction of a Dracula effect linking information to efficiency, other findings are less optimistic. In my framework, the power of special interests stems from individuals' superior knowledge about specific issues. This microfoundation explains why welfare-reducing protectionist measures are popular with voters. Each agent learns of the proposed trade barriers that benefit him as a worker, but not of those that harm him as a consumer. As a consequence, equilibrium policy is Pareto inefficient. Since the influence of each group is concentrated on a specific policy choice, powerful insiders can obtain policy favors for their sector, but cannot prevent the parallel granting of favors to others.

Costly learning highlights a further source of inefficiency. The incentive for information acquisition derives from producers' need to forecast prices before making investments. As a consequence, politicians choose to provide transfers to producers by means of policies, such as trade barriers, that distort prices and investments. It is the very distortion that makes these transfers noticeable for their intended recipients, and thus politically expedient.

Finally, I have briefly shown how organized lobbies can control the flow of political information by exploiting social networks. This strategy allows organized interest groups to wield political influence even without offering pecuniary contributions to politicians.

Optimism about the Dracula effect itself should perhaps be tempered. Public information about a policy may make the policy more efficient, but merely displace inefficient redistribution toward more opaque instruments. Over time, protectionism in developed countries has not only declined, but also evolved from more transparent tariffs to less transparent non-tariff barriers. My empirical analysis has shown that media coverage induces a decline in non-tariff barrier coverage as well. Nonetheless, we cannot rule out a parallel rise in more covert subsidies and preferential tax rules.

A Cross-Country Data

Cross-country measures of tariff rates and media access are included among the World Development Indicators (WDI) provided by the World Bank. The construction of a panel with a significant time dimension is made possible by the use of several editions of the dataset. Average tariff rates can be computed as the ratio of customs and other import duties to the total value of imports. Both indicators are available in the WDI database, but due to the change from the 1986 to the 2001 IMF Government Finance Statistics manual, there are two series for duties. The 2004 WDI reported data from 1970 to 2002 using the older cash-based accounting method. The 2010 WDI report data from 1990 to 2009 using the current method of accrual accounting. The difference in the reporting methods has a negligible impact on this indicator: for the 613 country-years in which the two series overlap their correlation is 99.5%, and 304 of those observations differ by less than one basis point. Hence I construct and use an indicator composed of the most recent data available from either series, controlling in unreported robustness checks that all results are preserved if I use only the original series from the 2004 WDI. As a measure of media access, the 2005 WDI reported the number of television sets in use per 1,000 people going back to 1975, as reported by the International Telecommunication Union. In addition to the variables of direct interest, I include as controls the logarithm of real GDP per capita from the 2010 WDI, and the Freedom House index of political rights. In unreported robustness checks, I confirm that all results are preserved if the quality of institutions is measured instead by the combined Polity score. Table A1 presents the descriptive statistics for the unbalanced panel of 162 countries and 29 years (1975 to 2003), which is used in Figure 1 and Table 1.

Kee, Nicita, and Olarreaga (2009) construct a theoretically superior measure of tariff barriers at the country level. Using bilateral trade flows and the import demand elasticities derived in Kee, Nicita, and Olarreaga (2008), they compute the equivalent tariff rate that, if applied uniformly to all items, would yield the same import levels as a country's actual tariff schedule. This value is called the Tariff Trade Restrictiveness Index in the World Trade Indicators, which report data for applied tariffs in 2006 and 2007; updated values for 2008 are available on the authors' World Bank web page.[16] Although this more accurate measure of protection lacks a significant panel dimension, a pure cross-section analysis confirms the finding of a Dracula effect. I construct the average of each variable for each country over the ten years up to the most recent available observation. In this sample, television ownership can also be measured by the fraction of households with a television set, reported by the 2010 WDI with data from the International Telecommunication Union for 1990-2007. The descriptive statistics are presented in Table A2. Figure A1 illustrates that the raw correlation of the Tariff Trade Restrictiveness Index and either measure of television ownership is strongly negative. Table A3 shows that the correlation is robust to controlling for income per capita and for the quality of a country's institutions. The control variables themselves have the expected signs—higher income and stronger political rights are associated with lower tariffs—and are independently significant, although the coefficient on GDP per capita loses significance when all regressors are included simultaneously, due to their collinearity.[17]

[16] http://go.worldbank.org/FG1KHXSP30.

[17] The same results could be derived by using the TTRI for Most Favored Nation tariffs instead of the applied tariff structure including preferences. This series has observations for marginally more countries,

B Costlier Information Acquisition

Proposition 3 assumes that political information can be acquired with certainty at a small but positive cost. Analogous results obtain when acquiring information in advance is more expensive, so that even producers shy away from obtaining perfect information ex ante.

For analytical convenience we adopt linear functional forms. The domestic supply function is

$$x_g\left(p_g\right) = \xi_g\left(p_g - \underline{p}_g\right) \text{ with } \xi_g > 0, \tag{B1}$$

and every industry is always active domestically under free trade: the support of p_g^* has minimum $\underline{p}_g^* > \underline{p}_g > 0$. The aggregate demand function has slope

$$Nc_g'\left(p_g\right) = -\gamma_g \xi_g \text{ with } \gamma_g > 0. \tag{B2}$$

For ease of notation, let

$$\bar{\rho}_g = \frac{Cov\left(\kappa_g^j, \bar{\theta}_g^j\right)}{\mathbb{E}\kappa_g^j \mathbb{E}\bar{\theta}_g^j}. \tag{B3}$$

Lemma 2 implies that given beliefs $\left(\bar{\rho}_g, \bar{\omega}_g\right)$ about voter information the optimal policy proposal is

$$p_g = \frac{\gamma_g p_g^* - \bar{\rho}_g \underline{p}_g - \bar{\omega}_g \mathbb{E}\bar{p}_g}{\gamma_g - \bar{\rho}_g - \bar{\omega}_g}, \tag{B4}$$

where $\gamma_g > \bar{\rho}_g + \bar{\omega}_g$ ensures an interior equilibrium. In equilibrium, rational expectations imply that citizens have correct second-order beliefs about the politicians' expectation $\left(\bar{\rho}_g, \bar{\omega}_g\right)$, and they correctly anticipate $\bar{p}_g\left(p_g^*\right) = p_g\left(p_g^*\right)$. The expected domestic price is

$$\mathbb{E}\bar{p}_g = \mathbb{E}p_g^* + \frac{\bar{\rho}_g}{\gamma_g - \bar{\rho}_g}\left(\mathbb{E}p_g^* - \underline{p}_g\right), \tag{B5}$$

and equilibrium policy is

$$p_g = p_g^* + \frac{\bar{\rho}_g + \bar{\omega}_g}{\gamma_g - \bar{\rho}_g - \bar{\omega}_g}\left(p_g^* - \mathbb{E}p_g^*\right) + \frac{\bar{\rho}_g}{\gamma_g - \bar{\rho}_g}\left(\mathbb{E}p_g^* - \underline{p}_g\right). \tag{B6}$$

The profit function

$$\pi_g\left(p_g\right) = \frac{1}{2}\xi_g\left(p_g - \underline{p}_g\right)^2 \tag{B7}$$

implies that the expected gain from information acquisition per unit of ownership is

$$v_g = \frac{1}{2}\xi_g Var\left(\bar{p}_g\right) = \frac{1}{2}\xi_g\left(\frac{\gamma_g}{\gamma_g - \bar{\rho}_g - \bar{\omega}_g}\right)^2 Var\left(p_g^*\right), \tag{B8}$$

where $\gamma_g \geq \bar{\rho}_g + \bar{\omega}_g\left(\mathbb{E}p_g^* - \underline{p}_g\right) / \left(\underline{p}_g^* - \underline{p}_g\right)$ ensures that no value $p_g < \underline{p}_g$ is in the support

and for the years 2001 and 2005 as well as 2006-2008.

of $\bar{p}_g$.

The problem is well-behaved as long as that the slope of the aggregate demand function is sufficiently large compared to that of the domestic supply function. Under this regularity condition, we can establish the following result.

Proposition 5 *Let sector-g producers represent a fraction $\alpha_g > 0$ of the total population and have homogeneous factor ownership $\kappa_g^i = 1/(\alpha_g N) > 0$. Let an investment $\iota_g^i \geq 0$ in information acquisition allow agent i to be informed about sector g with probability*

$$\theta_g\left(\iota_g^i\right) = \underline{\theta}_g + \left(1 - \underline{\theta}_g\right)\phi_g\left(\iota_g^i\right),$$

with $\underline{\theta}_g \in [0,1)$, $\phi_g'(\iota_g) > 0$ and $\phi_g''(\iota_g) < 0$ for all $\iota_g \in \mathbb{R}^+$, $\phi_g(0) = 0$, $\lim_{\iota_g \to \infty} \phi_g(\iota_g) = 1$, and the Inada conditions $\lim'_{\iota_g \to 0} \phi_g(\iota_g) = \infty$ and $\lim'_{\iota_g \to \infty} \phi_g(\iota_g) = 0$.

