UNIVERSITY OF CALIFORNIA, SAN DIEGO

The New Political Economy of Trade: Heterogeneous Firms and Trade Policy

A dissertation submitted in partial satisfaction of the requirements for the degree Doctor of Philosophy

in

Political Science

by

Michael Plouffe

Committee in charge:

Professor J. Lawrence Broz, Chair
Professor Megumi Naoi, Co-Chair
Professor Peter Cowhey
Professor Stephan Haggard
Professor Marc Muendler

2013

The Dissertation of Michael Plouffe is approved, and it is acceptable in quality and form for publication on microfilm and electronically:

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Co-Chair

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Chair

University of California, San Diego

2013

DEDICATION

This dissertation project is dedicated to my parents, who have exhibited endless patience, love and support. Their constant encouragement has been essential throughout my life, especially as I have approached the completion of this project.

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The dissertation manuscript in its entirety will be prepared for publication in book form. Chapters Two and Three are being prepared for publication in academic journals. For each of these works, the dissertation author is the principal investigator and sole author.

VITA

2007	Bachelor of Arts, University of California, San Diego
2009	Master of Arts, University of California, San Diego
2013	Doctor of Philosophy, University of California, San Diego

ABSTRACT OF THE DISSERTATION

The New Political Economy of Trade: Heterogeneous Firms and Trade Policy

by

Michael Plouffe

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Professor J. Lawrence Broz, Chair

Professor Megumi Naoi, Co-Chair

The increased availability and quality of micro-level datasets has led to a revolution in the study of the economics of international trade. In this project, I extend the insights gained from recent advances in trade theory to their political-economy implications. That is, the variations in producers' characteristics – especially productivity – that determine their economic behaviors also govern their policy positions and political behaviors in predictable ways. Highly productive firms are more likely to favor trade liberalization and participate actively in political processes, while low productivity firms are more likely to favor protection, and are less likely to engage in politics. I apply my theory to an original survey of Japanese manufacturers, a large cross section of publicly-held American firms, and two of the industries that battled over the Smoot-Hawley Tariff of 1930, finding support for my model.

The New Political Economy of Trade

International trade has long been viewed as a source of domestic political conflict. While increasing trade leads to economic gains, these gains are not equally distributed among the members of a state's population. Trade's redistributional effects create clear winners and losers, and a large body of research in international political economy has been devoted to identifying these winners and losers and the ways in which they might impact potential trade-policy outcomes.

Research on the sources of demand for trade policy largely falls into two broad categories. One body of work concentrates on aggregated groups of actors, whether these are industries or owners of different factors of production, such as farmers or labor unions. While work in this vein sometimes discusses the behaviors of firms, the focus is on collective action and analyzes the political activities of the aggregate group. The second research program examines characteristics of voters at the individual level to ascertain the sources of preferences over trade policy. However, the role of firms in trade policy formation has largely been ignored. Like factor owners, industries, and individuals, firms may be positively or negatively impacted by a change in trade policy. This neglect of firms as agents of trade-policy making is problematic because, like organized industries and labor unions, firms play an instrumental role in the formation of trade policy. In fact, as the influence of labor unions has declined, their attempts to influence policy have been dwarfed by those of firms and producer associations. For example, in 2005 firms spent over twenty dollars on lobbying activities targeting the

Central America Free Trade Agreement (CAFTA) for each dollar spent on the same issue by unions. Producer associations only add to this disparity in spending, further highlighting the lobbying influence of firms.

As political economists, our broadly-applied theories are based on the assumption that firms within industries are homogenous, both in terms of their characteristics and behaviors, as well as in terms of the goods they fashion. That is, producers in export-oriented (or comparative-advantage) industries export some of their production to foreign markets, while producers in import-competing (or comparative-disadvantage) industries are threatened by relatively cheap foreign imports. These highly stylized assumptions do not reflect the realities revealed in observable data. Trade engagement at the firm level varies widely. For example, despite the wide application of the Ricardo-Viner model, roughly 18% of United States manufacturing firms directly export a portion of their production, and these firms are widely dispersed across all manufacturing industries. Even among comparative-advantage producers, trade activities vary widely.

As Table 1.1 shows, exporting is a very rare behavior. While the portion of firms that export varies significantly across manufacturing sectors, in no sector does a majority of firms engage in exporting, nor do exports make up a majority of shipments. Furthermore, exporting occurs across all manufacturing industries, not just among comparative advantage industries. While the logic of comparative advantage can provide some insights into the rarity of exporting in one industry relative to another, it is

clear that assuming away firm-level heterogeneity within industries masks the rich variations in firms' behaviors.

Table 1.1 – US Exports by Manufacturing Sector, 2002[1]

NAICS	Industry	Percent of All Firms	Percent of Firms that Export	Mean Exports as a Percent of Total Shipments
311	Food Manufacturing	6.8	12	15
312	Beverage & Tobacco Products	0.7	23	7
313	Textile Mills	1.0	25	13
314	Textile Product Mills	1.9	12	12
315	Apparel Manufacturing	3.2	8	14
316	Leather & Allied Products	0.4	24	13
321	Wood Product Manufacturing	5.5	8	19
322	Paper Manufacturing	1.4	24	9
323	Printing & Related Support	11.9	5	14
324	Petroleum & Coal Products	0.4	18	12
325	Chemical Manufacturing	3.1	36	14
326	Plastics & Rubber Products	4.4	28	10
327	Nonmetallic Mineral Products	4.0	9	12
331	Primary Metal Manufacturing	1.5	30	10
332	Fabricated Metal Products	19.9	14	12
333	Machinery Manufacturing	9.0	33	16
334	Computer & Electronic Products	4.5	38	21
335	Electrical Equipment, Appliances	1.7	38	13
336	Transportation Equipment	3.4	28	13
337	Furniture & Related Products	6.4	7	10
339	Miscellaneous Manufacturing	9.1	2	15
	Aggregate Manufacturing	100	18	14

The ability to engage in trade is highly dependent upon firm-level characteristics. Trading activities, such as exporting, are highly concentrated due to the high costs of participation. Large multinational corporations can engage multiple markets with multiple products at high volumes, while small and medium enterprises

[1] From Bernard, Jensen, Redding and Schott 2007.

(SMEs) tend to only be able to afford export one product to one foreign market. While direct exporters (firms that sell a portion of their production directly to foreign buyers) employ a significant portion of the manufacturing labor force, the majority of workers in the manufacturing sector are employed by firms that do not directly export. Other forms of trade, such as importing or intermediated trade, are more common than direct exporting, but share the same pattern of firm-level engagement. The characteristics of firms that engage foreign markets tend to differ greatly from those that do not. Just as these characteristics lead to diverse market behaviors among firms, they also create heterogeneity among firms' trade-policy interests and political-market behaviors.

I propose a new model for the demand side of trade policy that incorporates firm-level productivity heterogeneity, following the work of Marc Melitz[2] and Andrew Bernard, Stephen Redding and Peter Schott.[3] I extend these theoretical "new new trade" models to incorporate a political component: that is, firms have an opportunity to engage in the political market for trade policy. Highly productive firms, regardless of their trading status, favor liberalization as they may benefit from lower barriers to foreign markets. Low productivity firms favor protection, as the high costs associated with entering a foreign market would remain too prohibitive for them to consider profitably participating in such a venture, while reduced barriers to import competition would increase the risk of rendering them unable to operate in the domestic market.

I examine my theory with three sets of tests. In the next chapter, I test the implications of this new model for firm-level trade-policy expectations against data

[2] Melitz 2003.
[3] Bernard, Redding and Schott 2007.

from an original survey of Japanese firms. The following chapter provides evidence that firms participate in political activities with the goal of implementing their policy positions, and the third empirical chapter illustrates the nature of these undertakings using the case of the Smoot-Hawley Tariff. I find strong evidence that characteristics of firms affect their trade-policy positions and their political engagement over trade policy.

Trade Preferences in International Political Economy

International political economists have primarily studied trade preferences at two levels: aggregated sector or factor-based positions, and disaggregated individual-level preferences. Initial work focused on aggregated attitudes and their impacts on demand for policy outcomes,[4] relying especially on the predictions generated by the Stolper-Samuelson and Ricardo-Viner ideal-type models (presented below in Table 1.2). Subsequent efforts sought to tease out the applicability of these models by identifying levels of factor mobility with varying success.[5]

Table 1.2: Patterns of Support for Trade Liberalization

	Stolper-Samuelson		Ricardo-Viner	
	Abundant Factor	Scarce Factor	Abundant Factor	Scarce Factor
Exporting Industry	Liberalization	Protection	Liberalization	Liberalization
Import-Competing Industry	Liberalization	Protection	Protection	Protection

In theory, these factors or industries would seek beneficial trade-policy outcomes through political means, such as voting. Thus, in a Stolper-Samuelson framework, if the abundant factor can decisively influence trade policy, a move to

[4] Gourevitch 1986, Rogowski 1987a, Alt and Gilligan 1994.
[5] Hiscox 2001, 2002.

liberalization should be the result. Scholars have highlighted this as a potential mechanism between democratization and increased globalization.[6] However, in any democracy, the impact that a group can have on policy outcomes is determined by institutional characteristics. Institutions that incentivize politicians to seek the support of broad-based constituencies tend to lead to liberal trade policies, while those that cause politicians to cultivate narrow groups of supporters tend to foster protectionist outcomes.[7] All of this work rests on several key assumptions: factors or industries can overcome collective action problems; people form trade-policy preferences according to their material interests; trade policy is a salient issue, or at least it is important enough to influence how voters to select candidates.

The second major body of trade-preference research seeks to shed light on some of these assumptions, relying heavily on individual-level surveys to study preference formation. Some support has been found for the ideal-type models applied at the aggregate level.[8] However, survey-based analyses have raised more questions than they have answered. For example, many voters do not hold clearly articulated trade-policy preferences, and the issue's complexity often prevents the formation of preferences uniquely along the lines of material interests.[9] Furthermore, non-material interests such as sociotropic considerations or the projection of job insecurity, appear to play an important role in preference formation.[10] While these findings provide evidence that

[6] Milner and Kubota 2005, O'Rourke and Taylor 2006.
[7] Rogowski 1987b, Rogowski and Kayser 2002, Park and Jensen 2007.
[8] Scheve and Slaughter 2001, Mayda and Rodrik 2005.
[9] Blonigen 2011, Guisinger 2009.
[10] Mansfield and Mutz 2009, Kumo and Naoi 2011, Kuo 2011.

individuals may hold vectors with a number of divergent trade-policy preferences,[11] they cast doubt on the idea that voting acts as a mechanism for the transformation of trade-policy interests into policy outcomes.

While both bodies of scholarship have provided us with valuable insights regarding the demand side of trade policy, international political economists largely ignore the role of firms. Firms act as more than simply an aggregation of individuals or a disaggregated approach to sectors; they can be viewed as actors in their own right. Similarly, unlike individuals or factors of production, clear mechanisms exist for linking firms and producer associations to policy-making processes.

The seminal work in on firms is that of Helen Milner,[12] who argues that multinational corporations (MNCs) and exporters seek liberalizing policies to improve their access to lucrative foreign markets. Cecilia Woll's more recent work reconsiders aspects of Milner's prescient arguments from a more constructivist perspective and applies them to trade in services, treating the spread of reduced barriers to foreign markets as norm diffusion facilitated by the lobbying activities of multinationals.[13] However, both of these approaches rely solely on the revealed preferences of a small subset of firms, rather than situating them within the context of the larger population of producers. While MNCs play a significant role in global markets for goods, services and labor, and are notable for their abilities to influence policy-making processes, many other firms are politically active and influential as well. Highly productive firms, even if

[11] Bauer, Pool and Dexter 1972.
[12] Milner 1988, Milner and Yoffie 1989.
[13] Woll 2008.

they only serve the domestic market, may benefit from reduced barriers to foreign markets; these firms may behave politically much like exporters and MNCs.

Other political economists have studied aspects of firms' political activities through slightly different frameworks. For example, Michael Gilligan surveys firms' engagement with the International Trade Commission (ITC) in a new-trade theory framework, finding a relationship between the extent of intra-industry trade and complaints lodged with the ITC.[14] Alt et al. come close to utilizing the heterogeneous firm framework of modern trade theory, focusing on asset specificity, and finding it positively linked to lobbying activities.[15]

Related research in economics and American politics analyzes the political behaviors of firms in a more systematic manner. While much of this work has focused on the campaign contributions of very large firms,[16] a growing literature instead addresses their lobbying activities.[17] Much of the research in American politics has focused on firm size as the key determinant for political engagement: a very robust finding is that large firms are the most likely to lobby. However, only recently has a causal mechanism been recognized linking firm characteristics to political activities. This has been done by placing lobbying firms within a larger context and identifying features in addition to size. Here, insights from industrial organization and modern trade theory have been found to be useful. For example, the smallest lobbying entrant in an

[14] Gilligan 1997.
[15] Alt et al. 1999.
[16] For examples, see Drope and Hansen 2006; Hansen, Mitchell and Drope 2005; Hansen and Mitchell 2000.
[17] For examples, see Brasher and Lowery 2006, Samthantharak and Timmons 2009.

industry is not only larger than the average firm in that industry, it is also more productive.[18] Additionally, there is evidence that firms' entrance into the lobbying market resembles that of a production market.[19] Thus, high costs of entry prohibit small and unproductive firms from lobbying alone; only large and relatively productive firms can afford to pay these costs. The costs of entry are so high that, if a firm begins to lobby on one important issue, it will be likely to switch to another less important matter after the first is resolved, in order to avoid repaying the costs of entry in the event another important issue arises.

One of the difficulties in studying lobbying activities over trade policy is that firms' positions are not always clearly revealed through their actions. Appeals to the ITC or applications for antidumping protection or countervailing duties may be considered to reveal preferences, but lobbying of the Department of Commerce or the United States Congress often merely signals the interest and ability to lobby. This is problematic – many papers examining lobbying activities, perhaps beginning with Grossman and Helpman's 'Protection for Sale', assume that protectionism is the policy goal.[20] However, both anecdotal evidence and more carefully considered study of firm positions over trade policy suggest the opposite: large firms are lobbying for liberalization.[21] This also provides some explanation for the observation of partially organized industries: these firms are seeking outcomes that would not be favored by a

[18] Bombardini 2008.
[19] Knerr, Lincoln and Mishra 2011.
[20] Grossman and Helpman 1994. See also Gawande and Hoekman 2006, Bombardini 2008 and Bombardini and Trebbi 2009.
[21] See Baldwin and Magee 2000, Cowhey 2012, Plouffe 2011b.

large portion of their peers, rather than encouraging free-riding behaviors.[22] A recent extension to the 'Protection for Sale' model has incorporated aspects of heterogeneous policy positions, dividing industries into groups of trading and non-trading firms, but lacks empirical investigation.[23] However, in the case of less transparent measures, such as non-tariff barriers, a theoretical case could still be made in some cases for homogenous interests.[24] While a great many insights have stemmed from this body of research, the focus has remained on campaign contributions rather than firms' lobbying expenditures. Unlike lobbying activities, campaign spending is associated with 'getting a foot in the door' rather than impacting any policy decisions.[25] However, some of these discoveries may also apply to the study of lobbying.

The New Political Economy of Trade

Most existing models of the political economy of trade rely on variations of the Heckscher-Ohlin or Ricardo-Viner trade models.[26] However, these classical models assume away key empirical realities. The new trade theory of the 1980s incorporated monopolistic competition, allowing for the explanation of intra-industry trade.[27] Much more recent innovations in trade theory have led to the introduction of firm heterogeneity within and across industries, revealing trade engagement as a rare firm

[22] Gawande and Magee 2012; Hansen, Mitchell and Drope 2005.
[23] Chang and Willmann 2006.
[24] Abel-Koch 2010.
[25] Richter, Samphantharak and Timmons 2009.
[26] Gilligan 1997 and Alt et al. 1999 are notable exceptions.
[27] See Krugman 1980, Krugman and Helpman 1985.

behavior.[28] These models arose from empirical regularities that became apparent with the emergence and availability of increasingly detailed data: exporters are larger, more productive, more capital intensive, and pay higher wages than non-exporters.[29] These findings hold across industries and countries, even at different levels of development.[30] Additionally, these characteristics are true for other forms of internationalization, such as FDI, importing, and offshore outsourcing.[31] Ultimately, these variations in behaviors can be attributed to total factor productivity (TFP). This leads to firms behaving in ways that are assumed away in homogeneous firm models of trade: traders exist among all manufacturing sectors, but they make up a small portion of firms in each.

My model of firm behavior follows that of Andrew Bernard, Stephen Redding and Peter Schott,[32] which incorporates the Melitz Model[33] into the integrated equilibrium framework of the classical comparative advantage-based models. That is, firm heterogeneity is embedded into comparative advantage and comparative disadvantage industries. I extend the activities of firms from economic markets to include the political market, although I focus primarily on firms' positions over trade policy, rather than their active engagement of political processes. I begin by describing a single industry in isolation; I follow this by discussing dynamic adjustment with two industries.

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[28] Melitz 2003 is the seminal work. Bernard, Eaton, Jensen and Kortum 2003 offer an alternative framework.
[29] See Bernard, Jensen, Redding and Schott 2007 for a survey of the literature.
[30] See Alvarez and Lopez 2005.
[31] See Helpman, Melitz and Yeaple 2004 and Head and Ries 2003 for FDI; Gibson and Graciano 2011 for importing; Kasahara and Lapham 2010 and Plouffe 2011b for multiple internationalization strategies.
[32] Bernard, Redding and Schott 2007
[33] Melitz 2003.

A Single-Industry Model

I begin by extending the single-industry formulation of the Melitz Model to incorporate firms' political concerns. Firms face a series of decisions that they make over the course of each time period; these periods are repeated without end, with the participants changing as firms enter and exit the market. Firms' decisions are ordered within each period, as responses decisions may directly impact behavior throughout the rest of the period and in following periods.

The Production Market

Firms within an industry (as well as the aggregate economy) are differentiated by their total factor productivity (TFP) levels. An underlying productivity distribution is assumed, from which firms draw their unobserved productivity; firm decisions and trade-policy attitudes are direct functions of this productivity draw. Prior to entry into a market, a firm's productivity is unobserved. This is due to the fact that, having not produced anything, it is impossible for a firm to base its productivity expectations and forecasts on real data. These expectations themselves do not affect the actual productivity draw, nor do they factor into trade-policy positions. Figure 1.1, on the following page, provides sample period that illustrates the sequence of firm decisions.

