Firms in Trade and Trade Politics:
New Insights for the Political Economy of Globalization*

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Abstract

We survey a firm-centered model of trade politics, focusing on how the quality and extent of firms’ engagement with global markets drive their preferences over global economic integration. In contrast with prevailing approaches, a firm-centered model predicts that trade internally divides industries and that larger firms will be the strongest advocates for globalization. This new preference map alters predictions about which domestic political institutions lead to free trade and about which groups will successfully organize to defend or defeat liberalization. We also explore the potential for new insights into the operation of the global trade regime; the politics of foreign investment; immigration and capital movements; and exchange rates. Activities undertaken by firms lie at the center of trade and trade politics: firms ought to be at the center of our models of trade politics, too.

Key Words: international trade, firm-level analysis, new-new trade theory, intra-industry reallocation, collective action

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1 Introduction

The trade politics literature has devoted great attention to whether trade liberalization pits competitive industries against uncompetitive ones, or abundant factors of production against scarce ones. In this article, we introduce a competing theoretical framework that brings firms to the fore in trade politics. This firm-centered model is motivated by the empirical ubiquity of firm heterogeneity in global engagement: firms located in the same industry differ markedly in the extent to which they export, import, or invest abroad (e.g., Bernard et al. 2012). This simple observation has sparked a revolution in the study of trade economics, and also laid the key theoretical foundation for a firm-centered model of trade politics which is generating new insights for the political economy of globalization.

The model’s foundations can be summarized as follows. In any given industry, a small minority of large and highly productive firms account for almost all engagement of global markets. Under certain conditions, this firm heterogeneity implies that – in the same industry – some firms will gain profits from efforts to further global economic integration while others will lose profits or even be put out of business. These intra-industry reallocations of profit can occur with selling, sourcing, and producing in foreign markets. Building on these distributive consequences of globalization, firm-centered models make several predictions. Larger and more productive firms are more favorable to trade than smaller firms. Industries may be internally divided over whether to support or oppose liberalization. At the broadest societal level, pro- and anti-trade coalitions are likely to cross industries and unite larger firms who support trade in opposition to smaller firms.

A firm-centered approach provide several advantages and insights. First, it directly incorporates the various activities of globally engaged firms – exporting, importing, and foreign production – into a common framework with distinct empirical implications from the prevailing industry- and factor-centered approaches. In mirror fashion, it also explains the prevalence of firm-level political activities around trade. Second, firm-centered models suggest new accounts of how the collective action problem and domestic political institutions will impact the formation of trade policy. Third, firms’ preferences contribute to the form and function of global economic order, including provisions in trade agreement and the operation of international institutions. Finally, we highlight several areas to which firm-level analysis might profitably turn, including endogenous trade barrier formation; exchange rate politics; and cross-border movements of people and money.
2 Firms in International Trade

Economists and political scientists have created a vast literature on international trade and trade politics. While economists have focused on trade flows and overall welfare, political scientists have concentrated on the domestic political cleavages that underlie trade policymaking (see Rodrik [1995] for a review). We review two theoretical frameworks for understanding trade politics and explain the need for a third approach incorporating firm-level heterogeneity in global sales and sourcing. This firm-centered theoretical framework’s core insight is that trade liberalization reallocates production within industries as some firms increase in size and profits due to new global opportunities while others shrink or die due to enhanced competition.

2.1 Factor- and industry-centered theories of international trade

The standard trade model. The standard trade model focuses on comparative advantage arising from differences in factor endowments among countries, most commonly capital and labor. Countries specialize to export the goods that intensively employ factors they hold in abundance, and then import the goods which intensively employ factors which are locally scarce (Heckscher [1919] Ohlin [1933]). Countries take part in inter-industry trade to achieve efficiency gains, (e.g. exporting wine in return for automobiles) and resource reallocations take place across industries in the wake of trade liberalization. The standard trade model also accommodates industry-level differences in technology, a second leading explanation for comparative advantage (Ricardo [1817]).

The literature on preferences over trade policy has focused on two competing models of disagreement over trade policy which are special cases of the standard trade model (e.g., Rogowski [1987] Frieden [1992]). The Stolper-Samuelson (SS) theorem assumes that factors of production are freely mobile across industries and so factorial returns (like wages or the rental rate of capital) are identical across industries. Trade pits relatively abundant factors of production, whose incomes rise as trade expands, against relatively scarce factors of production. The Ricardo-Viner (RV) model, in contrast, assumes that factors are trapped in their current industry of occupation, and factors (like capital and labor) employed in comparative advantage industries will support trade while factors employed in comparative disadvantage industries will oppose it. Which of these models describes political cleavages over trade therefore depends on the degree of factor mobility (Alt et al. [1996] Hiscox [2002]).
New trade theory. The standard trade model is parsimonious and easily applied to many contexts, but its record at predicting actual patterns of international trade is weak (Feenstra, 2015, Ch. 2). Most importantly, many industries both export and face import competition at the same time (e.g. the US wine industry both exports to and faces import competition from Australian). This intra-industry trade accounts for most of the trade among industrialized countries, and so became a focus of the so-called new trade theory (NTT), which identified increasing returns to scale and consumer love of variety as the drivers of intra-industry trade (Krugman, 1980). First, where fixed costs of production are present, access to foreign markets allows firms to expand output and lower the average cost of production. For example, both the U.S. and Australia exchange wine because firms in each country increase their efficiency by selling their products in both markets. Second, consumer love of variety explains why countries will benefit from exchanging similar goods within the same industry as differentiated products (e.g., diverse labels of wine) become available. This has typically been modeled with the following Dixit and Stiglitz (1977) constant elasticity of substitution (CES) utility function,

$$U = \left( \int_{\omega \in \Omega} q(\omega)^{\frac{\sigma-1}{\sigma}} d\omega \right)^{\frac{1}{\sigma-1}},$$  

where $\sigma > 1$ is the elasticity of substitution capturing the degree of product differentiation. It is important to note that NTT assumes that all firms export, and each variety $\omega$ is produced by a separate exporting firm that is identical in size and productivity in any given industry. That is, it does not account for firm-level heterogeneity that we consider below.