Then there exists a threshold $\underline{\gamma}_g > 0$ such that for all $\gamma_g > \underline{\gamma}_g$, in equilibrium all consumers with $\kappa_g^i = 0$ invest $\iota_g^i = 0$ and are informed with probability $\underline{\theta}_g \in [0,1)$, while all producers with $\kappa_g^i > 0$ invest $\hat{\iota}_g > 0$ and are informed with probability $\hat{\theta}_g \in \left(\underline{\theta}_g, 1\right)$. The average protectionist bias in enacted policy is

$$\mathbb{E}\left(p_g - p_g^*\right) = \frac{\rho_g}{\gamma_g - \rho_g}\left(\mathbb{E}p_g^* - \underline{p}_g\right), \text{ with } \rho_g = \frac{1 - \alpha_g}{\alpha_g + \underline{\theta}_g / \left(\hat{\theta}_g - \underline{\theta}_g\right)} \in \left(0, \underline{\gamma}_g\right].$$

Producers are more informed and the average protectionist bias is greater in sectors with more volatile world prices, greater price sensitivity, and fewer producers: the lowest and highest equilibrium values of $\hat{\theta}_g$ and $\mathbb{E}\left(p_g - p_g^*\right)$ are increasing in $Var\left(p_g^*\right)$ and ξ_g and decreasing in α_g. The average protectionist bias is lower in sectors for which public information is more widespread: the lowest and highest equilibrium values of $\mathbb{E}\left(p_g - p_g^*\right)$ are decreasing in $\underline{\theta}_g$.

Investment in information acquisition with a smooth cost function has the potential for multiple equilibria, because the expected value of information to each producer depends ambiguously on his beliefs about other producers' information. A unique equilibrium is ensured if $\alpha_g + \underline{\theta}_g \geq 1$, which implies that price volatility decreases monotonically as politicians expect producers to be more informed ($\partial\left(\bar{\rho}_g + \bar{\omega}_g\right)/\partial\hat{\theta}_g < 0$).

Proposition 5 establishes comparative statics that apply both locally to a unique equilibrium and globally for a set of multiple equilibria, following Milgrom and Roberts's (1994) approach to equilibrium comparisons. The endogenous asymmetry between producers and consumers always leads to an overall protectionist bias in policy. The distortion is greater when the incentives for factor owners to acquire information are sharper. Stronger incentives emerge when prices are more variable on international markets, since this volatility is reflected in domestic prices as well. Equally intuitive is that producers are keener on accurate price forecasts when quantities supplied and demanded are more sensitive to price movements.

The key comparative statics from Propositions 2 and 3 are preserved. Proposition 5 confirms the prediction of a Dracula effect across industries: more public information reduces protectionist distortions. Furthermore, industries with fewer producers demand and ceteris paribus also receive greater protection. This last effect is magnified in Proposition 5.

Fewer producers are keener on tariffs not only because they internalize a lower share of the deadweight loss, but also because they correctly expect greater volatility in the prices that politicians set in response to their preferences.

C Analytical Derivations

C.1 Proof of Proposition 1

From Lemma 1, an optimal policy proposal p_g interior to the feasible set $\mathcal{F}$ is characterized by the first-order condition

$$\sum_{j=1}^{J} \alpha^j \theta_g^j \frac{\partial U_g}{\partial p_g}\left(p_g, \kappa_g^j\right) = 0. \tag{C1}$$

Substituting equation 10,

$$\sum_{j=1}^{J} \alpha^j \theta_g^j \left[\left(\kappa_g^j - \frac{1}{N}\right) x_g\left(p_g\right) + \frac{1}{N}\left(p_g - p^*\right) m_g'\left(p_g\right)\right] = 0, \tag{C2}$$

and rearranging,

$$p_g - p_g^* = -\left(N \frac{\sum_{j=1}^{J} \alpha^j \theta_g^j \kappa_g^j}{\sum_{j=1}^{J} \alpha^j \theta_g^j} - 1\right) \frac{x_g\left(p_g\right)}{m_g'\left(p_g\right)}, \tag{C3}$$

such that by the second-order condition for a maximum $p_g - p_g^*$ is increasing with the term in parentheses.

Recalling that the shares of factor ownership add up to one over the whole population ($N \sum_{j=1}^{J} \alpha^j \kappa_g^j = 1$), we can rewrite

$$\frac{p_g - p_g^*}{p_g} = \frac{\sum_{j=1}^{J} \alpha^j \theta_g^j \kappa_g^j - \sum_{j=1}^{J} \alpha^j \theta_g^j \sum_{j=1}^{J} \alpha^j \kappa_g^j}{\sum_{j=1}^{J} \alpha^j \theta_g^j \sum_{j=1}^{J} \alpha^j \kappa_g^j} \frac{x_g\left(p_g\right)}{m_g\left(p_g\right)} \frac{m_g\left(p_g\right)}{-m_g'\left(p_g\right) p_g}, \tag{C4}$$

and denoting more compactly the moments of the population distribution of factor ownership and the probability of information acquisition,

$$\frac{p_g - p_g^*}{p_g} = \frac{Cov\left(\theta_g^j, \kappa_g^j\right)}{\mathbb{E}\theta_g^j \mathbb{E}\kappa_g^j} \frac{x_g\left(p_g\right)}{m_g\left(p_g\right)} \frac{1}{e_g\left(p_g\right)}, \tag{C5}$$

for

$$e_g\left(p_g\right) \equiv -\frac{p_g m_g'\left(p_g\right)}{m_g\left(p_g\right)}. \tag{C6}$$

C.2 Proof of Proposition 2

The eventual information structure is $\theta_g^i = \underline{\theta}_g$ for all agents who are not employed in sector g, and $\theta_g^i = \Theta_g$ for sector-g employees, with

$$\Theta_g = 1 - \left(1 - \underline{\theta}_g\right)^{n_g} > \underline{\theta}_g, \tag{C7}$$

such that

$$\frac{\partial \Theta_g}{\partial n_g} = -\left(1 - \underline{\theta}_g\right)^{n_g} \log\left(1 - \underline{\theta}_g\right) > 0 \tag{C8}$$

and

$$\frac{\partial \Theta_g}{\partial \underline{\theta}_g} = n_g \left(1 - \underline{\theta}_g\right)^{n_g - 1} > 0. \tag{C9}$$

Hence Proposition 2 implies an equilibrium structure of protection described by

$$p_g - p_g^* = \frac{1 - \alpha_g}{\alpha_g + \underline{\theta}_g / \left(\Theta_g - \underline{\theta}_g\right)} \frac{x_g\left(p_g\right)}{-m_g'\left(p_g\right)} > 0. \tag{C10}$$

By the second-order condition for a maximum, p_g is increasing in $(1 - \alpha_g) / \left[\alpha_g + \underline{\theta}_g / \left(\Theta_g - \underline{\theta}_g\right)\right]$, and therefore $\partial p_g / \partial n_g > 0$ and $\partial p_g / \partial \alpha_g < 0$. Finally, $\partial p_g / \partial \underline{\theta}_g < 0$ because

$$\begin{aligned} \frac{d}{d\underline{\theta}_g} \frac{\underline{\theta}_g}{\Theta_g - \underline{\theta}_g} &= \frac{\Theta_g}{\left(\Theta_g - \underline{\theta}_g\right)^2} - \frac{\underline{\theta}_g}{\left(\Theta_g - \underline{\theta}_g\right)^2} \frac{\partial \Theta_g}{\partial \underline{\theta}_g} = \\ &= -\frac{1}{\left(\Theta_g - \underline{\theta}_g\right)^2} \left[\left(1 + \frac{\underline{\theta}_g}{1 - \underline{\theta}_g} n_g\right)\left(1 - \underline{\theta}_g\right)^{n_g} - 1\right] > 0 \end{aligned} \tag{C11}$$

for all $n_g > 1$.

C.3 Proof of Lemma 2

Let $\mathcal{G} = \{1, ..., G\}$ be the set of all sectors, and $2^{\mathcal{G}}$ its power set. Let $\Gamma^i \in 2^{\mathcal{G}}$ be the set of sectors for which an agent i has received information, which fully describes the agent's information. Agent i with information Γ^i and factor ownership $\boldsymbol{\kappa}^i$ votes for party R if his idiosyncratic partisanship shock has a realization

$$\psi^i < \sum\nolimits_g \left\{ \begin{array}{l} \left(\mathbb{E}_{\Gamma^i} p_g^R - \mathbb{E}_{\Gamma^i} p_g^L\right)\left[\kappa_g^i \pi_g'\left(\mathbb{E}_{\Gamma^i} p_g\right) - \frac{1}{N}\mathbb{E}_{\Gamma^i} x_g\right] \\ +\mathbb{E}_{\Gamma^i}\left[\left(p_g^R - p_g^*\right) c_g\left(p_g^R\right) + s_g\left(p_g^R\right) - \left(p_g^L - p_g^*\right) c_g\left(p_g^L\right) - s_g\left(p_g^L\right)\right] \end{array} \right\} - \Psi. \tag{C12}$$