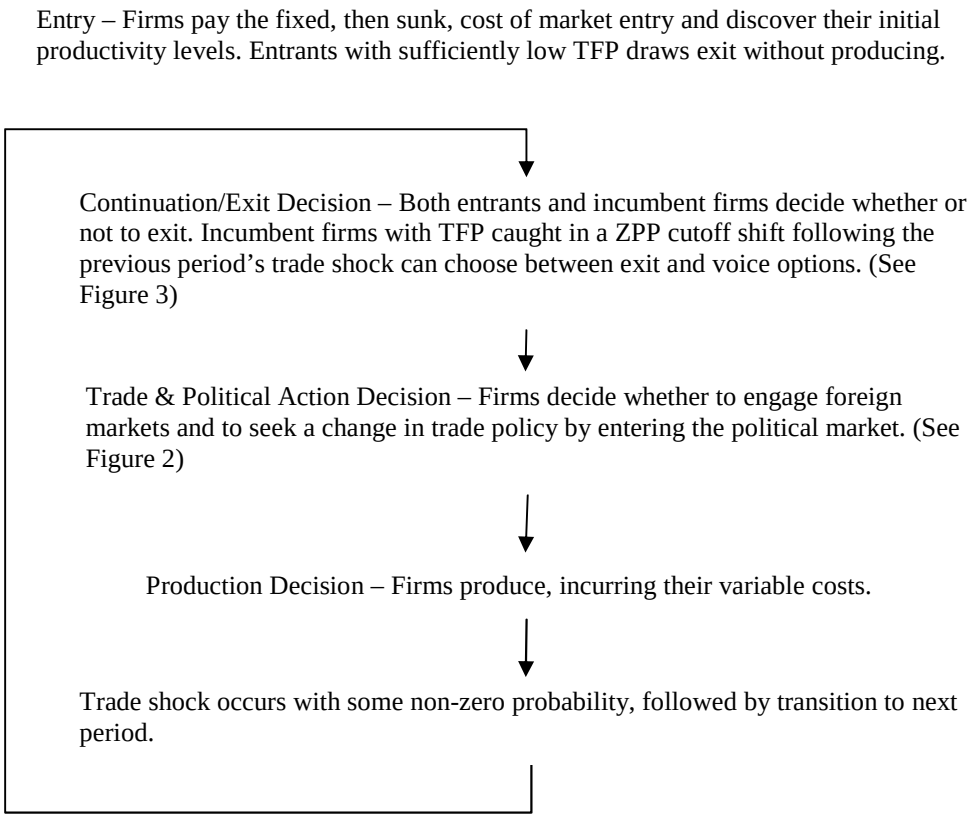


Figure 1.1: Sample Period, Production Market

Entry into the domestic market entails a fixed cost, which is then sunk, regardless of the firm's production decision. At this point, entering firms realize their initial productivity draws. If a firm's TFP draw is above the zero-profit productivity (ZPP) cutoff, it will begin producing for the domestic market at the end of the period; if its TFP draw is below the ZPP cutoff, it will not be profitable and will exit immediately, without incurring the variable costs of production. Additionally, firms that entered the market in a previous period make a decision whether to continue operating in the

market or to exit the market at this point: firms that incurred losses in the previous period will exit, while those that either broke even or saw a profit choose to continue.

During the next stage, firms decide whether to engage in international transactions, or pursue political action (these actions are not mutually exclusive). Firms can enter the international market in a number of ways: they can import goods, export goods, acquire ownership in foreign firms, and make overseas investments in production facilities (foreign direct investment, or FDI). However, for the sake of simplicity, in this study I focus primarily on exporting.[34] Recent empirical research has demonstrated that firms that engage in international trade are among the most productive within an industry. Those that engage in both import and export, as well as those that employ FDI, are generally more productive than those just importing or exporting. Export sales are more profitable than domestic-market sales; however, export-market entry is limited to firms with sufficiently high productivity to overcome the significant fixed costs of entry and higher (and iceberg) variable costs.[35] Likewise, other forms of internationalization – FDI, offshore-outsourcing, and importing – can be lucrative activities, provided firms can overcome the significant fixed costs of entry.

In general, the claim can be made that firms in the upper portion of the productivity distribution – those with TFP above the international trade or foreign

[34] Importing, FDI and outsourcing firms have similar characteristics to exporting firms. However, these behaviors are empirically much more idiosyncratic.
[35] Firms with productivity that is too low to overcome these costs do not trade in the current period. Learning by exporting is generally understood as being a result of research investments made simultaneously with export-market entry. See Constantini and Melitz 2008 and De Loecker 2007 and 2010.

market entry cutoff[36] – can expect to gain from trade liberalization. It follows that these firms, as well as the factors of production they employ, both prefer and seek trade liberalization, so they will have incentives to enter the political market to gain access to foreign markets and goods.

However, trade policy's distributional consequences are not limited to high productivity firms; there are losers as well as the winners. Less productive firms face increased competition from abroad under a liberalized trade policy (leading to reduced margins), yet because of the costliness of trade, cannot partake in the benefit of foreign market access. These firms may enter the political market to seek import protection.

The final step that includes firm behaviors in this period of the model is the production decision. At this point, firms produce, incurring variable costs, and realize their profits or losses before transitioning to the next period in the model and repeating this process. While different models of firm heterogeneity may place firm exit decisions at different positions in a sample period (at entry, as shown here, or at the production decision), this should not affect patterns of trade-policy attitudes.

The Political Market

The political market for trade policy can be modeled in a similar manner. Political action is costly. Evidence indicates that key characteristics of the market for policy mirror those of the previously explained production market.[37] Fixed costs of entry are sunk and may vary by method of engagement, but are high relative to the variable costs of continuation. These entry costs may be associated with gaining an

[36] I refer to this cutoff alternatively as the foreign market entry cutoff and the international trade cutoff.
[37] Kerr, Lincoln and Mishra 2011.

understanding with relevant political institutions, actors, policies and regulations, or may be linked directly to searching for a good lobbyist and gaining access to key players. Costs of continuation may not be insignificant, but familiarity with the components of the political system should make them relatively cheap.

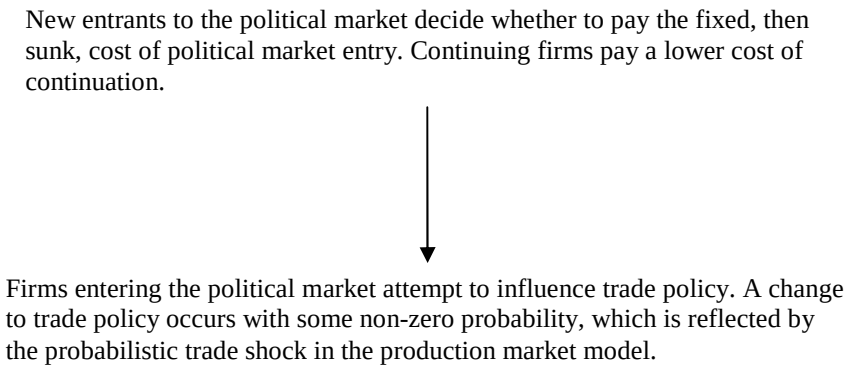


Figure 1.2: Political Market

Firms that choose to engage in political activities will seek beneficial trade-policy reforms. This means that, ceteris paribus, high productivity firms will have positive expectations for liberalizing reforms, while low productivity firms will associate negative expectations with liberalization.

Firms may choose to take political action based on their trade-policy expectations and productivity draws. High productivity firms will be more likely than the average firm to seek some form of trade liberalization; low productivity firms will pursue some form of import protection. However, many low productivity firms may be unable to afford political action individually, and may seek to act through producer organizations made up of firms that share their trade-policy positions, thus sharing

costs.[38] The key quantity of interest for this study is the directionality of firms' political activities, not the wide variety of forms that may embody these actions.

Finally, these expectations are shaped by status-quo barriers to trade. High tariffs and non-tariff barriers should lead to a relatively large mass of high productivity firms seeking liberalization; consequently, low productivity firms will be less likely to seek increased protection. Likewise, relatively low tariffs and non-tariff barriers should be associated with fewer high productivity firms pursuing further liberalization and a greater portion of low productivity firms seeking protection.

Draws from the Productivity Distribution

My model presents a clear picture of the firm-level redistributive impact of trade liberalization. Likewise, we can expect firms to attempt to impact the policy-making process to increase the likelihood of favorable trade policy outcomes. Firms that expect to gain from trade will seek trade liberalization, while firms that expect to lose from trade will seek protection. However, like a firm's productivity draw prior to production-market entry, the impact of trade liberalization is unobserved prior to implementation; this may generate uncertainty as to how firms will be affected by the change in policy.

A firm's productivity draw can be depicted as a point on a sample productivity probability distribution function, as illustrated in Figure 1.3. We can divide firms into three broad categories: those with high productivity (above the trade engagement cutoff) that can afford to engage foreign markets, those with middling productivity that

[38] The positions of broader-based industry associations appears to closely follow those of their largest, most influential members. More detailed study of this pattern is best left to future work.

continue to only serve the domestic market, and those with low productivity (below the ZPP cutoff) and are not able to enter the market.

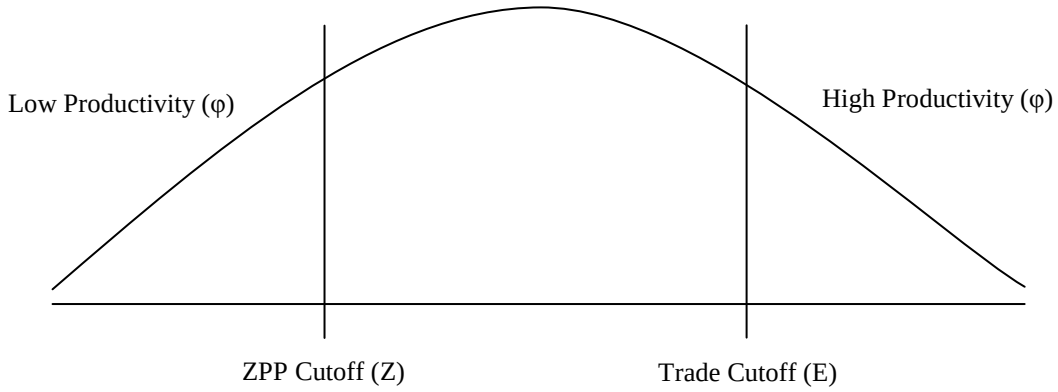
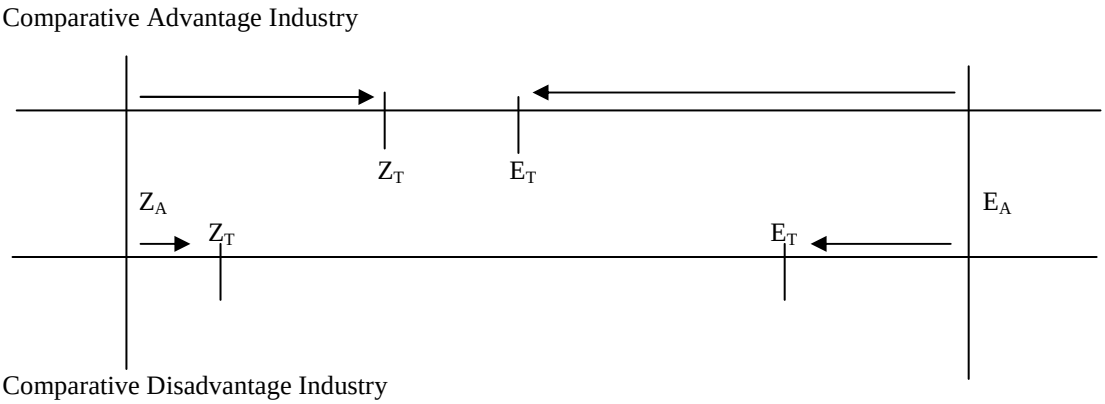


Figure 1.3: Sample Productivity Distribution and Trade Liberalization Cutoffs

Incorporating Multiple Industries

The ZPP and foreign market entry cutoffs differ across exporting and import-competing sectors. In an exporting – or comparative advantage – sector, a relatively large portion of high productivity firms enter the international market following liberalization; additionally, a relatively high portion of low productivity firms are forced to exit. These low productivity producers are driven out by a relatively large increase in the ZPP cutoff, as new exporters bid up the prices for factor inputs (see Figure 1.4). In the comparative disadvantage sector, the increase of the mass of exporters following liberalization is smaller than in the comparative advantage sector. Likewise, the mass of firms forced to exit does not increase as greatly, as factor prices in this sector are not bid up by a large number of firms seeking to grow to engage the export market. The ZPP cutoff does rise, though, as low productivity firms face increased competition from abroad. Overall, margins on goods produced for the domestic market are reduced, and

factor employment shifts from the comparative disadvantage sector to the comparative advantage industry. In a sense, this final point is akin to the specialization predicted by classical trade theory, but not idealized to the same extent.



A = Autarky T = Trade Z = Zero-Profit Cutoff E = Trade Cutoff

Figure 1.4: Changes in Cutoffs following Liberalization with Costly Trade[39]

By focusing on the ways in which firms can expect to be impacted by changes in trade policy, I can generate predictions for the patterns of trade-policy support that differ from those of the ubiquitous classical models. As depicted in Table 1.3, my theory predicts patterns of support that vary both by comparative-advantage and firms' productivity levels. Regardless of industry, high productivity firms are more likely to favor trade liberalization for its benefits: increased market size, efficiency gains, reduced domestic competition and opportunities to improve output (through inter-firm reallocations of market share and factors of production as less productive firms exit). The norm of reciprocity plays an important role here: reduced domestic-market protection is coupled with increased foreign-market access.

[39] This figure is adapted from Bernard, Redding and Schott 2007.

Table 1.3: Trade-Policy Positions with Heterogeneous Firms

	Comparative Advantage	Comparative Disadvantage	Productivity Cutoffs
High Productivity Firms	Liberalization	Liberalization	$\varphi \geq eE_T$
Middle Productivity Firms	Liberalization	Protection	$eE_T \geq \varphi \geq eZ_T$
Low Productivity Firms	Protection	Protection	$eZ_T > \varphi$

However, none of this is to say that comparative advantage no longer matters. While country- and industry-level characteristics interact with firm-level characteristics to create predictable patterns across countries, we can generate distributional effects based on relative factor specificity. Comparative advantage industries are those that engage most vigorously in trade, while comparative disadvantage industries do so to a lesser extent. Under liberalization with costly trade, comparative disadvantage industries face gross job destruction, while comparative advantage industries generate gross job creation. Because of this shift in the allocation of employment, individuals face uncertainty over their employment prospects in the face of liberalization. Additionally, there is some evidence that jobs eliminated by liberalization may not be absorbed by winning firms until years after the change in trade policy; labor productivity in trading firms may overtake production, limiting employment prospects for displaced workers.[40] Furthermore, there are significant costs associated with reallocation, which significantly burden older workers; these facts tend to be overlooked in theoretical trade models.[41] These factors likely account for some of the vast heterogeneity in individual-level attitudes over trade policy.

[40] Menezes-Filho and Muendler 2007.
[41] Cosar 2010.

The Political Attitudes and Behaviors of Firms

This model yields two categories of testable hypotheses regarding the political attitudes and behaviors of firms. The first category focuses on trade-policy positions, while the second set of hypotheses concerns firms' engagement of the political market and their behaviors within it. Because political action is costly, behaviors do not necessarily follow from attitudes. For example, in the American political system, producer lobbying across issues is a rare activity among firms, meaning that limiting the issue focus to one – such as trade policy – makes it a very rare activity.

While firms are more likely to favor trade liberalization as TFP increases, the relationship between political activities focused on liberalization and TFP is non-linear. While producers are assumed to focus on a single product in theory, in actuality, many highly productive firms are multi-product firms. This increases the potential issue areas that affect these highly productive producers, reducing the likelihood that they will engage in political behaviors solely over trade policy. Producers will engage their primary concerns in the political market, so if trade is less salient than something like intellectual property, attempts to affect trade-policy outcomes are less likely to be observed.

Contributions to Other Approaches to Trade Politics

Even though the focus of this project is on productivity heterogeneity among firms, it holds important implications for research on other aspects of trade politics. By focusing on productivity, which drives firms' behaviors and interests, I expand upon

Milner's work on MNCs and exporters.[42] Not only do these firms seek improved access to foreign markets, but so do domestic firms that stand to benefit from lower costs of entry. Importers, as well as producers that would benefit from importing intermediate goods, also stand to benefit from liberalization. Like exporters and MNCs, these firms are more productive than their counterparts. The focus on individual firms supplements the 'Protection for Sale' paradigm's focus on collective action. By improving our explanations of individual lobbying activities, as well as the variation of interests, we can build a stronger theory of collective lobbying over trade policy. As Hansen, Mitchell and Drope note, businesses lobby individually much more than Olson's logic of collective action would predict.[43]

Finally, this theory can contribute to the predominant strand of trade research in international political economy, that which focuses on neoclassical models and preference formation among individuals. While lobbying replaces voting as the mechanism through which trade-policy attitudes are transformed into policy outcomes, understanding individual preferences remains an important task. Employer characteristics may provide an important vector in the determination of these preferences.[44] In both comparative advantage and comparative disadvantage industries, employees of highly productive firms will be more likely to favor liberalization, or less likely to view it as a threat, while those at unproductive firms will be more likely to prefer protection.

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[42] Milner 1988.
[43] Hansen, Mitchell and Drope 2005; Olson 1965.
[44] Bauer, Pool and Dexter 1972.

Testing the New Political Economy of Trade

The following chapters present three tests of the implications of this theory. The first test, in the following chapter, examines the intra-industry variations in latent trade-policy positions among Japanese manufacturers, using an original firm-level survey. The Japanese case is particularly unlikely to reveal support for liberalization, given the exceptionally advanced nature of supply chains and liberal trade relations among East Asian economies. I find that, irrespective of actual engagement in these transnational economic activities, higher productivity firms are more likely to favor further trade liberalization than their less productive counterparts.

The following chapter extends these insights to firms' political activities in the American context. Using financial data on publicly held firms, as reported to regulators, along with lobbying reports filed with the US government and positional statements on the trio of free trade agreements (FTAs) passed in 2011, I find that only highly productive firms lobby on trade policy. Furthermore, firms that lobbied and made statements explicitly in support of the agreements' passage were even more productive than the broader group that lobbied on trade. Despite this positive finding, individual lobbying by producers is an extremely rare activity.