How intra-industry trade impacts trade politics depends in part on differences in factor endowments between trade partners. Where differences in endowments are great, NTT’s focus on intra-industry trade is still compatible with either the SS or RV approaches to trade cleavages. However, intra-industry trade does dampen changes in factor prices after liberalization because love-of-variety augments demand for the products for which countries are at a comparative disadvantage (Krugman, 1981). For this reason, the intensity of conflicts over trade is reduced. Where differences in endowments are small, it is possible that trade benefits all factors of production because love-of-variety unlocks new gains from trade, and

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1Increasing returns to scale play a prominent role in accounts of ‘strategic’ trade policy (Brander and Spencer, 1985; Milner and Yoffie, 1989) and regionalism (Chase, 2003).

2Products are more differentiated as $\sigma$ gets closer to 1 whereas products are perfect substitutes of each other as $\sigma$ increases.

For example, suppose that products are sufficiently differentiated such that $\sigma = 2$. Consumers attain higher utility by consuming one bottle each of different labels of wine ($4 = (1^{\frac{1}{2}} + 1^{\frac{1}{2}})^2$) rather than two bottles of one label ($2 = (0^{\frac{1}{2}} + 2^{\frac{1}{2}})^2$).
therefore liberalization engenders no conflict of interest. For these reasons, intra-industry trade may explain the decline in tariffs among the capital-rich industrialized nations (Lipson 1982; Milner 1999).

2.2 Firm Heterogeneity in Sales and Sourcing

Although differences in technology, factor endowments, and consumer love of variety successfully explain some patterns in international trade, firm-level data has revealed enormous heterogeneity in the extent of global engagement across firms within industries. This heterogeneity has implications for the economic effects of trade and trade policy, but also suggests that extant accounts of cleavages over trade – in which all firms in the same industry share the same preference – may be misleading.

Export Participation. The primary empirical finding in the literature on firms and trade is that in any given industry usually only a minority of firms export. Bernard et al. (2007) finds that approximately 18% of all U.S. manufacturing firms export, and that exporters are a minority within all manufacturing industries. Moreover, exporting is exceptionally concentrated: an elite group of superstar firms generally account for the vast majority of foreign export sales. The largest 1% of US firms that export account for 81% of US exports (Bernard, Jensen, and Schott 2009). Similar patterns have been uncovered in many other countries. Exporting firms also tend to be larger and more productive than non-exporters, and rely more on skilled labor and financial capital.

The highly skewed distribution of firms’ export participation, as well as firm-level heterogeneity in factor usage, are inconsistent with the standard trade model’s focus on industry-level technological advantage and factor intensities, suggesting instead that firm-level factors shape competitiveness. Firm-level heterogeneity is also inconsistent with the identical firm assumption in NTT which implies that all firms export. The focus on firm heterogeneity has shifted the primary unit of analysis in the study of trade from countries and industries to firms and incorporating firm’s export participation has contributed to key debates in international trade on the productivity-enhancing effects of trade liberalization within industries; the gravity model of trade (Chaney 2008); cross-country patterns of sales (Eaton, Kortum, and Kramarz 2011); and unemployment and inequality (Helpman, Itskhoki, and Redding 2010).

Importing (Sourcing at Arm’s Length). Firms import intermediate inputs and final goods produced offshore if they can benefit from factor endowments, technologies, and firm-specific relationships in foreign markets. Just as with exports, only a small subset of firms actually import intermediate inputs or final products. Bernard et al. (2007) find that the share of importers within various manufacturing industries
in the U.S. are even smaller than the shares of exporters, about 14% of firms across all of manufacturing. Importing is also extremely concentrated, with the largest 1% of all importing firms accounting for 78% of all imports. Many of the same firms which dominate importing also dominate exporting and so like exporters, importing firms are much larger and more productive on average (Bernard, Jensen, and Schott 2009). The top 10% of trading firms in terms of the sum of their imports and exports account for over 95% of the total volume of international trade (Bernard et al. 2007).

**Offshore Production for Sales and Sourcing.** Firm-level heterogeneity also occurs in foreign direct investment (aka offshoring); we consider “horizontal” and “vertical” motives, the offshore analogs to onshore sales and sourcing. “Horizontal” FDI occurs when firms locate a foreign affiliate abroad in order to sell into that foreign market, and is driven by market access barriers like tariffs and shipping costs. Like exporting, horizontal FDI is both a minority pursuit and highly concentrated (Helpman, Melitz, and Yeaple 2004). “Vertical” FDI occurs where firms set up production facilities abroad in order to exploit endowments, technologies, or supply chains located in those markets. Usually the production is then exported back to the home market or the rest of the world. Like importing, vertical FDI is highly concentrated among the largest and most productive firms (Antrás 2003; Antras and Helpman 2004).

Patterns of firm heterogeneity have opened up a rapidly growing empirical literature. Although firm-level data is often private, some financial databases based on public company reporting and disclosure requirements have been used in academic research (e.g. COMPUSTAT and ORBIS). Firm-level data are also available to researchers under strict government permissions. For example, researchers can analyze highly disaggregated U.S. firms’ product-level trade activities using the Census Bureau’s Longitudinal Firm Trade Transactions Database (LFTTD). There are a growing number of empirical studies examining firm heterogeneity in the United States (Baccini, Pinto, and Weymouth 2017), Europe (Mayer and Ottaviano 2008), and beyond.

