

The Charmed Life of Superstar Exporters: Survey Evidence on Firms and Trade Policy

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Abstract

What factors determine firms' attitudes towards trade policy? Building off the literature on firms in trade, this paper considers producers' policy preferences and political behavior in light of two key patterns in modern international trade: industries that face import competition often have many exporters; and, foreign sales are concentrated in the hands of a small number of 'superstar' exporters. Using a new survey of Costa Rican firms matched to systematic firm-level data on export behavior, we find that firm features are generally more important predictors of attitudes toward trade liberalization than industry-wide comparative advantage. This heterogeneity also leads to disagreements over the benefits of trade liberalization where product differentiation breaks the law of one price. Finally, we show that export intensity is strongly associated with interest and activity on trade policy. The largest exporters, who are the strongest supporters of global integration, dominate trade politics.

Introduction

What factors determine firms' attitudes towards trade policy? And how do firm characteristics shape their level of engagement and activity in the political process, where trade policy gets made? Reflecting the turn towards *firms* in the economics of trade, this paper provides an account of producer preferences over trade policy emphasizing two factors: the large numbers of exporters in 'import-competing' industries; and, the overwhelming domination of foreign sales by a small number of superstar exporters. These two factors are used to develop a series of predictions about how firm, rather than industry, characteristics shape attitudes towards trade liberalization, create intra-industry disagreements over trade, and determine levels of political engagement and activity on trade policy. These ideas are tested on a survey of Costa Rican firms which is matched to firm-level data on export performance.

Our theory builds off of a small but growing literature on firm heterogeneity and trade politics, to which we contribute in three closely related ways.¹ First, we focus on the political implications of the concentration of export sales in the hands of a small number of highly successful 'superstar' exporters (Freund and Pierola, 2012; Mayer and Ottaviano, 2008). These firms are the core constituents for trade liberalization, and their enormous share of export sales give them the incentive, intensity and resources to supercharge their pro-trade political activity. The remainder of firms – who are not winners from liberalization – are, in contrast, small in size, many in number, and facing costs diffused over a broad range of firms. Second, we emphasize how product differentiation provides opportunities for these superstar firms to export even in industries facing sharp import competition, turning them into a fifth column in support of greater trade liberalization. Finally, we argue that each of these patterns together gives trade policy in the modern era of intra-industry trade and industrial concentration a strongly pro-globalization bias. Support for trade coincides precisely with the political advantages of size and concentration, even as the opponents of trade liberalization are undermined from within their own ranks.

We bridge the gap between our theoretical contributions and our country case study, Costa Rica, by providing evidence of each of our scope conditions using a comprehensive firm-level dataset on annual export sales for nearly all Costa Rican exporters. Firm-level transaction data on exporting are generally scarce; matching this data to our survey on political preferences therefore provides a unique opportunity. We show that export sales are highly skewed toward the most successful exporters and that net-importing industries – even industries where imports are many times greater than exports – still have significant numbers of exporters, some of whom are highly successful. These are precisely the industries that would be considered at a 'comparative disadvantage' – and assumed united in opposition to trade liberalization – in the standard 'specific factors' account of trade politics (Alt et al., 1996).

¹ For example, Plouffe (2012), Kim (2012), Osgood (2012).

We then turn to testing our three main predictions. First, we expect to see firm-level characteristics – export status and especially export-intensity – to be positively correlated with support for trade liberalization. If the emphasis on firm performance and product differentiation is merited, these effects should hold even conditional on industry-wide measures of comparative advantage. This is a sharp contrast with the specific factors model, where an industry’s trade orientation determines the attitudes of *all* firms in the industry, regardless of whether any particular firm exports or not. Second, we should be more likely to see intra-industry disagreements, whether among firms or between some firms and their trade association, especially in industries producing differentiated products. Finally, we examine the political ramifications of firms’ trade policy preferences: we show the positive impact of the scale of firms’ exports on their beliefs that trade policy is important; on their willingness to seek information about trade policy developments; and on their lobbying activity. Pro-trade firms have the most intense preferences and have the financial and political capital to see those preferences realized as policy.

We find support for each of these propositions using an original survey of firms located in Costa Rica.² The focus on a highly successful and growing but, nonetheless, developing country enables us to ask whether the findings on firm heterogeneity and politics in Plouffe (2012) and ?, which examine several developed country cases, travel to a developing country context, while matching our survey results to a rich, firm-level export dataset. We find that they do.

The structure of our paper is as follows. Section 1 brings together the various theoretical models developed in the literature, and highlights their key predictions and disagreements. Section 2 introduces our firm level survey data which features responses from over 200 Costa Rican firms. Section 3 presents our key findings. We find strong evidence for the two core predictions of the new, new trade theory for the politics of trade: firm attributes, especially size and export capacity, are stronger predictors of trade attitudes than the industry-wide predictors usually emphasized; and, industries are internally divided where products are differentiated. The implications of these findings for firm’s preference intensity and political engagement on trade issues are also examined. Section 4 provides a concluding discussion and highlights opportunities for future research.

1 Theory

Intra-industry trade and firm heterogeneity

To now, the study of trade politics has been dominated by two competing models. While generating starkly different predictions about coalitions on trade policy, the Stolper-Samuelson and Ricardo-Viner approaches have two crucial analytic similarities. First, both approaches rely on the idea of

² For other examples of firm level surveys in international political economy, see Büthe and Mattli (2011); Kenyon and Margalit (2014); Kuno and Naoi (2015); Mosley (2003). We describe later the substantive and pragmatic considerations which led us to focus on trade politics in Costa Rica.

shared prices creating shared interests. In the Ricardo-Viner model, trade alters goods prices shared among all firms in the same industry, and these price changes directly determine attitudes. In the Stolper-Samuelson approach, trade alters factor prices shared by all owners of the same factor, and these factoral price changes determine attitudes.³ Second, both approaches gloss over differences among firms, in particular, heterogeneity in productivity, scale and export engagement. Industries are assumed to be composed of identical producers who naturally share identical interests.

Two developments in the economics of trade over the past few decades suggest that these assumptions form a questionable basis on which to build our theories of trade politics. The first of these is the discovery that intra-industry trade, where a country both imports and exports a good at the same time, is widespread (Grubel and Lloyd, 1971; Brühlhart, 2009). The second is the discovery that firms differ sharply in the extent to which they are able to engage export markets, even within the same narrowly defined industry (Bernard and Jensen, 1995). In most industries, only a minority of firms usually export and an even smaller share of those firms control the bulk of all exports sales (Mayer and Ottaviano, 2008).

Intra-industry trade occurs where two countries mutually exchange varieties of essentially the same product, making both trade partners simultaneously export- and import-competing (Grubel and Lloyd, 1975). Such trade is generally the result of a taste for product variety either within or among consumers – wine and automobiles, for example, feature significant intra-industry trade. Models of intra-industry trade usually assume that firms monopolize the production of particular brands or *varieties* (Krugman, 1980; Helpman, 1981). This gives firms some measure of power to set prices (Dixit and Stiglitz, 1977; Lancaster, 1979).

The first generation of trade models featuring intra-industry trade assumed that all firms were identical in size and productivity (Helpman and Krugman, 1985). Despite their newfound *ability* to set different prices for their unique varieties, equilibrium prices (and sales) among firms in the same industry remained the same. With the rise of quality firm-level datasets on export engagement and sales, however, scholars discovered that even in the most export-oriented industries, only a (generally small) minority of large, successful firms actually enter and remain in export markets (Bernard and Jensen, 1995; Tybout, 2003; Bernard and Jensen, 2004; Bernard et al., 2007). This is usually explained with reference to productivity differences among firms. Only the most productive firms, which can profitably sell at the lowest prices, can pay the significant fixed and variable costs associated with accessing foreign markets and still profit from trade.

This firm heterogeneity in productivity broke the common price equilibrium among firms in models of intra-industry trade. In equilibrium, more productive firms have lower prices. They are therefore able to find positive demand for their varieties even on top of trade costs. Less productive firms generally must charge higher prices in order to recoup their higher costs, and therefore are less likely

³ Both models feature both goods and factor price changes, of course. The key distinction is whether factor price differences are arbitrated away due to capital mobility.

to find exports markets for their relatively expensive products once trade costs are included (Melitz, 2003; Bernard et al., 2003; Melitz and Ottaviano, 2008). Returns to capital in these models therefore differ not only across industries but *within* industries, with larger producers earning greater profits due to their superior performance both at home and abroad. We describe the distributive impacts of trade liberalization more fully below.⁴

This burgeoning literature on firm heterogeneity has recently focused on an important feature of firm heterogeneity that was not fully appreciated in the earliest empirical studies: export sales are highly skewed towards a few highly successful producers (Mayer and Ottaviano, 2008; Muûls and Pisu, 2009; Malmberg, Malmberg and Lundequist, 2000; Bernard et al., 2007). For example, Bernard, Jensen and Schott (2009) report that in 2000, around 3.1% of all known US firms exported, and that the largest 1% of just those firms (about 1700 firms total) accounted for 80.9 percent of all US exports.

At this point, we now have the two crucial ingredients for describing a theory of firm preferences over trade Osgood (2012). On one hand, because of product differentiation, industries are both import- and export-competing at the same time. Consumers, wishing to maximize product variety, must look abroad, even if foreign producers have higher costs or prices, in order to access the unique varieties monopolized by foreign producers. This logic is symmetrical across countries, thereby generating the two-way trade which is so characteristic of post-war international trade. Second, firms differ in their ability to access foreign markets and therefore they differ in their ability to benefit from trade liberalization. In industries with differentiated products, then, all firms face greater import competition in the wake of trade liberalization; but only an elite few are able to successfully export.⁵

Distributive impacts of trade liberalization

The combination of product differentiation and firm heterogeneity gives rise to sharply different distributive implications associated with trade liberalization than those predicted by the standard trade model (Melitz, 2003). In the standard trade model, all firms producing the same product win or lose together. Industries featuring differentiated products, in contrast, witness sharp intra-industry reallocations of profit in the wake of trade liberalization (Aw, Chung and Roberts, 2000; Pavcnik, 2002; Girma, Greenaway and Kneller, 2003; Eaton et al., 2007; Berthou and Vicard, 2014).

⁴ At this point, it is also worth noting that significant literatures have emerged emphasizing intra-industry variation in the sourcing of inputs from abroad and in multinational activity. While not the focus of the theoretical development here, these differences of course provide alternative explanations for why industries might be internally divided over trade liberalization, as explored in ?. We consider multinational activity and imported inputs as alternative firm-level predictors of trade attitudes in the empirical models.

⁵ One interesting question raised by the notion of product differentiation is whether products might become so variegated that they are effectively no longer substitutes. In part, this is a question of aggregation and the appropriate level of analysis. When we speak of industries producing differentiated products here, we generally mean industries where products remain substitutable.

The most productive firms increase profits from trade liberalization, on net, while the least productive firms lose profits or drop out altogether.⁶

These intra-industry redistributions are easily understood by examining the tradeoffs associated with reciprocal trade liberalization for a set of firms producing varieties of a differentiated product (Melitz and Ottaviano, 2008). The first major impact of trade is that it means greater competition from abroad. Home market consumers wish to diversify their consumption by importing more foreign varieties once trade barriers have been lowered. This will occur even if foreign producers have higher prices, on average, than home market producers, illustrating how product differentiation breaks the ordinary logic of comparative advantage and one-way trade. Trade liberalization therefore imposes a significant cost on all producers – displacement by foreign firms and so lost profits – even if the foreign country is at a comparative disadvantage.

The second major impact of reciprocal trade liberalization is of course that it creates new opportunities for exporting. However, exporting imposes significant fixed and variable costs on firms which means that only firms selling at the lowest cost (or at the greatest scale) are able to profitably tap into export markets (Das, Roberts and Tybout, 2007). Because only those firms which expand the scale of their sales in foreign markets will be able to gain from trade liberalization, only the largest, most productive firms will be able to take advantage of the benefits of freer trade.

So far we have a clear set of distributive implications for non-exporting firms. Trade liberalization, even with a less competitive country, is always a negative because it means greater competition and reduced profits. But that does not imply that all exporting firms will benefit from trade liberalization. Consider the impact of trade liberalization on a marginal exporter who just barely earns a positive profit from exporting. This firm will still face significant lost profits from trade liberalization due to extra competition in the home market from foreign producers. A key theme which has emerged in the most recent empirical literature on firm performance in export markets reinforces this point. Even *among* exporters, the vast majority of export sales are concentrated in the hands of a relatively small number of “superstar” firms (Mayer and Ottaviano, 2008; Bernard, Van Beveren and Vandebussche, 2014). This means that the biggest winners from globalization may be a relatively small group of large, high volume exporters.

Firm attributes and attitudes toward trade liberalization

This discussion therefore suggests a first proposition linking firm attributes and support for trade liberalization.

⁶ On firm exit, Pavcnik (2002) studies the massive unilateral cuts in trade barriers undertaken by Chile from 1979-1986, documenting significantly greater exit among less productive plants in the wake of the liberalization. On productivity and exporting, Aw, Chung and Roberts (2000) and Wagner (2007) use country-level panel studies to argue that the link between productivity and exporting is primarily driven by the self-selection of highly productive firms into export markets.

Prediction 1 Exporting firms should be more likely to support reciprocal trade liberalization holding constant the comparative advantage of their industry as a whole. The extent of exporting should also be positively correlated with support for freer trade.

The first part of this prediction is straightforward. All firms face greater competition in the wake of multilateral trade liberalization but only exporting firms have the opportunity to increase profits through exporting⁷. While the claim that ‘exporting firms support trade’ may sound obvious, it is important to note how sharply this differs from the Ricardo-Viner approach where the key factor is whether the *industry’s* good is exported. Whether a particular firm is exporting that commodity-type good is irrelevant to their bottom line because they still benefit from an increase in price.⁸ If our approach is substantiated, then coalitions in favor of trade liberalization ought to cut across industries, knitting together the largest exporting firms regardless of whether the industry is net-exporting or net-importing. This is, then, a distinct alternative to the two images of trade politics coalitions described in Hiscox (2002).