If agents of type j follow the information-acquisition strategy $\bar{\boldsymbol{\iota}}\left(\boldsymbol{\kappa}^j\right)$, the fraction having information Γ is

$$\bar{\theta}_\Gamma^j = \prod_{g \in \Gamma} \bar{\theta}_g^j \prod_{g \notin \Gamma} \left(1 - \bar{\theta}_g^j\right) \text{ for all } \Gamma \in 2^{\mathcal{G}}, \tag{C13}$$

such that $\sum_{\Gamma \in 2^{\mathcal{G}}} \bar{\theta}_\Gamma^j = 1$. Given the independent realizations of the uniform idiosyncratic

shock ψ^i, the fraction of citizens of type j who vote for party R equals

$$\phi_R^j = \frac{1}{2} - \frac{\Psi}{2\bar{\psi}} + \frac{1}{2\bar{\psi}} \cdot \sum_{\Gamma \in 2^{\mathcal{G}}} \bar{\theta}_\Gamma^j \sum_g \left\{ \begin{array}{l} \left(\mathbb{E}_\Gamma p_g^R - \mathbb{E}_\Gamma p_g^L\right) \left[\kappa_g^j \pi_g' \left(\mathbb{E}_\Gamma p_g\right) - \frac{1}{N} \mathbb{E}_\Gamma x_g\right] \\ + \mathbb{E}_\Gamma \left[\left(p_g^R - p_g^*\right) c_g\left(p_g^R\right) + s_g\left(p_g^R\right) - \left(p_g^L - p_g^*\right) c_g\left(p_g^L\right) - s_g\left(p_g^L\right)\right] \end{array} \right\}, \quad \text{(C14)}$$

as a function of the common shock Ψ. For all sectors $g \notin \Gamma$, a voter retains the original belief that the two parties make identical proposals. Thus party R wins the election if the aggregate shock is

$$\Psi < \sum_{j=1}^I \alpha^j \sum_{\Gamma \in 2^{\mathcal{G}}} \bar{\theta}_\Gamma^j \sum_{g \in \Gamma} \left\{ \begin{array}{c} \left(p_g^R - p_g^L\right) \left[\kappa_g^j \pi_g' \left(\mathbb{E}_\Gamma p_g\right) - \frac{1}{N} \mathbb{E}_\Gamma x_g\right] \\ + \left(p_g^R - p_g^*\right) c_g\left(p_g^R\right) + s_g\left(p_g^R\right) \\ - \left(p_g^L - p_g^*\right) c_g\left(p_g^L\right) - s_g\left(p_g^L\right) \end{array} \right\}. \quad \text{(C15)}$$

For each good g, the first-order condition for party R's optimization problem is

$$\sum_{j=1}^I \alpha^j \sum_{\Gamma \in 2^{\mathcal{G}} | g \in \Gamma} \bar{\theta}_\Gamma^j \left\{ \begin{array}{l} \kappa_g^j \pi_g' \left(\mathbb{E}_\Gamma p_g\right) - \frac{1}{N} \mathbb{E}_\Gamma x_g + \left(p_g^R - p_g^*\right) c_g'\left(p_g^R\right) \\ + \sum_{h \in \Gamma} \left(p_h^R - p_h^L\right) \left[\kappa_h^j \pi_h'' \left(\mathbb{E}_\Gamma p_h\right) \frac{\partial \mathbb{E}_\Gamma p_h}{\partial p_g^R} - \frac{1}{N} \frac{\partial \mathbb{E}_\Gamma x_h}{\partial p_g^R}\right] \end{array} \right\} = 0, \quad \text{(C16)}$$

while the one for party L is

$$\sum_{j=1}^I \alpha^j \sum_{\Gamma \in 2^{\mathcal{G}} | g \in \Gamma} \bar{\theta}_\Gamma^j \left\{ \begin{array}{l} \kappa_g^j \pi_g' \left(\mathbb{E}_\Gamma p_g\right) - \frac{1}{N} \mathbb{E}_\Gamma x_g + \left(p_g^L - p_g^*\right) c_g'\left(p_g^L\right) \\ + \sum_{h \in \Gamma} \left(p_h^R - p_h^L\right) \left[\kappa_h^j \pi_h'' \left(\mathbb{E}_\Gamma p_h\right) \frac{\partial \mathbb{E}_\Gamma p_h}{\partial p_g^L} - \frac{1}{N} \frac{\partial \mathbb{E}_\Gamma x_h}{\partial p_g^L}\right] \end{array} \right\} = 0. \quad \text{(C17)}$$

In an interior, symmetric equilibrium, both parties propose p_g such that

$$\sum_{j=1}^I \alpha^j \bar{\theta}_g^j \left[\kappa_g^j \pi_g' \left(p_g\right) - \frac{1}{N} \mathbb{E}_\Gamma x_g + \left(p_g - p_g^*\right) c_g'\left(p_g\right)\right] = 0. \quad \text{(C18)}$$

Given shared beliefs $\bar{\boldsymbol{\theta}}^j$ about everyone's information acquisition,

$$\mathbb{E}_\Gamma x_g = N \sum_{j=1}^I \alpha^j \kappa^j \left[\bar{\theta}_g^j \pi_g' \left(p_g\right) + \left(1 - \bar{\theta}_g^j\right) \pi_g' \left(\mathbb{E}\bar{p}_g\right)\right] \text{ for all } \Gamma \in 2^{\mathcal{G}} \text{ such that } g \in \Gamma. \quad \text{(C19)}$$

Thus an interior and symmetric equilibrium is uniquely defined by

$$\frac{\left(1 - \sum_{j=1}^I \alpha^j \bar{\theta}_g^j\right) \sum_{j=1}^I \alpha^j \bar{\theta}_g^j \kappa_g^j}{\sum_{j=1}^I \alpha^j \bar{\theta}_g^j} \pi_g' \left(p_g\right) + \left(\sum_{j=1}^I \alpha^j \bar{\theta}_g^j \kappa^j - \frac{1}{N}\right) \pi_g' \left(\mathbb{E}\bar{p}_g\right) + \left(p_g - p_g^*\right) c_g' \left(p_g\right) = 0, \quad \text{(C20)}$$

which can be rewritten

$$\left[\frac{Cov\left(\kappa_g,\bar{\theta}_g\right)}{\mathbb{E}\kappa_g\mathbb{E}\bar{\theta}_g}+\bar{\omega}_g\right]\pi'_g\left(p_g\right)-\bar{\omega}_g\pi'_g\left(\mathbb{E}\bar{p}_g\right)+\left(p_g-p_g^*\right)Nc'_g\left(p_g\right)=0, \tag{C21}$$

and also

$$\frac{p_g-p_g^*}{p_g}=\left\{\frac{Cov\left(\kappa_g,\bar{\theta}_g\right)}{\mathbb{E}\kappa_g\mathbb{E}\bar{\theta}_g}+\bar{\omega}_g\left[1-\frac{x_g\left(\mathbb{E}\bar{p}_g\right)}{x_g\left(p_g\right)}\right]\right\}\frac{x_g\left(p_g\right)}{\left|m_g\left(p_g\right)\right|}\frac{\left|m_g\left(p_g\right)\right|}{\left|\tilde{m}'_g\left(p_g\right)\right|p_g}. \tag{C22}$$

C.4 Proof of Proposition 3

For any $\hat{\iota}_g>0$, agents with $\kappa_g^i=0$ choose $\iota_g^i=0$ and are informed with exogenous probability $\underline{\theta}_g$, since they derive no utility from acquiring information.

All agents with $\kappa_g^i>0$ strictly prefer to acquire perfect knowledge if

$$\hat{\iota}_g<\left(1-\underline{\theta}_g\right)\underline{\kappa}_g\left[\mathbb{E}\pi_g\left(\bar{p}_g\right)-\pi_g\left(\mathbb{E}\bar{p}_g\right)\right]. \tag{C23}$$

Rational expectations $\bar{p}_g$ cannot be deterministic: lemma 2 establishes that p_g varies with p_g^* regardless of the politicians' beliefs about voters' information. Thus every candidate equilibrium is associated with a positive value of $v_g=\mathbb{E}\pi_g\left(\bar{p}_g\right)-\pi_g\left(\mathbb{E}\bar{p}_g\right)$. For sufficiently low but strictly positive values of $\hat{\iota}_g$, the unique equilibrium has $\kappa_g^i>0\Leftrightarrow\bar{\theta}_g^i=1$. Then

$$\frac{Cov\left(\kappa_g,\bar{\theta}_g\right)}{\mathbb{E}\kappa_g\mathbb{E}\bar{\theta}_g}=\frac{1-\alpha_g}{\alpha_g+\underline{\theta}_g/\left(1-\underline{\theta}_g\right)}\text{ and }\bar{\omega}_g=0. \tag{C24}$$

C.5 Derivation of Equation 27

Equation 15 and Proposition 3 yield the equilibrium condition

$$\frac{t\left(\tau_g\right)}{1+t\left(\tau_g\right)}=\frac{1-\alpha\left(N_g\right)}{\alpha\left(N_g\right)+\underline{\theta}\left(a_g\right)/\left[1-\underline{\theta}\left(a_g\right)\right]}\frac{x_g}{e_gm_g}. \tag{C25}$$