**2.3 Firm-centered theories of international trade**

Firm-level productivity differences and the costs of international trade have been identified as the two key theoretical factors that explain firms’ heterogeneous global engagement. First, some firms are more productive than others, that is, they have lower costs of production relative to price (Bernard and Jensen 1999). These productivity differences may govern all production, or they may be specific to certain markets. Similarly, productivity differences may be exogenous, or economically and politically endogenous...
as with investments in exporting by both firms and the state. The critical point is that firms that are more productive are able to sell in higher volumes and earn greater profits. Second, engaging global markets is costlier than engaging one’s own domestic market. These costs may be fixed (e.g., bringing products into compliance with foreign regulations, or researching foreign factory sites) or variable (e.g., tariff and non-tariff barriers to trade, or higher costs of doing business in foreign markets). They may also be apolitical (like transport costs) or politically determined (as in the quality of trade partner institutions, or the degree of discrimination against foreign producers). Combining these two ingredients, only the most productive firms have the sufficient scale (or price markups over cost) to make absorbing the higher fixed (or variable) costs of global engagement worthwhile. This rationalizes the finding that firms which export and produce abroad tend to be highly productive and larger.

These insights are formalized in a new generation of firm-centered trade theory (known as “new, new trade theory”). Melitz (2003) introduced a canonical model of international trade with firm-level heterogeneity in productivity. In the model, firms considering entering the market face uncertainty about their productivity. After paying a non-recoverable fixed cost, each firm learns about their own productivity $\varphi$. Low productivity firms will exit the market immediately. The remaining firms engage in competition to sell their differentiated varieties given the consumer preferences defined in equation (1). Importantly, these firms differ in terms of their variable production cost: a firm with productivity $\varphi$ uses $q(\omega)/\varphi$ units of labor in order to produce $q$ units of a differentiated product $\omega$. More productive firms incur lower production costs, and so with sufficiently high fixed costs of exporting, only highly productive firms can export because only they can generate sufficiently high profits to cover the fixed trade costs.

A key theoretical implication of this firm-centered model is that trade liberalization results in reallocations of production and profit within industries (Levinsohn 1999; Melitz 2003). Firms with low productivity shrink production due to intensified competition in goods and factor markets, and may even go out of business (Pavcnik 2002; Tybout 2003). Highly productive exporting firms enjoy significant increases in profit from foreign markets due to expanded sales and increasing returns to scale. A very similar set of redistributive consequences can take place in the areas of importing and the multinationalization of production. The most productive firms are the only firms which can benefit from enhanced opportunities for trade and investment, while other firms see no benefits and may be harmed by intensified competition from their own compatriot firms as well as foreign firms (Topalova and Khandelwal 2011). Overall, global economic integration will redistribute profits within an industry – to firms that
can engage global markets and away from firms that can’t.

**Scope Conditions** These intra-industry reallocations of profit have crucial scope conditions, which delimit the reach of firm-centered accounts of trade. With respect to exports and import competition (‘ordinary trade’), the key scope conditions for intra-industry reallocations of profit are that products be differentiated and that trade liberalization be reciprocal amongst two reasonably competitive partners (Osgood 2016). Under these conditions, an industry will have both some exporting firms and domestic firms that face intensified import competition from trade liberalization because trade flows both ways when consumers have a taste for variety. Major intra-industry reallocations of profit are therefore less likely in industries where trade flows in one direction, and product homogeneity ties all producers to the same price and so gives them the same attitude about trade.

In the area of sourcing inputs from abroad at arm’s length (that is, outside the boundaries of the firm), intra-industry allocations of profit require that there be significant opportunities for importing arising from trade liberalization, and that some feature of importing limit these opportunities to a subset of firms. For example, importable inputs might be relatively differentiated (or firm-specific) and so require the cultivation of close relationships with foreign producers, which may be too costly for smaller firms. Divisions over importing seem less likely for homogeneous products (e.g. imported gasoline or standardized printer paper) that are easily imported and distributed by intermediaries. The offshoring of production of components and final products has fewer scope conditions, requiring only that liberalization generate new opportunities for the offshoring of production.

Finally, we emphasize the prominent role of unrecoverable sunk costs of investment in production in most firm-level models. These sunk costs represent the inability of firms to repurpose capital outside of its present use, even within the same industry. This idea connects and contrasts firm-centered models with the debate on factor mobility in factor- versus industry-centered approaches.

### 3 A Firm-Centered Model of Trade Politics

Firm-centered models are a new and distinct approach to trade politics. This approach is founded on different assumptions than the prevailing Stolper-Samuelson and Ricardo-Viner approaches which give rise to starkly different distributive consequences. We now consider the original implications about preferences over trade that arise from these distributive consequences at the level of the firm, the industry, and among all producers. We then consider how firm-centered approaches might intersect with collective
action and political institutions to shape trade policy outcomes.

3.1 Trade Preferences

**Firm Preferences and Political Activities.** The first major prediction of a firm-centered model of trade preferences is that more productive (or larger) firms should support trade liberalization while less productive firms should not. This is a straightforward consequence of the intra-industry reallocations arising from liberalization described above. We illustrate this claim in Figure [1]. The left panel shows that public US manufacturing firms that lobby on trade issues are significantly larger than other firms, even compared to other politically active firms that lobby on non-trade issues (Kim, 2017). Because the Lobby Disclosure Act does not require firms to disclose the direction of their lobbying (e.g. for or against trade agreements) we also investigate whether firms publicly supported trade. The right panel shows a remarkably similar contrast between firms which did and did not publicly support trade. Larger firms support trade liberalization and are more likely to engage in trade-related lobbying.