The second part of this prediction requires that we condition on some proxy for the comparative advantage of a firm’s industry. Among a sample of firms, a simple correlation between exporting and support for trade might be confirmation of either the ‘new, new trade’ approach or the specific factors model, and so provides no analytical traction for comparing the two models. Our approach is to hold constant the overall industry orientation to trade, whether net-importing, net-exporting or something closer to neutral, and examine if export status of the firm still has predictive power. If the specific factors model is correct, the export status of a particular firm should have no explanatory power once its industry has been correctly identified as net-exporting. Moreover, the export status of a firm should be a weak predictor of support for trade in any event, because even non-exporting firms can benefit from trade liberalization in the standard trade model. If, on the other hand, exporting and especially export intensity are consistently strong predictors of support for trade, over and above the export orientation of the industry as a whole, then the ‘new, new trade’ approach is supported.

The third part of our first prediction – that the extent of exporting should be as important, if not more so, than simply being an exporter – builds off of the new focus on “superstar” exporters. A simplistic rendering of the new, new trade theory’s implications for trade politics would be that exporters support trade and non-exporters don’t. We emphasize here that not all exporters are created equal, and we expect the staunchest support for globalization to be at the highly successful top end of the export distribution. Another way of putting this is that a focus on the extensive margin of exporting (do firms exports or not?) can obscure a lot of difference along the intensive margin of exporting (how much does each firm export, and how does that vary among firms?). Unpacking the

⁷ For example, see Plouffe (2012), Kim (2012), Osgood (2012).

⁸ The departure from a Stolper-Samuelson approach, where it doesn’t even matter if the firm’s industry’s good is exported at all, should be even more clear.

political interests and activities of exporting firms may be just as important as unpacking industries themselves.

Intra-industry divisions

The second major idea to come out of the ‘new, new trade’ literature is that industries might be internally divided over the benefits of trade liberalization ?. Recall that small, non-exporting firms face only greater competition from trade liberalization while larger, exporting firms also have the potential to export. This means that firms within a single, narrowly defined industry might have contradictory attitudes toward trade liberalization.⁹

This story relies on the product being differentiated, so that there is simultaneously import and export-competition in the same industry.¹⁰ Commodity-type products, where trade flows in one direction only, will not see these divisions. We consider two manifestations of these intra-industry divisions. First, firms within an industry may report disagreements within the industry over the merits of trade liberalization. Second, specific firms may disagree with the general orientation of the trade association towards trade liberalization. We expect both of these types of intra-industry disagreements to be more likely in industries producing differentiated products. Rather than product differentiation reducing conflict in international trade by reducing the distributive stakes (Krugman, 1981), we argue that its primary impact is to relocate conflict over trade from between industries to within them.

Prediction 2 Industries producing differentiated products are more likely to feature intra-industry disagreements over trade policy. These differences might manifest themselves as disagreements among firms or disagreements between a firm and the industry trade association.

Like our first prediction, this predicted outcome is simply not explicable within the two dominant models of trade attitudes described above: neither approach can explain conflict among owners of capital in the same narrowly-defined industry. It therefore provides a distinct test of whether the focus on firm and product heterogeneity can provide new insights into trade politics.

This prediction also naturally raises the question of collective action around trade policy (Alt and Gilligan, 1994; Busch and Reinhardt, 2000; Gawande and Bandyopadhyay, 2000). The focus on firm heterogeneity and product differentiation do not appear to suggest much new for the study of unilateral trade liberalization – no firm likes more imports in their own industry – except perhaps that opposition to trade might be more widespread because no industry is immune to foreign competition

⁹ Such divisions were documented early on in ?.

¹⁰Note that our emphasis on differentiation leading to intra-industry trade differs from Gilligan (1997) and Bombardini and Trebbi (2012), which focus on the ways that product differentiation makes trade protection a private good, and so ameliorates the collective action problem faced by firms seeking import relief.

in a differentiated product world. But the collective action problem is fundamentally changed in a world of reciprocal trade liberalization because of intra-industry divisions. While our firm-level survey is not the correct venue to explore the impact of this on trade policy outcomes, we describe in the next section how these intersecting problems of public goods with divided industries have come to be resolved, at least in the Costa Rican case: trade politics is dominated by the largest and most successful exporters.

Preference intensity and political engagement

According to the dominant models of trade with heterogeneous firms, the distributive impact of trade liberalization varies continuously through the productivity distribution of firms. In the simplest version of this story, the least productive firms lose the most from trade liberalization (and may even shut down altogether); marginal exporters will lose or gain, on net, very little from trade liberalization; and, at the top end, a group of highly productive exporters reap outside gains from trade liberalization (Melitz, 2003).

This variation in the impact of trade liberalization suggests two possible patterns for the intensity of preferences over trade liberalization. One idea is that the intensity of interest in trade policy may vary non-monotonically through the productivity distribution. The smallest, non-exporting firms who face the greatest losses from increased competition will be active opponents of trade liberalization; the largest exporting firms will be outspoken supporters of trade because of the large gains they stand to make; and, firms in the middle of the productivity distribution will be generally less active on trade politics.

A second possibility is that interest in trade politics will be concentrated in the upper reaches of the productivity distribution only Kim (2013). Recall that export sales are heavily concentrated in the hands of the largest exporters. So in industries producing differentiated products, liberalization might create no gains whatsoever for the bulk of firms but lead to increased competition which is broadly diffused across the set of all firms. A small minority of large and highly successful exporters are therefore likely to be strong and active proponents of trade liberalization while the remainder of modestly-sized firms are potential opponents who simply don't find the stakes high enough to actively engage on the trade issue.¹¹ Note also these small and medium-sized firms are partially buffered from competition because, despite their inefficiency, they are the sole producer of the variety they monopolize (Krugman, 1981; Rodrik, 1995).

These ideas lead to a third prediction.

¹¹The further development of these ideas appears to be a crucial site for future research. Two key variables which play a role in how the gains and losses from trade are distributed are the number of firms, and the skewness of the firm size distribution. For example, industries with a very large number of firms but very concentrated export gains would seem to fit our second proposed model ("superstar exporters; disengaged others") the best. However, industries with a modest number of firms and intermediate skewness of sales might fit the "non-monotonic" distributive impacts model the best.

Prediction 3 The largest exporters will consider trade policy to be a much more significant issue than either smaller exporters or non-exporters. This preference intensity will also manifest itself in patterns of information-seeking and lobbying on trade policy, where we expect the largest firms to be most active.

A potential alternative explanation for the pattern outlined in Prediction 3 might be that smaller firms, though identifying trade as salient, are disengaged politically due to a perceived or actual inability to influence government. This might be because they consider themselves too small to effectively make their case before policymakers; because they find the organizational challenges associated with effective lobbying too daunting; or, because they simply lack the financial and political capital to undertake a successful lobbying effort.¹² We consider this alternative by considering evidence of both preferences, which should not face financial or organizational constraints, and lobbying behavior, which certainly does. But we hasten to add that both channels are likely operative. In the next section, we describe the data we collected to test our three predictions.

2 Description of the data

While there is some existing work on firms in international political economy (e.g., Milner, 1988; Hathaway, 1998), relatively few attempts have been made to try and systematically survey firms (examples include Büthe and Mattli, 2011; Mosley, 2003; Kenyon and Margalit, 2014; Kuno and Naoi, 2015; Samphantharak and Malesky, 2008; Malesky and Taussig, 2009). We add to this firm level survey literature both by focusing on responses to questions about trade preferences and political engagement, but also by testing predictions that move beyond standard factorial or sectoral based explanations. These predictions are tested on a survey of firms located in Costa Rica. Firms were presented with a large survey of questions about the impact of globalization on their firm and industry; their political activities; and the operation of their business. We discuss the specific questions used for this paper below where we introduce our main variables, and for now introduce the country setting and describe the match between our sample and the population of firms in Costa Rica.

Costa Rica provides a valuable case for the study of firm attitudes toward trade policy for reasons both substantive and practical. On the substantive side, Costa Rica provides an ideal environment to examine the impacts of trade liberalization across a wide variety of industries and firms. Costa Rica is a rapidly growing, globalizing developing country. While historically Costa Rica exported mainly agricultural commodities, its export profile has diversified significantly over the past two decades into both basic and advanced manufacturing (agriculture now accounts for only 6% of Costa Rican GDP).

¹²We also note at this point that heterogeneous preferences will tend to defeat the ordinary channel for small firms to influence their government, via their trade association. This is especially true if associations are dominated by their largest members at the expense of small- and medium-sized enterprises as argued in J. Bennett (1998), Bennett and Robson (1999), and Huggins and Johnston (2010).

In 2013, export volumes were around 35% of Costa Rica's GDP, and manufacturing accounted for 62% of all merchandise export sales (World Bank, 2013). Food and animals accounted for only 14% of exports. Costa Rica has also significantly increased the exposure of its own firms to international competition. Citing Paus (2005), Cordero and Paus (2008) report that average tariff rates fell from above 60% to 5.8% between 1985 and 2004. While the entry into force of CAFTA in 2006 was a key milestone, Costa Rica has since 2010 signed preferential trade agreements with China, Singapore, Mexico, and the European Union. China, Mexico and the EU are all among Costa Rica's five greatest trade partners (Hausmann, 2011). Costa Rica is also a major recipient of foreign direct investment and in 2013 net inflows of FDI were 6.5 times Costa Rican GDP (World Bank, 2013).

These enormous changes reflect a concerted and frequently controversial strategy of neoliberal reform begun in the wake of IMF and World Bank interventions to stabilize and reform the Costa Rican economy during the Monge Administration, and accelerated by President Oscar Arias during his first term in office, 1986-1990 (Cordero and Paus, 2008). Since these reforms, Costa Rica has aggressively pursued free trade agreements and bilateral investment treaties, which has sparked considerable debate within the country ?.

Costa Rica has a lively associational politics (77.9% of our respondents report being in a trade association), and trade associations exist across the manufacturing, agriculture and service sectors, whether import- or export-competing. These industry associations are complemented by several peak associations; the Costa Rican Chamber of Exporters (CADEXCO) is especially active on trade issues. Lobbying is also commonplace. 35.9% of our respondents reported contacting the Office of the President, the Legislative Assembly or the Ministry of Foreign Trade (COMEX) to discuss public policy. Electoral campaigns in Costa Rica are funded both publicly and privately, though private funds make up the majority. Relatively large limits on individual contributions, and recurring scandals associated with campaign giving, have created an impression that big business and the wealthy dominate campaign funding (Casas-Zamora and Zovato, 2015; AAACP, 2004).

Costa Rica therefore provides a rich political environment for the study of trade politics: it is a successful, diversified and increasingly globalized upper middle income country; this global engagement, and increases in trade especially, have apparently contributed to impressive economic growth but also sustained special interest engagement and public controversy.

On the practical side, Costa Rica has several key resources which we make use of for this research. First, the Costa Rican government created a public quasi-independent agency in 1996, *Promotora del Comercio Exterior de Costa Rica* or Procomer, which gathers data on virtually all Costa Rican firms which export, including information on the quantity, product categorization, and destination of all export sales on an annual basis. We make extensive use of this data in our project as described below. Second, Costa Rica has a number of governmental and non-governmental institutions which are experienced in the administration of firm-level surveys and gather data on firm contact information.

To conduct our survey of Costa Rican firms, we partnered with INCAE, the leading business school in Costa Rica. We developed a list of potential firms and contact information using several sources including Procomer. In total, we sent emails to 3,460 firms that contained a link to an online survey. The survey introduced the researchers and their affiliations, and indicated that the survey's objective was to better understand firm opinions concerning international trade. Responses were kept anonymous. The survey was translated from English to Spanish by a native Spanish speaker and checked for back translation separately.

Our total number of respondents was 417, leading to an overall response rate of 12%. Our response rate among Procomer firms was approximately 13.3%. Among these respondents, 274 fall within the agriculture, mining and manufacturing sectors for which trade is most relevant, and we examine these firms only in our models.¹³ These correspond to all ISIC Revision 3.1 codes 01 through 37. While this is a modest overall response rate, this number provides sufficient statistical power for our main tests and we believe represents important data on the attitudes of firms towards globalization in an open, developing economy.

The response rate also varies somewhat depending on the question in the survey, mainly because of attrition towards the end of the survey and occasionally because of non-response.¹⁴ For example, our main question about support for trade liberalization received 262 responses (out of 274 possible) while our question about importing, which comes towards the end of the survey, received only 221 responses. In order to handle this non-response and take maximal advantage of the data, we create 10 imputed datasets using software described in Honaker, King and Blackwell (2009). All models are estimated using software described in Imai, King and Lau (2009), and recombined according to the formulae in Rubin (2004). Imputation is generally preferred to *ad hoc* strategies such as listwise deletion, but we also replicate all of our main findings using the original data and find that our main results are quite similar. These models are contained in Appendix D.

The imputation of missing data is generally only justified under an assumption that the missingness is *at random*, that is, the probability of missingness is a function of observed covariates and not of the missing outcomes themselves, conditional on observed covariate values. We believe it likely that some of our non-response is *completely at random*: respondents may have simply not known the answer to questions or dropped out of the survey for idiosyncratic reasons. If this is not the case, we include in our imputation model a rich set of industry and firm-level covariates which are fully observed and we note that many of our most important variables are observed in the vast majority of cases. We think it is plausible that non-response to particular questions and attrition are predictable by our observed firm and industry characteristics and by observed answers to other survey

¹³The Procomer data does not include export information on firms in services and other non-agriculture/mining/manufacturing industries and international trade data on those industries is not available, in any event.

¹⁴Per our IRB, we could not "force" responses to questions.

questions. For example, if dropout on our survey about globalization is correlated with firm export sales or industry export or import competition, then we have those factors measured and included in the imputation model.¹⁵ Finally, we do not attempt to systematically handle non-response to the survey at the population level. Our imputation strategy is focused solely on handling non-response and dropout among those who responded to the survey.