Taking linear approximations around $\bar{\tau}$ on the left-hand side and $\left(\bar{N},\bar{a}\right)$ on the right-hand side yields

$$\begin{aligned}\frac{t\left(\bar{\tau}\right)}{1+t\left(\bar{\tau}\right)}+\frac{t'\left(\bar{\tau}\right)}{\left[1+t\left(\bar{\tau}\right)\right]^2}\left(\tau_g-\bar{\tau}\right)&=\frac{\left[1-\underline{\theta}\left(\bar{a}\right)\right]\left[1-\alpha\left(\bar{N}\right)\right]}{\left\{\underline{\theta}\left(\bar{a}\right)+\left[1-\underline{\theta}\left(\bar{a}\right)\right]\alpha\left(\bar{N}\right)\right\}^2}\\&\cdot\left\{\underline{\theta}\left(\bar{a}\right)+\left[1-\underline{\theta}\left(\bar{a}\right)\right]\alpha\left(\bar{N}\right)-\frac{\underline{\theta}'\left(\bar{a}\right)}{1-\underline{\theta}\left(\bar{a}\right)}\left(a_g-\bar{a}\right)-\frac{\alpha'\left(\bar{N}\right)}{1-\alpha\left(\bar{N}\right)}\left(N_g-\bar{N}\right)\right\}\frac{x_g}{e_gm_g}.\end{aligned} \tag{C26}$$

This equation can be rewritten

$$\tau_g=\beta_0+\beta_1\frac{x_g}{e_gm_g}+\beta_2a_g\frac{x_g}{e_gm_g}+\beta_3N_g\frac{x_g}{e_gm_g}, \tag{C27}$$

with parameters

$$\beta_0 \equiv \bar{\tau} - \frac{t(\bar{\tau})\left[1+t(\bar{\tau})\right]}{t'(\bar{\tau})}, \tag{C28}$$

$$\beta_1 \equiv \frac{\left[1+t(\bar{\tau})\right]^2\left[1-\underline{\theta}(\bar{a})\right]\left[1-\alpha\left(\bar{N}\right)\right]}{t'(\bar{\tau})\left\{\underline{\theta}(\bar{a})+\left[1-\underline{\theta}(\bar{a})\right]\alpha\left(\bar{N}\right)\right\}^2} \cdot\left\{\underline{\theta}(\bar{a})+\left[1-\underline{\theta}(\bar{a})\right]\alpha\left(\bar{N}\right)+\frac{\underline{\theta}'(\bar{a})}{1-\underline{\theta}(\bar{a})}\bar{a}+\frac{\alpha'\left(\bar{N}\right)}{1-\alpha\left(\bar{N}\right)}\bar{N}\right\}>0, \tag{C29}$$

$$\beta_2 \equiv -\underline{\theta}'(\bar{a})\frac{\left[1+t(\bar{\tau})\right]^2\left[1-\alpha\left(\bar{N}\right)\right]}{t'(\bar{\tau})\left\{\underline{\theta}(\bar{a})+\left[1-\underline{\theta}(\bar{a})\right]\alpha\left(\bar{N}\right)\right\}^2}<0, \tag{C30}$$

and

$$\beta_3 \equiv -\alpha'\left(\bar{N}\right)\frac{\left[1+t(\bar{\tau})\right]^2\left[1-\underline{\theta}(\bar{a})\right]}{t'(\bar{\tau})\left\{\underline{\theta}(\bar{a})+\left[1-\underline{\theta}(\bar{a})\right]\alpha\left(\bar{N}\right)\right\}^2}<0. \tag{C31}$$

C.6 Proof of Proposition 4

The aggregate welfare of the sector-g lobby depends on the industry price according to the function

$$W_g^g(p_g) = \pi_g(p_g) + \alpha_g N\left[r_g(p_g) + s_g(p_g)\right] \tag{C32}$$

such that

$$\frac{\partial W_g^g}{\partial p_g}(p_g) = (1-\alpha_g)\,x_g(p_g) + \alpha_g\left(p_g - p_g^*\right)m_g'(p_g) \tag{C33}$$

and the preferred policy satisfies

$$\hat{p}_g - p_g^* = \frac{1-\alpha_g}{\alpha_g}\frac{x_g(\hat{p}_g)}{-m_g'(\hat{p}_g)}. \tag{C34}$$

A network with a continuum of agents has perfect information about the policy proposal. If its members represent a fraction α of the population and κ of sector-specific capital, the equilibrium choice of both parties is

$$p_g = \max_p\left\{\left[\underline{\theta}_g + \left(1-\underline{\theta}_g\right)\kappa\right]\pi_g(p) + \left[\underline{\theta}_g + \left(1-\underline{\theta}_g\right)\alpha\right]N\left[r_g(p)+s_g(p)\right]\right\}, \tag{C35}$$

which satisfies

$$p_g - p_g^* = \frac{\kappa-\alpha}{\alpha + \underline{\theta}_g/\left(1-\underline{\theta}_g\right)}\frac{x_g(p_g)}{-m_g'(p_g)}, \tag{C36}$$

so that $\partial p_g/\partial\kappa > 0$ and $\partial p_g/\partial\alpha < 0$.

By controlling access to the network, the lobby can manipulate κ and α to induce a protectionist policy proposal. Its only constraint is given by the distribution of specific capital. Let capital ownership among the members of the sector-g lobby have cumulative distribution function $F_g(\kappa_g)$, such that $F_g\left(\underline{\kappa}_g\right) = 0$ and $\int_{\underline{\kappa}_g}^{\infty}\kappa_g dF_g(\kappa_g) = (\alpha_g N)^{-1}$. If it

admits all individuals with a share of at least k, it obtains

$$\kappa = 1 - \alpha_g N \int_{\underline{\kappa}_g}^{k} \kappa_g dF_g(\kappa_g) \tag{C37}$$

and

$$\alpha = \alpha_g \left[1 - F_g(k)\right]. \tag{C38}$$

Thus if and only if

$$\int_{\underline{\kappa}_g}^{\frac{1}{\alpha_g N}} \left(1 - \alpha_g N \kappa_g\right) dF_g(\kappa_g) \geq \frac{1-\alpha_g}{\alpha_g} \frac{\underline{\theta}_g}{1-\underline{\theta}_g} \tag{C39}$$

the lobby can obtain its preferred price $\hat{p}_g$ by setting a cut-off $\hat{k}_g$ such that

$$\int_{\underline{\kappa}_g}^{\hat{k}_g} \left(1 - \alpha_g N \kappa_g\right) dF_g(\kappa_g) = \frac{1-\alpha_g}{\alpha_g} \frac{\underline{\theta}_g}{1-\underline{\theta}_g}. \tag{C40}$$

Otherwise, the maximum price achievable in the sector corresponds to

$$\hat{k}_g = \arg\max_{k>0} \frac{1 - \alpha_g N \int_{\underline{\kappa}_g}^{k} \kappa_g dF_g(\kappa_g) - \alpha_g \left[1 - F_g(k)\right]}{\alpha_g \left[1 - F_g(k)\right] + \underline{\theta}_g / \left(1 - \underline{\theta}_g\right)}. \tag{C41}$$

The maximand is increasing in k if and only if

$$\frac{1}{1-\underline{\theta}_g} - \left(\frac{\underline{\theta}_g}{1-\underline{\theta}_g} + \alpha_g\right) N k + \alpha_g N \int_{\underline{\kappa}_g}^{k} \left(k - \kappa_g\right) dF_g(\kappa_g) > 0 \tag{C42}$$

and the left-hand side of this expression is monotone decreasing in k.

Hence

$$\underline{\kappa}_g \geq \frac{1}{N\left[\underline{\theta}_g + \left(1-\underline{\theta}_g\right)\alpha_g\right]} \Rightarrow \hat{k} = \underline{\kappa}_g, \tag{C43}$$

and in this case the optimal policy for the lobby is to include all its members in the network and obtain

$$p_g - p_g^* = \frac{1-\alpha_g}{\alpha_g + \underline{\theta}_g / \left(1-\underline{\theta}_g\right)} \frac{x_g(p_g)}{-m_g'(p_g)}. \tag{C44}$$

If instead $\underline{\kappa}_g < \left\{N\left[\underline{\theta}_g + \left(1-\underline{\theta}_g\right)\alpha_g\right]\right\}^{-1}$, then $\hat{k} > \left\{N\left[\underline{\theta}_g + \left(1-\underline{\theta}_g\right)\alpha_g\right]\right\}^{-1}$ is defined by

$$\frac{1}{1-\underline{\theta}_g} - \left(\frac{\underline{\theta}_g}{1-\underline{\theta}_g} + \alpha_g\right) N \hat{k} + \alpha_g N \int_{\underline{\kappa}_g}^{\hat{k}} \left(\hat{k} - \kappa_g\right) dF_g(\kappa_g) = 0, \tag{C45}$$

which implies a maximum

$$\max_{k>0} \frac{1 - \alpha_g N \int_{\underline{\kappa}_g}^{k} \kappa_g dF_g(\kappa_g) - \alpha_g \left[1 - F_g(k)\right]}{\alpha_g \left[1 - F_g(k)\right] + \underline{\theta}_g / \left(1 - \underline{\theta}_g\right)} = N\hat{k} - 1. \tag{C46}$$