Examining preferences in surveys, Plouffe (2017) and Osgood et al. (2017) find similar patterns: larger firms are significantly more likely to support trade liberalization in Japan and Costa Rica, respectively. These patterns are not a result of the fact that larger firms concentrate in export-competitive industries: both studies employ appropriate controls for industry-level competitiveness and find that firm-level features remain critical to explain preferences. In this vein, Table [1] shows that the size/preference differences illustrated in Figure [1] remain consistently stark across various industries.

These findings highlight differences between a firm-centered approach and the Ricardo-Viner model of trade preferences. In the RV model, unproductive firms in comparative advantage industries support trade and productive firms in comparative disadvantage industries oppose trade. In a firm-centered account of trade politics, however, product differentiation severs the political links between firms by turning them into quasi-monopolists of their own product varieties. The literature has thus examined product differentiation as a key scope condition. Kim (2017) demonstrates that productive firms lobby

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3Firms (as well as associations) in the U.S. regularly express support for trade by joining *ad hoc* coalitions to support particular trade issues, including trade agreements, the extension of PNTR (Permanent Normal Trade Relations) to a new country, or renewal of Trade Promotion Authority. As an example, a large group of firms and associations created the US-Korea FTA Business Coalition to support the KORUS agreement. These coalitions are the primary source of data on public support for trade by US firms, but are also complemented by information from letters, submissions, Congressional testimony, and other idiosyncratic sources.
Figure 1: **Revenue Differences between Politically Active and Inactive Firms**: The left panel compares the revenues (in logged US dollars) between firms that (a) did not lobby, (b) lobbied on issues other than trade, and (c) lobbied on trade issues. It shows that firms that lobby on trade are significantly larger than other firms. The right panel shows that firms that have publicly expressed support for open trade are larger. This figure is based on all public manufacturing firms in 2014 from COMPSTAT for the left panel and from ORBIS for the right panel.

on their own to support trade liberalization when their products are sufficiently differentiated. Osgood (2017a) identifies several inconsistencies with the RV model in patterns of public attitudes among US producers, and shows that these inconsistencies occur where products are differentiated. For example, net-importing industries are more likely to have firms express support for trade in differentiated good industries.

The literature has also examined opportunities for the development of global supply chains as a determinant of firms’ trade policy preferences. Jensen, Quinn, and Weymouth (2015) show that firms heavily engaged in global production for export back to the United States are far less likely to file antidumping petitions. Blanchard and Matschke (2015) show, using firm-level data on the global production of US multinationals, that industries with significant multinationalization have lower tariffs, suggesting that US multinationals have pushed down tariffs in the United States. (Kim et al., 2018) uses a conjoint experiment to examine the contrasting interests of import-competing domestic firms, exporting firms, and multinational firms across several key facets of modern trade agreements.
<table>
<thead>
<tr>
<th>NAICS Description (Code)</th>
<th># Firms</th>
<th>% Lobby Trade</th>
<th>% Support Free Trade</th>
<th>Revenue Diff. Lobby Support</th>
<th>Example Firm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food (311)</td>
<td>92</td>
<td>17.4</td>
<td>11.9</td>
<td>2.3</td>
<td>Tyson Foods Inc.</td>
</tr>
<tr>
<td>Beverage and Tobacco (312)</td>
<td>36</td>
<td>27.8</td>
<td>11.3</td>
<td>2.2</td>
<td>Coca-Cola Co.</td>
</tr>
<tr>
<td>Textile Mills (313)</td>
<td>11</td>
<td>9.1</td>
<td>16.7</td>
<td>0.2</td>
<td>Polymer Group Inc.</td>
</tr>
<tr>
<td>Textile Product Mills (314)</td>
<td>5</td>
<td>20.0</td>
<td>0.0</td>
<td>−0.4</td>
<td>Pillowtex Corp.</td>
</tr>
<tr>
<td>Apparel (315)</td>
<td>46</td>
<td>10.9</td>
<td>21.1</td>
<td>1.5</td>
<td>Hanesbrands Inc.</td>
</tr>
<tr>
<td>Leather (316)</td>
<td>20</td>
<td>10.0</td>
<td>12.5</td>
<td>2.8</td>
<td>Nike Inc.</td>
</tr>
<tr>
<td>Wood (321)</td>
<td>22</td>
<td>4.5</td>
<td>9.5</td>
<td>2.1</td>
<td>Western Forest</td>
</tr>
<tr>
<td>Paper (322)</td>
<td>40</td>
<td>12.5</td>
<td>24.1</td>
<td>1.9</td>
<td>Meadwestvaco Corp.</td>
</tr>
<tr>
<td>Printing (323)</td>
<td>21</td>
<td>0.0</td>
<td>12.5</td>
<td>2.2</td>
<td>R.R. Donnelley &amp; Sons</td>
</tr>
<tr>
<td>Petroleum and Coal (324)</td>
<td>35</td>
<td>20.0</td>
<td>22.2</td>
<td>3.1</td>
<td>Chevron USA Inc.</td>
</tr>
<tr>
<td>Chemical (325)</td>
<td>674</td>
<td>7.3</td>
<td>4.7</td>
<td>3.6</td>
<td>Pfizer Inc.</td>
</tr>
<tr>
<td>Plastics and Rubber (326)</td>
<td>51</td>
<td>7.8</td>
<td>10.7</td>
<td>2.5</td>
<td>Armstrong World Ind.</td>
</tr>
<tr>
<td>Nonmetallic Minerals (327)</td>
<td>28</td>
<td>14.3</td>
<td>7.1</td>
<td>1.4</td>
<td>Owens-Illinois Inc.</td>
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<tr>
<td>Primary Metal (331)</td>
<td>54</td>
<td>22.2</td>
<td>6.8</td>
<td>1.5</td>
<td>US Steel Corp.</td>
</tr>
<tr>
<td>Fabricated Metal (332)</td>
<td>74</td>
<td>5.4</td>
<td>10.3</td>
<td>1.0</td>
<td>Timken Company</td>
</tr>
<tr>
<td>Machinery (333)</td>
<td>200</td>
<td>8.5</td>
<td>8.2</td>
<td>2.7</td>
<td>Caterpillar Inc.</td>
</tr>
<tr>
<td>Computer and Electronics (334)</td>
<td>642</td>
<td>6.1</td>
<td>4.7</td>
<td>3.6</td>
<td>Microsoft Corp.</td>
</tr>
<tr>
<td>Electrical Equipment (335)</td>
<td>88</td>
<td>8.0</td>
<td>3.0</td>
<td>2.7</td>
<td>General Electric</td>
</tr>
<tr>
<td>Transportation Equipment (336)</td>
<td>132</td>
<td>13.6</td>
<td>14.6</td>
<td>3.1</td>
<td>Boeing</td>
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<tr>
<td>Furniture (337)</td>
<td>25</td>
<td>4.0</td>
<td>13.8</td>
<td>1.2</td>
<td>Leggett &amp; Platt Inc.</td>
</tr>
<tr>
<td>Miscellaneous (339)</td>
<td>171</td>
<td>5.8</td>
<td>4.0</td>
<td>2.1</td>
<td>3M Company</td>
</tr>
<tr>
<td>Total</td>
<td>2516</td>
<td>8.6</td>
<td>7.2</td>
<td>2.1</td>
<td>3.4</td>
</tr>
</tbody>
</table>