Sample characteristics

Our contact information for exporters was systematic: we had contact information for all exporters in the country, but only a sample of non-exporting firms. This section interrogates the characteristics of exporters in our sample compared to information about the universe of exporters. While we show a number of desirable characteristics, we briefly mention some limitations. Around 27.8% of our agriculture, mining and manufacturing respondents report operating foreign production facilities and 84% exported *at some point* from 2000-2012, indicating that we had a relatively large number of multinational firms and exporters in our sample.¹⁶ This is a relatively high figure which may simply reflect that Costa Rica is a small open economy which has higher rates of export than, for example, the relatively insular and large United States; or, that exporters were more likely to respond to a survey associated with the Procomer agency. Note also that the Procomer data includes all firms that even tentatively exported in very small volumes so some of our respondents are not either currently active exporters or do not export in significant numbers. Because we condition on multinational status and some measure of export activity in all models – and are not focused on estimating population-level quantities – we see our apparently higher response rate among exporting and multinational firms as an advantage, improving the estimation of differences between exporters and non-exporters, or multinationals and non-multinationals.

Appendix A provides a detailed analysis of how our sample compares to the set of all exporting firms in Costa Rica using data from Procomer.¹⁷ We check the match between our sample and the complete population for several key variables which are subsequently used in the analysis. Our results show substantially similar distributions across exporters in our survey and those that did not respond to our survey, suggesting that our respondents are broadly representative of Costa Rica's population of firms as a whole. We also examine in detail the sectoral distribution of firms in our sample across 2-digit ISIC industries and again find that our sample has desirable properties.

¹⁵All predictors and outcomes employed in this paper are included in the imputation model.

¹⁶Among our respondents, 84% fall into the Procomer umbrella, indicating that they exported at some point over the year 2002-2012. Around 65% of respondents were active exporters in 2012; and 58% were active in all three years of 2010 through 2012.

¹⁷Unfortunately, Costa Rica does not gather data on *all* firms similar to the US Census of Manufacturers, so we are unable to compare our sample to the set of all Costa Rican firms (i.e. among both exporters and non-exporters).

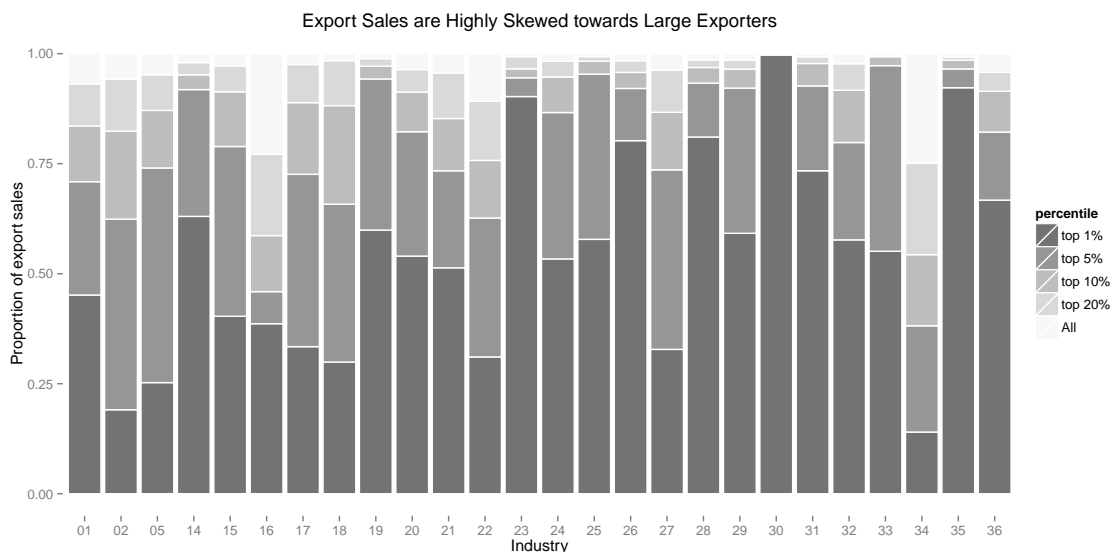


Figure 1: This figure shows the proportion of all export sales from 2000-2012 accounted for by the largest 1%, 5%, 10% and 20% of Costa Rican firms. Exports sales are highly skewed towards the largest exporters. Industries containing at least 25 firms in the Procomer data are included, only.

Skewness of export sales and intra-industry trade in Costa Rica

In order to build a bridge between the theory and our rich firm-level data, in this section we demonstrate that the two key analytic factors emphasized above in our theoretical development are operative within our country case, Costa Rica. In other words, the key premises of our theory are valid for the case we examine.

Figure 1 demonstrates the extraordinary skewness of exports sales within Costa Rica, confirming that the pattern noted in several other country studies above is also present within our case. The top 1% of exporting firms control on average 53% of export sales across all industries (this figure is 59% if industries are weighted by total export sales). The top 10% of exporters control more than 80% of all exports in 24 of 27 industries examined. For the country as a whole, the top 1, 5 and 10% of firms account for 62.7, 87.6, and 94.5% of all export sales, respectively. We take these data as evidence that our country case will provide fertile ground for examining the impact of export concentration, and firm heterogeneity more generally, on trade politics.

Figure 2 considers the heterogeneity among exporters in terms of sustained export success over time. Each horizontal line on the graph represents a single firm present in the Procomer data; and each vertical column represents a single year. Where the tile at the intersection of firm and year is filled in, that indicates a firm is actively exporting. Two patterns are apparent from this data. First, a great many new entrants attempt to export every year, but the majority do not succeed. 37.4% of new entrants from 2001-2009 did not export *at all* in the next three years; and a further 71.6% that

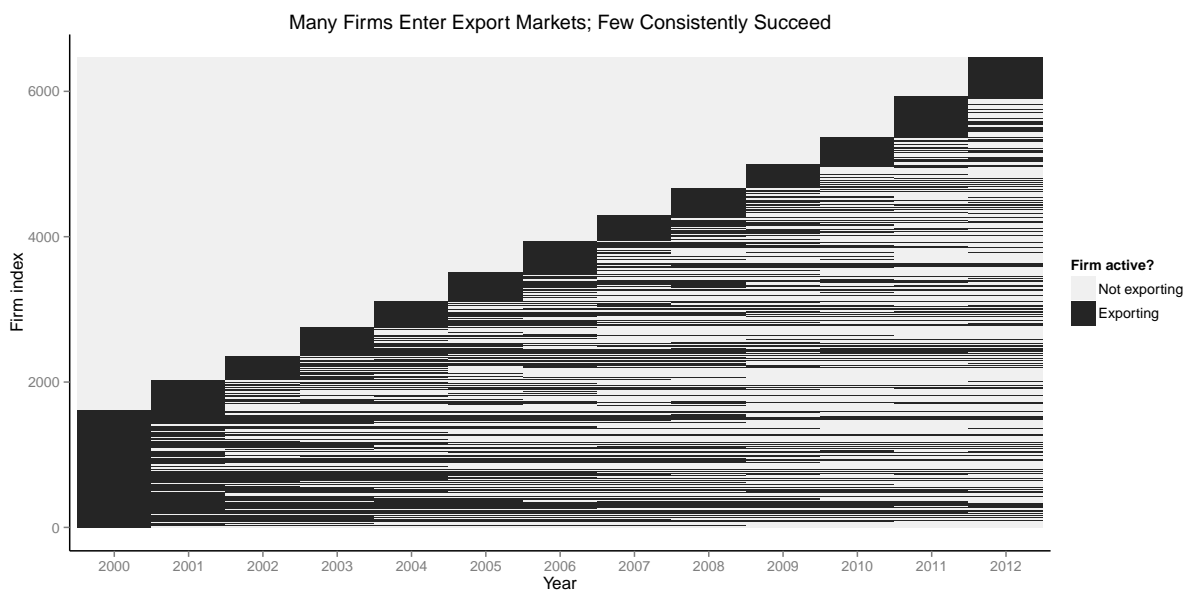


Figure 2: This figure examines the export performance of Costa Rican firms, as reported in the Procomer data, over time. Each line on the vertical axis stands for a single firm, and each tile on that line is colored in if that firm was an active exporter during the year identified on the horizontal axis. Because the data commences in 2000, there is a large number extant exporters represented by the dark box in the lower left hand corner, many of whom are defunct within 5 years.

exported in a second year dropped out in the two years thereafter. As another example, 74% of new entrants from 2001 were not active in 2012. The second pattern to note is that a significant number of firms drop in and out of export markets recurrently, exporting only intermittently over the span of our data. Jointly, Figures 1 and 2 amply illustrate just how sharp the differences among exporters can be.

Figure 3 considers our other main theoretical factor: the role of product differentiation as a source of export sales in what would otherwise be ‘import-competing’ industries. Each dot represents a 4-digit ISIC Revision 3.1 industry. Along the horizontal axis we report that industry’s export-to-import ratio. (This scale is cut off at a ratio of 1:1000, and industries with no exporters whatsoever are given a value of .0001 so that they are included in the figure as points in the lower left-hand corner). Industries significantly above 1 export far in excess of any import competition; industries significantly below 1 are heavily import-competing; and industries near 1 are exemplars of intra-industry trade flows. While there is clearly a negative correlation between net-trade and the number of exporting firms (top half) what is striking is how large the number of exporting firms is even in industries that fall well within the net-importing range. This is true even at extremely low export-import ratios, well beyond .1. In our rendering, these firms are potential winners from trade liberalization, even if the other firms in their industry are threatened by greater trade.

The bottom half of the figure reinforces this point by considering the total export sales of the most

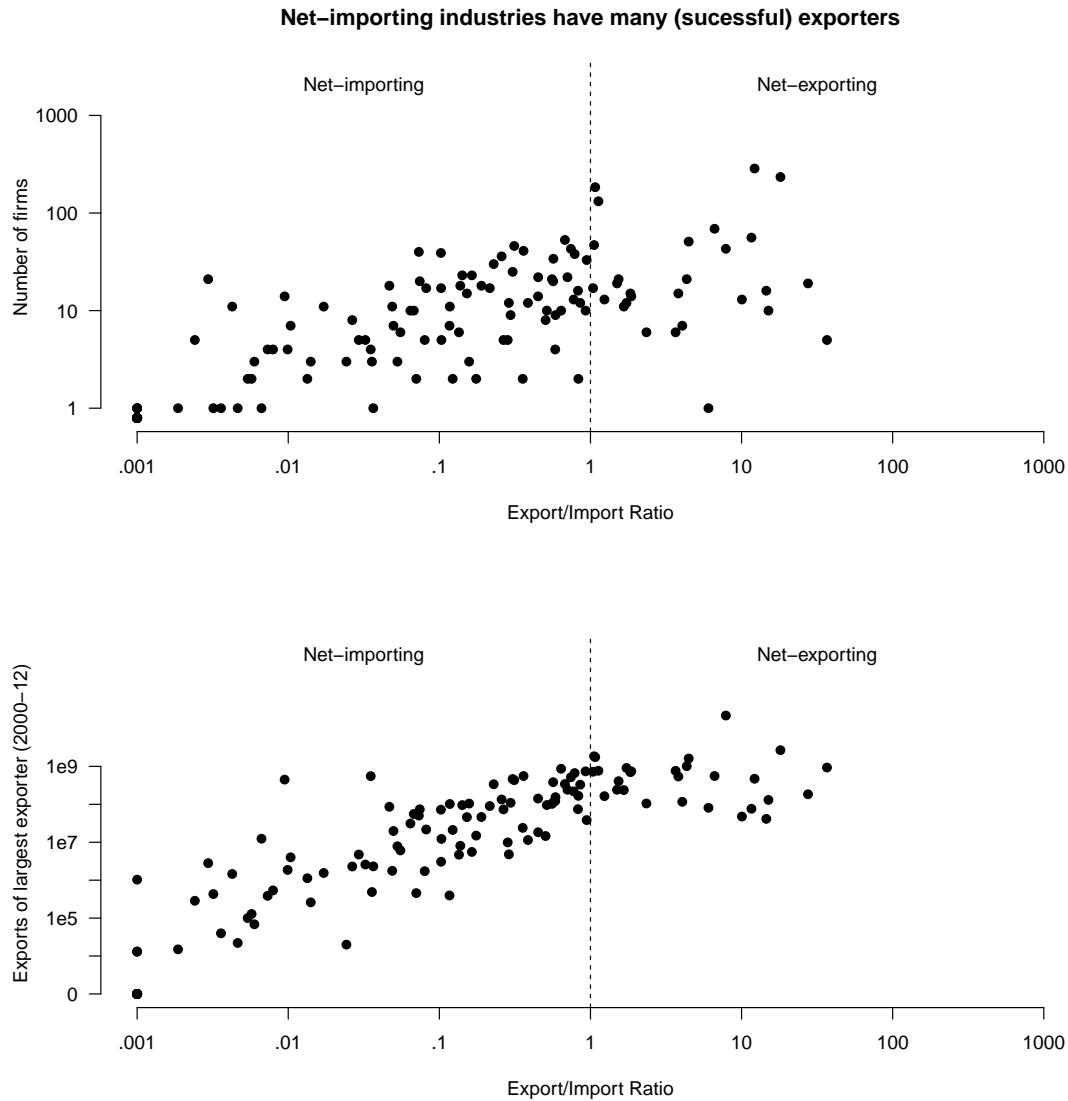


Figure 3: This figure illustrates the large number of exporting firms, and the enormous sales accounted for by the largest exporters, in net-importing industries. These industries would ordinarily be classified as ‘comparative disadvantage’ in an empirical operationalization of the standard trade model, masking the considerable export success of particular firms within those industries. The firm-level data use the distribution of firms in 2012. $N = 2484$. 2012 import data is taken from WITS at the HS6 level and concorded to ISIC Rev. 3.1 industries (World Bank, 2015).

successful exporters over the years 2000-12. Even in industries that are quite import-competing (i.e. near .01 on the horizontal axis and beyond), there are still individual firms which exported in enormous quantities over this time span. This, again, suggests the importance of firm monopolies of differentiated products and that there are winners from trade liberalization even in ‘comparative disadvantage’ industries. In the next section, we show that these apparent winners are indeed supporters of trade.