For a Pareto distribution with dispersion coefficient $\eta_g > 1$ the cumulative distribution function

$$F_g(\kappa_g) = 1 - \left(\frac{\underline{\kappa}_g}{\kappa_g}\right)^{\eta_g} \tag{C47}$$

implies mean

$$\int_{\underline{\kappa}_g}^{\infty} \kappa_g dF_g(\kappa_g) = \frac{1}{\alpha_g N} = \frac{\eta_g \underline{\kappa}_g}{\eta_g - 1}. \tag{C48}$$

Thus the optimal network includes all factor owners if and only if

$$\eta_g \geq 1 + \frac{\alpha_g}{\underline{\theta}_g (1 - \alpha_g)}, \tag{C49}$$

and the lobby can achieve its preferred price if and only if

$$\frac{\left(\eta_g - 1\right)^{\eta_g - 1}}{\eta_g^{\eta_g}} \geq \frac{\underline{\theta}_g}{1 - \underline{\theta}_g} \frac{1 - \alpha_g}{\alpha_g}, \tag{C50}$$

which requires $\alpha_g > \theta_g$ and can be written $\eta_g \leq \bar{\eta}_g\left(\underline{\theta}_g, \alpha_g\right)$ for a threshold

$$\bar{\eta}_g\left(\underline{\theta}_g, \alpha_g\right) \in \left(1, 1 + \frac{\alpha_g}{\underline{\theta}_g (1 - \alpha_g)}\right) \tag{C51}$$

such that $\partial \bar{\eta}_g / \partial \underline{\theta}_g < 0$ and $\partial \bar{\eta}_g / \partial \alpha_g > 0$.

When neither condition is satisfied, the maximum price is obtained by including in the network only individuals whose capital ownership is at least λ_g times the population average $1/N$; the optimal threshold

$$\lambda_g\left(\underline{\theta}_g, \alpha_g, \eta_g\right) \in \left(\frac{1}{\underline{\theta}_g + \left(1 - \underline{\theta}_g\right) \alpha_g}, \frac{1}{\alpha_g}\right) \tag{C52}$$

is defined by

$$\frac{\underline{\theta}_g}{1 - \underline{\theta}_g}(1 - \lambda_g) + \frac{\left(\eta_g - 1\right)^{\eta_g - 1}}{\eta_g^{\eta_g}} \left(\alpha_g \lambda_g\right)^{-\left(\eta_g - 1\right)} = 0, \tag{C53}$$

so $\partial \lambda / \partial \underline{\theta}_g < 0$, $\partial \lambda / \partial \alpha_g < 0$ and $\partial \lambda_g / \partial \eta_g < 0$.

C.7 Proof of Proposition 5

All agents with $\kappa_g^i = 0$ make no investment and have exogenous information $\theta_g^i = \underline{\theta}_g$. All agents with $\kappa_g^i = 1/\left(\alpha_g N\right)$ make an identical investment

$$\iota_g^i = \phi_g'^{-1}\left(\frac{\alpha_g N}{\left(1 - \underline{\theta}_g\right) v_g}\right) \tag{C54}$$

and thus acquire information with probability

$$\theta_g^i = \underline{\theta}_g + \left(1 - \underline{\theta}_g\right) \phi_g \left(\phi_g'^{-1} \left(\frac{2\alpha_g N}{\left(1 - \underline{\theta}_g\right) \xi_g Var\left(p_g^*\right)} \left(1 - \frac{\bar{\rho}_g + \bar{\omega}_g}{\gamma_g} \right)^2 \right) \right), \tag{C55}$$

provided that $\gamma_g \geq \bar{\rho}_g + \bar{\omega}_g \left(\mathbb{E}p_g^* - \underline{p}_g \right) / \left(\underline{p}_g^* - \underline{p}_g \right)$.

If producers are expected to acquire information with probability $\hat{\theta}_g$ and consumers with probability $\underline{\theta}_g$, then

$$\bar{\rho}_g = \frac{1 - \alpha_g}{\alpha_g + \underline{\theta}_g / \left(\hat{\theta}_g - \underline{\theta}_g \right)} \text{ and } \bar{\omega}_g = 1 - \hat{\theta}_g. \tag{C56}$$

For ease of notation, define

$$\Sigma_g = \frac{1}{2} \xi_g \mathbb{E}\kappa_g^i Var\left(p_g^*\right) > 0 \tag{C57}$$

and

$$V_g\left(\hat{\theta}_g, \underline{\theta}_g, \alpha_g\right) = \frac{1 - \alpha_g}{\alpha_g + \underline{\theta}_g / \left(\hat{\theta}_g - \underline{\theta}_g \right)} + 1 - \hat{\theta}_g, \tag{C58}$$

such that

$$\frac{\partial V_g}{\partial \alpha_g} = \frac{\partial \bar{\rho}_g}{\partial \alpha_g} = -\frac{\hat{\theta}_g \left(\hat{\theta}_g - \underline{\theta}_g \right)}{\left[\alpha_g \hat{\theta}_g + \left(1 - \alpha_g\right) \underline{\theta}_g \right]^2} < 0, \tag{C59}$$

$$\frac{\partial V_g}{\partial \underline{\theta}_g} = \frac{\partial \bar{\rho}_g}{\partial \underline{\theta}_g} = -\frac{\hat{\theta}_g \left(1 - \alpha_g\right)}{\left[\alpha_g \hat{\theta}_g + \left(1 - \alpha_g\right) \underline{\theta}_g \right]^2} < 0, \tag{C60}$$

and

$$\frac{\partial V_g}{\partial \hat{\theta}_g} = \frac{\partial \bar{\rho}_g}{\partial \hat{\theta}_g} - 1 = \frac{\left(1 - \alpha_g\right) \underline{\theta}_g}{\left[\alpha_g \hat{\theta}_g + \left(1 - \alpha_g\right) \underline{\theta}_g \right]^2} - 1. \tag{C61}$$

Given second-order beliefs that politicians expect $\hat{\theta}_g$ and $\underline{\theta}_g$, producers' expected gain from information acquisition per unit of ownership equals

$$v_g = N \Sigma_g \left[\frac{\gamma_g}{\gamma_g - V_g\left(\hat{\theta}_g, \underline{\theta}_g, \alpha_g\right)} \right]^2, \tag{C62}$$

and their optimal probability of information acquisition is

$$\Phi_g\left(\hat{\theta}_g\right) = \underline{\theta}_g + \left(1 - \underline{\theta}_g\right) \phi_g \left(\phi_g'^{-1} \left(\frac{\alpha_g}{\Sigma_g \left(1 - \underline{\theta}_g\right)} \left[1 - \frac{V_g\left(\hat{\theta}_g, \underline{\theta}_g, \alpha_g\right)}{\gamma_g} \right]^2 \right) \right), \tag{C63}$$

provided that

$$\gamma_g > V_g\left(\hat{\theta}_g, \underline{\theta}_g, \alpha_g\right) + \left(1-\hat{\theta}_g\right)\frac{\mathbb{E}p_g^* - \underline{p}_g^*}{\underline{p}_g^* - \underline{p}_g}. \tag{C64}$$

This condition is satisfied for all $\hat{\theta}_g \in \left[\underline{\theta}_g, 1\right]$ if γ_g is greater than

$$\underline{\gamma}_g = \begin{cases} \frac{1-\alpha_g}{\alpha_g + \underline{\theta}_g/\left(1-\underline{\theta}_g\right)} & \text{if } \frac{\mathbb{E}p_g^* - \underline{p}_g}{\underline{p}_g^* - \underline{p}_g} \leq \frac{(1-\alpha_g)\underline{\theta}_g}{\left[\alpha_g\left(1-\underline{\theta}_g\right)+\underline{\theta}_g\right]^2} \\ \frac{1}{\alpha_g}\left[1 - \sqrt{(1-\alpha_g)\,\underline{\theta}_g \frac{\mathbb{E}p_g^* - \underline{p}_g}{\underline{p}_g^* - \underline{p}_g}}\right]^2 + \frac{\mathbb{E}p_g^* - \underline{p}_g^*}{\underline{p}_g^* - \underline{p}_g} & \text{if } \frac{\mathbb{E}p_g^* - \underline{p}_g}{\underline{p}_g^* - \underline{p}_g} \in \left[\frac{(1-\alpha_g)\underline{\theta}_g}{\left[\alpha_g\left(1-\underline{\theta}_g\right)+\underline{\theta}_g\right]^2}, \frac{1-\alpha_g}{\underline{\theta}_g}\right] \\ \left(1-\underline{\theta}_g\right)\frac{\mathbb{E}p_g^* - \underline{p}_g}{\underline{p}_g^* - \underline{p}_g} & \text{if } \frac{\mathbb{E}p_g^* - \underline{p}_g}{\underline{p}_g^* - \underline{p}_g} \geq \frac{1-\alpha_g}{\underline{\theta}_g}. \end{cases} \tag{C65}$$

A rational-expectation equilibrium is then given by a fixed point of $\Phi_g\left(\hat{\theta}_g\right)$. Its existence is guaranteed by Brouwer's fixed-point theorem, since Φ_g is a continuous function of $\hat{\theta}_g$ that maps $\left[\underline{\theta}_g, 1\right]$ into itself. The derivative

$$\frac{\partial \Phi_g}{\partial \hat{\theta}_g} = -\frac{2\alpha_g\left(1 - V_g/\gamma_g\right)}{\gamma_g \Sigma_g}\frac{\phi_g'}{\phi_g''}\frac{\partial V_g}{\partial \hat{\theta}_g} \tag{C66}$$

need not be always smaller than unity, so there can be multiple equilibria.