Finally, I examine the historical nature of the impact of producer heterogeneity on trade-policy positions and political engagement through a study of lobbying over the Smoot-Hawley Tariff of 1930. While the predominant approach to explaining interest-group activities surrounding the Tariff focuses on exposure to imports as the principal determinant of policy interests, productivity heterogeneity among producers provides an

essential alternative to this argument. Industries or regions dominated by highly productive producers were likely to oppose the Tariff, while those dominated by unproductive producers sought its protection.

Ultimately, while examining the impact of productivity heterogeneity on policy positions and political behaviors can be very demanding in the requirements it places on data, focusing on these sources of heterogeneity can enable researchers to better explain and predict the political process and the redistributive consequences of policy making.

The dissertation manuscript in its entirety will be prepared for publication in book form. Chapters Two and Three are being prepared for publication in academic journals. For each of these works, the dissertation author is the principal investigator and sole author.

Policy Positions among Japanese Manufacturers

As international political economists have primarily focused their efforts on examining the applicability of factor- and sector-based models of trade politics at varying levels of aggregation, the study of the firm has largely fallen by the wayside. Bauer, Pool and Dexter[45] were perhaps the first scholars to provide a clear examination of firms and their engagement of political processes. Despite this seminal contribution, little further work was conducted on the activities of producers demanding trade policy until Milner[46] disaggregated trading firms and multinational corporations (MNCs) from domestic firms. Since then, the study of international trade has increasingly focused on firms, a shift in emphasis that has not translated to the study of trade policy.

Both Bauer et al. and Milner make the argument that decision makers at firms will seek to influence policy to benefit their businesses. Bauer et al. find that, while individuals may hold many sources of latent preferences over trade policy, they will act politically in ways to further the interests of their firm.[47] As Milner points out, MNCs and exporters will pursue trade liberalization, while domestic producers favor protection. While this overall pattern appears to hold empirically, the dichotomous characterization misses the underlying heterogeneity in firm-level productivity.

[45] Bauer, Pool and Dexter 1972.
[46] Milner 1987.
[47] Bauer et al. 1972, p 203.

Productivity Heterogeneity and Policy Positions

While Bauer et al. and Milner focus their examinations of trade policy on firms, the prevailing focus of research in international political economy has been on the impact of factor- and sector-based factors in determining trade-policy preferences. In turn, these preferences influence the ways in which people demand trade-policy outcomes. According to these models, individuals' preferences are determined by their material interests. Depending on the underlying framework, owners of the scarce factor of production or those employed in comparative disadvantage industries will seek protection, while owners of the abundant factor or those employed in comparative advantage industries will seek liberalization.

Empirically, trade engagement varies widely among firms within both comparative advantage and comparative disadvantage industries. Across industries, the majority of firms do not engage directly in trade. Patterns of the likelihood of trade engagement are distributed by productivity. Highly productive firms are most likely to engage in trade, while low productivity firms cannot afford the costs of trade engagement. The same pattern holds for other forms of behaviors through which firms may access foreign markets, such as foreign direct investment or offshore outsourcing.

As described in the previous chapter, highly productive firms, even if they do not engage foreign markets, are likely to be able to benefit from doing so; thus, they are the most likely to favor the reduction of barriers to international trade. Likewise, unproductive firms, unlikely to be able to afford reaching foreign markets, are most likely to favor protection. Thus, relative to the average firm within an industry,

H_1: High productivity firms are more likely to favor trade liberalization, across all industries.
H_2: Low productivity firms are more likely to favor import protection, across all industries.

Internationalization Strategies among Japanese Manufacturers

To test these hypotheses, I use original data from a firm-level survey conducted in Japan. Datasets containing firm-level financial characteristics in addition to policy attitudes and political activities are rare. This particular case is interesting for two reasons. First, relative to the majority of empirical firm-level analyses on trade, a large portion of the sample is made up of small or medium enterprises, closely reflecting the distribution of firms in both developing and developed economies. This should bias against observing pro-trade or neutral sentiments, as these firms tend to possess relatively low productivity draws and are thus less likely to engage in international trade than larger firms. Second, Japan's manufacturing sector is highly liberalized; this may bias against a finding as high productivity firms may view any prospective gains via liberalization to be small relative to innovations in transaction and transportation costs.

In February 2011, Megumi Naoi, Arata Kuno, Ikuo Kume and I conducted an online survey of Japanese firm executives, seeking information on their expectations of globalization's effects on their firms. The survey was administered by Teikoku Data Bank, a highly regarded credit research company, which has a database containing credit and financial information on 1.5 million Japanese firms. The survey was sent via email to all of the registered monitors in manufacturing and agriculture sectors, as well

as five service industries.[48] These monitors are firm executives and high-ranking employees; 4,183 were surveyed. 53% of the monitors responded, giving us a total of 2,217 responses. Nearly 1,400 of these are in the manufacturing sector. The respondents were specifically directed to answer questions with respect to the impact on their business, to avoid responses based on personal ideological or political views.

Firms comprising the survey were not excluded on the basis of any criteria (such as size or employment), so the sample should roughly approximate a census of the Japanese economy. One of the unique attributes of the resulting sample is the large portion of respondents that can be classified as small or medium enterprises (SMEs); these firms have been historically underrepresented in empirical work on firms, due primarily to a lack of data availability. To focus my analysis on the standard tradable industries and maintain comparability to other empirical heterogeneous firm studies, I limit my analysis to the manufacturing sector. Table 2.1 presents some industry-level characteristics of our sample of manufacturing firms.

[48] The service industries are restaurants and bars, medical and welfare services, construction, temporary staff agencies, and entertainment. Only responses from the manufacturing sector are used in this study.

Table 2.1 – Survey Coverage, Descriptive Figures

Industry	Total Firms	SME[1]	Tangible Fixed Assets[2]	Mean Sales[3]	Mean Employ.
Processed Food	156	117	1832	6352	99
Textile & Apparel	48	37	466	1934	64
Funiture & Construction Materials	102	74	1594	3199	91
Paper & Paper Products	47	35	914	2387	73
Printing & Publishing	89	61	1399	3435	106
Chemical	182	133	6566	12475	179
Steel, Nonferrous & Mining	232	170	2087	4532	108
Machinery	238	159	2421	6486	182
Electric Machinery	184	131	2453	8939	199
Transportation Machinery	39	18	3156	9607	286
Precision Equipment	33	23	3828	6590	193
Other MFG	40	31	981	2064	73

1 – Small and medium enterprises: the number of firms with employment of less than 100 workers.
2 – Industry average, in millions of yen.
3 – In millions of yen.

Table 2.2 presents trade participation by industry. Mirroring the findings of Bernard, Jensen, Redding and Schott,[49] I find that exporting is a rare activity for firms to undertake. Indirect exporting – that is, relying on a third party's foreign distribution network – is more common than direct exporting. Variations in levels of export engagement (the first three columns) appear to loosely follow the classic logic of comparative advantage: capital- and skill-intensive industries see higher levels of trade engagement. For example, among electric machinery manufacturers, nearly one quarter directly export; an additional quarter reach foreign markets through the distribution channels of third-party firms. At the comparative

[49] Bernard et al. 2007.

disadvantage side of the spectrum, less than 20% of textile and apparel manufacturers directly or indirectly sell to foreign markets.

Table 2.2 – Trade Engagement by Manufacturing Industry

Industry	Direct Export	Indirect Export	No Export	Direct Import	Indirect Import	No Import
All MFG	17.5%	23.4%	47.3%	25.1%	44.5%	40.1%
Processed food & beverage	7.7%	21.8%	53.8%	12.2%	65.4%	30.8%
Textile & apparel	16.7%	14.6%	54.2%	41.7%	54.2%	25.0%
Furniture, construction material	10.8%	13.7%	74.5%	21.6%	52.0%	35.3%
Pulp & paper	8.5%	14.9%	59.6%	14.9%	61.7%	29.8%
Printing & publishing	4.5%	7.9%	77.5%	10.1%	33.7%	60.7%
Chemical	19.8%	28.6%	32.4%	25.3%	50.0%	37.4%
Metals & mining	11.2%	14.2%	59.5%	18.1%	30.2%	55.2%
Machinery	32.4%	35.7%	30.3%	32.4%	37.4%	42.9%
Electric machinery	23.9%	28.8%	34.2%	35.9%	45.1%	30.4%
Transportation machinery	15.4%	17.9%	30.8%	25.6%	38.5%	48.7%
Precision equipment	24.2%	57.6%	18.2%	45.5%	45.5%	21.2%
Other MFG	17.5%	17.5%	62.5%	40.0%	37.5%	32.5%

Table 2.2's final three columns depict engagement in imports – both finished products and intermediate inputs – by industry and method. Relative to exporting, importing is a less rare activity. With the notable exception of the textile and apparel industry, direct import engagement appears to loosely contradict the broad comparative advantage wisdom: comparative advantage sectors see higher levels of firm engagement in direct imports. However, indirect imports appear to be relatively more frequent in comparative disadvantage sectors.

Manufacturing firms' engagement in two-way trade, FDI, and outsourcing are presented in Table 2.3. Producers utilizing direct two-way trade – that is, firms

that both export and import themselves – are extremely rare, making up about 11% of all manufacturers. Generally speaking, this sort of trade engagement is relatively common in comparative advantage industries. Two-way trading, when also including indirect trade, is not as rare as direct two-way trading. The two-way trade measure here indicates firms that use some means to sell finished products in a foreign market (direct exporting, indirect exporting, or supplying an exporter[50]) as well as engaging in importing (direct or indirect).

Table 2.3 – Two-way Trade, FDI, and Outsourcing by Manufacturing Industry

Industry	Direct Two-way Trade	Two-way Trade	FDI	Offshore Outsourcing
All MFG	11.0%	38.6%	15.3%	24.5%
Processed food	4.5%	30.1%	10.3%	19.1%
Textile & apparel	10.4%	37.5%	16.7%	47.9%
Furniture & construction	7.8%	21.6%	10.8%	15.2%
Pulp & paper	6.4%	36.2%	8.5%	14.9%
Printing & publishing	3.4%	16.9%	2.2%	14.6%
Chemical	11.0%	50.0%	21.4%	25.4%
Metals & mining	4.7%	26.3%	11.6%	19.1%
Machinery	19.3%	49.6%	15.5%	26.1%
Electric machinery	17.9%	51.1%	25.5%	35.4%
Transportation machinery	10.3%	43.6%	30.8%	23.7%
Precision equipment	21.2%	72.7%	15.2%	27.3%
Other manufacturing	15.0%	32.5%	12.5%	41.0%

Just as accessing foreign consumers is a rare activity, so is gaining access to foreign markets for production. FDI, with its extremely high costs of entry, is limited to the small portion of highly productive producers that can afford to offset

[50] Omitting export suppliers from this category does not significantly alter the portion of firms that engages in two-way trading.

the initial costs. Offshore outsourcing, the movement of the control of productive activities to a firm in a foreign country, is similarly uncommon.

Trade Engagement and Policy Attitudes among Japanese Firms

For this project, I rely primarily on firms' responses to questions regarding the prospective impact of trade liberalization on their business practices. The question is framed as follows:

> *For each of the following phenomena and/or policies, please select the respective influence of each on your firm. **Please answer strictly in terms of impact on your company/business interests, rather than providing your personal opinion.***
>
> *The expansion and further liberalization of imports on manufacturing goods (including processed foods).*
>
> *Deregulation and further liberalization of foreign markets.*

These two manufacturing trade-related questions share response formats with a number of other policy-related questions. Potential responses are as follows:

> *1) Would bring positive effects.*
>
> *2) Would not have much influence.*
>
> *3) Would bring negative effects.*
>
> *4) Would bring positive or negative effects, depending on the division or section.*
>
> *5) Don't know*

Our list of questions and responses are framed in a forward-looking manner so that respondents would base their selection on expectations that may be rooted in previous experiences rather than directly reflect on prior experiences with liberalization. In addition to this, the survey includes questions regarding each firm's status within the

global economy. This includes direct import or export, indirect import or export, contracting to an exporter, foreign direct investment, and outsourcing behaviors. Firms may choose multiple forms of engagement, assuming they can overcome the often high sunk costs associated with market entry; our survey allows for this possibility. [51]

Trading activities vary widely across Japanese manufacturing industries, just as they do among American manufacturers. Firms in comparative-advantage industries are generally more likely to engage in most forms of trade than their counterparts in comparative-disadvantage industries. However, significant variation in these behaviors within industries persists, and many firms do not engage buyers and sellers outside the domestic market. Trading is an uncommon activity among firms. Direct trading, in which a domestic producer utilizes its own distribution networks to sell to overseas buyers, has been the primary focus of empirical micro-level studies of trade. This form of trade (either importing or exporting) is very rare, but nearly twice as common among firms in comparative-advantage industries (36.8%) as it is in comparative-disadvantage industries (22.3%).[52] While firms that directly export trade fully internalize the benefits of these activities, they also fully internalize the costs and risks.

The fixed costs of trade, including the establishment of distribution networks, vary widely by target market.[53] Firms that cannot overcome these costs can engage a market through indirect forms of trade, in which third-party intermediaries provide use of their distribution networks. The benefits and risks of intermediated trade are shared

[51] Plouffe (2011) explores these empirical questions in greater detail.
[52] The figures for exporting are 21.9% and 9.5%, and 28.4% and 19.5% for importing.
[53] Bernard, Grazzi and Tomasi (2010) explore this in greater detail.

between producers and intermediaries. Indirect trading is more common than direct trade, undertaken by 59.5% of comparative-disadvantage firms and 52.2% of comparative-advantage firms.[54] Producers that engage the use of intermediaries' networks to reach particular target markets may also directly trade with other foreign markets as well. Likewise, many firms that participate in indirect trade otherwise only serve the domestic market. Finally, a large mass of firms does not rely on any foreign business partners.

To test whether the firms we survey follow the trade-engagement expectations of heterogeneous firm models, I run a series of simple regressions, presented in Table 4. The dependent variable is a binary indicator of firm-level trading status. *Direct twoway* takes a value of one where a firm is both a direct importer and a direct exporter; 153 manufacturers fall into this category. *All twoway* takes a value of one if a firm is both an importer and an exporter; this trade may be direct or indirect, although I omit the export supplier category. There are 537 firms for which *all twoway* takes a value of one.

My key explanatory variable is *ATFP*, or approximate total-factor productivity. Estimating TFP with time-series data is difficult, but without multiple temporal observations, it is a practically impossible task. In utilizing ATFP, I follow the practice of Hall and Jones (1999), Head and Ries (2003), and Tomiura (2007).

$$ATFP = ln\frac{Q}{L} - \ s\ ln\frac{K}{L}$$

[54] 27.5% of comparative-advantage firms indirectly export, compared to 16% of comparative-disadvantage firms; the figures are 39.5% and 52.3% for indirect importing, respectively.

For output (Q), I use total sales; value added may be used as well, but the term is not readily available within my survey data. Labor (L) is calculated using the number of permanent employees, while capital (K) consists of the firm's tangible fixed assets.[55] For the weight for the capital intensity term (s), I substitute 1/3, a value used in previous studies of Japanese manufacturers (see Head and Ries 2003, Tomiura 2007). One drawback to the use of ATFP is that it both captures technical efficiency (the unobserved key to TFP) as well as economies of scale.

Tangible fixed assets and *employment* represent firms' capital and labor pools. *Comparative advantage* is a binary indicator for industries usually styled as export-oriented in Heckscher-Ohlin studies; these industries ran a trade surplus in 2009, while import-competing/comparative-disadvantage industries ran a trade deficit in the same year.[56] Additionally, I employ a measure of revealed comparative advantage (*revealed CA*) as a robustness check. My revealed comparative advantage term is an index term provided by WITS[57], which calculates the industry-level share of a country's exports relative to the global share over the period of 2006-2010. Finally, I employ an endowments-based indicator that presents the portion of skilled labor out of all labor at the industry level (*Skilled labor*).[58] This variable more closely reflects the implications of comparative-advantage-based models, although it is highly correlated with both of

[55] As a robustness check, I employ other common proxies for TFP, including total sales and labor productivity, with analogous results.
[56] Comparative-advantage sectors are chemicals, steel and mining, machinery, electrical machinery, transportation machinery, and precision machinery.
[57] World Integrated Trade Solution, developed by the World Bank.
[58] This variable is based on labor survey data provided by the Statistics Bureau of the Government of Japan (http://www.stat.go.jp/english/data/index.htm); the 2010 survey data are used.

the other comparative-advantage measures. Except where noted, use of *Revealed CA* or *Skilled labor* does not significantly affect regression results.

Table 2.4 – Productivity and Trade Engagement

Trading Status	All Exporters	All Importers	Direct Twoway	All Twoway
ATFP	0.24**	0.33**	0.18***	0.30***
Tangible fixed assets	0.03*	0.01	0.02*	0.03**
Employment	0.06***	0.05***	0.02	0.06***
Comparative advantage	0.29***	-0.06	0.06*	0.19**
Observations	1108	1104	1110	1110
Wald Chi2	31.89	51.03	60.19	109.68

*** p<0.01 **p<0.05 *p<0.1

All probit regressions run with heteroskedastically robust standard errors clustered at the industry level, with marginal effects reported. All firm-level IVs are transformed by natural logarithm.

As depicted in Table 2.4, high ATFP is strongly linked to various forms of trade engagement. In fact, of the typical predictors of trade engagement presented in previous work, it has the strongest effect on a firm's likelihood of participating in trade. Similarly, firms in comparative-advantage sectors are more likely to engage in exporting and two-way trading (both direct and indirect). Firms in these sectors are also more likely to directly import goods, but the import link breaks down due to the inclusion of indirect importing. All of these results are robust across alternate measures of comparative advantage and productivity.[59]

[59] Plouffe 2011a discusses these patterns in greater detail.

Heterogeneous Firms and Trade-Policy Positions

Just as trade engagement varies significantly within industries, so too do trade-policy positions. Fear of trade liberalization appears to be overstated in the literature: in no industry did more than 26% of firms view import liberalization as having negative effects on their business. Positive responses to import liberalization range between 5% and 28% of firms, while the plurality of respondents does not expect their activities to be significantly impacted by a reduction in trade barriers.