3 Results

The core results in this paper are presented in three main groupings, which correspond to our three main predictions. First, we examine the extent of support for trade liberalization among our survey respondents, and explore the dimensions upon which they evaluate trade policy changes. Firm-level factors, especially export activity and intensity, are strongly predictive of support for trade liberalization while various proxies for industry-wide comparative advantage are not. The next set of results follow up on an implication of the two analytic factors we have emphasized – firm heterogeneity combined with two-way flows in trade mean that industries might be internally divided over trade liberalization. We show that industries producing differentiated products are more likely to have firms which report these divisions. The final section examines the links between firm- and industry-level variables and a set of questions designed to gauge firm interest in and activity around trade politics. A very strong pattern emerges: only the largest and most successful exporting firms consider trade politics to be worthy of interest and expending their political capital. Export status alone does not generate such interest, but a *high intensity* of export participation does.¹⁸

Why do firms support trade liberalization?

Firm characteristics and support for trade

The first set of models reported in Table 1 demonstrates that features of firms, over and above characteristics of their industries or the goods they produce, are strongly linked to attitudes toward trade liberalization. The dependent variable asked “Overall, do you believe that mutual reductions of international trade barriers in your industry, agreed on by Costa Rica and other countries in the past few years, have benefited or harmed your firm?” This variable was reordered for the analysis, so that 1 means ‘mostly harmed’ and 5 meaning ‘mostly benefited’.¹⁹ In line with the literature on firm heterogeneity in export performance, several predicted correlates of support for trade are examined,

¹⁸Appendix B provides the question wording for our explanatory variables.

¹⁹Our measure of “support for trade” is retrospective. Asking prospectively about support for future or hypothetical trade liberalizations is of course a valid alternative approach, but we suspected that answers to this question might be fuzzier because of the potential unknown or undefined effects of trade liberalization and concomitant policy changes. We refer throughout to expressions of ‘support’ for trade liberalization as a convenient shorthand for what is actually a retrospective evaluation of the impact of multilateral trade liberalization on the respondent’s firm during the recent past.

all of which were gathered independently from the survey responses. These include: whether a firm exported from 2000-2012 (*Exporter (Procomer)*); its average annual exports during years when the firm actively exported (*ln Annual Exports*); and, the number of markets served by the firm over all years (*ln Number of Markets*).

The models reported in Table 1 (and in subsequent tables) also include additional control variables. Most important among these are the proxies for industry-wide comparative advantage, both of which are measured in a trichotomous manner with firms from the most competitive industries, and firms with more ‘neutral’ industries, considered relative to a baseline of firms from the least competitive industries. These measures are included to consider the Ricardo-Viner prediction that preferences are determined by the industry’s comparative advantage.

The first main proxy for comparative advantage uses the export sales relative to import sales of the firm’s industry, and breaks the industries up into terciles. The top tercile is called *Comparative Advantage*; the middle tercile is *Neutral Comp. Adv.*, although we stress that this outcome-based measure is only a proxy. This approach is commonly employed in the trade politics literature, but (especially in light of our argument about the skewness of export sales) raises concerns about large correlations between export sales of our respondents and industry-wide comparative advantage. Such concerns are unfounded, in principle, because only a minority of respondents are superstars and firm heterogeneity is significant. They are also not present in practice: our measures of export participation and intensity are only weakly correlated, if at all, with our proxy for industry-wide comparative advantage in our sample of respondents.²⁰ Nonetheless, to avoid concerns about double-counting export sales and the choice of proxy, we employ an alternative measure for these models: a version of Balassa (1965)’s revealed comparative advantage which uses import sales rather than export sales. Industries that account for a relatively high proportion of Costa Rica’s import sales relative to the world’s are presumed to be less competitive. This variable is called *Neutral RCA* and *Positive RCA*.

In addition to these main variables, we include several other controls. Product differentiation is operationalized as a three level variable where we include moderately differentiated (*Mod. differentiated*) and highly differentiated (*Differentiated*) dummies with an excluded category for homogeneous (i.e. relatively undifferentiated) products.²¹ We also control for three other firm-level variables: the respondents’ evaluations of the ease with which their products might be replaced by a competitors’ (*Substitutability*); whether the firm has foreign production facilities (*Foreign Production*); and, whether the firm reported importing intermediate goods from abroad (*Importer*).²² Measurement

²⁰The Spearman correlation between *ln Annual Exports* and our ordinal measure proxy for comparative advantage is .108; the correlations with *Exporter (Procomer)* and *ln Number of Markets* are $-.194$ and $-.023$, respectively. These correlations are similarly weak for the alternative proxy introduced below.

²¹This discretization follows the original measure developed in Rauch (1999) which is reflected in a clear multimodal structure when this measure is concorded into the ISIC classification scheme.

²²While the *Substitutability* variable is clearly conceptually related to the product differentiation measure the overlap is not perfect between the two. (The Spearman correlation between the two measures is .17). This is so for two

	Benefits from reciprocal liberalization					
	1	1a	2	2a	3	3a
Exporter (Procomer)	0.867*** (0.333)	0.818** (0.334)				
ln Annual exports			0.062** (0.025)	0.060** (0.026)		
ln Number of markets					0.222** (0.107)	0.215** (0.109)
Neutral Comp. Adv.	0.122 (0.298)		0.089 (0.298)		0.072 (0.298)	
Comparative Advantage	0.300 (0.281)		0.248 (0.279)		0.257 (0.278)	
Neutral RCA		0.333 (0.273)		0.347 (0.274)		0.336 (0.274)
Positive RCA		0.003 (0.281)		0.047 (0.286)		-0.012 (0.284)
Mod. differentiated	-0.631** (0.293)	-0.616** (0.295)	-0.587** (0.294)	-0.566* (0.297)	-0.620** (0.293)	-0.600** (0.296)
Differentiated	-0.414 (0.301)	-0.471 (0.296)	-0.321 (0.312)	-0.366 (0.310)	-0.366 (0.307)	-0.420 (0.304)
Substitutability	-0.238* (0.132)	-0.234* (0.134)	-0.240* (0.132)	-0.238* (0.134)	-0.242* (0.132)	-0.234* (0.134)
Foreign production	0.161 (0.259)	0.161 (0.259)	0.100 (0.261)	0.106 (0.260)	0.086 (0.261)	0.097 (0.260)
Importer	-0.597* (0.322)	-0.691** (0.316)	-0.622* (0.325)	-0.715** (0.320)	-0.533* (0.318)	-0.620** (0.311)
N	274	274	274	274	274	274

*p < .1; **p < .05; ***p < .01

Table 1: Ordinal logistic regression of self-reported benefits from reciprocal trade liberalization on various objective measures of export ability. In all models, the measure of export ability is a significant predictor of support for trade liberalization, even conditional on comparative advantage of the respondent's industry. Though signed in the expected direction, the measure of industry-wide comparative advantage is generally not significant.

details for these variables are contained in Appendix B.

The models relating our objective correlates of export capacity to support for trade strongly suggest that an individual firm's export ability is more important than the orientation of their industry towards the international economy.²³ Export ability, at both the extensive and intensive margin, is strongly associated with support for the belief that reciprocal trade liberalization benefits the respondent's firm. This is true even conditional on our proxies for industry-wide comparative advantage,

reasons. First, there may be intra-industry variation in the extent to which firms consider their product substitutable which is of course not picked up by our *Differentiation* variable, which is industry-level. Second, the *Substitutability* variable may be picking up an even higher level of differentiation that goes beyond the Rauch measure. For example, almost all firms in 'Homogeneous' product industries reports high levels of substitutability; while about half of firms in 'Differentiated' product industries report moderate or high levels of substitutability, indicating that other producers are competing in reasonably substitutable varieties.

²³Recall from Figure 3 that these two characteristics of our respondents can easily diverge. A great many net-importing industries (that we code as comparative disadvantage, in line with the literature) nonetheless have significant numbers of highly successful exporters.

which although generally signed in the direction that the standard trade model might predict, are not statistically significant in any specification.²⁴

We supplement this first main finding with several self-reported measures of competitiveness. First, we regress support for trade liberalization on total firm sales (*ln Sales*) as reported by our respondents, which is likely to be positively correlated with firm productivity. In a much truncated sample of non-imputed data, we still find a positive correlation between firm size and support for trade, which is statistically significant at the 10% level; the relationship is positive but not statistically significant in the imputed datasets. We also consider two subjective measures of firm ability: self-diagnosed ‘efficiency’ (*Efficiency*) and ‘productivity’ (*Productivity*) relative to other firms in the same industry. The productivity measure is positively correlated with support for trade and significant at the 5% level, while the efficiency measure has a positive coefficient which is not significant. These results are contained in Table A1 of the appendix.

A further question that arises when considering firm heterogeneity in export success is whether other firm-level characteristics, that might be correlated with export behavior, are driving our results. We think two features which vary across firms significantly even within the same industry are most likely: the extent of multinational activity and whether the firm imports inputs. On the former, we include in all of our models a dummy variable for whether the firm has any multinational affiliates. This variable generally has no effect on support or opposition to trade. We also include a dummy variable for whether the firm reports being a (direct) importer.²⁵ We generally find that self-reported importers express less enthusiasm about trade liberalization. This puzzling correlation may be attributed to question wording (our survey asked about “reductions of international trade barriers *in your industry*”) but is not the result of a high correlation between importing and export status, which is relatively modest as described above.²⁶ Our main results hold in models where the *Importer* variable is excluded.

In order to check that our main findings are not being solely driven by question wording or other features of our outcome variable, we consider two alternative measures of support for trade liberalization contained within our survey. The first of these is a 7-point Likert scale question about whether trade liberalization via the WTO process has ‘generally benefitted’ or ‘generally harmed’ the

²⁴We also considered an alternative proxy for comparative advantage commonly used in the literature, the log ratio of exports to imports. We used versions of this measure for our firms’ main industries only, and for all of their 4-digit ISIC industries. In all instances, this comparative advantage measure was not statistically significant and the effects of export performance on support for liberalization remained sizable and significant. We also employed a model-based proxy for comparative advantage which accounts for the endogeneity of trade flows to trade policy, to recover underlying industry-wide costs relative to a foreign trade partner, in this case, the United States. The coefficients on measures of export status and intensity are similar in size and significance using this measure.

²⁵Our measure of importing was based on a survey question (“> Does your firm import?”). This measure is positively correlated with exporting ($\rho = .229$) but not highly collinear.

²⁶The relationship between the *Importer* variable and our other proxies of support for trade, described below, is very small. These other questions did not specify that trade liberalization would be occurring in the respondents’ own industry.

respondent's firm.²⁷ The second measure averages respondents answers to a 5-point Likert scale survey question about support or opposition for trade liberalization with each of 8 potential trade partners, including China and the United States.²⁸ These models are reported as appendix Tables A2 and A3, respectively.

Employing the WTO question, all of our firm-level variables are positive predictors of support for trade even conditional on industry-wide comparative advantage. 5 of 8 of these are statistically significant at the 5% level, and in particular, our measures of export intensity are significant. Employing the averaged support for further liberalization with various countries, all of our firm-level predictors are again signed correctly but only 1 of 8 is statistically significant.

What impacts of trade liberalization do firms consider important?

The second main set of results for this section examines the importance of various dimensions of trade policy to firms: competition from foreign producers (*Import competition*) and opportunities to directly export abroad (*Export opportunities*), primarily.²⁹ There are two main purposes of these models. First, to demonstrate that firm-level, over and above industry or factoral-level predictors take precedence in determining the salience of facets of trade policy. Second, to show that firms' evaluations of trade policy's impacts do not fit either of the standard approaches in the literature, but are consistent with the emphasis on intra-industry trade in modern approaches to trade policy.

First, consider the two models that examine firms' evaluation of the importance of import competition when considering trade liberalization, which are reported in Table 2 in columns 1a and 1b. The extent of industry comparative disadvantage (*Comparative Advantage*), which a Ricardo-Viner approach says would be the most important predictor of import competition being a serious issue, has only modest and statistically insignificant effects. Firms in net-importing industries are not significantly more concerned about import competition than those in other industries. One explanation for this may lie in the strongly positive impact of firm-level evaluations of product substitutability on concerns about import competition. Firms who feel that their products are easy to replace with varieties made by competitors are extremely worried about the impact of import competition; firms who feel that their products are more difficult to find substitutes for are much less concerned. Thus, precisely the same analytic factor which gives rise to intra-industry trade also buffers firms from the greatest deprivations of import competition, as argued in Krugman (1981).

²⁷Question wording: "> Now consider broad multilateral trade agreements, for example, those negotiated through the World Trade Organization. Do these types of agreements generally benefit or harm your firm?"

²⁸"Would your firm's management support or oppose efforts to further reduce tariff and non-tariff barriers to trade between Costa Rica and the following countries?"

²⁹This question asked "In evaluating the impact of reductions in international trade barriers on your firm's profits, how important are the following considerations? Increased competition from foreign producers; Increased opportunities for exports to foreign markets; Increased opportunities for sourcing of inputs from abroad; Increased opportunities for exports by firms my company supplies; Changes in wages/salaries for skilled workers; Changes in wages for unskilled workers".

	Import competition		Export opportunities		
	1a	1b	2a	2b	2c
Exporter (Procomer)	-0.205 (0.340)		0.743** (0.369)		
ln Annual exports				0.065** (0.028)	
ln Number of markets					0.240** (0.111)
Neutral Comp. Adv.	-0.123 (0.289)		0.172 (0.288)	0.146 (0.287)	0.141 (0.288)
Comparative Advantage	-0.027 (0.290)		0.285 (0.301)	0.226 (0.304)	0.236 (0.302)
Mod. differentiated	-0.123 (0.298)		-0.696** (0.297)	-0.649** (0.299)	-0.675** (0.298)
Differentiated	0.348 (0.305)		-0.874*** (0.308)	-0.783** (0.316)	-0.806** (0.313)
Substitutability	0.458*** (0.136)		-0.127 (0.134)	-0.131 (0.134)	-0.129 (0.133)
Foreign production	-0.309 (0.263)		-0.411 (0.259)	-0.483* (0.261)	-0.489* (0.262)
Importer	-0.176 (0.329)		-0.709** (0.327)	-0.756** (0.339)	-0.661** (0.327)
Export opportunities		0.197* (0.101)			
N	274	274	274	274	274

*p < .1; **p < .05; ***p < .01

Table 2: Ordinal logistic regression of various dimensions of liberalization on selected predictors. Respondents answer whether each dimension, import competition or indirect export opportunities for example, are important considerations in assessing proposed trade liberalizations. The results are described in the text.