Milgrom and Roberts's (1994) Corollary 1 implies that:

1. The lowest and highest equilibrium values of $\hat{\theta}_g$, and a fortiori ρ_g, are increasing in Σ_g because
$$\frac{\partial \Phi_g}{\partial \Sigma_g} = -\alpha_g\left[\frac{1 - V_g/\gamma_g}{\Sigma_g}\right]^2 \frac{\phi_g'}{\phi_g''} > 0. \tag{C67}$$

2. The lowest and highest equilibrium values of $\hat{\theta}_g$, and a fortiori ρ_g, are decreasing in α_g because
$$\frac{\partial \Phi_g}{\partial \alpha_g} = \frac{1 - V_g/\gamma_g}{\Sigma_g}\left(1 - \frac{V_g}{\gamma_g} + 2\alpha_g - \frac{1}{\gamma_g}\frac{\partial V_g}{\partial \alpha_g}\right)\frac{\phi_g'}{\phi_g''} < 0. \tag{C68}$$

Inverting the definition of ρ_g, we can express $\hat{\theta}_g$ as a function

$$\hat{\theta}_g\left(\rho_g, \underline{\theta}_g\right) = \frac{(1-\alpha_g)\left(1+\rho_g\right)\underline{\theta}_g}{1 - \alpha_g - \alpha_g\rho_g} \text{ for } \rho_g \in \left[0, \frac{(1-\alpha_g)\left(1-\underline{\theta}_g\right)}{\alpha_g + (1-\alpha_g)\,\underline{\theta}_g}\right], \tag{C69}$$

such that

$$\frac{\partial \hat{\theta}_g}{\partial \rho_g} = \frac{(1-\alpha_g)\,\underline{\theta}_g}{\left(1 - \alpha_g - \alpha_g\rho_g\right)^2} > 0 \tag{C70}$$

and

$$\frac{\partial \hat{\theta}_g}{\partial \underline{\theta}_g} = \frac{\hat{\theta}_g}{\underline{\theta}_g} > 1. \tag{C71}$$

An equilibrium of the information-acquisition game is then given by a root of

$$\Omega_g\left(\rho_g\right) = \Phi_g\left(\hat{\theta}_g\left(\rho_g, \underline{\theta}_g\right), \underline{\theta}_g\right) - \hat{\theta}_g\left(\rho_g, \underline{\theta}_g\right), \tag{C72}$$

such that

$$\frac{\partial \Omega_g}{\partial \underline{\theta}_g} = \left(\frac{\partial \Phi_g}{\partial \hat{\theta}_g} - 1\right)\frac{\partial \hat{\theta}_g}{\partial \underline{\theta}_g} + \frac{\partial \Phi_g}{\partial \underline{\theta}_g}, \tag{C73}$$

and since

$$\frac{\partial \Phi_g}{\partial \underline{\theta}_g} = \frac{1-\Phi_g}{1-\underline{\theta}_g} + \frac{\alpha_g\left(1-V_g/\gamma_g\right)}{\Sigma_g}\left(\frac{1-V_g/\gamma_g}{1-\underline{\theta}_g} - \frac{2}{\gamma_g}\frac{\partial V_g}{\partial \underline{\theta}_g}\right)\frac{\phi_g'}{\phi_g''} < \frac{1-\Phi_g}{1-\underline{\theta}_g}, \tag{C74}$$

the sign is unambiguously negative:

$$\frac{\partial \Omega_g}{\partial \underline{\theta}_g} = \frac{1-\Phi_g}{1-\underline{\theta}_g} - \frac{\partial \hat{\theta}_g}{\partial \underline{\theta}_g} - \frac{2\alpha_g\left(1-V_g/\gamma_g\right)}{\gamma_g \Sigma_g}\frac{\phi_g'}{\phi_g''}\left[\frac{\partial V_g}{\partial \hat{\theta}_g}\frac{\partial \hat{\theta}_g}{\partial \underline{\theta}_g} + \frac{\partial V_g}{\partial \underline{\theta}_g} - \frac{\gamma_g - V_g}{2\left(1-\underline{\theta}_g\right)}\right] < 0, \tag{C75}$$

because

$$\frac{\partial \hat{\theta}_g}{\partial \underline{\theta}_g} = \frac{\hat{\theta}_g}{\underline{\theta}_g} > 1 > \frac{1-\Phi_g}{1-\underline{\theta}_g} \tag{C76}$$

and simultaneously

$$\frac{\partial V_g}{\partial \hat{\theta}_g}\frac{\partial \hat{\theta}_g}{\partial \underline{\theta}_g} + \frac{\partial V_g}{\partial \underline{\theta}_g} = -\frac{\hat{\theta}_g}{\underline{\theta}_g} < 0 < \frac{\gamma_g - V_g}{2\left(1-\underline{\theta}_g\right)}. \tag{C77}$$

Milgrom and Roberts's (1994) Theorem 1 establishes that the lowest and highest roots of $\Omega_g\left(\rho_g\right)$ are decreasing in $\underline{\theta}_g$, for a fixed domain of potential values for ρ_g. Here the maximum of that range varies with $\underline{\theta}_g$ according to:

$$\frac{\partial}{\partial \underline{\theta}_g}\frac{\left(1-\alpha_g\right)\left(1-\underline{\theta}_g\right)}{\alpha_g + \left(1-\alpha_g\right)\underline{\theta}_g} = -\frac{1-\alpha_g}{\left[\alpha_g + \left(1-\alpha_g\right)\underline{\theta}_g\right]^2} < 0. \tag{C78}$$

Since the domain shrinks as $\underline{\theta}_g$ increases, the decline in the minimum and maximum equilibrium values of ρ_g can at most be reinforced.

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Table 1 – *Tariffs and TV Ownership Across Countries*

Dependent variable: Customs and Other Import Duties, % of Imports

	(1)	**(2)**	**(3)**	**(4)**
TV sets per 100 people	$-.143737^{***}$	$-.108086^{**}$	$-.156114^{**}$	$-.119811^{**}$
	(.043171)	(.048970)	(.0518672)	(.057595)
Log real GDP per capita		-2.82617^{**}		-2.94854^{***}
		(1.09942)		(1.11337)
Freedom House index			.340488	$-.385726$
			(.411771)	(.418445)
Constant	11.7254^{***}	32.8742^{***}	13.0709^{***}	35.2744^{***}
	(.870616)	(8.03119)	(2.30049)	(8.08281)
Country fixed effects	Yes	Yes	Yes	Yes
R^2	.7709	.7723	.7560	.7565
Observations	2585	2510	2456	2384
Clusters	149	147	148	146

Notes: Robust standard errors, clustering by country. Asterisks denote significance respectively at the $10\%^{*}$, $5\%^{**}$, and $1\%^{***}$ confidence level.

Table 2 – *Cross-Industry Data on Trade Barriers and Media Coverage*

Variable	**Mean**	**Std. Dev.**	**Min**	**Max**
Non-tariff barrier coverage ratio, τ_g	.1120714	.2340397	0	1
Import demand elasticity, e_g	1.465422	.3741685	.54911	2.1297
Value of imports, m_g (\$ billions)	.5419009	1.649809	.0001567	17.45789
Value of shipments, x_g (\$ billions)	5.397444	15.37005	.0731	182.5918
Import penetration, x_g/m_g	.1858996	.3754532	.0001425	3.745999
$(x_g/m_g)/e_g$ (scaled by 10,000)	.0081241	.0489404	.0000185	.608384
Article counts $\bar{A}_g$	51.20625	190.5973	0	1532
$a_g = \log\left(1+\bar{A}_g\right)$	1.878286	1.780745	0	7.334982
$a_g\,(x_g/m_g)/e_g$ (scaled by 10,000)	.0082387	.022251	0	.1426909
Skilled employees N_g (thousands)	34.28327	44.22485	1.49424	328.0628
$N_g\,(x_g/m_g)/e_g$ (scaled by 10,000)	.4190476	3.632191	.0000396	45.8415

Sources: NBER-CES Manufacturing Industry Database, NBER Trade Database, Gawande and Bandyopadhyay (2000), and author's estimates based on the ProQuest Historical Newspapers database.