Foreign-market access and domestic-market protection are often treated as opposing goals; typically, domestic interests are assumed to favor increased access to markets abroad, while opposing reductions in domestic protection. However, in application, the effects of these policies are highly nuanced at the firm level. Many firms source raw materials, intermediate inputs, or final products abroad, benefiting from low barriers to imports. At the same time, domestic producers of these goods face the prospect of reduced margins from liberalizing policy reforms. Likewise, a firm may benefit from increased access to foreign inputs, while simultaneously being threatened by decreased domestic protection.

The intricacy of trade's impact on individual firms is compounded by the complexity of trade policies themselves. Details change frequently during policy negotiations, and many firms lack the capacity to assess the impact of these adjustments on their activities when combined with a multitude of other regulations and policies that may also be in flux. To capture firm-level positions in this environment, I focus my tests on an index of trade-policy attitudes. From a conceptual standpoint, this index

(*pro-trade*) is intended to capture the broad pro-trading sentiments among the firms surveyed. The index is binary, taking a value of one where when a firm responds for both imports and exports that liberalization will have a neutral, positive, or variable impact on its business activities.[60] As might be expected, firms engaging foreign markets through various forms of trade are more likely to have favorable views of liberalization than non-trading firms.

Table 2.5 provides some insight regarding the impact of firm heterogeneity on variations in these preferences. The dependent variable in each of the three models is the *pro-trade* index. This variable (*pro-trade*) takes on a value of one when a firm responds that liberalization will have a neutral or positive impact on its business activities for both imports and exports. If either will have a negative impact, the index's value is zero. I then regress this separately on my three comparative-advantage proxies and the natural logarithm of ATFP using a probit link with heteroskedastically-robust standard errors clustered on each industry.[61] The table presents the marginal effects for the independent variables, rather than the regression coefficients.

Models 1-4 present the bivariate regression results. My three indicators for comparative advantage do not gain significance, and model-fit statistics reflect a remarkably poor fit to the data; however, this is not surprising, given that comparative-

[60] The average respondent for 'variable impact' is larger, more productive, and more likely to engage foreign markets than other firms, including those responding that liberalization would have a positive or neutral impact on their business (these firms are, in turn, more productive, larger and more likely to trade than pro-protectionist firms). This accords with the empirical research on multiproduct firms and trade: these firms tend to be larger and more productive than single-product producers.

[61] I do not use a fixed-effects model, as maximum-likelihood estimators limited dependent variables are not well behaved in the presence of fixed effects. See Greene 2004 for more information. Linear probability models with fixed effects yield comparable results.

advantage-based theories are sector-level theories. *ATFP* is significant and in the expected direction in the bivariate regression, and retains these characteristics when the three comparative advantage measures are included (Models 5-7). In Models 5 and 7, both *ATFP* and my comparative-advantage proxies (*Revealed CA* and *Skilled labor*) are significant and in the expected direction. Again, robustness checks using my alternate measures of TFP and comparative advantage produce analogous results.

Table 2.5 – Explaining Trade-Policy Positions

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Comparative advantage	0.02				0.02*		
	(0.03)				(0.01)		
Revealed CA		0.01				0.02	
		(0.05)				(0.02)	
Skilled Labor			0.02				0.04***
			(0.03)				(0.01)
ATFP				0.15***	0.15***	0.15***	0.15***
				(0.03)	(0.03)	(0.03)	(0.03)
Observations	1373	1373	1373	1110	1110	1110	1110
Wald Chi2	0.29	0.13	0.77	26.46	28.27	26.45	51.41
AIC	1445.19	1445.48	1444.75	1139.53	1140.70	1141.20	1139.82
BIC	1455.64	1455.93	1455.20	1149.55	1155.74	1156.23	1154.86
Area under ROC	0.5107	0.5127	0.5153	0.5557	0.5596	0.5569	0.5617

*** p<0.01 **p<0.05 *p<0.1

All probit regressions run with heteroskedastically robust standard errors clustered at the industry level, with marginal effects reported. ATFP is transformed by natural logarithm.

While the simple regressions in Table 2.5 reveal a distinct relationship between productivity and pro-trade attitudes, there are a number of omitted factors to consider. Perhaps the most obvious is a firm's trading status. Recall that trade-policy preferences are divided across levels of engagement; however, non-traders appear to be less likely to prefer further liberalization than traders. Additionally, firms' other characteristics, such as size or factor intensity, may influence their trade-policy preferences.

Table 2.6 – Further Explaining Trade-Policy Positions

	Model 8	Model 9	Model 10	Model 11
ATFP	0.12***	0.11***	0.12***	0.12***
	(0.04)	(0.04)	(0.04)	(0.04)
Sales (3-year ave.)	0.01	-0.001	0.01	$8.34x10^{-5}$
	(0.01)	(0.01)	(0.01)	(0.01)
KL ratio	-0.01	-0.01	-0.01	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)
Comparative advantage	0.02*	0.002	0.02*	0.01
	(0.01)	(0.01)	(0.01)	(0.01)
Exporter		0.10***		
		(0.03)		
Direct Importer			0.02	
			(0.04)	
Twoway				0.08***
				(0.03)
Observations	1110	1110	1110	1110
Wald Chi2	31.47	41.31	39.74	62.38
AIC	1143.93	1132.23	1145.75	1137.05
BIC	1168.99	1162.31	1175.83	1167.12
Area under ROC	0.5608	0.6014	0.5618	0.5901

*** p<0.01 **p<0.05 *p<0.1

All probit regressions run with heteroskedastically robust standard errors clustered at the industry level, with marginal effects reported. All firm-level IVs are transformed by natural logarithm.

Interestingly, several firm-level characteristics that correlate with trade engagement do not appear to be significantly linked to pro-trade preferences. Model 8 in Table 2.6 depicts typical findings. Productivity (*ATFP*) is significantly and positively linked to pro-trade attitudes. *Comparative advantage* is similarly linked, although the effect is much smaller. In Models 9 through 11, I present models that include controls for firms' trading status. In each of these models, as well as in similar models, ATFP retains significance in the expected direction: high productivity firms tend to expect to benefit from trade liberalization more than low productivity firms, and are thus more likely to favor liberalization; exporters and two-way traders are also more likely to favorably view liberalization. Model 9 includes a binary indicator for firm-level export

status, which includes both direct and indirect exporters. Separating firms by export engagement strategy does not change the results: both direct and indirect exporters are more likely to favor liberalization than non-traders. Firms that merely supply export distributors (without the contractual link of intermediated exporters) very closely resemble firms that only produce for the domestic market in this regard.

Import engagement does not seem to follow this pattern. Direct importers, as reported in Model 10, are not more likely to view trade positively than non-importers; the same is true of indirect importers.[62] Finally, two-way traders (both indirect and direct traders) are more likely to view liberalization favorably than other firms, as reported in Model 11. The same holds for direct two-way traders.

Regardless of the control for trade engagement, *ATFP* remains significant and positive; that is, high productivity firms are more likely to expect to benefit from trade liberalization than low productivity firms. Furthermore, the impact of *ATFP* on the dependent variable is greater than that of the other independent variables, and it remains stable when simultaneously accounting for different forms of trade engagement. Likewise, *comparative advantage*'s record is mixed: when accounting for trading behaviors, it does not exhibit a significant impact on the likelihood that a firm will prefer liberalization. Analogous tests for *revealed CA* and *skilled labor* yield similar results.

[62] Direct importing becomes significant in the expected direction when *skilled labor* is used, but not for *revealed CA* or comparative advantage. Indirect importing never gains significance.

Finally, I add controls for status quo levels of trade engagement and market access. For trade engagement, I use the 2007-2009 average of industry-level imports and exports from WITS.[63] For foreign-market access, I calculate the average of the average weighted tariff (AWT) for all trading partners over 2007-2009 at the industry level. For domestic-market access, I simply use the 2007-2009 industry-level AWT for Japan. When incorporating these terms into my model, I make some changes from previous iterations.

Table 2.7 – Incorporating Market Access

	Model 12	Model 13
ATFP	0.12***	0.11***
	(0.04)	(0.04)
Sales	0.003	0.0003
	(0.01)	0.007
K-L ratio	-0.01	-0.01
	(0.01)	(0.01)
Twoway	0.08***	0.08*
	(0.02)	(0.03)
Imports	-0.003	0.004
	(0.01)	(0.01)
Exports	-0.004	-0.001
	(0.004)	(0.01)
Import AWT	-0.01*	
	(0.005)	
Export AWT		0.003
		(0.03)
Observations	979	1110
Wald Chi2	248.21	92.92
AIC	991.30	1141.02
BIC	1030.40	1181.11
Area under ROC	0.5976	0.5890

*** p<0.01 **p<0.05 *p<0.1

All probit regressions run with heteroskedastically robust standard errors clustered at the industry level, with marginal effects reported. All firm-level IVs are transformed by natural logarithm.

[63] 2009 is the latest year available; exports are calculated from import-partner totals.

The comparative-advantage proxies are highly correlated with exports, so I remove them from these specifications. AWT levels for imports and exports are also highly correlated, so I only include one measure. Table 2.7 displays Models 12 and 13, which present typical results. Productivity (*ATFP*) and trading status (*twoway*) remain positively and significantly linked to pro-trade attitudes. Import protection (*Import AWT*) is significant and negatively linked to pro-trade attitudes, but a similar pattern is not exhibited by *export AWT*, despite the two variables' high correlation.

Across specifications, two key findings hold: firm-level productivity and trade engagement are positively linked with positions favoring trade-liberalization. Findings for the comparative-advantage indicators are mixed: in simple, baseline regressions, the effect depends based on the measure employed; when accounting for firms' trading activities, the effect of comparative advantage disappears. Thus, while H_1 and H_2 hold with respect to the relationship between productivity and trade-policy preferences, there does not seem to be significant variation between industry types.

Conclusions and Implications

The bulk of existing research on the demand for trade policy in international political economy has focused on either factor- or industry-level explanations, or individual-level explanations. However, the focus on each extreme of aggregation has omitted key actors in the global economy: firms.

In this chapter, I have examined a political-economy model of the demand for trade policy that incorporates firm heterogeneity. The implications are twofold: First,

high productivity firms are more likely to favor liberalization than low productivity firms. Second, these patterns of policy positions are influenced by comparative advantage: the mass of firms viewing liberalization in a positive light should be larger in comparative-advantage industries than in comparative-disadvantage industries. I test my theory against original survey data on Japanese manufacturing and find support for productivity's positive impact on firm-level trade-policy positions. As some previous work has argued, trading status matters with trading firms more frequently reporting positive liberalization attitudes.[64] However, this effect is in addition to the underlying relationship between productivity and trade-policy interests.

The next question, then, is whether firms participate in the political market to see these policy interests enacted as policy outcomes. While the Japanese survey data do not allow me to test this rigorously, in the following chapter, I apply my model to firms' lobbying activities over Free Trade Agreements (FTAs) in the United States.

The dissertation manuscript in its entirety will be prepared for publication in book form. Chapters Two and Three are being prepared for publication in academic journals. For each of these works, the dissertation author is the principal investigator and sole author.

[64] Milner 1989.

Liberalization for Sale

An extensive body of research examines the political efforts of firms to influence trade-policy outcomes. The literature has developed in two strands: in business studies and political science, scholars have sought to explain the determinants of lobbying, while in economics, the 'Protection for Sale' paradigm attempts to describe producer-based demands for import protection and the ways in which policy-makers balance competing demands.

Perhaps the most robust finding in business and political-science studies on producers' political activities is that large firms lobby or contribute to political campaigns, while smaller firms do not participate. While much of this work has focused on the campaign contributions of very large firms,[65] a growing literature addresses their lobbying activities.[66] While producers within an industry may organize to seek a policy goal, trade policy can be finely targeted, leading to outcomes that may resemble private goods. Thus collective action is less common than might be anticipated, and large producers participate on an individual basis to ensure the capture of their own private goods.[67] However, the focus on firm size itself does not provide a causal mechanism for lobby participation. Rather, as with production-market decisions, productivity drives participation in the political market. [68]

[65] Brasher and Lowery 2006 and Richter, Samthanpharak and Timmons 2009 discuss this in greater detail.
[66] Hansen and Mitchell 2000, Ansolabehere, De Figueiredo and Snyder 2003, Drope and Hansen 2006, and Hill et al. 2011 and are examples.
[67] Hansen, Mitchell and Drope 2005.
[68] Kerr, Lincoln and Mishra 2011.

The 'Protection for Sale' series of models balances industry demands for protection with voters' preferences for liberalization.[69] Levels of protection are effectively determined by the extent to which an industry is organized. Extensions of the basic model have led to the incorporation of heterogeneous firms as well as heterogeneous interests.[70] Like previous work in this vein, even studies incorporating interest heterogeneity rely heavily on industry organization. Productivity is forced into the back seat behind firm size, and firms are differentiated between domestic producers and exporters, much like an older research program in international political economy.[71] While Bombardini provides empirical evidence that firm size matters, the theoretical research involving heterogeneous interests still lacks empirical support.

Lobbying for Liberalization

This is not to say that trade-policy positions within an industry are homogenous. Rather, highly productive firms, regardless of how they engage foreign markets, favor liberalization for its benefits, which are likely to enhance their business prospects, and low productivity firms will favor protection, as import competition delivers a potential existential threat.

Transference of these policy interests into political action is not quite so straightforward. Political activities, such as lobbying, are costly, preventing relatively unproductive producers from participating. For productive firms that can afford to

[69] Grossman and Helpman 1994. See also Bombardini 2008; Bombardini and Trebbi 2009, etc.
[70] Bombardini 2008, Chang and Willmann 2006 and Abel-Koch 2010.
[71] Milner 1988.

participate in the political market, issue salience determines the focus (or focuses) of their efforts. The structure of the political market mirrors that of the production market: fixed costs of entry are significant, and costs of continuation are variable.[72] Because of this, a politically active firm will switch its efforts between issues as they are resolved. The most productive firms are likely to face a large number of issues that they seek to influence. Because the marginal benefit of reduced trade barriers is less likely to have a significant impact on these producers' ability to engage foreign markets than for their less productive liberalization-favoring counterparts, trade policy is less likely to be viewed as an issue of primary importance. Thus, the likelihood that a liberalization-favoring firm lobbies over trade policy decreases as productivity increases.

Firms and Trade Politics: Propositions

This model yields two categories of testable hypotheses regarding the political behaviors of firms. The first category, for which I find support in the previous chapter, focuses on latent trade-policy positions.[73] I test one here:

> *H_1: High productivity firms are more likely to favor trade liberalization, across all industries.*

The second set of hypotheses concerns firms' engagement of the political market, their behaviors within it, and the positions revealed by these activities. Here I focus on the behavioral hypotheses that follow:

> Relative to other firms within an industry,

[72] Kerr, Lincoln and Mishra 2011.
[73] See also Plouffe 2011b.

H_2: High productivity firms are more likely to enter the political market (in this case, lobby) individually.

H_3: High productivity firms are more likely to seek liberalizing trade reforms.

H_4: The most productive firms are less likely to lobby on trade policy than other highly productive producers.

Testing these hypotheses requires data describing firms' financial characteristics, their political activities, and their positions over a specific policy. It is rare to find all of these data readily available. Micro-level financial data are becoming increasingly accessible with the growth of firm-level studies on trade engagement and other economic behaviors. In general, data on firms' political activities are often not collected in a systematic manner. The United States is an exception here, collecting and providing information on firms with lobbying expenditures of at least $10,000, as well as the campaign contributions made by political action committees (PACs). Information on policy positions is generally unavailable, but may be collected from public statements, press releases, and government testimony.

Testing the Model: Heterogeneous Firms and Lobbying over FTAs

For this study, I focus my analysis of firms' political activities on those related to the passage of DR-CAFTA in 2005 and the three FTAs passed in 2011. Prior broad-based trade agreements that passed through the US Congress predated the 1995 passage of the Lobbying Disclosure Act (LDA). The LDA required registration of lobbyists and lobbying activities at various thresholds. While this created greater accountability and transparency of lobbying activities, it fails to capture grassroots efforts. Lobbying data

are available starting in 1998, although reports filed prior to 2000 lack crucial information such as bills and issue areas addressed. In 2006, lobbyists were required to register with the government, and the LDA was further reformed with the 2007 Honest Leadership and Open Government Act, which among other things, significantly increased the penalties for failure to comply with the LDA. Thus, more recent lobbying data can be expected to present a more accurate representation of actual lobbying activities than old data.

Central American Free Trade Agreement (CAFTA)

Prior to the passage of the trio of FTAs in late 2011, CAFTA stood as the only major trade bill for which lobbying activities are available. The legislation passed the Senate on 30 June 2005 (54-45)[74] and the House of Representatives 27 July 2005 (217-215, 2 abstentions). The political battle over CAFTA was highly pitched, with labor groups opposing the deal over worker-rights considerations and the threat of potential American job losses in declining industries. Producers and industry associations supported the agreement over the prospect of greatly improved access to foreign markets, at the cost of slightly reduced levels of domestic protection.

The vast majority of lobbying dollars spent on CAFTA can be linked to supporters of the bill. Despite this, the bills passed both the House and the Senate with very slim margins, indicating pressure on members of Congress to vote against the proposed legislation. This political pressure could have resulted from grassroots mobilization by labor or human rights organizations, small business owners worried

[74] The Senate voted again on 28 July for procedural reasons. Senator Joe Lieberman, who had been absent during the first vote, voted in favor of the agreement.

about increased exposure to foreign competition, or both. However, examining the composition of this opposition lies outside the scope of this project; unfortunately, much of the necessary information is unavailable for analysis.

The 2011 Colombia, Korea, and Panama FTAs

In October 2011, the United States Congress ratified three bilateral FTAs. While the timelines differed slightly, negotiations took place in the mid 2000's, and congressional ratification was delayed until 2011.

The Korea (KORUS) FTA, the largest of the three agreements, was initially negotiated over 2006-2007. Ratification was stalled due to significant opposition by Democrats over beef and automobiles. Efforts at renegotiation took place in late 2010, notably resulting in the United Auto Workers expressing support, and for the first time breaking ranks with the AFL-CIO on a trade issue. KORUS passed the Senate 83-15 and the House 278-151.

Negotiations for both the Colombia and Panama agreements were concluded in 2006, although the talks with Colombia had begun in 2004. The Colombia agreement passed the Senate 66-33, and the House 262-167, after some components of the initial settlement were renegotiated. The Panama agreement was ratified after a 77-22 vote in the Senate and 300-129 vote in the House.