The key role of intra-industry trade is also emphasized in Model 1b. It shows that those firms which are concerned about import competition associated with trade liberalization are the same firms that are concerned about export opportunities associated with trade liberalization (*Export opportunities*). This is entirely at odds with a Ricardo-Viner or Stolper-Samuelson view of the world, but fits nicely into approaches emphasizing the importance of intra-industry trade.

The respondents' identification of export opportunities (*Export Opportunities*, the dependent variable in Model 2a, 2b, 2c) as an important consideration in evaluating trade liberalization serve to illustrate the other key piece of the 'new, new' trade politics: firm heterogeneity. Industry comparative advantage is only intermittently a significant predictor of considering export opportunities an important feature of trade liberalization. But as in Table 1, both export status (*Exporter*) and intensity (*ln Annual exports* and *ln Number markets*) have large positive effects on seeing export opportunities as important, even conditional on the comparative advantage of the industry. This suggests something important: the price movements emphasized in standard trade models may play a role, but the actual export status of an individual firm is just as, if not more, important.

Finally, it is worth noting that firms generally rated changes in wage rates, whether among skilled or unskilled workers, as the least important determinants of their trade attitudes. Among responding firms, 73% and 78% of respondents reported that changes in skilled and unskilled workers wages were 'not important' or only 'somewhat important' in evaluating trade policy changes. Only 49% and 51%, respectively, felt the same about changes in import competition or export opportunities, and a far greater proportion of these groups felt that these changes were 'very important'. This suggests that the changes in wages emphasized in general equilibrium models of trade, such as certain versions of the Heckscher-Ohlin model and in Melitz (2003), are not of central concern to firms. Direct competition and export opportunities, as in Melitz and Ottaviano (2008), are.

Intra-Industry Divisions

This section examines the second core prediction of the new, new trade theory for the political economy of trade: that industries might be internally divided over trade liberalization. Two outcomes are considered in Table 3.

First, respondents reported whether firms in their industry generally agreed or disagreed over the impact of trade policy changes (Models 1a and 1b). Of our 223 unimputed respondents, 27 reported that firms in their industry take 'somewhat different' or 'very different views and positions' on trade policy. While this is a relatively low overall rate, it is consistent with observational evidence from the United States, and suggests that disagreements occur in a non-negligible set of industries. The results presented in Table 3 suggest that objective measures of industry-wide product differentiation are indeed positively correlated with intra-industry disagreements over trade policy.³⁰ The coeffi-

³⁰For these models only, we also include a measure of the estimated number of firms in the industry (*Num. of firms*) because industries with larger numbers of firms have more potential for disagreement.

	Divisions		Association	
	1a	1b	2a	2b
Exporter (Procomer)	-0.494 (0.495)		-0.574 (0.730)	
ln Annual exports		-0.056 (0.037)		-0.072 (0.055)
Neutral Comp. Adv.	-0.086 (0.576)	-0.098 (0.575)	-0.703 (0.766)	-0.745 (0.780)
Comparative Advantage	0.270 (0.536)	0.289 (0.535)	-1.032 (0.797)	-1.071 (0.831)
Mod. differentiated	1.298** (0.638)	1.284** (0.646)	0.835 (0.823)	0.782 (0.832)
Differentiated	1.529** (0.726)	1.452* (0.739)	0.578 (0.881)	0.464 (0.889)
Substitutability	0.274 (0.242)	0.285 (0.245)	-0.596** (0.286)	-0.605** (0.294)
Foreign production	0.267 (0.478)	0.327 (0.483)	-0.330 (0.717)	-0.234 (0.724)
Importer	-0.929* (0.533)	-0.885 (0.542)	-0.990 (0.671)	-0.891 (0.671)
Num. of firms	0.295 (0.259)	0.293 (0.261)	0.266 (0.366)	0.283 (0.370)
N	274	274	207	207

*p < .1; **p < .05; ***p < .01

Table 3: Logistic regression models of two measures of intra-industry disagreements. The first two models use as an outcome whether respondents report ‘somewhat’ or ‘very different’ views over trade policy among firms within their industry. The dependent variable in the second two models is whether respondents report holding ‘somewhat’ or ‘very different’ positions on international trade policy from their trade association.

icients on the factors for both ‘moderately’ and completely differentiated industries are both positive and significant. The self-identified (or subjective) substitutability of respondents’ does not seem to be correlated with intra-industry divisions, however. This holds whether the objective measure is included or not.

A second set of questions asked respondents about whether their view on trade ever diverges from that of their trade association (Models 2a and 2b; only those firms in associations were asked this question, so the sample is consequently smaller). 13 of 119 (unimputed) respondents reported that the leadership of their trade association holds ‘somewhat’ or ‘very different’ positions concerning international trade policy, which is a similar rate to the proportion of firms which reported divisions within their industry over trade.

The measure of product differentiation is positively correlated with the probability of disagreements with the association. This relationship is especially large for moderately differentiated products (*Mod. differentiated*) though neither coefficient is statistically significant. The self-identified measure of product substitutability (*Substitutability*) is here negatively and significantly correlated

with disagreement with the trade association, as we expected, which provides additional support for the notion that intra-industry trade contributes to intra-industry disagreements.

Overall, these results connect with our findings in the first half of the empirical section. In that section, we showed that differences among firms in export ability shape their attitudes about trade policy. Here we demonstrate that firms are cognizant of the intra-industry disagreements that heterogeneity in export performance cause, and that these disagreements are more likely to be identified by our firm respondents in the industries where we expect to see them: those producing differentiated products. Jointly, these findings construct our first major explanation for the pro-globalization bias in modern trade politics: the largest, most successful firms are winners from globalization, and they undermine what, in another era with less intra-industry trade, might have been united opposition to trade in comparative disadvantage industries. While this logic also implies that support for trade in more competitive industries will be undermined by non-exporters, we show next that large exporters have the most intense preferences and are the most politically active.

Firm Interest and Engagement with Trade Policy

This section builds on the findings in the previous sections by considering the level of interest and active engagement with trade policy among firms. Our existing trade theories suggest that the importance attached to trade policy by producers within a single industry should generally be the same: all producers of the same good will face the same changes in goods and factor prices, and so all will face proportional gains or losses resulting from trade liberalization.

The new, new trade theory emphasizes that firms differ sharply in their ability to access foreign markets, which has two potential implications. One possibility is that there is a ‘middle ground’ of firms (likely exporters) for a given industry, who face essentially equal gains and losses from trade liberalization and so do not see trade liberalization as particularly impactful. On the other hand, the largest exporters see great gains from trade liberalization while the smallest, mainly domestic, producers see great losses associated with trade liberalization. We should therefore expect to see the greatest belief in the importance of trade policy (and the greatest level of lobbying) among the smallest and the largest firms for any particular industry. The second possibility is that the distributive consequences of trade liberalization are most concentrated in hands of the largest exporters. These ‘happy few’ large exporters who control almost all international trade are also expected to be the most engaged in trade politics (Mayer and Ottaviano, 2008). The evidence provided below is more strongly in support of the latter view than the former.

On this first implication, it is first worth noting that it is difficult to test such a fine-grained hypothesis in our sample, in part because our only continuous measure of firm size (self-reported annual sales, (*ln Sales*)) is available for only 116 of our 274 agricultural, mining and manufacturing respondents. Nonetheless, a series of models reported in appendix Table A4 test for non-monotonic effects of firm size on interest in trade politics. We see little robust evidence of such a non-monotonic

	Trade important?		Seek trade info		Any political activity		Trade policy activity	
	1a	1b	2a	2b	3a	3b	4a	4b
In Annual exports	0.136** (0.067)		0.165** (0.072)		0.294** (0.081)		0.216*** (0.082)	
In Number of markets		0.053 (0.157)		0.178 (0.144)		0.563*** (0.189)		0.531*** (0.201)
Neutral Comp. Adv.	0.112 (0.334)	0.165 (0.327)	0.044 (0.332)	0.104 (0.329)	-0.176 (0.429)	-0.089 (0.424)	-0.418 (0.457)	-0.375 (0.458)
Comparative Advantage	0.699** (0.333)	0.810** (0.327)	0.075 (0.329)	0.240 (0.313)	0.516 (0.385)	0.728* (0.379)	0.273 (0.443)	0.427 (0.443)
Mod. differentiated	-1.006*** (0.344)	-1.097*** (0.339)	-0.407 (0.328)	-0.536* (0.324)	-0.565 (0.415)	-0.731* (0.407)	-0.569 (0.419)	-0.693* (0.420)
Differentiated	-0.501 (0.366)	-0.720** (0.350)	-0.177 (0.390)	-0.377 (0.369)	-0.102 (0.435)	-0.379 (0.411)	0.097 (0.444)	-0.051 (0.433)
Substitutability	0.182 (0.153)	0.187 (0.153)	0.233 (0.151)	0.248 (0.152)	0.123 (0.205)	0.114 (0.204)	0.197 (0.204)	0.194 (0.206)
Foreign production	-0.110 (0.308)	0.042 (0.301)	0.103 (0.311)	0.228 (0.304)	-0.215 (0.397)	-0.088 (0.389)	-0.194 (0.392)	-0.159 (0.394)
Importer	-0.154 (0.396)	-0.040 (0.389)	0.463 (0.391)	0.583 (0.399)	0.854* (0.477)	1.094** (0.475)	0.392 (0.478)	0.593 (0.486)
N	229	229	229	229	229	229	229	229

*p < .1; **p < .05; ***p < .01

Table 4: Regressions of various measures of political activity surrounding trade issues, including a belief that trade policy is impactful, seeking information about trade, and (trade-related) political activity. All models are estimated among exporters only – in general each of these outcomes was not strongly correlated with export status per se, but are apparently strongly correlated with the intensity of export activity. Comparative advantage is positively, but not consistently, correlated with interest and activity around trade policy.

effect but we emphasize that further development of this idea, and more systematic testing, may be a profitable site for future research.

In contrast, our second main contention – that the largest exporters should be outsized in their interest and activity surrounding trade politics – has much more robust and convincing evidence. These models are reported in Table 4. Each model considers the responses *among exporters only* to the survey instruments about whether trade policy decisions are impactful (Models 1a and 1b) with higher values indicating higher impact; whether information on trade policy is sought out (Models 2a and 2b) (where higher values indicate information is sought out more frequently); and whether firms engage in political activity (Models 3a, 3b, 4a and 4b) (where 1 is yes and 0 is no).³¹ The core explanatory variables relate to the intensity of export activities: the average annual exports for all years with positive exports (*ln Annual exports*) and the number of markets served by the firm (*ln Number of markets*).

In all cases, these variables are positively correlated with each of the four outcomes (and in 6 of 8 cases these relationships are statistically significant). In sharp contrast, separate unreported models which consider the impact of export status only generally produce positive but insignificant relationships. It is the *extent* of exporting that is most important in determining interest of firms rather than the mere fact of exporting on its own.

These results are consistent with several of the stylized facts which have emerged in the literature on heterogeneity in export performance. Exporting is highly concentrated in the hands of a small group of firms, and only the most successful export in high volumes and to a large number of markets. We noted earlier that Costa Rica has pursued a steady course of neoliberal reforms and integration with global markets, that have sparked considerable controversy. Our earlier results suggest that these reforms have received the enthusiastic support of Costa Rica's largest and most successful exporters, regardless of the overall orientation of their industry towards the global economy. Here we have shown that large firms dominate the politicking surrounding trade liberalization and globalization. At this point, we highlight the fit among these different strands of our paper: superstar exporters support trade and dominate trade politics; and, they have succeeded in securing global integration in Costa Rica.

Summary

This paper has four main empirical findings each of which challenge the two dominant approaches to trade politics. Standard approaches predict that industries (or even all firms, regardless of industry) will be united in support of or opposition to trade liberalization. We find that attitudes are best explained with firm-level characteristics and that industries can be internally divided over trade liberalization. Firms' evaluations of trade policy, and patterns of preference intensity and political

³¹In Appendix C these variables were the *prefint1* *prefint2* *polac* and *polactr* variables.

engagement, also suggest patterns that existing approaches cannot explain. We summarize our main findings here.

First, we find robust and compelling evidence that the firm characteristics highlighted by the ‘new, new trade theory’ are strong predictors of trade attitudes among firms. This correlation holds even conditional on industry-wide proxies for comparative advantage, which are in general *not* a statistically significant predictor of attitudes toward trade. This core finding is relatively insensitive to the proxy of firm productivity: objective measures of export activity and intensity, self-reported measures of firm sales, and subjective evaluations of firm productivity all suggest the same conclusions. Our results are also generally consistent across alternative measures of support for trade and alternative measures of revealed comparative advantage at the industry level.

Our second main finding is that firm’s evaluations of the key dimensions of trade liberalization are more consistent with ‘new, new trade’ accounts than with standard approaches. Firm characteristics are much better predictors of concern about export opportunities and import competition than industry-level predictors. Concern about import competition and export opportunities are *positively* correlated suggesting the importance of intra-industry trade flows. Finally, firms generally did not consider factor price changes to be key concerns when evaluating trade liberalization, as models of comparative advantage based on factor endowments might suggest.

Third, we find modest evidence that intra-industry disagreements – and disagreements between firms and their associations – exist among Costa Rican firms. These disagreements are an important alternative observable implication of the new, new trade theory and occur at greater rates in the industries where they expect: those producing differentiated products.

Finally, we move the literature forward by examining the impact of firm size and export intensity on preference intensity and political activity. Among exporting firms, we find very strong links between export intensity and belief that trade policy is important and seeking information on trade policy. Similarly, we find strong correlations between export scale and engagement in policy activity, especially political activity that is trade-related. We interpret this as evidence that the sharp skewness in export sales described in Mayer and Ottaviano (2008) and Bernard, Van Beveren and Vandebussche (2014) feeds into political activity surrounding the making of trade policy.