Table 3 – *Trade Barriers and Media Coverage Across Industries*

IV Tobit – Dependent variable: τ_g

	(1)	**(2)**	**(3)**	**(4)**
$(x_g/m_g)/e_g$	24.99281	38.07825**	37.37992***	48.87106**
	(15.29563)	(18.71179)	(12.41814)	(21.95686)
$a_g(x_g/m_g)/e_g$	−18.27544***	−26.33681***	−22.80189***	−29.98131**
	(6.958143)	(10.22915)	(7.926363)	(13.38167)
$N_g(x_g/m_g)/e_g$	−.3275101*	−.487798**	−.4954487**	−.6347583*
	(.1938933)	(.2263261)	(.2223446)	(.3515147)
a_g		.0762214		.0684853
		(.0487875)		(.0587296)
N_g			.0021283	.0021198
			(.0018427)	(.0023266)
Constant	.0730248*	−.0580237	−.0090698	−.1245099
	(.0432975)	(.0971758)	(.0857865)	(.1382421)
Wald χ^2	9.11	11.03	11.44	6.96
Observations	160	160	160	160
Clusters	75	75	75	75

Notes: Newey's (1987) efficient two-step estimator. Block bootstrap standard errors (100 replications) clustering by three-digit SIC industry group. Asterisks denote significance respectively at the 10%*, 5%**, and 1%*** confidence level.

Table 4 – ***Alternative Measures of Information and Factor Ownership***

IV Tobit – Dependent variable: τ_g

	(1)	**(2)**	**(3)**	**(4)**
$(x_g/m_g)/e_g$	26.30266	29.59097*	25.85884	17.29665
	(19.58977)	(17.72453)	(19.74884)	(16.19286)
$a_g(x_g/m_g)/e_g$	−18.91956**	−21.66573***	−18.69337**	−14.84202**
	(8.574638)	(7.936805)	(7.638857)	(7.370991)
$N_g(x_g/m_g)/e_g$	−.3439521	−.3896601**	−.3044352	−1.622401*
	(.2455184)	(.1968171)	(.2391098)	(1.358318)
Constant	.0715748	.0764042*	.0719953	.0746206
	(.0448561)	(.087762)	(.0458558)	(.0474986)
Article searches	Short title	Full title	Both titles	Both titles
Factor owners	Skilled workers	Skilled workers	All workers	Scient. + Manag.
Wald χ^2	6.15	11.03	6.75	6.04
Observations	160	167	160	160
Clusters	75	75	75	75

Notes: Newey's (1987) efficient two-step estimator. Block bootstrap standard errors (100 replications) clustering by three-digit SIC industry group. Asterisks denote significance respectively at the 10%*, 5%**, and 1%*** confidence level.

Table 5 – ***Alternative Regression Specifications***

Dep. var. $\tau_g e_g$: **(1)**		Dep. var. τ_g :	**(2)**	**(3)**	**(4)**
x_g/m_g	29.27728^{*}	$(x_g/m_g)/e_g$	23.61921	22.05841	12.82218^{*}
	(17.77343)		(77.59607)	(41.14349)	(6.853949)
$a_g x_g/m_g$	-19.13889^{***}	$a_g (x_g/m_g)/e_g$	-17.07812^{**}	-19.39053^{*}	-7.473294^{**}
	(8.45882)		(8.266519)	(10.8881)	(3.015565)
$N_g x_g/m_g$	$-.3770035^{*}$	$N_g (x_g/m_g)/e_g$	$-.3082057$	$-.2693557$	$-.1637543^{*}$
	(.2208369)		(.2899112)	(.2635004)	(.0987624)
		$I_g (x_g/m_g)/e_g$	$-.2736945$	$-.9108391$	
			(67.98599)	(26.76793)	
Constant	.0870966	Constant	.0704186	.0820256	$.1380939^{***}$
	(.0626759)		(.0470779)	(.0568117)	(.0326575)
		Lobby dummy	GM (1999)	GB (2000)	
Estim.	IV Tobit	Estimation	IV Tobit	IV Tobit	2SLS
Wald χ^2	5.71	Wald χ^2	7.62	6.96	9.48
Obs.	160	Observations	160	160	160
Clusters	75	Clusters	75	75	75

Notes: Block bootstrap standard errors (100 replications) clustering by three-digit SIC industry group. Asterisks denote significance respectively at the $10\%^{*}$, $5\%^{**}$, and $1\%^{***}$ confidence level.

Table 6 – ***Linear Model: Baseline Regressions***

2SLS – Dependent variable: τ_g

	(1)	**(2)**	**(3)**	**(4)**
$(x_g/m_g)/e_g$	12.82218^{**}	17.94757^{**}	18.38695^{**}	22.48032^{**}
	(6.190976)	(7.521146)	(7.606851)	(9.404825)
$a_g(x_g/m_g)/e_g$	-7.473294^{**}	-10.38313^{***}	-9.416377^{***}	-11.85194^{***}
	(3.257342)	(4.026762)	(3.577158)	(4.518525)
$N_g(x_g/m_g)/e_g$	$-.1637543^{**}$	$-.2268754^{**}$	$-.2372721^{**}$	$-.2872259^{**}$
	(.0773038)	(.0950785)	(.1008549)	(.122977)
a_g		.0372392		.0334521
		(.0367362)		(.0347447)
N_g			.0011595	.0010531
			(.0008739)	(.0008334)
Constant	$.1380939^{***}$	.1005626	$.0999496^{**}$	.0485097
	(.0316154)	(.0638747)	(.0417109)	(.0667266)
Wald χ^2	6.51	7.68	7.70	7.66
Observations	160	160	160	160
Clusters	75	75	75	75

Notes: Robust standard errors, clustering by three-digit SIC industry group. Asterisks denote significance respectively at the $10\%^{*}$, $5\%^{**}$, and $1\%^{***}$ confidence level.

Table 7 – ***Linear Model: Alternative Variable Definitions***

2SLS – Dependent variable: τ_g

	(1)	**(2)**	**(3)**	**(4)**
$(x_g/m_g)/e_g$	13.29848**	16.1549**	13.07598**	9.40088
	(6.295549)	(7.711697)	(6.18939)	(5.849297)
$a_g(x_g/m_g)/e_g$	−7.664268**	−9.429129**	−7.622228**	−5.921779**
	(3.29443)	(4.331188)	(3.262437)	(2.9879)
$N_g(x_g/m_g)/e_g$	−.169769**	−.2077823**	−.1498999**	−.8567678*
	(.0786152)	(.1968171)	(.0696092)	(.517443)
Constant	.138185***	.142649***	.1377112***	.1370716***
	(.0316915)	(.032485)	(.0315652)	(.0307971)
Article searches	Short title	Full title	Both titles	Both titles
Factor owners	Skilled workers	Skilled workers	All workers	Scient. + Manag.
Wald χ^2	6.67	6.12	6.63	5.31
Observations	160	167	160	160
Clusters	75	75	75	75

Notes: Robust standard errors, clustering by three-digit SIC industry group. Asterisks denote significance respectively at the 10%*, 5%**, and 1%*** confidence level.

Table 8 – ***Linear Model: Alternative Regression Specifications***

Dep. var. $\tau_g e_g$: **(1)**		Dep. var. τ_g :	**(2)**	**(3)**
x_g/m_g	13.19415^{**}	$(x_g/m_g)/e_g$	12.37688	17.23997
	(5.87302)		(23.53823)	(12.13003)
$a_g x_g/m_g$	-7.600517^{**}	$a_g(x_g/m_g)/e_g$	-7.429248^{*}	-9.416484^{*}
	(3.206079)		(4.035649)	(5.700487)
$N_g x_g/m_g$	$-.167352^{**}$	$N_g(x_g/m_g)/e_g$	$-.1630717^{*}$	$-.1103254$
	(.0766499)		(.0878407)	(.096996)
		$I_g(x_g/m_g)/e_g$	.3870251	-7.972759
			(19.13407)	(12.84741)
Constant	$.1879415^{***}$	Constant	$.1380893^{***}$	$.1454508^{***}$
	(.0385704)		(.0315496)	(.039243)
		Lobby dummy	GM (1999)	GB (2000)
Wald χ^2	5.95	Wald χ^2	6.58	4.75
Obs.	160	Observations	160	160
Clusters	75	Clusters	75	75

Notes: Block bootstrap standard errors (100 replications) clustering by three-digit SIC industry group. Asterisks denote significance respectively at the $10\%^{*}$, $5\%^{**}$, and $1\%^{***}$ confidence level.

Table A1 – *Panel Data on Tariffs and TV Ownership*

Variable	Mean	Std. Dev.	Min	Max
Import duties, % of imports	8.66255	14.3198	−.058937	343.402
Television sets per 100 people	17.8732	18.6917	0	96.5208
Real GDP per capita, log	7.51425	1.54312	4.13095	10.7922
Freedom House index	3.71254	2.19544	1	7

Sources: World Development Indicators and Freedom House.

Table A2 – *Cross-Country Data on Tariffs and TV Ownership*

Variable	Mean	Std. Dev.	Min	Max
TTRI, avg. 2006-2008	5.71080	4.53863	0	21.8
% Households with a TV, avg. 1998-2007	68.8652	34.2336	2.35	99.8333
TV sets per 100 people, avg. 1994-2003	26.3668	21.2442	0.0088	84.4612
Real GDP per capita, log of avg. 1999-2008	7.88527	1.64321	4.69761	10.8245
Freedom House index, avg. 1999-2008	3.14706	1.98229	1	7

Sources: World Trade Indicators, World Development Indicators, and Freedom House.