Table 1: **Heterogeneous Political Activities within Manufacturing Industries.** This table provides descriptive statistics on the size distribution of publicly traded firms in 21 three-digit North American Industry Classification System (NAICS) manufacturing industries. It shows both the number of firms in those sectors and the share of those firms which lobbied on trade or tariffs issues, and the share of firms that publicly supported free trade. The penultimate columns show the difference in revenue (in millions USD, logged) between (1) lobbying vs. non-lobbying firms and (2) companies publicly supported free trade vs. those that did not, whereby the formers are much larger than the latters. The last column lists the companies with the most lobbying reports related to trade issues between 1999 and 2016 in the respective three-digit NAICS industry. The lobbying data is from [https://LobbyView.org](https://LobbyView.org).

**Divisions within Industries.** The firm-level drivers of preferences evinced by these studies suggest a second major implication for preferences over trade: industries might be internally divided over whether to support or oppose trade liberalization. The literature has examined two observable implications of these divisions: public intra-industry divisions over trade where some firms support a trade liberalizing measure that other firms in the same industry oppose; and, firm-centered patterns of lobbying and position-taking where individual firms lobby or publicly take positions on trade issues while industry associations remain inactive. For example, U.S. STEEL lobbies heavily on trade although the firm itself is also a member of AMERICAN IRON AND STEEL INSTITUTE, an industry association. Table[1] provides
more systematic detail on firm-centered patterns of lobbying and positiontaking across US manufacturing industries, and illustrates vividly that political engagement on trade is a minority pursuit with much activity undertaken by individual firms.

Several studies have examined intra-industry disagreements and firm-centered political activities. Madeira (2016) and Osgood (2017a) find that public intra-industry disagreements and firm-centered (rather than association-centered) patterns of lobbying are greater in industries with product differentiation or intra-industry trade. Milner (1988) and Osgood (2017b) finds that these manifestations of intra-industry cleavages are also associated with the sourcing of intermediate inputs and offshoring. Jensen, Quinn, and Weymouth (2015) argue that disagreements between onshore and offshore producers undermine efforts (at the level of the industry) to counter foreign currency undervaluation. The heterogeneity in firms’ political activity examined in these studies call into question the assumption of homogeneous preferences across members of an industry, and suggest that industry organizations may not fully represent heterogeneous interests among their members.

**Broad-Based Cleavages and Coalitions.** A third major implication for preferences over trade concerns the macro structure of pro- and anti-trade forces. In factor- and industry-centered accounts, pro-trade forces at the societal level are either abundant factors or competitive industries, respectively. In these two cases, all firms, large and small, support trade if capital is locally abundant; or, all firms located in competitive industries support trade. In our firm-centered account, the pro-trade coalition includes very large firms which cut across industries that are both net-exporting and net-importing. The anti-trade coalition includes the less productive firms from across all industries, including industries that are net-exporting. These patterns seem to be evident in the constellation of peak associations and coalitions that regularly support trade in the United States. For example, large firms are heavily represented in the US Chamber of Commerce, the National Foreign Trade Council, and the coalition Trade Benefits America. Major corporations also play a prominent role in the ad hoc coalitions which form to support US trade agreements. The broad outlines of the US pro-trade coalition are also evident in Table 1, which shows that lobbying on and support for trade is ubiquitous across US manufacturing even as it is concentrated among the largest firms.

**Pro-Trade Firms’ Allies: Workers and Owners of Equities.** Our discussion so far has focused on producers, but a firm-centered approach to trade has implications for workers’ (and by extension, public) attitudes towards global economic integration, too. In a firm-centered approach, workers’ interests
in trade may be directly tied to the success of their firm in the global economy. Bernard, Jensen, and Lawrence (1995) show that larger and more productive firms pay higher wages to their workers, while Helpman, Itskhoki, and Redding (2010) show that there exists significant wage inequality within industries across firms. This may be because high productivity firms employ different kinds of workers (e.g. higher-skilled workers to produce higher quality products); or, because search frictions allow workers at larger firms to bargain for higher wages. In either case, the heterogeneous impact of globalization on firms in the same industry naturally leads to heterogeneous effects on workers. Workers that are employed in larger and more globally competitive firms will be likely to support integration; workers employed in smaller and uncompetitive firms will be more likely to oppose trade.