To what larger story do these findings point? Beginning in the mid-1980s, Costa Rica – like many other developed and developing countries, both before and after – began a process of steadily increasing engagement with the global economy. While the causes of these changes are many, we highlight that this process coincided with changes in industrial structure and global trade. Concentration was increasing with the rise of superstar firms, even as product differentiation became a central organizing concern of corporations as well as the key explanation for the rise of intra-industry trade. We have shown here that these two forms of market power – size and monopolization of particular varieties – coincide strongly with both support for globalization and political power. Big

exporting firms monopolizing their own varieties don't mind if trade liberalization increases imports in their industry, as long as they gain access to new markets. These same firms also have structural advantages – greater financial resources and social capital – and face an ameliorated collective action problem due to their relatively small numbers and intense preferences. The likely opponents of globalization among firms are, in contrast, large in number, relatively weak in their preferences, and lacking in political power. We propose, then, that the rise of intra-industry trade – and of the superstar exporter divorced from the concerns of the weaker firms in his industry – have contributed to the steady erosion of trade barriers over the past several decades.

4 Conclusion

The study of trade politics over the twenty years has two defining characteristics. First, a focus on the preferences of individuals as voters either via public opinion surveys (e.g., Scheve and Slaughter, 2001), voting patterns (e.g., Margalit, 2011) or Congressional roll call voting ?. In particular, the literature has come to focus on non-instrumental or psychological determinants of attitudes towards globalization (e.g., Mansfield and Mutz, 2009). Second, to the extent the literature has focused on instrumental theories of preferences, it has mainly revisited the long-running debate about asset specificity, industry and factor ownership (Rogowski, 1989; Hiscox, 2002). This paper takes a different tack on both dimensions by focusing on firms and firm-level material factors. We find evidence for a rich politics of trade that highlights large differences amongst firms even within industries – a politics that merits much greater attention given the outside role of firms in the process of making trade policy, especially relative to ordinary voters. We highlight in this conclusion some areas for further development.

As with any paper that uses data from a single country, future research ought to extend our conceptual framework and empirical strategy to other developing countries. We suspect our results will travel, just as the results of previous work on developed countries³² appears to travel to the Costa Rican case we examine. Ideally, new work in this area would combine elements of all of these papers: extensive firm-level data on operations and performance among both exporters and non-exporters; survey evidence on attitudes and behavior; and behavioral evidence on public position-taking, lobbying and organization to corroborate survey findings 'in the field'.

A focus on firms also raises several natural areas for extending our theory. First, the study of firms in trade has identified other types of heterogeneity in the extent of global engagement, particularly in the multinationalization of production and in the extent of importing needed inputs. These ideas are examined in US data on firm position-taking in ?, but there is great deal of scope for further theoretical innovation in this area, as well as in the testing of ideas in surveys, and in other country contexts. Second, the trade literature on firm heterogeneity has recently come to focus on the

³²For example, Plouffe (2012) and ?.

ways in which workers vary systematically across firms (e.g. Helpman, Itskhoki and Redding, 2010; Grossman, Helpman and Kircher, 2013). These papers have quite sophisticated arguments about worker attributes and sorting into firms based on ability, but the easiest extension of the ‘new, new trade’ theory to workers may simply be to note that labor markets have frictions, and so any policy change which redistributes among firms also redistributes among workers, at least in the short term.³³ Surveys of workers matched to employer characteristics would therefore seem to be a natural next step. Third, while we have documented above the implications of firm heterogeneity for both attitudes and lobbying, much work remains to be done in understanding the implications of firm heterogeneity for the process and outcomes of trade politics. In part, this will mean understanding how changes in patterns of redistribution affect the incentives of policy demanders and suppliers; but it will also mean considering the interactions between interests and political institutions, which we see as fertile ground for future research.

What factors determine firms’ preferences over trade policy? We find evidence that firm attributes – not features of their industries or factors of production – are the primary determinants of firms’ attitudes toward trade. These findings suggests that it is time to move past earlier theories of trade politics – import-competing versus export-competing industries – and engage with models of trade politics built on the actual patterns of contemporary international trade, where intra-industry trade and firm heterogeneity in export performance are the norm. A close examination of firms’ political attitudes and activities also suggests that organizing for trade politics may be more difficult than even theories of collective action had predicted; and that the outsized influence of the global economy’s winners is especially apparent in the politics of global economic policy.

³³See also Walter (forthcoming).

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A Online Appendix: Survey Sample/Population Comparison

In this appendix we consider how the firms within our sample compare to the set of all exporting firms in Costa Rica using data from Procomer. We check the match between our sample and the complete population for several key variables which are subsequently used in the analysis. Unfortunately, Costa Rica does not gather data on *all* firms similar to the US Census of Manufacturers, so we are unable to compare our sample to the set of all Costa Rican firms (i.e. among both exporters and non-exporters). Our results show substantially similar distributions across exporters in our survey and those that did not respond to our survey, suggesting that our respondents are broadly representative of Costa Rica's population of firms as a whole.

We consider several plots to examine the characteristics of our sample versus the population of exporting firms in Costa Rica, excluding the survey respondents. Figure A1 plots the distribution of four different variables for firms contained in our sample and firms not in our sample: the natural logarithm of average annual exports (for years actively exporting); the log number of export markets served; the log number of products produced (at the hs10 level); and, the number of years the firm exported (of the 13 years in our data).³⁴ The log of average annual exports variable is one of the core explanatory variables employed in the paper and is used to measure the intensity of exporting among firms in our sample. We also employ the number of markets served as a separate measure of export intensity.

Across each of these variables we see relatively similar distributions when comparing the population of Costa Rican firms not in our sample with our survey respondents. The dark line represents firms in our sample and the histogram represents the complete population of Costa Rican firms, with our own respondents excluded to avoid skewing these tests in our favor. The figure also reports the out-of-sample mean for each variable (as an upward-pointing triangle) and the in-sample mean (as a downward-pointing triangle). We generally see a close correspondence between our sample distribution and the population distribution suggesting considerable similarity between the two groups. The average values on these measures are also quite close between the two groups, although firms in sample tend to be somewhat larger and more diversified in their export sales.³⁵ While these variables represent only some potential attributes on which we would like our sample to resemble the broader population of firms, the close overlap between sample and population on these observable characteristics is encouraging.

Figure A2 takes a different look at the data by examining the sectoral distribution of our respondents. This is helpful because we want to make sure that we are not systematically ignoring particular industries (or even sectors). Each number along the horizontal axis represents a two-digit ISIC code (Revision 3.1). For example, "01" represents crop and animal production while "25" represents fabricated metal manufacturers. Because no data comparable to the US Census of Manufacturers exists on the number or size of sectors, we plot as

³⁴The exporting data provided by Procomer covers 13 years, 2000-2012. The modal number of years exporting for firms *in the data* is 13, therefore implying that the most common pattern among Costa Rican exporters is exporting consistently over the entire time period. There are, however, a large number of firms which export for only some years either because they are new firms, export-market entrants, exiting firms, or failed exporters.

³⁵Employing Welch's t-test, each of these variables (logged where appropriate) is significantly larger among the sample than the population, excluding non-respondents. For example, our survey respondents are approximately 47% larger in terms of average annual exports and about 26% larger in terms of number of markets served. Given the considerable variation in sales figures and number of markets served across firms, we see these differences as acceptable.

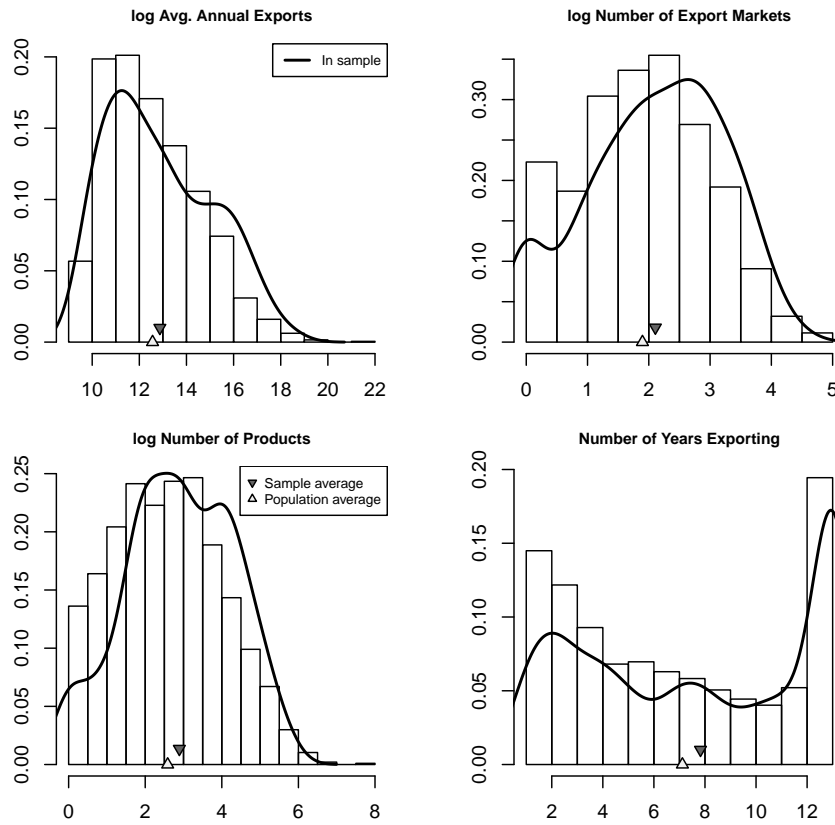


Figure A1: These plots compare the distribution of all Costa Rican exporters as histograms (survey respondents excluded) with a smoothed distribution of our respondents (represented by the black line). The top left plots the average annual export sales of all Costa Rican exporters during years in which they actively export. This sample includes only firms who were active in 2010 to provide a snapshot in time of what this distribution should look like. The top right plots the log of number of markets to which the firm exports; the bottom left plots the log of the number of products produced; and, the bottom right plots the number of years the firm was actively exporting. In general, our distributions match quite closely, but the sample averages are somewhat higher than the population averages.

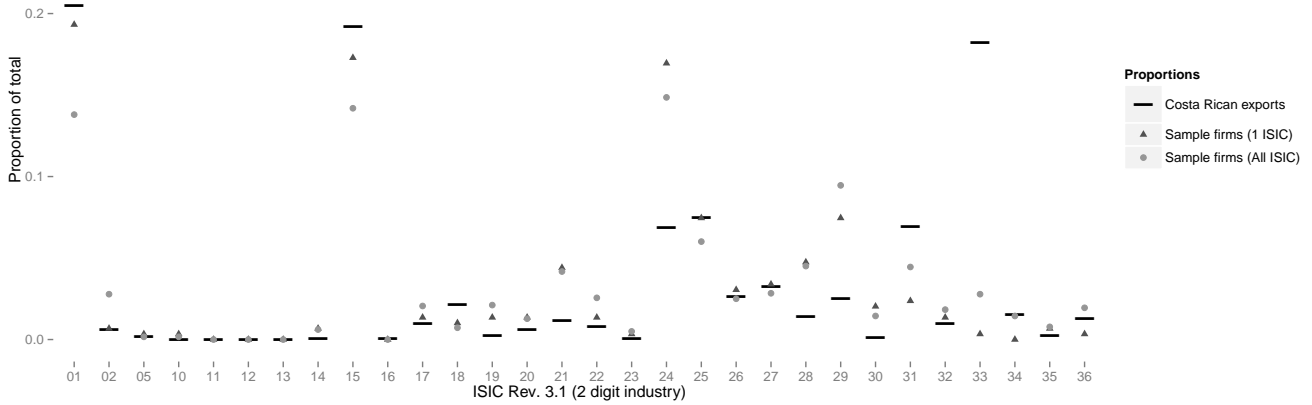
a baseline for comparison the proportion of Costa Rican exports accounted for by each of the 30 two-digit ISIC industries. This is represented by solid black lines. This proportion is then compared to three sample quantities: the proportion of firms in the sample falling in each two-digit industry using only the respondents *main* industry of operation; the proportion of firms in the sample falling in each two-digit industry using *all* industries for each firm; and, on the bottom half of the figure, we use the firm-level export data to determine the in-sample export proportions of our respondent firms across all industries.³⁶

If we have achieved relatively even response across Costa Rica's industries, we expect to see dots (which represent sample proportions for each of the three quantities described above) relatively close to lines (which represent the corresponding population figures). Examining Figure A2, this is precisely what we do see, with perhaps two exceptions. In the top half of the figure, the proportions of respondents by industry are generally quite close to the proportions of Costa Rican export sales. For example, we receive significant numbers of responses from Costa Rica's largest agriculture and manufacturing industries (fruits and vegetables, food products, rubber and plastics, and so on). We appear to have received over-proportional response from manufacturers of chemicals (ISIC code 24) and under-response from manufacturers of medical, precision and optical instruments (33), however.

Using our firm-level data to reconstruct the export shares of our exporting respondents, which is shown in the bottom half of Figure A2, we again see a very close match between Costa Rica as a whole and our sample, with the exception of the two industries mentioned above. We conclude that the patterns of response in our survey correlate well with the underlying export patterns of Costa Rica. We have generally not received gross over- or under-response from any particular industry.

³⁶We determined (up to four) 4-digit ISIC Revision 3.1 industries for our respondents using either export data, where available, or hand-coding in collaboration with the survey team at INCAE. Each firm was assigned a single *main* industry at the 4-digit level, reflecting their primary industry of operation. They were also assigned up to three extra subsidiary industries. We generally use all of the assigned industries when calculating industry-level variables, as described below.