Table A3 – *Cross-Country Correlation of Tariffs and TV Ownership*

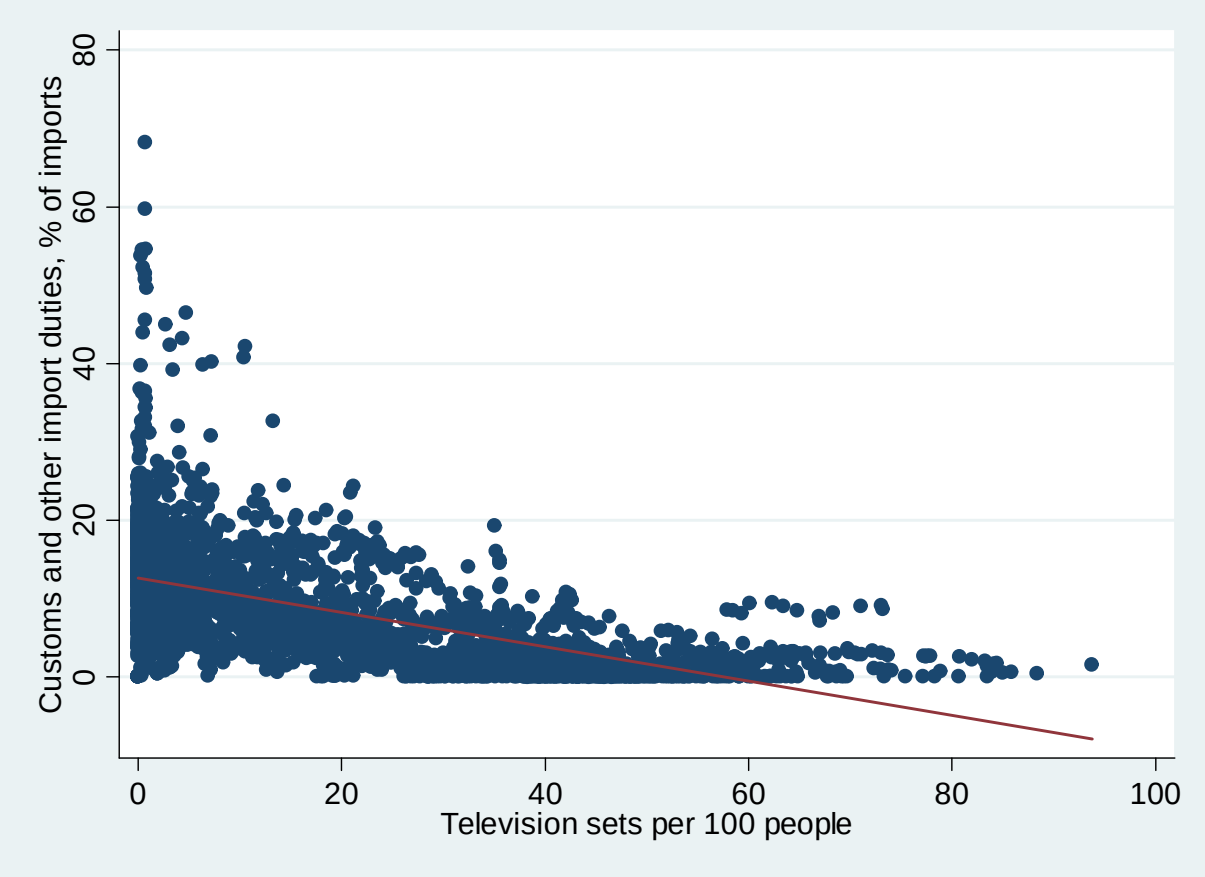
Dependent variable: Tariff Trade Restrictiveness Index

	(1)	**(2)**	**(3)**	**(4)**
% Households with a TV	$-.084157^{***}$	$-.051395^{***}$	$-.059964^{***}$	$-.051157^{***}$
	(.009986)	(.016729)	(.010641)	(.015829)
Log real GDP per capita		$-.825260^{**}$		$-.267100$
		(.342102)		(.354796)
Freedom House index			$.831170^{***}$	$.770191^{***}$
			(.187021)	(.204164)
Constant	11.5362^{***}	15.7625^{***}	7.42577^{***}	9.09585^{***}
	(.770661)	(1.9073)	(1.1625)	(2.50568)
R^2	.3990	.4303	.4906	.4933
Observations	109	109	108	108

	(5)	**(6)**	**(7)**	**(8)**
TV sets per 100 people	$-.121865^{***}$	$-.069300^{***}$	$-.093937^{***}$	$-.067931^{**}$
	(.015191)	(.028675)	(.016748)	(.029040)
Log real GDP per capita		$-.795431^{**}$		$-.425155$
		(.370599)		(.388001)
Freedom House index			$.596275^{***}$	$.553731^{***}$
			(.179969)	(.183975)
Constant	8.95988^{***}	13.8499^{***}	6.41658^{***}	9.20236^{***}
	(.515482)	(2.33442)	(.927991)	(2.70616)
R^2	.3228	.3453	.3756	.3813
Observations	137	137	134	134

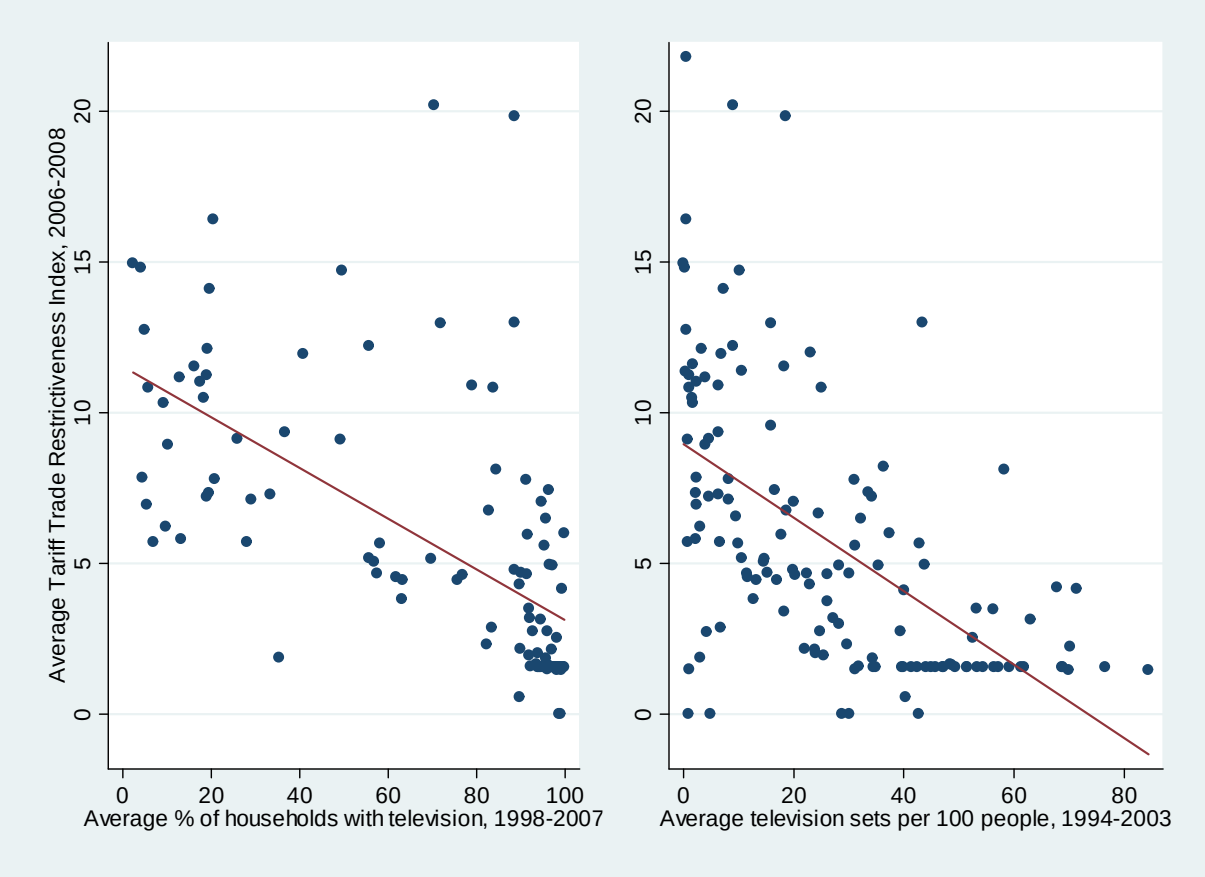
Notes: Asterisks denote significance respectively at the $10\%^{*}$, $5\%^{**}$, and $1\%^{***}$ confidence level.

Figure 1 – *Tariffs and TV Ownership across Countries*



Source: World Development Indicators.

Figure A1 – ***Tariffs and TV Ownership in a Cross-Section of Countries***



Sources: World Trade Indicators and World Development Indicators.