Lobbying on these three agreements together involved a much larger number of parties than the scuffle over CAFTA, with roughly 300 organizations filing reports. Nearly 200 of these are firms, most of which are publicly traded. Many of the lobbying reports focus on KORUS or the two Latin American FTAs together; where

organizations lobby on all three FTAs (or even just two of the three), their statements are consistent: they either favor or oppose passage of the FTAs they address.

Description of the Data

The data for this project come from three different sources. Firm financials for publicly-listed firms are available from Standard and Poor's Compustat databases. Lobbying activities come from the Center for Responsive Politics' (CRP) Open Data project, which contains information culled from the lobbying reports filed with Federal Elections Commission (FEC), Senate Office of Public Records (SOPR) and House of Representatives Legislative Resource Center (HRLRC). Finally, information regarding firms' policy positions is gleaned from public statements.

Through Wharton Research Data Services, Compustat provides a number of databases containing information on publicly held firms. For this project, I primarily use Compustat's North American Annual Fundamentals (NAA) database, which provides balance sheet and cash-flow information for firms listed on American and Canadian stock exchanges, and Compustat Segments, which provides information on export sales. NAA sources its figures at the firm level from official SEC and other regulatory filings, while Segments provides information sourced from shareholder reports. The Segments data are presented at the disaggregated sub-firm organizational segment level, and thus must be merged by firm-year. The items in these databases allow for the construction of indicators of firm productivity as well as measures of producers' behaviors. Because Compustat only reports financial data for publicly traded firms, small and medium

enterprises are underrepresented. However, these producers are less likely than their larger counterparts to lobby.

The CRP's Open Data project provides a wealth of information concerning the use of money in American politics. Using the lobbying data through 2011, I have created a relational database that allows me to query the filings based on their attributes in specific fields, such as issue area or bill number. This allows me to return only filings that refer to specific bills, such as CAFTA, or trade more generally.

While the Open Data project also provides data to create a relational database for PAC contributions, I focus solely on issue-related lobbying (or informational lobbying) because it can be tied directly to bills and policy issues.[75] Campaign contributions (stylized by Americanists as pressure lobbying) cannot be tied to specific issues.[76]

The reports filed by lobbyists rarely contain information hinting at preferred policy outcomes. In the vast majority of cases, they merely indicate the issues which the lobbyists and their clients sought to influence. To place firms' and organizations' stances surrounding these trade issues, I searched for public statements that gave a clear indication of these positions. These statements came from open letters, testimony before Congress or other arms of the government, interviews by firm decision makers, or individual or jointly signed statements of support or opposition.

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[75] Pevehouse and Vabulas 2012 discuss these categories in greater detail.
[76] See Richter et al. 2009 for more detail on the theoretical differences between campaign contributions and lobbying activities.

Explaining Producer Support for CAFTA

CAFTA is included as an issue on a total of 74 reports filed in 2005. Fifteen of the reports were misfiled or mis-parsed, indicating the lobbyist as the client. Of the remaining 59 reports, the clients for 31 are corporations (24 of which are publicly listed, out of approximately 7,500 firms in the Compustat database for that year), 16 are industry associations, eight are professional or labor groups (associations or unions), and three are broadly styled public interest groups. To capture directionality, I searched for statements by the lobbying clients indicating their positions on the legislation. The statements vary in many ways in addition to the positional information they provide, but at the most basic level, they allow me to partition the lobbying clients into three categories by attitude: supporting, opposing, and those with no clear position.

As Table 3.1, on the following page, shows, I can also differentiate lobbying clients by type. For those clients for which I have a clear position, the majority of industry associations and individual producers favored the passage of CAFTA. Similarly, nearly every group in opposition represented labor.[77] One producer-based association opposed CAFTA: the American Manufacturing Trade Action Coalition (AMTAC), which styles itself as jobs-oriented.[78]

The positional statements themselves vary in timing relative to the passage of CAFTA and target audience. The majority of the statements are in the form of press releases or open letters, released in the run up to the legislative votes. Several

[77] Interestingly, the two professional associations were split, perhaps due to industry concerns.
[78] Efforts to obtain information on AMTAC's membership have been unsuccessful.

statements were issued after the vote, commending Congress for passing CAFTA. A number of positional statements came from newspaper reports, which quoted spokespeople discussing firms' positions on CAFTA; however, these are also a minority of the positional statements.

Table 3.1 – Lobbying over CAFTA

Supporting CAFTA		**Opposing CAFTA**
Altria Group	Adv Medical Tech Assn	Am Fed of Govt Employees
Amway/Alticor Inc	American Bakers Assn	Am Fed of Teachers
Applied Materials	American Bankers Assn	Am Mfg Trade Action Coalition
Baxter Healthcare	Am Council of Life Insurers	Am Public Health Assn
Bristol-Myers Squibb	American Farm Bureau	Intl Brthrhd of Elec. Workers
Hewlett-Packard	Am Forest & Paper Assn	Laborers Union
Home Depot	Am Insurance Assn	Oxfam America
HSBC North America	Am Meat Institute	
HSBC-GR Corp	Americans for Tax Reform	
Internet Security Sys Inc	Fertilizer Institute	
JPMorgan Chase & Co.	MPAA	
Merrill Lynch	Natl Assn of Manufacturers	
PepsiCo Inc	Natl Corn Growers Assn	
Pfizer Inc	Natl Retail Federation	
Principal Financial Group	RIAA	
SAS Institute	Travel Goods Assn	
Time Warner		
Toyota Motor Manufacturing		
United Technologies		
Viacom Inc		
No Statement		
Assn for Mfg Technology	Deere & Co	Guidant Corp
Bechtel Group	Disney Worldwide	Intl Bus-Govt Counsellors
Campbell Soup	Eastman Chemicals	Miller Brewing
Chevron Corporation	EDS Corp	News America
Consumers Union	Farmers Edu Coop Union	Palmetto Group

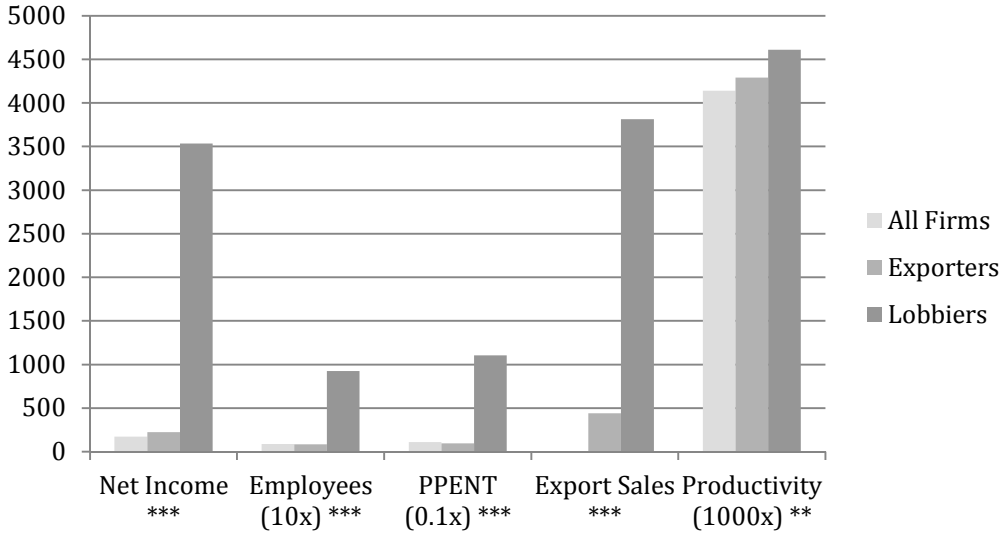
One of the drawbacks of focusing on firms' political behaviors is that the significant costs of entry may preclude independent engagement for most producers. As noted elsewhere across the literature on lobbying (and depicted in Table 3.1), industry associations play an important role. However, with vast variation in governance structures, membership (and membership goals) and policy goals (diffuse versus

specific), it is beyond the scope of this project (at this point) to ascertain mechanisms behind the trade-policy positions of the associations that lobbied over CAFTA. However, focusing on the heterogeneous characteristics of the firms that lobbied independently on the same bill may provide some priors for building a better theory of industry association lobbying.

A first cut at the data indicates that firms that lobbied on CAFTA were very different from other publicly held firms. I merged the CRP-based lobbying data with Compustat-based financials for 2005. As Figure 1 indicates, firms that lobbied on CAFTA were much larger than their counterparts; this difference even dwarfs the size premium associated with exporting and is robust across several measures of income. The same holds for the number of employees and total capital (measured here as net plants, property, and equipment). Additionally, the lobbying firms tended to be very heavily engaged in foreign markets, with export sales dwarfing those of other firms. More importantly for a firm-heterogeneity story, lobbying firms were more productive on average than others.[79] While not all of the firms that lobbied on CAFTA engaged in exporting at the time, those that did had greater export sales than the average exporter.

[79] As in the previous chapter, I calculate ATFP to estimate productivity.

Figure 3.1 – Lobbying Firms and Non-lobbying Firms, 2005

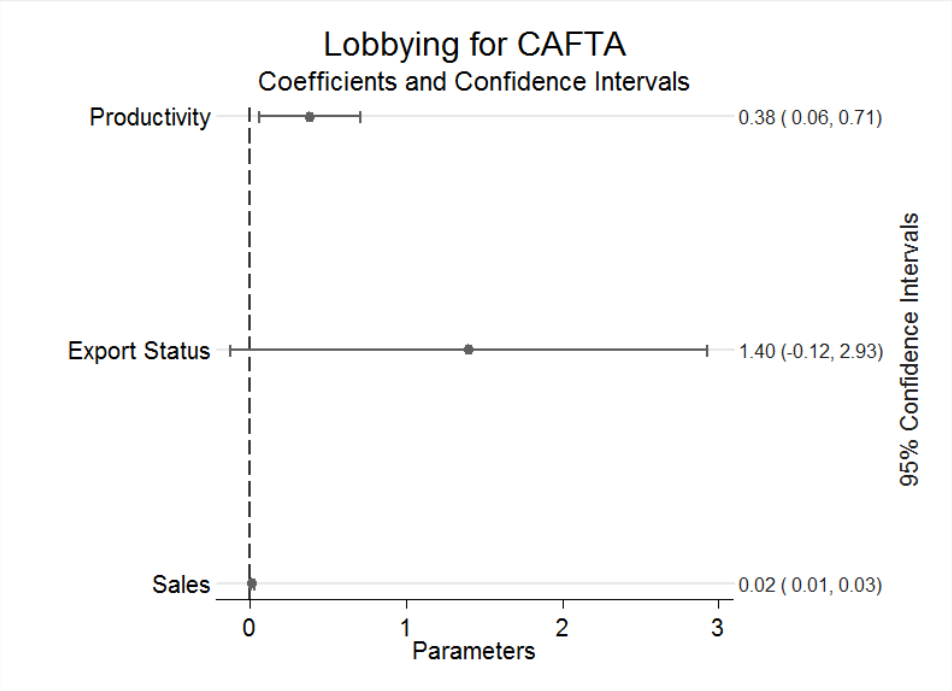


All items are in millions of USD, except for employees (in thousands) and productivity. Stars indicate the level of statistical significance for a t-test comparing lobbying firms to non-lobbying firms (*** $p < 0.01$, ** $p < 0.05$). Employees, PPENT and productivity have been scaled as indicated for easier visual comparison.

While the relationships depicted in Figure 3.1 are purely correlational and uncontrolled, they provide some support for H_2 and H_3. Firms that lobbied over CAFTA tended to have higher levels of productivity than the population of producers. Likewise, these firms nearly unanimously favored CAFTA's passage, with no producer explicitly lobbying against CAFTA's passage (several firms that lobbied did not have statements available). This is unsurprising, given that many of these firms were heavily engaged in overseas business activities. Accounting for several of these measures, we find that the pattern holds: firms that lobbied for CAFTA's passage were more productive and larger than others. Figure 3.2 presents the results of a simple model.[80]

[80] The associated regression table can be found in Appendix A.

Figure 3.2 – Lobbying for CAFTA



DV is lobbying in favor of CAFTA (that is, the outcome is one for the sixteen firms with explicit statements of support to go with their lobbying expenditures, and zero otherwise). Modeling the outcome as simply lobby participation leads to substantively similar results.

When controlling for a firms' export status and size, productivity retains significance and is positively linked to firms' lobbying activities in favor of CAFTA. Given the skewed nature of the outcome variable, with two dozen lobbying firms, of which sixteen of which made statements, the outcome may be treated as a rare event. Coefficients obtained from both standard and rare-events logits are presented in Table 2.

Despite this, as depicted in Table 3.2, the results of the rare-events logit[81] in Model 2 mirror those of Model 1's standard logit. Model 3 presents the marginal effects

[81] For a description, see King and Zeng 2001a and King and Zeng 2001b.

from a logit regression. While all terms are positively linked to the likelihood of supporting CAFTA, the effect of export status is insignificant from zero.

Table 3.2 – Lobbying for CAFTA

	Model 1 (Logit)	Model 2 (RE Logit)	Model 3 (Logit, reporting marginal effects)	Model 4 (Logit, reporting marginal effects)
Productivity	0.385**	0.392**	0.001**	0.035**
	(0.164)	(0.164)	(4.8×10^{-4})	(0.017)
$Productivity^2$				-0.004**
				(0.002)
Export Status	1.403*	1.591**	0.007	1.94×10^{-7}
	(0.777)	(0.777)	(0.006)	(2.62×10^{-7})
Sales	0.019***	0.019***	4.6×10^{-5}**	0.003***
	(0.005)	(0.005)	(1.8×10^{-5})	(0.001)
Constant	-7.956***	-7.907***		
N	6138	6138	6138	6138
Wald Chi^2	21.68		21.68	50.74
AIC	206.49		206.49	157.59
BIC	233.38		233.38	191.21

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ DV is lobbying in favor of CAFTA (that is, the outcome is one for the sixteen firms with explicit statements of support to go with their lobbying expenditures, and zero otherwise). Modeling the outcome as simply lobby participation leads to substantively similar results. All models have errors clustered by industry, and Models 1 and 3 also have heteroskedastically robust standard errors.

Where the first three models present a baseline in which productivity is robustly and positively linked to the likelihood of lobbying for the passage of CAFTA, Model 4 captures the declining probability of lobbying on CAFTA among the most productive firms.

Producer Support for the Korea, Colombia, and Panama FTAs

In examining producer lobbying over the trio of 2011 FTAs, I collected data on lobbying expenditures over 2010-2011 and merged them with firm-level financials from the 2010 fiscal year. Over 100 publicly held firms lobbied on at least one of the three

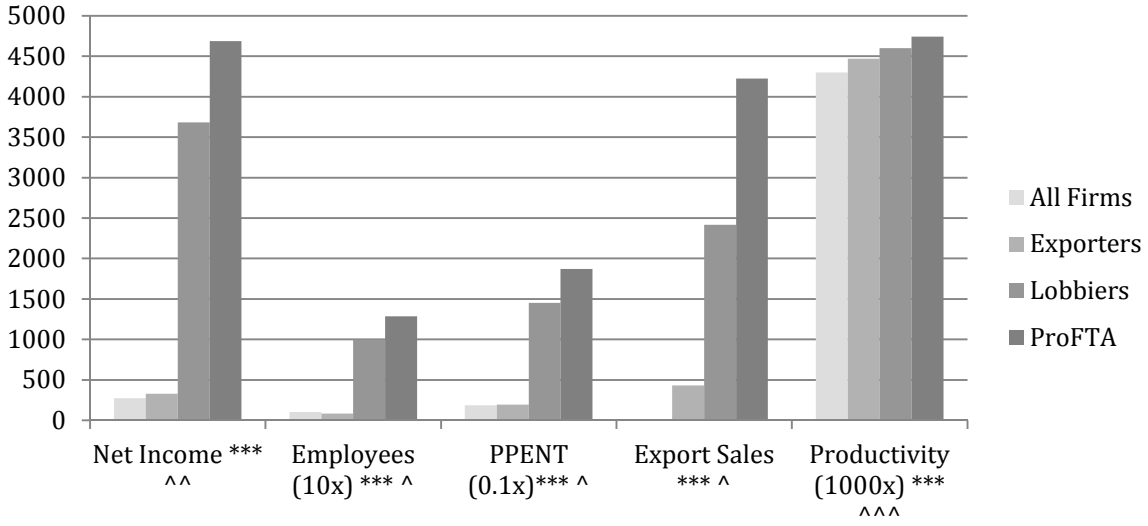
FTAs passed in October of 2011, a stark contrast to the small number of firms that lobbied over CAFTA. Nearly 60 of these also released statements of their positions, either directly or indirectly (through coalitions with other businesses, where the letters were jointly signed).[82]

Figure 3.3 illustrates the differences in key firm characteristics. Compared to all firms in the sample (roughly 6,000 all told), exporters are larger in terms of sales and the value of capital employed, and are more productive; however, they employ fewer people. Firms that lobbied on the FTAs are both more productive than all other firms (providing some support for H_2) as well as larger across measures of all three factors (sales, employees, capital). Likewise, the firms that lobbied on these FTAs have significantly higher export sales on average than other exporters, although less than 10% of the lobbying firms reported export sales. As with lobbying patterns over CAFTA, the means of each of these measures for lobbying firms are statistically significantly larger than the means of the population measures.

The rightmost bar in each grouping (*Pro-FTA*) indicates the mean value for firms that lobbied and openly supported the passage of one or more of the FTAs. This group of firms is larger on average than each of the other groups. Exporters making public statements in favor of the FTAs (just 5% of all firms making such statements) generate much more value from their export sales than other firms. Most interestingly, the group of firms making pro-FTA statements is more productive than all other groups, providing support for H_1 and H_3.

[82] A very small number of producers were vocal in their opposition to the agreements; however, none of these are publicly traded firms.

Figure 3.3 – Lobbying and Non-Lobbying Firms, 2010-2011



All items are in millions of USD, except for employees (in thousands) and productivity. Stars indicate the level of statistical significance for a t-test comparing lobbying firms to non-lobbying firms (*** $p < 0.01$, ** $p < 0.05$). Hats indicate the level of statistical significance for a t-test comparing firms issuing a pro-FTA statement (proFTA) and lobbying firms (^^^ $p < 0.01$, ^^ $p < 0.05$, ^ $p < 0.1$). Employees, PPENT and productivity have been scaled as indicated for easier visual comparison.