Comparing Costa Rica's exports by industry to respondents' industries



Comparing Costa Rica's exports by industry to respondents' exports

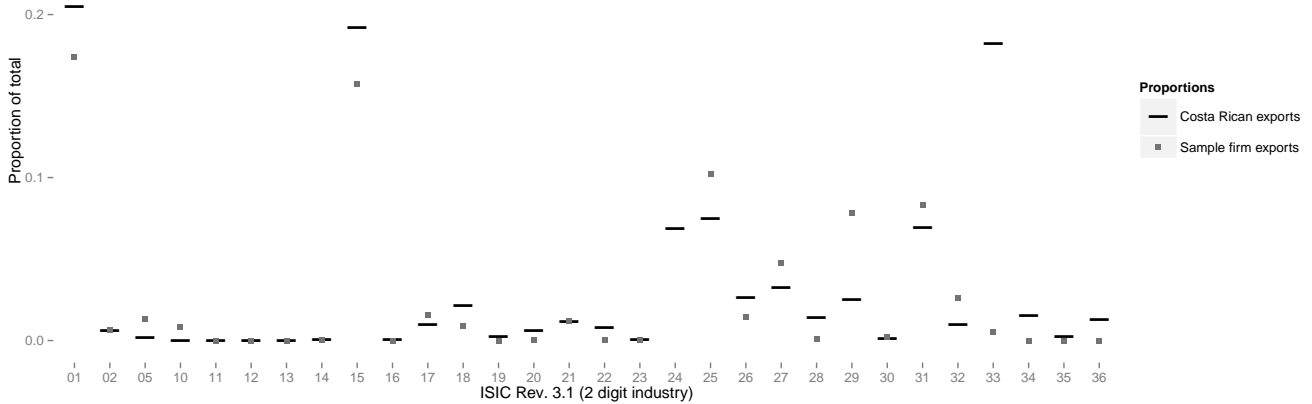


Figure A2: These figures use Costa Rican export data, constructed using HS[] taken from WITS/TRAINS [], as a baseline against which to compare our sampled firms. The firms are divided among each of 30 two-digit ISIC industries, and the solid black lines represent the proportion of Costa Rican exports accounted for by each industry. The red circles represent the proportion of respondents whose *main* industry falls into each of the industries, while the blue triangles uses information on all (up to 4) coded ISIC 2 industries for each responding firm. The lower half of the figure compares the export sales of Costa Rican firms as a whole against the sales of firms within our sample. The latter figures are constructed from the firm-level data provided by Procomer which is matched to our respondents.

B Online Appendix: Survey Variable Definitions

Procomer based data

- *Exporter (Procomer)*: whether a firm exported from 2000-2012
- *ln Total Exports*: natural log of total exports from 2000-2012
- *ln Annual Exports*: average annual exports during years when the firm actively exported
- *ln Number of Markets*: number of markets served by the firm from 2000-2012

Industry-level data

- Product differentiation is operationalized as a three level variable with moderately differentiated (*Mod. differentiated*) and highly differentiated (*Differentiated*) included in tables as dummies with an excluded category for homogeneous (i.e. relatively undifferentiated) products. This variable is calculated using the trichotomous measure of product differentiation developed in Rauch (1999). Firms' products are matched to a differentiation code using a concordance, and then proportions of products falling into each of two levels are calculated (proportion of productions "homogeneous" and proportion "differentiated"). Firms with a positive value on the homogeneous code were coded as producing "homogeneous products" (about 17.8% of producers). The remainder were coded based on a break in the bimodal distribution of differentiated products at .5. 55.6% of firms are coded as producing moderately differentiated products; and the remainder as producing (fully) differentiated products.
- The relative comparative advantage measure is strictly ordinal. It is calculated as a three level variable with (*Comparative Advantage*) and neutral comparative advantage (*Neutral Comp. Adv.*) included in tables as dummies with an excluded baseline of firms with a comparative disadvantage. The values were assigned based on which tercile the firm fell into in the distribution of exports divided by imports for all of that firms' ISIC industries.

Firm survey based data³⁷

- *ln Sales* In year 2012, what were the firm's total annual sales? Please indicate the amount in colones or dollars. (Input by respondent selected colones or dollars)
- *Substitutability* When people buy your product or products, how easy is it to find a product made by another company that is similar to yours? If your company makes several products, please answer for your best selling product. Very easy to find similar product, somewhat easy to find similar product, somewhat difficult to find similar product, very difficult to find similar product
- *Foreign Production* Does your firm own production facilities in other countries besides Costa Rica? Yes No

³⁷Spanish translations used in the original survey available upon request.

- *Efficiency* Efficiency means making things quickly, without sacrificing quality or wasting materials. How would you rate the place where you work on a scale from 0 to 10, where 0 is extremely inefficient and 10 is extremely efficient?
- *Productivity* “When it comes to making money, is your business doing better or worse than other businesses that make similar products?” 5 point scale from “doing a lot worse” to “doing a lot better”. From Rho and Tomz (2012).
- “In evaluating the impact of reductions in international trade barriers on your firm’s profits, how important are the following considerations?:
Import competition “Increased competition from foreign producers”
Export opportunities “Increased opportunities for exports to foreign markets”
Ind. Exports “Increased opportunities for exports by firms my company supplies”
Skilled wage changes “Changes in wages/salaries for skilled workers”
Unskilled wage changes “Changes in wages for unskilled workers”
- *Industry heterogeneity* “Do firms in your industry, which are based in Costa Rica, generally have similar views and positions with respect to international trade agreements the government of Costa Rica is considering or negotiating with other countries?” Very similar view and positions, somewhat similar views and positions, somewhat different views and positions, very different views and positions
- *Trade association views* “Do your firm’s management and the leadership of the trade association your firm belongs to usually hold similar or different views and positions concerning international trade policy?” Very similar, Somewhat similar, Somewhat different, Very different, Don’t know

C Online Appendix: Additional Models

	Benefits from reciprocal liberalization			
	1	2	3	4
ln Sales	0.038 (0.057)			
Exporter (Reported)		0.412 (0.297)		
Efficiency			0.094 (0.094)	
Productivity				0.279* (0.146)
Neutral Comp. Adv.	-0.011 (0.312)	0.017 (0.296)	0.016 (0.297)	0.048 (0.299)
Comparative Advantage	0.180 (0.287)	0.196 (0.278)	0.208 (0.278)	0.252 (0.283)
Mod. differentiated	-0.601** (0.298)	-0.629** (0.292)	-0.633** (0.294)	-0.630** (0.292)
Differentiated	-0.494 (0.304)	-0.388 (0.312)	-0.468 (0.301)	-0.442 (0.298)
Substitutability	-0.248* (0.131)	-0.229* (0.132)	-0.221* (0.133)	-0.206 (0.131)
Foreign production	0.151 (0.258)	0.122 (0.259)	0.133 (0.260)	0.134 (0.259)
Importer	-0.539 (0.343)	-0.500 (0.315)	-0.487 (0.320)	-0.504 (0.311)
N	274	274	274	274

*p < .1; **p < .05; ***p < .01

Table A1: Ordinal logistic regression of self-reported benefits from reciprocal trade liberalization on various subjective measures of export ability (along with self-reported firm sales). In two of three models, the measure of self-assessed export ability or productivity is a significant predictor of support for trade liberalization, even conditional on comparative advantage of the respondent's industry, as a whole. In the other, the predictor is signed in the right direction though not significant at the 10% level. Though signed in the expected direction, the measure of industry-wide comparative advantage is generally not significant.

	Benefits from reciprocal liberalization							
	1	2	3	4	5	6	7	8
In Sales	0.072 (0.051)							
Exporter (Reported)		0.669** (0.337)						
In Total exports			0.055*** (0.021)					
In Avg. exports				0.062** (0.024)				
In Num. markets					0.302*** (0.102)			
Exporter (reported)						0.751** (0.316)		
Efficiency							0.089 (0.085)	
Productivity								0.317** (0.155)
Neutral Comp. Adv.	0.004 (0.301)	0.137 (0.283)	0.138 (0.284)	0.130 (0.284)	0.125 (0.283)	0.044 (0.283)	0.084 (0.282)	0.086 (0.281)
Comparative Advantage	0.528* (0.319)	0.663** (0.318)	0.637** (0.319)	0.629** (0.319)	0.639** (0.322)	0.543* (0.323)	0.579* (0.316)	0.605* (0.321)
Mod. differentiated	-0.211 (0.333)	-0.256 (0.324)	-0.203 (0.326)	-0.196 (0.326)	-0.213 (0.326)	-0.275 (0.322)	-0.259 (0.326)	-0.255 (0.324)
Differentiated	-0.162 (0.319)	-0.126 (0.318)	-0.014 (0.326)	-0.015 (0.326)	-0.020 (0.322)	0.003 (0.319)	-0.170 (0.316)	-0.124 (0.316)
Substitutability	-0.122 (0.140)	-0.092 (0.134)	-0.100 (0.134)	-0.099 (0.134)	-0.100 (0.134)	-0.072 (0.134)	-0.079 (0.135)	-0.051 (0.138)
Foreign production	0.536* (0.295)	0.550* (0.288)	0.504* (0.287)	0.492* (0.287)	0.465 (0.288)	0.484* (0.291)	0.524* (0.289)	0.524* (0.293)
Importer	0.047 (0.313)	0.110 (0.301)	0.070 (0.304)	0.069 (0.304)	0.142 (0.303)	0.134 (0.295)	0.138 (0.307)	0.097 (0.308)
N	274	274	274	274	274	274	274	274

*p < .1; **p < .05; ***p < .01

Table A2: Ordinal logistic regression of benefits from trade liberalization via the WTO on various objective and subjective measures of export ability. In two of three models, the measure of self-assessed export ability or productivity is a significant predictor of support for trade liberalization, even conditional on comparative advantage of the respondent's industry, as a whole. In the other, the predictor is signed in the right direction though not significant at the 10% level. Though signed in the expected direction, the measure of industry-wide comparative advantage is generally not significant.

	Benefits from reciprocal liberalization							
	1	2	3	4	5	6	7	8
In Sales	0.001 (0.024)							
Exporter (Reported)		0.238 (0.153)						
In Total exports			0.021** (0.010)					
In Avg. exports				0.022* (0.011)				
In Num. markets					0.139** (0.053)			
Exporter (reported)						0.134 (0.158)		
Efficiency							0.001 (0.041)	
Productivity								0.112 (0.067)
Neutral Comp. Adv.	0.143 (0.143)	0.166 (0.142)	0.171 (0.141)	0.166 (0.141)	0.170 (0.140)	0.137 (0.143)	0.141 (0.142)	0.142 (0.140)
Comparative Advantage	0.258 (0.195)	0.274 (0.189)	0.262 (0.187)	0.259 (0.186)	0.264 (0.187)	0.250 (0.187)	0.256 (0.185)	0.256 (0.190)
Mod. differentiated	-0.293* (0.159)	-0.284* (0.151)	-0.266* (0.151)	-0.265* (0.152)	-0.263* (0.149)	-0.282* (0.151)	-0.288* (0.150)	-0.284* (0.149)
Differentiated	-0.363** (0.165)	-0.338** (0.159)	-0.293* (0.159)	-0.300* (0.161)	-0.278* (0.158)	-0.323* (0.165)	-0.362** (0.158)	-0.328** (0.156)
Substitutability	-0.020 (0.072)	-0.015 (0.071)	-0.015 (0.071)	-0.015 (0.071)	-0.014 (0.070)	-0.014 (0.070)	-0.018 (0.071)	0.000 (0.071)
Foreign production	0.041 (0.158)	0.030 (0.159)	0.009 (0.159)	0.008 (0.159)	-0.017 (0.157)	0.024 (0.161)	0.042 (0.158)	0.020 (0.158)
Importer	-0.099 (0.153)	-0.127 (0.141)	-0.152 (0.140)	-0.147 (0.140)	-0.130 (0.135)	-0.101 (0.143)	-0.096 (0.142)	-0.113 (0.139)
N	274	274	274	274	274	274	274	274

*p < .1; **p < .05; ***p < .01

Table A3: Ordinal logistic regression of benefits from trade liberalization with 8 countries on various objective and subjective measures of export ability. In two of three models, the measure of self-assessed export ability or productivity is a significant predictor of support for trade liberalization, even conditional on comparative advantage of the respondent's industry, as a whole. In the other, the predictor is signed in the right direction though not significant at the 10% level. Though signed in the expected direction, the measure of industry-wide comparative advantage is generally not significant.

	Trade important? 1	Seek trade info 2	Any political activity 3	Trade policy activity 4
In Sales	-0.157* (0.093)	-0.001 (0.082)	-0.082 (0.201)	-0.080 (0.193)
In Sales ²	0.004 (0.003)	0.001 (0.002)	0.004 (0.006)	0.004 (0.006)
Neutral Comp. Adv.	0.138 (0.183)	0.087 (0.187)	-0.126 (0.387)	-0.492 (0.426)
Comparative Advantage	0.337* (0.183)	0.132 (0.183)	0.702* (0.378)	0.468 (0.417)
Mod. differentiated	-0.743*** (0.177)	-0.434** (0.183)	-0.768* (0.408)	-0.803* (0.428)
Differentiated	-0.518*** (0.182)	-0.375* (0.193)	-0.763** (0.384)	-0.482 (0.410)
Substitutability	0.065 (0.080)	0.110 (0.083)	0.079 (0.188)	0.122 (0.187)
Foreign production	-0.006 (0.159)	0.158 (0.179)	0.155 (0.365)	0.043 (0.380)
Importer	0.077 (0.182)	0.206 (0.211)	1.135*** (0.428)	0.669 (0.444)
N	274	274	274	274

*p < .1; **p < .05; ***p < .01

Table A4: Regressions of various measures of political activity surrounding trade issues, including a belief that trade policy is impactful, seeking information about trade, and (trade-related) political activity. All models are estimated among exporters only – in general each of these outcomes was not strongly correlated with export status per se, but are apparently strongly correlated with the intensity of export activity. Comparative advantage is positively, but not consistently, correlated with interest and activity around trade policy.

D Online Appendix: Models without Imputation

	Benefits from reciprocal liberalization			
	1	2	3	4
Exporter (Procomer)	0.741** (0.337)			
ln Total exports		0.041* (0.021)		
ln Annual exports			0.050** (0.025)	
ln Number of markets				0.206** (0.105)
Neutral Comp. Adv.	0.195 (0.288)	0.172 (0.288)	0.169 (0.287)	0.162 (0.287)
Comparative Advantage	0.470* (0.276)	0.426 (0.274)	0.424 (0.274)	0.423 (0.274)
Mod. differentiated	-0.678** (0.301)	-0.647** (0.301)	-0.635** (0.301)	-0.653** (0.301)
Differentiated	-0.493 (0.301)	-0.438 (0.309)	-0.423 (0.310)	-0.453 (0.307)
Substitutability	-0.271** (0.132)	-0.276** (0.132)	-0.275** (0.132)	-0.279** (0.133)
Foreign production	0.099 (0.259)	0.065 (0.261)	0.050 (0.262)	0.044 (0.263)
N	254	254	254	254

*p < .1; **p < .05; ***p < .01

Table A5: Ordinal logistic regression of self-reported benefits from reciprocal trade liberalization on various subjective measures of export ability (along with self-reported firm sales). In two of three models, the measure of self-assessed export ability or productivity is a significant predictor of support for trade liberalization, even conditional on comparative advantage of the respondent's industry, as a whole. In the other, the predictor is signed in the right direction though not significant at the 10% level. Though signed in the expected direction, the measure of industry-wide comparative advantage is generally not significant.