Consistent with this, Walter (2017) provides evidence on the globalization preferences of high-skilled workers in Europe, showing that high-skilled workers are less concerned about labor market risk than low-skilled workers, especially where exposure to the global economy is high. This latter conditional effect is crucial for disambiguating these results from a standard factorial approach (which might argue that high-skill workers in any industry might support trade in skill-abundant Europe). This approach might be extended by further examining inter-firm mobility of workers across professions and industries. For example, data entry workers may be highly substitutable across firms, and so have a weaker attachment to the trade policy preferences of their current employer. Workers with highly specialized skills may be far less substitutable, and so their preferences align closely with their current employers’.

Alternatively, Owen (2017) and Owen and Johnston (2017) emphasize the importance of offshorability of particular types of tasks/jobs. Offshorability of tasks ought to interact naturally with a firm-centered model of trade, because highly productive firms are more likely to engage in offshoring. In this way, workers engaged in offshorable tasks may be especially opposed to globalization if they happen to work at large, globally engaged firms. This contradicts our initial conjecture that workers at large firms might be more pro-globalization: much work remains to be done in this area.

In addition to workers, publicly-traded pro-trade firms may also find allies in the owners of their shares. Because the firms that are the greatest beneficiaries from global integration are large and highly productive, many of them are also public corporations. Thus, pro-trade firms and large owners of equities may share a strong stake in globalization. While the ownership of stocks, like all wealth, is relatively concentrated, many citizens may come to have a significant stake in equities through retirement savings, defined-contribution pension plans, and even charitable endowments (as in our own profession). In this
way, support for the globalized economic order as currently designed may extend well beyond the small number of very large corporations that dominate trade and investment.

### 3.2 Firm-Centered Approaches and Collective Action

A foundational claim in the political economy of trade is that concentrated protection-seeking special interests have organizational advantages (they are small in number with intense preferences) compared to dispersed pro-trade consumers (who are many in number with weaker preferences over any protective measure) (Schattschneider 1935, pp.127-8). This argument is adduced to explain why trade has been relatively unfree across time (Pareto 1927, p. 379). Yet, trade is remarkably free in the present era.

A firm-centered account of collective action over trade may shed light on this puzzle. Because the benefits of global economic integration are highly concentrated, big firms have strongly held preferences for integration and they are also few in number (De Bièvre and Dür 2005). In models of firm heterogeneity, the costs of integration (as greater home market competition from either foreign firms or globally engaged home market firms) are widely spread, and so firms opposed to trade are many but with weaker preferences. Pro-trade firms may therefore have advantages in *individual* forms of political action, like lobbying (see Table 1) and campaign contributions. Larger firms have greater financial resources to invest in political influence and have the scale to make those investments profitable to the extent that political investment has fixed costs (Kerr, Lincoln, and Mishra 2014). In this way, the drivers of firm engagement in international markets mirror the drivers of firm engagement in political markets.

Pro-trade firms may also hold advantages in *industry*-based forms of collective action, like industry trade associations. This may occur if the largest firms’ contributions to collective efforts are a decisive share of all contributions; or, if an industry has multiple trade associations with (at least one) dominated by larger firms. A long-running theme in the literature on trade protection concerns the size distribution of firms in industry: it is argued that industries with significant heterogeneity in firm size will be more likely to organize and secure trade protection as the largest firms pay the fixed costs of lobbying (Bombardini 2008). This argument might be extended by considering preference heterogeneity between large firms and small firms. Large firms that export are likely to support liberalization in reciprocal trade negotiations; and large firms that engage in vertical multinationalization are likely to support unilateral reductions in trade barriers in the home market. In this way, highly skewed distributions of firm sizes may give rise to industry associations that feature strong support for global economic integration.
Finally, big pro-trade firms may also be structurally advantaged in their society-wide efforts to form a broad-based pro-trade coalition. Using classic results from collective action theory, larger pro-trade firms are fewer in number which eases monitoring and clarifies responsibility in the provision of public goods. Their preferences are more intense, increasing the marginal benefits of contribution to collective efforts. This argument therefore reverses the usual formulation about the collective advantages of trade’s opponents, and so contributes a new explanation for the current era of global economic integration (Osgood, 2017a; Kim, 2017). The patterns we described above of highly organized pro-trade coalitions in the United States (and a corresponding lack of organization and influence at the broadest levels among anti-trade firms) provide prima facie evidence of this claim, although certainly more research is needed.

Our approach emphasizing the organizational advantages of pro-trade firms raises two questions. First, if pro-trade firms hold these advantages, why hasn’t trade always been free? One tentative answer is that the scope conditions for firm-centered models of trade politics hold more in the present than they did in the past. Product differentiation may have increased over time activating intra-industry divisions over trade; and global supply chains are more developed due to improvements in shipping and logistics (as well as endogenous institutional factors, like the GATT/WTO regime). Industrial concentration has also increased over time, increasing the heterogeneity among firms. Second, couldn’t product differentiation make trade protection a private good if firms are able to secure narrow tariffs on the precise varieties which they monopolize (Gilligan, 1997; Goldstein and Gulotty, 2014)? In this alternative account for how firm-specific interests affect trade politics, firm-level factors reinforce, not weaken, protectionism (Bombardini and Trebbi, 2012). This is a powerful argument, which may coexist with our argument about the collective advantages of pro-trade firms: those same broadly pro-trade firms may be pursuing individually tailored forms of protection at the same time that they seek greater market access abroad. For example, they might readily accede to liberalization of other industries and firms’ products while maintaining their own prized (and private) forms of protections on the narrow set of products that they produce. Overall, we suspect that very large pro-trade firms may resist that temptation to the extent that individual carveouts undermine reciprocal efforts at liberalization, or directly harm their own interests as with vertical multinationals (Mayda, Ludema, and Mishra, 2010).
3.3 Firms and Domestic Political Institutions