For my final series of tests, I employ a slightly different technique to estimate productivity. Given firm-level time-series data,[83] the Olley-Pakes method corrects for the selection and simultaneity biases inherent in linear productivity estimation techniques (such as ATFP, used above). The Olley-Pakes method uses a system of three equations and bootstrapping techniques to obtain productivity estimates at the firm level.[84] Unlike ATFP, it requires a dynamic panel of firms and detailed input data.

Productivity is positively linked to the likelihood of lobbying when controlling for firms' export status and sales, as shown in Table 3.3. As shown in Models 5 and 6, productivity is positively and significantly linked to both lobbying (*Lobby*) and *Pro-*

[83] Here I use financial data spanning 2003-2011.
[84] See Levinsohn and Petrin 2003 and Yasar et al. 2008.

FTA. To capture the nonlinearity in the relationship between productivity and political activities, I add a squared productivity term in Models 7 and 8. Productivity remains positive and significant, while the squared productivity term is negative and significant, indicating that, although highly productive firms are more likely than less productive companies to lobby on – and favor – liberalization, the effect of productivity is nonlinear, with the highest productivity firms less likely to lobby than other highly productive firms.

Table 3.3 – Productivity and Lobbying on 2011 FTAs

	Model 5 (Lobby)	Model 6 (Pro-FTA)	Model 7 (Lobby)	Model 8 (Pro-FTA)
Productivity	0.014***	0.009***	0.230***	0.171***
	(0.003)	(0.002)	(0.065)	(0.061)
Productivity^2			-0.040***	-0.029***
			(0.013)	(0.011)
Constant	-5.38***	-6.47***	-18.52***	-26.90***
N	5013	5013	5013	5013
Wald Chi^2	48.12	59.99	36.15	22.90
AIC	1040.89	591.65	1011.89	565.89
BIC	1053.93	604.69	1031.44	585.45

*** p < 0.01, ** p < 0.05, * p < 0.1 DV is indicated under the model number, and marginal effects are reported. All models are logit regressions; rare-events logits produce substantively similar results. All models have standard errors clustered by industry; logit errors are also heteroskedastically robust.

Table 3.4 presents the effects of productivity on *Lobby* and *Pro-FTA* while controlling for export status and firm size. Because Olley-Pakes-estimated productivity correlates much more highly with firm revenues than the ATFP-based measure, I substitute the natural logarithm of employment as a measure of firm size. As revealed in Models 9 and 10, productivity's effect on *Lobby* and *Pro-FTA* remains when controlling

for export status, which does not gain significance. These productivity effects are robust to controlling for firm size in Models 11 and 12. Although export status becomes positively and significantly linked to *Lobby* when controlling for firm size in Model 11, this effect does not hold for *Pro-FTA*.

Table 3.4 – Firm-level Characteristics and Lobbying on 2011 FTAs

	Model 9 (Lobby)	Model 10 (Pro-FTA)	Model 11 (Lobby)	Model 12 (Pro-FTA)
Productivity	0.231***	0.172***	0.183***	0.151***
	(0.065)	(0.061)	(0.059)	(0.054)
Productivity^2	-0.040***	-0.029***	-0.030**	-0.024**
	(0.013)	(0.012)	(0.012)	(0.010)
Export Status	0.023	0.010	0.032**	0.014
	(0.015)	(0.012)	(0.013)	(0.012)
Employment			0.017***	0.010***
			(0.002)	(0.001)
Constant	-18.67***	-27.12***	-20.73***	-31.07***
N	5013	5013	5012	5012
Wald Chi^2	40.25	25.53	144.61	86.48
AIC	1010.97	566.87	705.51	385.49
BIC	1037.05	592.95	738.11	418.09

*** p < 0.01, ** p < 0.05, * p < 0.1 DV is indicated under the model number, with marginal effects reported. All models are logit regressions. All models have heteroskedastically robust standard errors clustered by industry. Results for rare-event logits and ATFP-based productivity are substantively similar.

Table 3.5 presents models that additionally control for trade-based measures of comparative advantage. In Models 13 and 14, *Trade balance* is a binary indicator of the industry trade balance in millions of US dollars at the six-digit NAICS level.[85] Revealed comparative advantage (*RCA*) in Models 15 and 16 is a binary indicator of the ratio of

[85] The trade balance measure comes from the US Department of Commerce and US ITC.

the industry-level US trade balance divided by the world industry-level trade balance.[86] Any value above one in the original ratio indicates a comparative-advantage industry. Neither measure of comparative advantage appears to be linked to *Lobby* or *Pro-FTA*, but the productivity and firm-size measures appear to remain robust. Export status retains a positive sign throughout the models, but is only significant in Model 13.

Table 3.5 – Comparative Advantage and Lobbying on 2011 FTAs

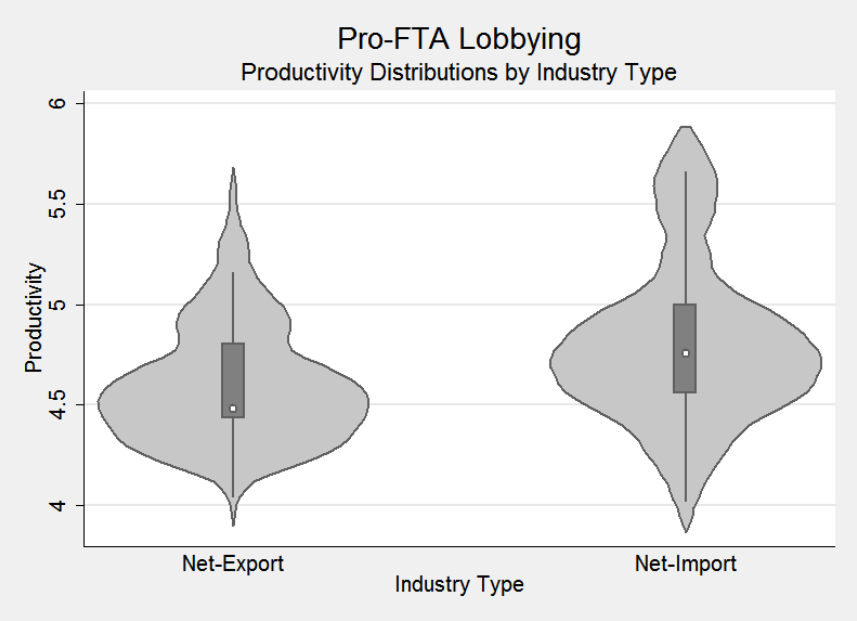
Logit Regressions	Model 13 (Lobby)	Model 14 (Pro-FTA)	Model 15 (Lobby)	Model 16 (Pro-FTA)
Productivity	0.348***	0.242***	0.393***	0.317***
	(0.115)	(0.094)	(0.115)	(0.112)
Productivity^2	-0.062***	-0.041**	-0.071***	-0.055***
	(0.022)	(0.017)	(0.023)	(0.021)
Export Status	0.026**	0.015	0.019	0.004
	(0.013)	(0.013)	(0.013)	(0.018)
Employment	0.022***	0.014***	0.021***	0.014***
	(0.002)	(0.002)	(0.003)	(0.002)
Trade Balance	-0.002	0.004		
	(0.007)	(0.005)		
RCA			-0.005	-0.005
			(0.003)	(0.007)
Constant	-25.87***	-37.07***	-32.05***	-47.87***
N	2536	2536	1753	1753
Wald Chi^2	127.76	145.87	80.72	128.22
AIC	437.15	231.11	265.34	151.96
BIC	472.18	266.14	298.16	184.77

*** p < 0.01, ** p < 0.05, * p < 0.1 DV is indicated under the model number, with marginal effects reported. All models are logit regressions. All models have heteroskedastically-robust standard errors clustered by industry. Results for rare-event logits and ATFP-based productivity are substantively similar.

[86] This measure is calculated by WITS in either HS or ISIC formats; to merge with Compustat data, I converted it to SIC.

While the effect of industry types does not appear to be statistically significant, the productivity distributions of firms lobbying in favor of FTAs do appear to differ by industry type. In comparative-advantage industries, the productivity distribution has a lower mass than in comparative-disadvantage industries, as exhibited in Figure 3.4. This provides some evidence for industry-type differentiation, although it is not picked up using standard maximum-likelihood-estimation techniques. All the same, within each industry category, there is wide variety in productivity levels, with resulting effects for policy positions and political behaviors.

Figure 3.4 – Productivity Distributions for Pro-FTA Lobbying by Industry Type



Discussion

In simple correlational tests, lobbying firms are larger and more productive than other producers (H_2). While the strength of the evidence from political activities surrounding CAFTA is hampered by data limitations, the patterns observed in reported lobbying expenditures for CAFTA largely mirror those surrounding the 2011 FTAs. The productivity difference between lobbying and non-lobbying firms remains when controlling for firm size and export status (H_2). This difference is especially pronounced when focusing on firms that lobbied and made clear statements in support of passing FTAs: on average, these producers are even more productive than others that lobby (H_1, H_3). However, the most productive firms are less likely to both lobby and lobby while making public statements of support for liberalization than other highly productive firms, creating a nonlinear relationship between productivity and these political outcomes (H_4). The distinction in individual lobby participation between high productivity producers and their less productive counterparts persists across both comparative-advantage and comparative-disadvantage industry types.

Conclusions and Implications

Much research has attempted to identify the political demands for trade policy and the role played by firms. Creating a political-economy model with heterogeneous firms enables a clearer understanding of these dynamics. Researchers are no longer

constrained by the long-standing assumption that producers only seek protectionism,[87] and the common finding that large firms lobby now has a causal mechanism.[88]

The divergence in trade-policy positions among firms within industries also poses challenges for theoretical conceptualizations of collective action between producers. Trade policy differs from many other policies that have been analyzed (such as taxation or various regulatory policies) in that firms are pitted in direct competition with each other over policy outcomes. Existing analyses of the coordinated political attempts of firms and organizations to affect trade policy do account for some heterogeneity among firm characteristics, though policy positions are assumed. Thus, only part of the political story is told: decisions to act collectively or independently are also determined by potentially divergent policy goals. For example, high productivity firms are likely to lobby independently in favor of liberalization; this contradicts the endogenous protection argument that these firms represent concentrated interests lobbying for protection.

In this chapter, I have provided evidence that heterogeneous firms do participate in political activities to seek the implementation of their trade-policy interests. The following chapter explores the historical nature of political-market engagement through an examination of the case of the Smoot-Hawley Tariff of 1930.

[87] Grossman and Helpman 1994.
[88] Drope and Hansen 2006; Kerr, Lincoln and Mishra 2011.

The dissertation manuscript in its entirety will be prepared for publication in book form. Chapters Two and Three are being prepared for publication in academic journals. For each of these works, the dissertation author is the principal investigator and sole author.

Producers and the Political Economy of the Smoot-Hawley Tariff

The Smoot-Hawley Tariff of 1930 is perhaps the single most studied piece of trade legislation, both for its consequences on trade flows and the impact of the Great Depression, and for the fairly unique patterns of political cleavages over the legislation itself. Existing theories of the political divisions over the Tariff rely heavily on logrolling[89] or industry characteristics,[90] but these explanations of the political dynamics of the tariff overlay differences in firm-level productivity. Industries dominated by highly productive producers opposed increasing tariff rates, while those marked by low productivity producers sought protection through its passage.

United States Trade in the 1920s and the Turn to Protectionism

The Smoot-Hawley Tariff's economic roots can be traced indirectly to the end of the First World War. During the war, American agriculture flourished as it sought to satiate foreign demand for its products. Between 1915 and 1918, farm prices doubled, triggering a wave of land speculation and credit-fueled capital investment. After Armistice, the market for American agricultural goods in Europe dried up as the war ended. European states liberalized their agricultural sectors in the early half of the

[89] Schattschneider 1935.
[90] Eichengreen 1987.

1920s, reducing the profitability of agricultural exports.[91] Prices for American farmers' output fell dramatically in 1920 and 1921 as credit and favorable lending conditions disappeared, and farm foreclosures skyrocketed, a trend that continued through the 1930s.[92] These difficulties combined to contribute to a number of rural bank failures, highlighting the differences in fortunes between the successful industrial East and the struggling agrarian West.

While the Fordney-McCumber Tariff of 1922 was implemented as part of a broader effort to improve the fortunes of farmers, it was largely viewed as ineffectual. The Republicans of the late 1920s used this as a platform to campaign for increased protection from imported agricultural products, setting the stage for what would become the Smoot-Hawley Tariff.

The Passage of the Smoot-Hawley Tariff

In the 1928 election, the Republican Party won the presidency and made gains in its control of both houses of Congress. President Hoover, in his inaugural address, called upon Congress to immediately begin work to carry out promises from his campaign, including 'further agricultural relief and limited changes in the tariff'.[93] On 7 January 1929, the Ways and Means Committee in the House of Representatives began holding hearings over the tariff issue. Once drafted, the bill headed to the floor, where opportunities for debate and amendment were virtually nonexistent. Special priority was given to Ways and Means amendments, which were to be approved with the final vote

[91] Swinnen 2009 provides an analysis of European agricultural support from the 19th through 20th centuries.
[92] Alston 1983 and Irwin 2011 discuss the changes in agriculture in greater detail.
[93] *Congressional Record*, 4 March 1929, p 6.

on the bill – the negotiations behind these amendments, like the initial drafting of the bill itself, took place in private. Ultimately, the Democrat minority in the House was shackled by the stringent rulemaking, and it is no surprise that the bill passed along largely partisan lines (264-147). In its final form, it appeared that agriculture had been nearly forgotten. While agricultural imports faced some tariff increases, manufactured goods faced the bulk of the protectionists' onslaught.

In contrast, consideration of the tariff in the Senate included a great deal of debate. A coalition of senators protested against industrial tariff increases that they saw as unneeded, while another coalition sought yet higher tariffs. Unlike the House, vote-trading in the Senate took place in the open. The process was long, drawn out and politically messy; it was the last time this would happen over a tariff bill. Over one thousand representatives of industry interests appeared before the Senate Finance Committee as Senators hashed out tariff levels. The bill finally passed the Senate on 24 May 1930, 53-31, again along mostly partisan lines.

The Senate had made over fifteen hundred amendments to the House's version of the bill. Deliberations in conference committee were tense, and the conference bill passed both houses along party lines. Throughout the process, Hoover largely remained on the sidelines, neither guiding nor directing the debate. He signed the Tariff Act on 17 June 1930.

The Political Economy of the Smoot-Hawley Tariff

Three theories dominate discussion of the politics surrounding the passage of the Smoot-Hawley bill. The earliest proposition, that support for the bill was gained primarily as a result of logrolling (or vote-trading – the two terms are used interchangeably in the literature), was put forward in the seminal work by E. E. Schattschneider in 1935,[94] and subsequent theories have used this as a foil. Pastor[95] and some subsequent work[96] argues that the tariff is the direct result of partisan voting, with the Republicans implementing promises made while campaigning during the 1928 elections. While votes on Smoot-Hawley were divided along heavily partisan lines, party affiliation masked underlying economic interests and the subsequent vote-trading activities that led to the bill's passage.[97] Finally, Eichengreen[98] proposes a framework based on Gerschenkron's model of the Iron and Rye Coalition, focusing on special-interest lobbying from industry subgroups and vote-trading in Congress. Agriculture along the United States border and light manufactures were relatively susceptible to import competition and supported increased protection, while agriculture that was farther from the border, along with manufacturing industries that relied more heavily on mechanized processes did not support the increases in protection the bill promised.

My model focuses on intra-industry productivity heterogeneity. As technological improvements were becoming more commonplace in production

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[94] Schattschneider 1935.
[95] Pastor 1980.
[96] Callahan et al. 1994.
[97] Irwin and Kroszner 1996.
[98] Eichengreen 1989.

methods, producers that could implement these advances benefited from productivity gains. Consequently, they were less vulnerable to new sources of competition or reduced prices for their products. Within industries, highly productive producers, especially those that were competitive internationally, were not supportive of the proposals to increase protection, while less productive firms viewed higher tariffs very favorably. High productivity producers, typically with longer time horizons than their less productive counterparts,[99] viewed the potential threat of retaliatory tariffs as a hazard to be avoided. Meanwhile, representatives of low productivity producers sought to increase their margins artificially through the tariff. These intra-industry variations in tariff interests have thus far remained unexplored.

Industries where highly productive firms played a leading role were more likely to oppose the Tariff than those industries where traditional production methods remained predominant. In manufacturing, this coincides somewhat with an aspect of Eichengreen's argument: heavy industries, typically dominated by highly productive firms, were more likely to oppose the Tariff, while light industries where more hand-production techniques were commonly employed were more likely to support the legislation.

In agriculture, highly productive farmers were those who had adopted new technologies – such as the tractor and the combine – were both less likely to be impacted by reduced prices for their products and, due to exogenous factors, were less likely to be located in Border States. Thus, Eichengreen's story of border and insulated

[99] Bauer, Pool and Dexter 1972.

agricultural interests opposing each other can be explained by the predominance of highly productive farmers in each region. The underlying factor in determining Tariff interests, in each instance, is productivity heterogeneity.

Productivity Heterogeneity and Trade Politics

Firms within an industry are differentiated by their total factor productivity (TFP) levels. Producers with high TFP draws are able to more easily overcome the fixed costs of market entry than those with low TFP draws. Consequently, entry into new markets, such as beginning to export, may be a profitable activity for highly productive firms, while unproductive firms would be unable to recoup the costs of entry. Thus, trade liberalization, which reduces these costs for foreign markets, should be beneficial to highly productive firms. For trading firms, these activities become more profitable, while the mass of potential traders grows to encompass are larger portion of firms with high TFP draws. Competition from imports is a threat to low productivity firms, and because these producers do not stand to benefit from trading themselves, they are more likely to favor protection.

Acting on policy interests is costly. In this way, the political market resembles a production market. Highly productive producers can afford to enter the political market to attempt to influence policy outcomes, while this option remains unaffordable to low productivity firms. In recent years, the structure of the political market has heavily favored an extremely small portion of the most productive firms.[100] While this structure is heavily dependent upon laws and regulations govern lobbying and other political

[100] Bombardini 2008, Knerr et al, 2011 and Plouffe 2012 discuss this in greater detail.

activities, a relative lack of finely detailed historical data makes it difficult to ascertain how the structure has changed over time. However, the general pattern of highly productive firms being more likely to engage in politics than their relatively unproductive counterparts is one that holds historically. For example, during the Senate's hearings on the tariff, individuals called to give testimony came from the most prominent firms in an industry, as well as inclusive industry groups. I assess the implications here.