	Benefits from reciprocal liberalization			
	1	2	3	4
ln Sales	0.119*			
	(0.062)			
Exporter (Reported)		0.460		
		(0.315)		
Efficiency			0.092	
			(0.088)	
Productivity				0.336**
				(0.141)
Neutral Comp. Adv.	-0.037	0.118	0.127	0.194
	(0.426)	(0.311)	(0.308)	(0.308)
Comparative Advantage	0.519	0.378	0.373	0.465
	(0.420)	(0.298)	(0.298)	(0.301)
Mod. differentiated	-1.376***	-0.710**	-0.743**	-0.727**
	(0.485)	(0.324)	(0.324)	(0.324)
Differentiated	-0.725	-0.507	-0.652**	-0.625*
	(0.464)	(0.336)	(0.325)	(0.321)
Substitutability	-0.299	-0.246*	-0.236	-0.206
	(0.188)	(0.143)	(0.144)	(0.144)
Foreign production	-0.480	-0.045	-0.032	-0.049
	(0.398)	(0.288)	(0.286)	(0.284)
N	113	211	213	213

*p < .1; **p < .05; ***p < .01

Table A6: Ordinal logistic regression of self-reported benefits from reciprocal trade liberalization on various subjective measures of export ability (along with self-reported firm sales). In two of three models, the measure of self-assessed export ability or productivity is a significant predictor of support for trade liberalization, even conditional on comparative advantage of the respondent's industry, as a whole. In the other, the predictor is signed in the right direction though not significant at the 10% level. Though signed in the expected direction, the measure of industry-wide comparative advantage is generally not significant.

	Benefits from reciprocal liberalization							
	1	2	3	4	5	6	7	8
In Sales	0.158*** (0.061)							
Exporter (Procomer)		0.673* (0.358)						
In Total exports			0.063*** (0.023)					
In Annual exports				0.071*** (0.026)				
In Number of markets					0.346*** (0.111)			
Exporter (Reported)						0.865*** (0.314)		
Efficiency							0.134 (0.088)	
Productivity								0.367** (0.146)
Neutral Comp. Adv.	0.271 (0.420)	0.119 (0.297)	0.133 (0.297)	0.119 (0.297)	0.114 (0.296)	0.058 (0.305)	0.138 (0.303)	0.161 (0.302)
Comparative Advantage	0.840* (0.445)	0.718** (0.313)	0.708** (0.312)	0.696** (0.311)	0.717** (0.312)	0.622** (0.313)	0.654** (0.312)	0.728** (0.316)
Mod. differentiated	-0.832* (0.501)	-0.327 (0.329)	-0.270 (0.330)	-0.262 (0.330)	-0.258 (0.331)	-0.300 (0.330)	-0.289 (0.330)	-0.284 (0.331)
Differentiated	-0.517 (0.471)	-0.305 (0.324)	-0.166 (0.331)	-0.167 (0.332)	-0.178 (0.329)	-0.121 (0.338)	-0.304 (0.329)	-0.277 (0.325)
Substitutability	-0.114 (0.185)	-0.044 (0.139)	-0.053 (0.139)	-0.053 (0.139)	-0.051 (0.139)	-0.062 (0.142)	-0.044 (0.143)	-0.016 (0.143)
Foreign production	0.110 (0.396)	0.433 (0.283)	0.371 (0.284)	0.359 (0.284)	0.339 (0.285)	0.336 (0.291)	0.406 (0.289)	0.425 (0.288)
N	112	222	222	222	222	211	213	213

*p < .1; **p < .05; ***p < .01

Table A7: Ordinal logistic regression of benefits from trade liberalization via the WTO on various objective and subjective measures of export ability. In two of three models, the measure of self-assessed export ability or productivity is a significant predictor of support for trade liberalization, even conditional on comparative advantage of the respondent's industry, as a whole. In the other, the predictor is signed in the right direction though not significant at the 10% level. Though signed in the expected direction, the measure of industry-wide comparative advantage is generally not significant.

	Benefits from reciprocal liberalization							
	1	2	3	4	5	6	7	8
In Sales	0.025 (0.024)							
Exporter (Procomer)		0.251 (0.169)						
In Total exports			0.022** (0.011)					
In Annual exports				0.024* (0.012)				
In Number of markets					0.139** (0.056)			
Exporter (Reported)						0.272 (0.175)		
Efficiency							0.011 (0.048)	
Productivity								0.116 (0.077)
Neutral Comp. Adv.	0.204 (0.176)	0.185 (0.160)	0.197 (0.159)	0.192 (0.159)	0.200 (0.158)	0.077 (0.171)	0.111 (0.169)	0.119 (0.167)
Comparative Advantage	0.160 (0.176)	0.257 (0.164)	0.249 (0.162)	0.244 (0.163)	0.255 (0.161)	0.221 (0.169)	0.217 (0.170)	0.218 (0.168)
Mod. differentiated	-0.452** (0.193)	-0.388** (0.174)	-0.372** (0.173)	-0.367** (0.173)	-0.360** (0.172)	-0.366** (0.181)	-0.393** (0.181)	-0.355* (0.180)
Differentiated	-0.347* (0.187)	-0.324* (0.174)	-0.291* (0.174)	-0.290* (0.175)	-0.292* (0.172)	-0.257 (0.190)	-0.363** (0.181)	-0.315* (0.181)
Substitutability	-0.036 (0.075)	-0.009 (0.069)	-0.010 (0.069)	-0.010 (0.069)	-0.013 (0.068)	-0.018 (0.073)	-0.022 (0.073)	-0.014 (0.072)
Foreign production	-0.034 (0.164)	-0.136 (0.148)	-0.159 (0.148)	-0.159 (0.149)	-0.173 (0.147)	-0.099 (0.158)	-0.053 (0.154)	-0.080 (0.153)
Constant	4.150*** (0.415)	4.188*** (0.323)	4.117*** (0.315)	4.131*** (0.317)	4.134*** (0.298)	4.194*** (0.328)	4.364*** (0.478)	3.407*** (0.746)
N	113	143	143	143	143	132	134	134
R ²	0.088	0.079	0.093	0.090	0.105	0.075	0.061	0.077

*p < .1; **p < .05; ***p < .01

Table A8: Ordinal logistic regression of benefits from trade liberalization with 8 countries on various objective and subjective measures of export ability. In two of three models, the measure of self-assessed export ability or productivity is a significant predictor of support for trade liberalization, even conditional on comparative advantage of the respondent's industry, as a whole. In the other, the predictor is signed in the right direction though not significant at the 10% level. Though signed in the expected direction, the measure of industry-wide comparative advantage is generally not significant.

	Import competition		Export opportunities		
	1a	1b	2a	2b	2c
Exporter	-0.219 (0.336)		0.689** (0.351)		
In Annual exports				0.059** (0.025)	
In Number markets					0.238** (0.104)
Neutral Comp. Adv.	-0.119 (0.280)		0.283 (0.288)	0.262 (0.287)	0.261 (0.287)
Comparative Advantage	-0.036 (0.287)		0.503* (0.284)	0.448 (0.283)	0.440 (0.283)
Mod. differentiated	-0.100 (0.298)		-0.669** (0.294)	-0.627** (0.295)	-0.635** (0.296)
Differentiated	0.324 (0.303)		-0.923*** (0.307)	-0.844*** (0.311)	-0.864*** (0.309)
Substitutability	0.457*** (0.133)		-0.109 (0.131)	-0.115 (0.131)	-0.117 (0.131)
Foreign production	-0.287 (0.259)		-0.575** (0.262)	-0.650** (0.267)	-0.645** (0.268)
Export opportunities		0.202** (0.100)			
N	249	257	249	249	249

*p < .1; **p < .05; ***p < .01

Table A9: Ordinal logistic regression of various dimensions of liberalization on selected predictors. Respondents answer whether each dimension, import competition or indirect export opportunities for example, are important considerations in assessing proposed trade liberalizations. Export opportunities, whether direct or indirect, are considered most important by current exporters, even conditional on the export orientation of the industry as a whole. Concern about import competition and export opportunities is positively correlated, reflecting the two-way trade patterns prevalent in modern trade. Traditional measures of comparative advantage have the expected signs, but are generally not statistically significant.

	Divisions		Association	
	1a	1b	2a	2b
Exporter	-0.861 (0.524)		-1.813** (0.855)	
ln Annual exports		-0.091** (0.039)		-0.200*** (0.076)
Mod. differentiated	1.420** (0.641)	1.412** (0.648)	2.149* (1.222)	2.410* (1.318)
Differentiated	1.523** (0.711)	1.424** (0.717)	1.351 (1.219)	1.391 (1.261)
Substitutability	0.308 (0.270)	0.325 (0.274)	-0.994*** (0.356)	-1.072*** (0.376)
Neutral Comp. Adv.	0.288 (0.569)	0.276 (0.570)	-0.905 (0.848)	-1.090 (0.879)
Comparative Advantage	0.629 (0.546)	0.673 (0.549)	-1.427 (0.948)	-1.747* (1.032)
Foreign production	0.251 (0.501)	0.356 (0.509)	-0.277 (0.757)	-0.025 (0.775)
ln Number of firms	0.398 (0.279)	0.419 (0.285)	0.626 (0.448)	0.826 (0.502)
Constant	-5.014*** (1.587)	-4.901*** (1.593)	-0.856 (1.986)	-0.986 (2.052)
N	216	216	115	115
AIC	168.973	166.318	82.072	78.313

*p < .1; **p < .05; ***p < .01

Table A10: Logistic regression models of two measures of intra-industry disagreements. The first two models use as an outcome whether respondents report 'somewhat' or 'very different' views over trade policy among firms within their industry. The dependent variable in the second two models is whether respondents report holding 'somewhat' or 'very different' positions on international trade policy from their trade association. As expected, both measures of intra-industry disagreement are correlated with product differentiation. Exporters are less likely to report that such disagreements exist in their industry.

	Trade important?		Seek trade info		Any political activity		Trade policy activity	
	1a	1b	2a	2b	3a	3b	4a	4b
In Annual exports	0.157** (0.068)		0.176*** (0.068)		0.314*** (0.084)		0.308*** (0.092)	
In Number of markets		0.102 (0.153)		0.174 (0.148)		0.563*** (0.193)		0.602*** (0.209)
Neutral Comp. Adv.	0.109 (0.323)	0.156 (0.321)	0.002 (0.327)	0.062 (0.324)	-0.368 (0.420)	-0.273 (0.414)	-0.621 (0.468)	-0.538 (0.465)
Comparative Advantage	0.927*** (0.331)	1.024*** (0.330)	-0.037 (0.314)	0.128 (0.307)	0.235 (0.395)	0.448 (0.381)	0.285 (0.415)	0.437 (0.406)
Mod. differentiated	-0.870** (0.347)	-0.990*** (0.342)	-0.314 (0.330)	-0.457 (0.324)	-0.642 (0.413)	-0.812** (0.402)	-0.700 (0.447)	-0.837* (0.440)
Differentiated	-0.388 (0.365)	-0.632* (0.349)	-0.140 (0.360)	-0.363 (0.349)	0.002 (0.438)	-0.300 (0.416)	0.101 (0.466)	-0.114 (0.450)
Substitutability	0.203 (0.151)	0.205 (0.152)	0.278* (0.149)	0.292* (0.149)	0.164 (0.188)	0.143 (0.183)	0.247 (0.209)	0.243 (0.205)
Foreign production	-0.121 (0.312)	0.029 (0.305)	0.120 (0.295)	0.253 (0.291)	-0.138 (0.376)	-0.005 (0.362)	-0.230 (0.411)	-0.141 (0.401)
Constant					-4.854*** (1.349)	-1.984** (0.842)	-5.216*** (1.481)	-2.585*** (0.944)
N	200	200	200	200	187	187	172	172

*p < .1; ** p < .05; *** p < .01

Table A11: Regressions of various measures of political activity surrounding trade issues, including a belief that trade policy is impactful, seeking information about trade, and (trade-related) political activity. All models are estimated among exporters only – in general each of these outcomes was not strongly correlated with export status per se, but are apparently strongly correlated with the intensity of export activity. Comparative advantage is positively, but not consistently, correlated with interest and activity around trade policy.

	Trade important? 1	Seek trade info 2	Any political activity 3	Trade policy activity 4
ln Total sales	-1.069*** (0.401)	0.075 (0.188)	-0.179 (0.243)	-0.218 (0.251)
ln Total sales ²	0.036** (0.014)	-0.002 (0.007)	0.008 (0.009)	0.008 (0.010)
Neutral Comp. Adv.	0.576 (0.432)	0.188 (0.432)	-0.179 (0.577)	-0.221 (0.705)
Comparative Advantage	1.166** (0.477)	0.517 (0.434)	0.432 (0.537)	0.819 (0.610)
Mod. differentiated	-1.637*** (0.514)	-1.042** (0.490)	-0.358 (0.592)	-0.756 (0.672)
Differentiated	-1.073** (0.478)	-0.674 (0.472)	-0.205 (0.575)	-0.244 (0.625)
Substitutability	0.168 (0.194)	0.382** (0.190)	0.046 (0.245)	0.293 (0.297)
Foreign production	0.245 (0.432)	0.350 (0.404)	0.550 (0.491)	0.445 (0.572)
Constant			-0.329 (1.969)	-0.939 (2.144)
N	113	113	113	106

*p < .1; **p < .05; ***p < .01

Table A12: Regressions of various measures of political activity surrounding trade issues, including a belief that trade policy is impactful, seeking information about trade, and (trade-related) political activity. All models are estimated among exporters only – in general each of these outcomes was not strongly correlated with export status per se, but are apparently strongly correlated with the intensity of export activity. Comparative advantage is positively, but not consistently, correlated with interest and activity around trade policy.