How firm-centered models interact with domestic political institutions has received little attention. We advance some conjectures building off the following question: If very large firms and multinationals are the primary supporters of international integration, what are the political institutions that amplify their voices? One answer is permissive rules on lobbying and campaign contributions. Among corporations, these activities tend to be dominated by the largest firms (Drope and Hansen 2006). Institutional changes which facilitate lobbying or increase limits on corporate contributions to politicians will therefore strengthen the voices of primarily pro-trade actors. In polities where the influence of large corporations is more circumscribed, an important pro-trade voice will tend to be diminished. The literature lacks a cross-national examination of the effects of rules on special interest access on trade openness.

Electoral institutions may also be worth investigating, although it is not obvious which electoral institutions empower the narrow slice of globally engaged firms (Rickard 2015). Betz (2017) provides one model, arguing that institutions that privilege narrow interests (such as plurality rule) may amplify either pro-trade or anti-trade special interests, and so create a greater variance in trade policy outcomes. Rickard (2012) and Park and Jensen (2007) argue that narrow-interest institutions conduce towards subsidies, which naturally target individual firms including exporters and MNCs. This points towards a more careful examination of the varieties of trade protection and how they might target different levels of aggregatation – firm, industry, or factor. An alternative view might hold that plurality or majoritarian systems, with their smaller districts and candidate-centered politics, grant more power to very large corporations, as particular districts look like ‘company towns.’ To the extent that large corporations are more organized and influential, plurality rule may then lead to more liberal trade.

The leading role of a small number of very large, pro-trade firms in supporting globalization also suggests new channels by which democratic institutions can affect trade policy (Mansfield, Milner, and Rosendorff 2002; Dutt and Mitra 2002). If democratic institutions tend to disempower elite producer interests, then democratization might threaten free trade. If, however, democracy has the effect of weakening both elite and non-elite producers equally, then the effects of democratization on the special interest politics of trade may be ambiguous. Another unanswered question is whether mass publics are reacting to the fact that a small number of very large firms are taking the lion’s share of the benefits from the open economic order. Further investigation of these points is especially important in light of apparently renewed populist nationalism.
4 Further Applications of Firm Heterogeneity

4.1 The Design of International Economic Cooperation

A firm-centered framework has important implications for the design of international trade agreements (Kim 2015; Dür, Baccini, and Elsig 2014). First, the rise of investment protections strongly reflect the interests of the small proportion of firms that have significant multinational operations and the resources to handle arbitration costs. Kim et al. (2018) examines how firm characteristics affect preferences over investment provisions and dispute settlement mechanisms. Johns and Wellhausen (2016) and Wellhausen (2014) examine multinationals’ efforts to cultivate networks of host-country and co-national allies as a backstop when investment provisions are absent or fail to deter expropriation. Following this work, we highlight that firms are often the appropriate unit of analysis for investigating “deep integration” beyond market access, as in investment provisions (Antrás and Staiger 2012).

Second, trade agreement chapters protecting owners of intellectual property are also likely to reflect the demands of very large firms, because ownership of IP is concentrated among large firms. Because large firms also dominate foreign investment and exporting, they have strong incentives to see that ownership rights are respected globally. In this view, the rise of intellectual property provisions in trade agreements is not just a functional spillover, but rather may represent the interests and power of the firms that set much of the global trade agenda. There is a need for further work in other issue-specific chapters (e.g. pharmaceutical and medical devices, services trade, financial services, telecommunications, and e-commerce) to employ firm-centered approaches to understand why these industries and sectors have received specific attention, while others have not. It also remains to be shown if and how the content of these chapters reflect the specific interests of very large firms.

Third, firms’ preferences may also drive the regulatory provisions of trade agreements. One argument is that globally engaged firms are lobbying to reduce foreign regulatory barriers while also standardizing regulation across the various markets in which they are engaged. Alternatively, Gulotty (2018) argues that much foreign regulation acts as an additional fixed cost of production for exporting firms. Because larger firms can absorb these costs, they may support higher fixed costs in their export markets in order to defeat export market entry of less productive domestic rivals.

Finally, firms also impact the functioning of the international economic order. For example, temporary trade remedies like duties on dumped or subsidized products are generally requested by individual
firms in WTO member states, raising several questions: What are the characteristics of firms that seek temporary protection? Which firms in an industry are hurt by temporary protections which damage their ability to source abroad or export due to retaliation, and how are these intra-industry conflicts managed (Konings and Vandenbussche 2013; Jensen, Quinn, and Weymouth 2015)? What firm-level features impact the functioning of the system of trade remedies? In answer to these questions, some literature has developed on the role that firms play in initiating disputes at the World Trade Organization. Bown (2010, Ch. 5) provides an overview of the various roles that individual firms play in the WTO’s dispute settlement process. Brutger (2014) argues that firms subsidize state’s legal efforts, both to lower the costs of WTO litigation to their own government and as a costly signal of the seriousness of their injury.

4.2 Foreign Direct Investment

Trade and foreign direct investment are interlocking arenas reflecting different options available to globally engaged firms (Pandya 2016). The economics literature identifies two distinct tradeoffs which reflect our separation of global sales and sourcing. First, “horizontal” FDI (selling goods made in a foreign market rather than exporting to it) is likely when costs of trade outweigh the costs of opening and maintaining foreign subsidiaries, including diseconomies of scale from international fragmentation. This is the “proximity-concentration” trade-off (Helpman, Melitz, and Yeaple 2004). Because there may be firm-level heterogeneity in the ability of firms to open foreign affiliates, this tradeoff may generate conflicts of interests within industries, as potential exporters push for trade liberalization that horizontal MNCs resist (and MNCs push for investment liberalization that exporters resist). The literature lacks a definitive account of such intra-industry clashes of preferences and their effects on equilibrium tariffs.