In many cases micro-level financial and political data are often missing. For example, TFP is not directly observed, and even with detailed firm-level financials, must be estimated indirectly.[101] Where the necessary financial information is not available, available covariates such as firm size may be analyzed. These factors that correlate with TFP or other firm characteristics or behaviors that can be used to separate highly productive producers from low productivity producers can be useful in analyzing historical cases.

The Impact of Producer Heterogeneity on the Politics of the Tariff

The effects of producer-level productivity heterogeneity on the politics of the Smoot-Hawley Tariff have been ignored in existing work. The difficulty of examining the impact of this factor is increased by the lack of detailed data at the producer level. Instead, inferences must be made at the industry level, based on the prevalence of the adoption of mechanized means of production or more direct measures of productivity.

[101] Plouffe 2012 discusses this in greater detail.

One way to exploit productivity differences in the 1920's is to focus on adoption rates of new production techniques. Generally speaking, these production methods involved the introduction of mechanization. Within a given industry, highly productive firms were more likely to adopt new means of production, allowing them to further reduce their variable costs, while less productive businesses were unable exploit these new technologies to the same extent and grew increasingly susceptible to competition.

Differences in the adoption rates of new production processes at the industry level and the consequences for political divisions over trade policy have been noted by previous researchers.[102] However, intra-industry productivity variations have not been exploited; like inter-industry differences, these led to clear political cleavages as well.

To illustrate the importance of intra-industry productivity heterogeneity, I examine two industries. In the first case, wheat farming, productivity differences had a regional basis. For exogenous reasons, farmers in the Southern Plains States were more likely to adopt productivity-improving mechanized techniques than those in the Northern Plains States. This led to significant productivity variations that overlap with Eichengreen's distinction between border and insulated agriculture.[103] The second case I study is the automobile industry. Contrary to Eichengreen's stylization of heavy manufacturing industries opposing the tariff, I find variation in attitudes towards the proposed levels of protection among automobile manufacturers called to testify before the Senate Finance Committee. Industry representatives sought to retain a tariff on imported cars to protect the unproductive domestic manufacturers, while highly

[102] Eichengreen 1987 and Irwin 2011 are two examples.
[103] Eichengreen 1987.

productive producers did not express enthusiasm for this proposal, seeing no threat from foreign competition.

Heterogeneity among Wheat Producers

The popular demand for the tariff arose from the difficulties experienced by American farmers throughout the Roaring Twenties. An unanticipated collapse in agricultural prices following the First World War meant that farmers across the country were faced with difficulty. High prices prior to 1921 had created a rush to increase productive capacity, fueled heavily by credit. When prices dropped, this led to an increase in foreclosures as many farmers were unable to maintain the installments on their loans.

Not all farmers were equally subject to foreclosure during the 1920's. Those producing cash crops – corn, cotton and wheat – were most subjected to dramatic shifts in fortune. Likewise, farms in the Midwest, where large swathes of arable land provided ready means for growth, were more likely to hold expensive mortgages and more likely to be hit with foreclosure than those in the East and South, where the limited availability of land for expansion meant that land prices increased dramatically, while farm sizes did not.

A major concern for agriculture during the 1920's, especially for cash-crop producers, was framed as overproduction (even if this was not the key source to farmers' woes). In the face of significant demand for American agricultural products in Europe during the First World War, farmers had sought to increase their productive capacities. However, after the war, with decreased European demand, this resulted in

crop prices that were significantly lower than they had been in the past. For most agricultural regions, poor yields were not an issue; exceptions were rare but could be found in droughts in Mountain states and boll-weevil infestations in Georgia and South Carolina.[104] From the mid 1920's on, European states restricted the importation of grains through tariffs or other means, further exacerbating American farmers' woes.[105]

American agriculture during this time, especially field crop production, was undergoing a productivity revolution. Throughout the decade, mechanization began to supplant manual labor as the primary means of agricultural production. While the purchase of a tractor or combine entailed significant initial costs, as variable continuation costs associated with tailoring use to a specific crop or farm, the benefits were enormous.[106] In 1924, the United States Department of Agriculture estimated the annual cost of operation of a tractor at between twenty and fifty percent of the cost of relying on horses, based on horsepower-hours, depending on the tractor's mode of operation.[107] The disparity between horse and tractor diverges significantly when labor costs are included as well, indicating the presence of a significant productivity gap between farms that adopted mechanized production techniques and those that did not. In addition to reducing costs, tractor and combine use was associated with improved yields by significantly reducing labor and time costs associated with sowing, tilling and harvesting grains.[108]

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[104] Alston 1983, p 891.
[105] Enfield 1931, p 561.
[106] Clarke 1991 explores the impact of tractor adoption and use on Corn-Belt productivity.
[107] Kinsman 1925, as reported in Studensky 1930.
[108] Studensky 1930, p 562.

In addition to productivity gains, the advent of the mechanization of farming was characterized by two features. First, mechanization permitted increased geographic specialization in the production of field crops.[109] This in turn contributed to productivity increases in areas that shifted production to different crops – notably, the western expansion of the Wheat Belt (replacing livestock grazing), and the upturn in the concentration of the northwestern portion of the Corn Belt (at the expense of wheat). Second, while tractor and combine adoption occurred at historically unprecedented rates, it was far from universal; adoption rates varied significantly. With high costs of implementation, these new methods provided no benefit for small farmers. In fact, in 1925, over 82 percent of tractors were used by just 18 percent of farms; these farms, at an average of over 175 cultivated acres, were significantly larger than the typical American farm, which averaged 78 cultivated acres in size.[110] Combined with the high rate of foreclosures throughout the decade, this contributed to a consolidation of farmland: the number of farms decreased significantly in many states, while the average farm size increased.

The significant cost differences between these highly productive farms and their relatively unproductive counterparts led to a very different economic reaction in response to the changes in agricultural prices. A farmer relying on mechanized techniques could produce corn or wheat at 30-40 cents below the average cost per

[109] Ibid., p 558.
[110] Studensky 1930, p 563; Enfield 1931, p 556.

acre.[111] Thus, while the majority of farmers were severely hurt by the post-war price collapse, high productivity farmers remained very profitable.

Eichengreen's model[112] serves as the benchmark for explaining patterns of political support for the Smoot-Hawley Tariff. He differentiates sheltered agriculture from border agriculture: sheltered agriculture opposed the industrial tariffs that would increase farmers' costs of living, while border agriculture favored the tariff increases as a promised form of protection from imported agricultural products. However, insulation from the Canadian border masks an underlying regional variation in productivity. The Wheat Belt covers both of Eichengreen's categories of border and insulated agriculture; though farmers along Midwestern border states and those farther south of the border were producing largely the same product, productivity levels differed between these two regions, depicted clearly in mechanization rates. While grades and protein content of wheat differed within both of these areas, wheat was treated as a homogenous product in the Tariff.[113]

Tractor and combine adoption rates were significantly higher in among farms in southern Plains states than in northern Plains states. A study conducted by the Works Projects Administration in 1939 estimated that in 1928, over 45,000 combines were in use on American farms; most of these were in southern Plains states, with approximately 20,000 in Kansas alone.[114] Adoption rates in northern Plains states tended to be significantly lower (for example, approximately 2,000 combines were in

[111] Studensky 1930, p 564.
[112] Eichengreen 1987.
[113] Ibid., p 16.
[114] Johnson 1985, p 124.

use in North Dakota) for two reasons. First, harvest conditions were less well suited for their use: rather than a dry harvest, northern Plains harvests typically were moister than farther south, increasing the risk of smut. Thus, farmers in northern states tended to rely on manual labor at harvest. Second, northern Plains states had faced low yields through several harvests in the 1920's due to rust; this meant that they had fewer financial reserves available for capital investment.

The effects of these productivity differences cannot be overstated. Due to combine use, wheat farmers in Kansas saw a tremendous reduction in the labor time required to raise and harvest wheat, from 5.6 man-hours per acre in 1919 to just 2.6 man-hours per acre in 1929. This contrasted with the experience in North Dakota, where the decline was only 0.4 man-hours per acre (5.6 in 1919 to 5.2 in 1929).[115] While transportation costs may have insulated southern Plains wheat producers from Canadian imports, as Eichengreen argues, the relatively low productivity of northern Plains producers itself would have made these farmers much more vulnerable to competition than their southern counterparts in any case. Thus, while transportation costs may have influenced the demand for agricultural protection at any price, farm productivity played a vital role in determining patterns of political demands over the Smoot-Hawley Tariff.

Automobile Manufacturers and the Tariff

The 1920's were similarly a period of great change for automobile manufacturers. Great variation in production techniques existed for the one hundred or

[115] Ibid., p 125.

so car producers operating in the United States during this time. Highly productive firms such as Ford Motor Company widely employed mass-production methods throughout their processes, benefiting significantly from the low average cost that came with large production volumes. These techniques stood in stark contrast with the relatively labor-intensive processes utilized by smaller, less productive firms like Peerless or Hudson. While the industry was dominated by Ford at the beginning of the decade, Henry Ford's long reliance on the Model T and the innovations of an emergent General Motors led to the rise of the Big Three: Ford, General Motors, and the newly formed Chrysler. While 'Fordism' had become synonymous with standardized mass production, both General Motors and Chrysler developed more flexible techniques that enabled them to adjust for routine changes in the manufactured product, allowing for the introduction of model years and diversified product offerings tailored to different market segments.[116] The dozens of middle-sized and small independent manufacturers that continued to operate faced an increasingly difficult struggle to survive; where there had been approximately one hundred firms in the early 1920's, with the shift to the closed steel body, only 49 remained by the middle of the decade.[117] Many of these producers would be forced out of the market by the credit crunch that followed the stock market crash of 1929.

The dominant position of American automobile producers in the global market meant that cars were often subject to high levels of protection abroad. However, the export of cars tended to be highly concentrated among a small portion of producers.

[116] Hounshell 1984, p 300, 306.
[117] Abernathy 1978, p 19.

While automobile manufacturers, through the congressional testimony of the National Automobile Chamber of Commerce (NACC), favored a reduction in the base tariff line with a countervailing duty clause, representatives of different manufacturers revealed significant variations in their support for this position.

At the time, the base rate on automobile imports under the 1922 Fordney-McCumber Tariff was 25%; however, in practice the rate was higher for many countries, as a countervailing clause matched higher tariff levels for American exports.[118] The average tariff on American automobiles around the world was approximately 30%, so the American line at the time was unexceptional, if slightly liberalizing compared to its counterparts.[119] Table 4.1 presents the tariff levels discussed during the Senate Finance Committee's hearings on the proposed automobile tariff. Despite these barriers to trade, 43% of the automobiles in use outside the United States and Canada had been produced by American manufacturers; in countries with their own domestic producers, 10-15% of the market was occupied by American firms, a portion which was continuing to grow.[120]

[118] This rate also applied to busses and large trucks, for which the limited scale of demand still had not yet made mass production a profitable venture. These vehicles were treated separately in discussions over the 1929 tariff revision.
[119] Congressional Record, 26-28 July 1929, p 823.
[120] Congressional Record, 26-28 July 1929, p 831.

Table 4.1 – Automobile Tariffs in 1929[121]

Country	Tariff Level	Notes
Belgium	30%	Weight-based, typical was 30%
Canada	20%	Weight-based, could range to 30%
France	45%	
Germany	21.5%	Weight-based, typical was 21.5%
Italy	51%	35% + a weight-based rate
Mexico	7.5%	
United Kingdom	33.3%	
United States	25%	Countervailing/retaliatory rates were applied
Uruguay	69%	

The first witness to focus on automobiles at the hearing, Alvan Macauley, represented both the NACC and Packard. At the time, Packard was a producer of middling size, with a strong position in the production of luxury cars,[122] a segment of the market where the benefits of mass production offered relatively few benefits. Speaking on behalf of the majority of members of the NAAC, Macauley endorsed a reduction in the tariff's base rate from 25% to 10%. However, he also sought to maintain the countervailing clause, which overrode the base rate for countries with higher tariffs on American automobiles.[123] Thus, the proposal for reducing the tariff would only apply in practice for countries with relatively liberal policies towards American automobile exports. Macauley defended his proposition by claiming foreign manufacturers would take advantage of unfettered access to the American market to dump their production. At the same time, he acknowledged that this was an extremely unlikely outcome, as foreign producers would first seek to bolster their positions in their own home markets before expanding abroad. Without the benefit of a large domestic market to spur production and innovations, these producers would be unlikely to build

[121] Rates taken from the Congressional Record, 26-28 July 1929.
[122] Rae 1984, p 61.
[123] Congressional Record, 26-28 July 1929, p 823-824.

the productive capacity to consider expanding to the American market. However, for small independents, any threat of foreign competition could have existential implications.

Two senators on the committee, Alban Barkley (D-KY) and William King (D-UT), questioned the need for continued protection at any level: of the four million or so cars purchased in the American market in 1927, only 512 were imported from abroad.[124] While the Senators questioned foreign producers' abilities to access the American market even if automobiles were moved to the free list, Macauley maintained a spirited defense of the proposed tariff, arguing that any hope of reciprocal actions by trading partners was misplaced.

A small number of American manufacturers enjoyed highly competitive positions in European markets, in spite of what was referred to as 'differences in tastes'. Unlike the United States, several European governments taxed automobiles based on horsepower, which shifted demand towards cars propelled by less powerful engines. Thus, companies that produced in Europe as well as the US, like Ford and GM, essentially had two different product lines. Although the taxes were not expected to persist, this sort of difference in the legal environment provided a further difficulty for foreign producers that might seek to compete in the American market.

At the same time that he opposed the movement of automobiles to the list of duty free products, Macauley sought to expand American exports. However, without a clear promise of reciprocal tariff reductions, he saw no need to open the American

[124] Ibid., p 827.

market and put the less productive members of the NACC at risk. Towards the end of his testimony, Macauley spoke of his desire to increase exports, clearly keeping the interests of the NACC's most productive members in mind:

> Senator King: Mr. Macauley, you ought to be a pretty strong advocate of having a foreign market for our products.
> Macauley: I am.
> Senator King: And you would regard with some disfavor, would you not, any policy that would restrict our foreign export?
> Macauley: Yes, sir.
> Senator King: You want to encourage exportation; you want to increase your exports to all parts of the world.
> Macauley: Yes, sir.[125]

Because foreign tariffs were not expected to be reduced in response to any American move to free trade, Macauley could pursue a policy option that offered a continued level of protection to satisfy the NACC's small and relatively unproductive members without harming the interests of the Big Three and other highly productive manufacturers with significant stakes in foreign markets.

Macauley was followed by Alfred Sloan, representing General Motors. While Sloan expressed support for the NACC's position on the tariff, his support was very much qualified: 'I do not see any danger of foreign-made cars coming into this market as we see things now… I certainly think that with ten percent the industry here would not in any sense be jeopardized.'[126] Sloan's position on the countervailing clause was somewhat noncommittal; while it provided additional protection, he did not view it as running counter to any efforts that might convince European countries to reduce their own barriers, which were viewed as politically essential for the development of their

[125] Congressional Record, 26-28 July 1929, p 832.
[126] Congressional Record, 26-28 July 1929, p 833.

own industries.[127] In contrast with Macauley, who was speaking on behalf of the entire American automobile industry, Sloan viewed the existence of the countervailing clause as having no effect on business operations:

> Senator Barkley: Is the countervailing duty, then, under present conditions, of any benefit to American industry?
> Sloan: I do not think it is much of a concession one way or the other.
> Senator Barkley: Is it not also true that whether we leave it on, reduce it, or take it off altogether, the broad effect will be zero?
> Sloan: Senator, as I say, as we see things now I am bound to say you are correct.[128]

Sloan's perspective of the industry differed significantly from that of Macauley: General Motors was one of the most productive automobile manufacturers in the world, while the industry itself still had a large number of small, less productive firms in operation. For many of these firms, any increase from 512 imported vehicles might pose an existential threat, while for General Motors, this was more in line with a rounding error. This difference was driven home in the closing exchange between Senator Barkley and Sloan:

> Senator Barkley: Even the automobile industry entertains no real serious fear that within the next five or ten years there will be a serious competition.
> Sloan: I would not say in the next five years, Senator. General Motors does not.
> Senator Barkley: And you are not proceeding on that basis?
> Sloan: I am proceeding on the basis that there is no fear.[129]

The final industry representative to speak about automobiles was R. I. Roberge of Ford Motor Company. Ford had recently introduced the Model A, after a yearlong

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[127] Ibid., p 839.
[128] Ibid., p 839.
[129] Congressional Record, 26-28 July 1929, p 839.

shutdown as it retooled from the manufacture of the Model T. Despite this absence, Ford maintained a dominant market position and even became more productive as it picked up new production techniques allowing it to more quickly adapt its manufacturing processes to changes in tastes. In light of this, Roberge's statements on behalf of Edsel Ford flew in the face of those from Macauley:

> Roberge: Mr. Ford has expressed himself as being in favor of free trade as far as the Ford Motor Co. is concerned.
> Senator Reed (R-PA): Is that still his feeling?
> Roberge: Yes, sir.
> Senator Reed: He would put this on the free list entirely, then, would he?
> Roberge: Yes, sir.
> Senator Reed: Without any countervailing duty?
> Roberge: Yes, sir. He has not expressed himself as regards the countervailing duty. He has merely said he was in favor of free trade as far as the Ford industry is concerned.[130]

Thus, while the NACC sought some level of continued protection, the most productive members of the industry did not share this strong desire to limit potential imports, as they did not see these as any threat.

Conclusions

Accounting for the heterogeneous nature of producers leads us to a clearer and more nuanced understanding of patterns of political demand over the Smoot-Hawley Tariff. While Eichengreen's framework of border agriculture and light industry supporting the tariff over the interests of insulated agriculture, this simple structure masks the underlying role of productivity differences. In agriculture, insulated wheat farmers tended to be more productive than border wheat farmers; much of this gain

[130] Congressional Record, 26-28 July 1929, p 840.

came in the second half of the 1920's, so these farmers were better able to remain profitable than their northern counterparts, even with low prices for their products. In the automobile industry, which Eichengreen stylizes as opposing the tariff, we see the representation of the industry's less productive members earnestly seeking some rate of protection, while the industry's most productive firms either displaying indifference or outright opposition to the industry's collective stance. While these industries provide just two examples, productivity heterogeneity and its resulting political consequences are present across all industries. Examining the heterogeneity among producers allows us to gain a clearer understanding of both the patterns of demand for trade policy and the distributional consequences of its outcomes.