Firms that are considering sourcing abroad also face a trade-off. Foreign sourcing of inputs and final goods within the boundaries of the firm (“vertical” FDI) ensures control and eliminates the hold-up problem but is generally thought to have larger start-up costs than sourcing at arm’s length from foreign suppliers (Antras and Helpman 2004). Vertical multinationals and offshore-outsourcers therefore do not have a direct clash of interest over trade policy – both prefer that home market trade barriers on the inputs and final products they produce abroad be lowered. However, they might disagree on whether to prioritize protections for foreign investment or for intellectual property (as in recent debates about rules on investment, technology transfer, and IP in China). The effects of foreign property rights have been a key focus of the trade literature on this tradeoff; endogenizing those property rights in a model of trade
and FDI politics with interstate bargaining would be a valuable contribution.

### 4.3 Extensive and Intensive Margins of Trade

Incorporating firm’s export participation has been remarkably successful in understanding trade flows. Specifically, the gravity equation of international trade that relates bilateral trade volume and distance between countries is mostly accounted for by the “extensive margin” (i.e., the number of exporting firms and number of products) \textit{alone} rather than the “intensive margin” (i.e., the volume of trade) (Chaney 2008). Indeed, Eaton, Kortum, and Kramarz (2011) show that the number of French firms exporting to a certain market (i.e., the extensive margin) is strongly correlated with market size, while sales distributions of firms are notably similar across markets. Firms exporting to smaller market are also more likely to serve large markets, confirming the importance of analyzing firm’s export participation in and of itself.

These findings have implications for empirical studies of trade, in which the gravity equation has been a primary workhorse model with little attention paid to extensive margins. Scholars often relate bilateral trade volume to other political variables of interest (e.g., a regression of bilateral trade on a measure of democracy), while \textit{excluding} county pairs that do not engage in trade entirely from their analysis. Such analysis, however, introduces selection bias if there exist systemic reasons why countries do not trade to begin with. We expect that a promising area for future research will be related to distinguishing firms’ selection into foreign markets when scholars evaluate the effects of various domestic and international institutions on trade such as institutional membership in GATT/WTO (Tomz, Goldstein, and Rivers 2007), democracy (Mansfield, Milner, and Rosendorff 2000), and alliances (Gowa 1989).

### 4.4 Other Areas of International Political Economy

We conclude by identifying other areas in international political economy that might benefit from closer attention to the political activities of firms, beginning with the politics of immigration. Peters (2014) argues that burgeoning multinationalization and trade liberalization have eroded demand for immigrant labor from labor-intensive firms in the United States, and examines patterns of firm-level lobbying (Peters 2017, Ch. 5). Kerr, Lincoln, and Mishra (2014) examine corporate lobbying in favor of high-skilled immigration. In these papers, only some firms can go abroad to employ less-skilled workers and only some firms can afford to lobby in favor of fewer restrictions on the immigration of high-skilled workers. In this way, the politics of immigration can divide industries.

Analogously, firm-centered approaches to the politics of capital movements are ripe for further explo-
ration. Following Pinto and Pinto (2008) and Pandya (2013), one approach might consider how foreign capital can either complement or compete with domestic capital owing to the size of the firm or some other firm-level characteristic. Deepening supplies of foreign capital might particularly benefit the larger firms that issue commercial paper, bonds, or publicly traded equity shares, for example, while increasing competition for smaller firms not participating in capital markets. Future research might consider financial development’s role in firms’ global competitiveness – and vice versa – in a setting where trade and financial policy are endogenous (Do and Levchenko, 2007).

Firm-level analysis also holds new insights for exchange rate politics. Broz, Frieden, and Weymouth (2008) examine firm-level survey data on exchange rate preferences, but find no consistent effect of firm size on exchange rate attitudes. A possible extension might consider how heterogeneity in firms’ global operations affects preferences over the exchange rate, as when vertical multinationals welcome home country depreciations that both exporters and domestic firms oppose. Walter (2008) examines how the composition of firms’ balance sheets may impact preferences over the level of the exchange rate, and the exchange rate regime. For example, firms that borrow in foreign currencies are vulnerable to currency depreciation; firms that borrow domestically are vulnerable when a fixed exchange requires monetary tightening. Both of these ideas suggest that there may be significant heterogeneity that cuts across the sectoral and industrial lines emphasized in the literature on exchange rate preferences.

Firm-level analysis is also natural for examining government policies or social practices that discriminate among different producers. Recent work has examined how governments may discriminate against foreign-owned firms, whether through direct expropriation or more indirect forms of taxation and regulatory policy (Johns and Wellhausen, Working paper). Osgood and Peters (2017) examine the impacts of domestic discrimination against women-owned firms, and use a model of firm heterogeneity to argue that patterns of foreign and domestic sales can reveal the relative benefits of accessing less discriminatory global markets for women-owned enterprises. More generally, future work ought to consider the politically endogenous advantages accorded to some firms over others, and how those advantages contribute to preferences over globalization.

5 Conclusion

The literature on firm-level heterogeneity highlights a new channel through which resource allocations occur across firms within industries. Firms are important economic players in trade and globalization,
but their economic and political activities have not been fully incorporated into the field of international political economy. Firms provide a new standard unit of analysis both theoretically and empirically, which also demands more granular theory, data collection, and empirical methods. This review provides a basic framework for a firm-centered theory of trade, but also points towards new directions for research focused on firms in trade and trade politics.
References