The dissertation manuscript in its entirety will be prepared for publication in book form. Chapters Two and Three are being prepared for publication in academic journals. For each of these works, the dissertation author is the principal investigator and sole author.

Conclusions and Implications

While the economics of international trade has experienced a revolution over the past decade, the international political economy of trade remains largely dependent upon factor- and sector-based models. These theoretical approaches allow scholars to analyze many of the broad distributional effects of trade across industries and factors of production and their political implications. However, by assuming homogenous products and firms within industries, this body of research limits its ability to effectively link policy interests with political behaviors. Relaxing this assumption and allowing for firm heterogeneity unveils original patterns in the redistributive effects of trade. In turn, this allows for the identification of new political cleavages over trade and clear mechanisms for the translation of policy preferences into policy outcomes.

Accounting for product differentiation and firm-level productivity heterogeneity enables a better understanding of both the redistributive consequences of international trade and their impact on demands for trade policy. Highly productive firms favor liberalization, as they stand to profit from reduced barriers to trade. Unproductive firms favor protection, as they lack the capabilities to capture the benefits that accompany trade. Similarly, low productivity producers cannot afford to participate in the political market, while high productivity firms can. Thus, contrary to the received wisdom that the losers from trade lobby hard for protection while the winners disengage, I find that the winners lobby for liberalization while losers cannot afford to participate in the same manner.

The influence of firm heterogeneity extends far beyond lobbying and trade politics. Employer characteristics affect individual-level policy preferences, potentially for a wide variety of policies. Likewise, by expanding the scope of the dependent variable, the impact of producer heterogeneity should exhibit similar effects across an extensive range of regulatory policies. Furthermore, by focusing on the interactions between firms and institutions, researchers can expand the scope of understanding of the powerful political actors in these arenas.

Evidence for the Importance of Productivity Heterogeneity

I find support for my theory using three distinct series of tests. I first identify the systematic variations in trade-policy positions among productivity-differentiable firms in standard trading industries. Next, I analyze the political behaviors of producers to discern whether they act upon their policy positions. Finally, I illustrate the political activities of heterogeneous producers using the case of the Smoot-Hawley Tariff, providing a new account of the political demands over aspects of the tariff bill.

Using an original and representative firm-level survey of Japanese manufacturers, I examine the distribution of firms' trade-policy attitudes. Accounting for trading and other forms of engaging foreign markets, highly productive firms are more likely to favor further trade liberalization than their less productive counterparts. This is an unlikely case for finding divergent policy stances, since East Asia is the most economically integrated region in the world. While firms in comparative advantage industries at first appear to be more likely to favor liberalization than those in

comparative disadvantage industries, this effect disappears when accounting for productivity heterogeneity.

My following test examines whether firms seek to influence trade policy based on their policy stances. Detailed firm-level data for both financial and political factors are often unavailable, but for publicly held companies in America data availability is not such a constraining factor that it is in many other countries. I combine lobbying reports filed with the United States government for activities related to three proposed free trade agreements (FTAs), financial data as reported to regulators, and public statements indicating the outcome sought. I find that firms that lobbied on trade policy were much more productive than the typical firm; likewise, those firms that lobbied and made explicit statements in favor of the passage of an FTA were more productive than both their lobbying and non-lobbying counterparts. The finding that firms lobbying over trade policy seek liberalization runs counter to the received wisdom of the 'Protection for Sale' literature, which assumes these producers lobby for import protection.

The third test focuses on the importance of productivity heterogeneity in political demands over the Smoot-Hawley Tariff of 1930. While past examinations of the political economy of the Tariff have focused on industries as organized blocks seeking a unified goal, I show that productivity heterogeneity among producers within industries leads to variation in their demands. The standard explanation for patterns of the demand for protection divides industries: border agriculture and light manufacturing sought protection, while insulated agriculture and heavy manufacturing opposed it. Taking the production of wheat, which was grown in regions both on the Canadian

border and insulated from it, I show that productivity varied between these two regions: wheat producers near the border were slow to adopt mechanization, while those farther south were more likely to adopt mechanized techniques, greatly enhancing their productivity. The second case I examine is that of the automobile industry, which was claimed to have comprehensively opposed the tariff. Relying on congressional testimony, I find significant variation in requests for the proposed tariff level for imported automobiles. The most productive firms either sought free trade or were indifferent regarding the tariff's effects, while representatives of the majority of car manufacturers, all less productive, battled to maintain the de facto rates already in place.

Intra-Industry Heterogeneity and Trade Politics

Accounting for productivity heterogeneity allows for the identification of new sources of political cleavages over trade policy. While most existing approaches to determining policy preferences rely on extensions of classical models of trade, attempts to tie these sources of preferences to policy outcomes have raised as many questions as they have answered. Research on individual-level preferences lacks a clear mechanism linking these preferences to policy, while producer- and industry-oriented approaches assume preferences.

For individuals, skill level and industry characteristics are likely to interact with employer factors in determining the impact of material interests on trade preferences. Employees of highly productive firms benefit from liberalization, while those working at unproductive firms face increased job insecurity. The risks of job loss vary across

industry and factor types. When trade policy is liberalized, employment is reallocated from comparative disadvantage industries to comparative advantage industries and from unproductive firms to highly productive ones. For those facing unemployment as unproductive firms are forced from the market, skilled workers face better job prospects than unskilled workers, as most job openings would be at highly productive firms in comparative advantage industries. Likewise, displaced workers in comparative advantage industries are likely to face lower costs of searching for reemployment than those in comparative disadvantage industries. Consequently, we should expect to observe interactive effects between industry-, firm-, and skill-based factors on trade-policy preferences.

In addition to impacting the formation of individual trade-policy preferences, a heterogeneous firms approach to trade politics provides a mechanism for the translation of trade-policy preferences into policy outcomes. There is little, if any evidence that individuals make voting decisions based on their trade-policy interests. Rather, trade policy is rarely, if ever, a salient issue.[131] Contrastingly, producers have long been linked to trade-policy issues through political activities.[132]

Research on the political participation of producers either focuses on campaign contributions or lobbying expenditures. Often, producers are treated as homogenous, while in many cases, interests are assumed, rather than examined directly. Or, in the case of lobbying research that does not focus on specific policy areas, the question of interests is ignored.

[131] Guisinger 2009, Blonigen 2011.
[132] Schattschneider 1935, Bauer et al. 1972, Grossman and Helpman 1994.

As the most widely adopted approach to producers and politics, the 'Protection for Sale' framework assumes producers or industry organizations make campaign contributions intending to influence trade policy, even though there is no evidence that these contributions are linked to policies.[133] Rather, campaign contributions are used to gain access to candidates; often contributors will give money to any (or all) leading candidates as a way to guarantee access. Because making contributions does not require any particular access or knowledge, it is relatively costless to participate, aside from the amount of money allocated to the contribution. Once a candidate is awarded office, contributors lobby on the issues they view as salient. For firms, the typical behavior is to begin lobbying when a particularly important issue arises, and upon that matter's resolution, to switch to another significant policy concern.[134] Thus, for firms lobbying on trade policy, the most highly productive firms – often MNCs – are less likely to lobby on trade than their less productive (but still highly productive) counterparts, as the potential marginal benefits of reduced trade barriers are smaller. Unproductive firms, by contrast, cannot afford to lobby to make their interest in protection known.

In addition to providing an explanation for the observed differences between lobbying and non-lobbying firms, focusing on productivity heterogeneity contributes to our understanding of firms' motivations for lobbying on trade policy. Producers do not necessarily seek protection, as most work assumes. Rather, the firms that lobby on trade are those that are most likely to favor liberalization. Contrary to the received wisdom

[133] Ansolabehere et al. 2003, Richter et al. 2009.
[134] Kerr et al. 2011.

that losers from trade lobby hard and winners disengage, winners tend to lobby (although not necessarily on trade) while losers cannot afford to participate.

Firms and Regulatory Politics

In this project, I focus on firms and trade policy, but productivity heterogeneity affects the distributional impacts of other forms of regulatory policies as well as the political positions firms take. Market behaviors like foreign direct investment (FDI), outsourcing, and offshoring are also productivity-driven. As with trade, highly productive firms may engage in these activities, while unproductive firms cannot afford to participate. Thus, stances on the policies regulating these activities can be expected to follow productivity-based differences.

To the extent that participation in FDI resembles trade engagement, the difference in productivity between participants and nonparticipants is even more remarkable, as the fixed costs of participating in FDI are significantly higher than those of exporting or importing. The highly productive firms that engage in FDI or can afford to do so are likely to lobby for policies that reduce the risks and costs associated with FDI, perhaps explaining the domestic political demand for bilateral investment treaties (BITs).[135] While less productive firms may not be directly impacted by these agreements, growth in import competition due to increases in intra-firm trade as a consequence of greater vertical FDI spending could have the same effects as import competition in my trade model. However, the domestic-competition effects from FDI

[135] Elkins, Guzman and Simmons 2008.

would be felt with a significant lag from the time a new BIT is implemented, possibly making this a less salient issue for low productivity producers.

Tasks trade – participation in outsourcing and offshoring activities – is similarly determined by productivity. The most productive firms engaging in tasks trade offshore various functions, although the highest productivity firms will simply invest directly abroad.[136] Less productive firms will onshore, or outsource to other domestic businesses, although this still entails a fixed cost of entry, precluding the participation of the least productive producers. Firms that can obtain benefits from reducing the costs to offshoring will favor this, as it resembles a factor-specific increase in productivity.[137] Firms that cannot afford to offshore face two effects: the factor that is offshored becomes cheaper as a result of its increased productivity, while competition from offshoring firms potentially becomes more intense as the unit price of their output is adjusted for their new variable costs. Firms that cannot offshore are likely to oppose the liberalization of offshoring as the availability of the cheaper factor is likely to lag behind the competition effects, although this is dependent upon the extent of product differentiation within the industry. For workers, owners of the factor that is offshored face the increased risk of unemployment as the growth in productivity reduces firms' employment requirements. The owners of the other factor benefit from the productivity increase, leading to clear individual-level preferences over offshoring. Domestic outsourcing has similar effects within a subnational economy, although because the barriers to entry are lower, are larger portion of firms can afford to participate.

[136] Antras and Helpman 2004.
[137] Grossman and Rossi-Hansberg 2008.

Like tasks trade and FDI, immigration potentially interacts with productivity heterogeneity. Highly productive firms, especially those in comparative advantage industries, tend to hire more skilled workers than other firms. In recent years, these firms in developed countries have sought the relaxation of government restrictions on skilled immigrants. Demand for low skilled immigrants is likely to come from high productive firms in comparative disadvantage industries, as well as industry associations representing these industries. In general, the link between low productivity firms and immigration is less clear, as these producers tend to lack the resources to effectively influence government policy, even though they would benefit from reduced costs due to cheaper labor. The productivity increases due to increased immigration resemble those gained through less costly offshoring, although while firms retain any rents gained through offshoring, immigrant hires retain all rents from their employment.[138]

Regulatory policies govern far more than just firms' abilities to access markets. From work-place safety and health policy to environmental standards, regulations aimed at domestic issues can profoundly impact firms' costs. These costs can vary significantly as a result of heterogeneity in firm characteristics, leading to predictable policy interests. While implementation costs may be higher for highly productive firms, they may be able to use new rules to enter new markets, providing services for smaller and less productive firms by creating arrangements that resemble the use of MNCs' distribution networks by indirect export producers. However, these are very broad issue

[138] Grossman and Rossi-Hansberg 2008 p 1987.

areas that merit study in much greater detail. In many cases, these issues overlap with trade, providing pathways to further refinements of the models I have introduced in this project.

Institutions and Heterogeneous Firms

A large body of research examines the impact of political institutions on trade-policy outcomes. Non-governmental institutions, such as industry associations, play an important role in making aggregated producer demands known to policy makers. Formal institutions, such as electoral rules or lobbying guidelines, both shape policy makers' preferences as well as determine the ability of demand-side actors to have a voice in the process.

Accounting explicitly for differences between firms generates more accurate explanations of their independent policy positions and political behaviors. These insights can inform research on collective action within and across industries. The differences between firms due to their characteristics as well as their differentiated products contribute to the private-good aspect of their political engagement. Consequently, collective lobbying through producer associations has been observed to be less common than predicted by theory.[139] Even though individual corporations are very significant actors in the policy-making process, industry groups also play an important role. However, with noteworthy variations in their membership and governing structures, explaining the policy positions and political activities of these

[139] Hansen and Mitchell 2000, Olson 1965.

groups can be very difficult. These producer groups can range from long-standing industry-wide or sub-industry associations to ad-hoc, issue-specific producer groups.

In many recent cases of group lobbying, it appears that association positions are driven by their largest, most productive and most powerful members, but the effects of these can be tempered by rules for internal representation. By focusing on the heterogeneous characteristics of group membership, it should be possible to improve our understanding of the behaviors of these associations, as well as better theorize as to the nature of their internal structures.

While producer associations act as institutions in their ability to aggregate collective producer interests, government institutions similarly play a significant role in influencing trade policy. A common finding has been the link between constituency size and barriers to trade: politicians in large constituencies are less likely to support particularistic policies because they need broad bases of support, while politicians in smaller constituencies are likely to support policies that favor relatively small groups over the whole.[140] As trade barriers benefit small groups over the greater good, a large body of work has examined the links between electoral institutions and policy.[141] Perhaps the most illustrative example is that of the passage of the Reciprocal Trade Agreements Act (RTAA) by Congress in 1934. In this bill, Congress delegated trade policy to the President, ending fights over trade policy that had resembled the debates over the Smoot-Hawley Tariff, leading to a new era of freer trade.[142] This had another

[140] Cox 1990, Park and Jensen 2007.
[141] Rogowski 1987b, Rogowski and Kayser 2002, Park and Jensen 2007.
[142] Haggard 1988, Bailey et al. 1997, Hiscox 1999.

serious, and often overlooked, implication. As Ehrlich argues, delegation raised the costs of lobbying, reducing the efforts of protectionist interest groups, while the promise of reciprocity incentivized exporters to overcome their collective action problems and begin to lobby.[143] More importantly, actors seeking to influence the trade policy process could increasingly focus their efforts on a smaller number of influential actors. While this may have served to increase the costs of participation through the reduction in access points as Ehrlich argues, the streamlining of the lobbying process would have made it easier for individual highly productive firms to participate.

While the example of the RTAA may illustrate variations in the interaction between institutions and firm heterogeneity over time, it does not explain variations across electoral systems. While the passage of the RTAA provides an example of large constituencies leading to liberalization, another example can be found in Congress. Karol finds that Senators are more likely to favor liberal trade than Representatives. [144] However, this finding holds even when their constituencies are the same. An explanation for this puzzle could be that producers focus their lobbying activities where they expect to get the largest return for their investment, focusing on Senators, whose votes are more valuable than those of Representatives.

However, this does not explain the difference in observed levels of protection across electoral systems. One characteristic of note is that the European states that comprise many of the observations of proportional representation systems in studies of business-government relations tend to have a much more important role in the economy

[143] Ehrlich 2008.
[144] Karol 2007.

for small and medium enterprises, both in terms of economic output and employment. With the mass of firms shifted towards less productive producers, relative to that of the United States, it is likely that lobbying pressures for liberalization would be less intense, assuming similar rules exist for access. Additionally, these countries have a different political dynamic than the United States, with institutions favoring more equitable economic outcomes.[145] These sorts of goals have shaped the goals of economic institutions, which in turn affect the organization and behaviors of firms.

In addition to electoral institutions influencing trade policy, non-electoral institutions also impact trade-policy outcomes. Among American institutions, perhaps the most controversial of these are the rules governing lobbying activities, with many observers outraged by the influence that non-voting entities are perceived wield over elected officials and policy decisions. Where trade policy is concerned, the post-war liberalization has benefitted the general public as consumers, despite its distributional consequences for producers. The structure of lobbying activities is biased against producers that would seek protection, despite the common assumption that this is their goal.[146] Highly productive firms, which are the most likely to lobby,[147] are also most likely to seek liberalization. Because of the costly nature of political engagement, the less productive firms that benefit from protection are unlikely to be able to afford to participate. This lobbying pressure for liberalization, in turn, has led to reductions in barriers to trade.

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[145] For an example of the research on related topics, see Iversen and Soskice 2006.
[146] Grossman and Helpman 1994, etc.
[147] Drope and Hansen 2006; Bombardini 2008; Kerr, Lincoln and Mishra 2011; Plouffe 2012.

Just as domestic political institutions affect trade policy, so too do international institutions. Both multilateral and bilateral institutions have served to lock in reductions in trade barriers,[148] as well as various protectionist measures. Industry associations and individual producers play an important role in the formation of these agreements by making their interests known to policy makers. For example, while the Korea-US FTA was under negotiation, an early version did not allow American automobile producers significant access to the domestic Korean market. Car producers lobbied intensely for a change, and the improved access in the final version of the FTA was viewed as so beneficial that United Auto Workers (UAW) lobbied in favor of the FTA's passage, marking the first time in history there was a split in position between UAW and the other large labor union, the AFL-CIO, over a trade bill. Other stories of producer demands for foreign market access through trade agreements may not be as vivid, but they similarly highlight the central role of firms in demand side of the negotiating process.

In Closing

Accounting for producer heterogeneity allows us to more accurately capture the distributional implications of trade as well as the consequent political battles that result as producers seek the implementation of their favored policy. Across all industries, and regardless of existing participation in trade or other internationalizing activities, highly productive firms are likely to favor liberalization, while their less productive counterparts are likely to favor protection. Because participating in political activities,

[148] Staiger and Tabellini 1999.

especially lobbying, is costly, high productivity firms often can afford to make their positions known to policy makers, while unproductive firms cannot.

The influence of firms on politics is not limited to trade policy, nor is it isolated from other sources of political demand. By assessing the varied nature of producer interests across a range of issue areas and institutional arrangements, based on firm-level heterogeneity, political economists will be able to build upon our existing understandings of the interactions between political interests and policy makers. In turn, this improved comprehension of policy-making processes will allow for better descriptions and predictions of policy outcomes and their consequences.

The dissertation manuscript in its entirety will be prepared for publication in book form. Chapters Two and Three are being prepared for publication in academic journals. For each of these works, the dissertation author is the principal investigator and sole author.

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