Web Appendix
Firms' Preferences over Multidimensional Trade Policies: Global Production Chains, Investment Protection and Dispute Settlement Mechanisms

February 8, 2018

A1 Conjoint Design: English Version

With the coming 2014 elections, Costa Rica will debate fundamental aspects of its trade policy. In this debate, there are different opinions regarding the use of the following four policy instruments: tariff and non-tariff reductions, flexibility of commitments, use of mechanisms for dispute settlement, foreign investment protection and export subsidies. The outcome of this debate will determine these use of these instruments in coming years. In the next survey section, we ask you to indicate the preference of your firm towards policies that use these instruments differently.

Before proceeding, please read the description of each policy instrument carefully:

1. Reduction of tariff and non-tariff barriers: The government envisages further reductions of tariff and non-tariff barriers across a wide array of industries, including the industry of your firm. The size of reductions may vary from big to small, with reductions leading to lower prices for foreign products sold in Costa Rica.

2. Flexibility of international commitments: International trade agreements may differ in terms of their flexibility. Flexibility means the extent to which an agreement permits countries to temporarily suspend the implementation of international trade commitments. High flexibility means that the government can protect domestic industries from unexpected price or supply shifts induced by foreign competition.

3. Use of dispute settlement mechanisms: The Costa Rican government may counteract misconduct of its partners by using the dispute settlement mechanisms available in trade agreements. The resulting policy can be aggressive with multiple uses against many countries or passive with selective use against few countries.

4. Protection of foreign investment: The Costa Rican government can negotiate agreements for the protection of foreign investment. This protection can vary from weak to strong.

5. Export subsidies: The Costa Rican government may or may not provide explicit or implicit subsidies to domestic exporting firms. The level of subsidies may vary from low to high, where high means more support for exports.

In the following minutes, we will ask you to compare trade policies that differ precisely in the five aspects just mentioned. Please compare these potential policies carefully. Then, please indicate what the policy your firm would prefer.

Read carefully. Some policies may seem alike, but differ on important aspects.

Attributes	Trade Policy 1	Trade Policy 2
Reduction of tariff and non-tariff barriers	{small, medium, big}	{small, medium, big}
Flexibility	{small, medium, big}	{small, medium, big}
Use of dispute settlement mechanisms	{aggressive, passive}	{aggressive, passive}
Investment protection	{weak, moderate, strong}	{weak, moderate, strong}
Export subsidy	{low, moderate, high}	{low, moderate, high}
Which policy do you prefer?	{Tick box}	{Tick box}

A2 Conjoint Design: Spanish Version

Al acercarse las elecciones de febrero 2014, en Costa Rica se debaten aspectos fundamentales sobre la política comercial. En este debate existen diversas opiniones en cuanto al uso de los siguientes cuatro instrumentos de la política comercial: reducción de barreras arancelarias y no arancelarias, flexibilidad de los compromisos internacionales, uso de mecanismos de solución de diferencias, protección a la inversión extranjera y subsidios a la exportación. El resultado de este debate determinará el uso de los instrumentos mencionados durante los próximos años. En la siguiente sección de la encuesta le pedimos exprese la preferencia de su empresa en torno a diferentes políticas comerciales que varían en la forma que utilizan los instrumentos de política comercial listados.

Antes de continuar, por favor lea con atención el siguiente texto que describe lo que involucra cada uno de los instrumentos de política comercial:

1. Reducción de barreras arancelarias y no arancelarias: Se contempla la posterior reducción de barreras arancelarias y no arancelarias para un amplio grupo de sectores, entre ellos el sector al que pertenece su empresa. El tamaño de la reducción puede variar de grande a pequeño, en donde una gran reducción tendrá como consecuencia la rebaja de los precios de los productos extranjeros vendidos en Costa Rica.

2. Flexibilidad de los compromisos internacionales: Los acuerdos de comercio internacional varían en función de su flexibilidad. Flexibilidad significa hasta que punto las reglas permiten a los países suspender temporalmente la aplicación de los compromisos previstos en el acuerdo internacional. Mucha flexibilidad significa que el gobierno puede proteger a las empresas domésticas de variaciones inesperadas del precio y la oferta causadas por la competencia internacional.

3. Uso de mecanismos de solución de diferencias: El Gobierno de Costa Rica puede contrarrestar el comportamiento indebido de sus socios comerciales usando los mecanismos de solución de diferencias previstos en los acuerdos comerciales. La política resultante puede ser agresiva, con una utilización intensiva de los mecanismos de solución de diferencias contra muchos países, o pasiva con un uso selectivo en contra de pocos países.

4. Protección a la inversión extranjera: El Gobierno de Costa Rica puede negociar acuerdos para la protección a la inversión extranjera. Esta protección puede variar de débil a fuerte.

5. Subsidios a la exportación: El Gobierno de Costa Rica podría proveer subsidios explícitos o implícitos a las empresas nacionales que exportan. El nivel del subsidio puede variar de bajo a alto, en donde alto significa más apoyo a las exportaciones.

En los siguiente minutos le pediremos que compare políticas comerciales que difieren precisamente en los cinco aspectos que recién mencionamos. Por favor compare estas políticas potenciales con detenimiento. Luego por favor indique cuál es la política que su empresa preferiría.

Lea con atención. Algunas políticas pueden parecerse, pero difieren en aspectos importantes.

Dimensión	Política Comercial 1	Política Comercial 2
Uso de mecanismos de solución de diferencias	{agresivo, moderate, pasivo}	{agresivo, moderate, pasivo}
Flexibilidad	{pequeña, mediana, grande}	{pequeña, mediana, grande}
Reducción de barreras arancelarias y no arancelarias	{pequeña, mediana, grande}	{pequeña, mediana, grande}
Protección a la inversión extranjera	{débil, moderado, fuerte}	{débil, moderado, fuerte}
Subsidios a la exportación	{bajo, moderados, alto}	{bajo, moderados, alto}

Table A1: **Experimental Design: Paired Conjoint Design:** This table presents the exact working that was used for the paired profiles conjoint in Spanish. Each respondent is forced to choose either Trade Policy 1 or Trade Policy 2 that differs across the five dimensions.

A3 Trade Patterns of Costa Rica and Other Countries.

Costa Rica provides a valuable case for the study of trade politics in developing countries that have become integral members of global trade. Costa Rica is a middle-income country with a rich political environment whereby firms and trade associations from diverse industries actively participate in trade policy-making (Osgood et al., 2017). It is a stable democracy that opened its markets to global trade after the 1980s. As of 2016, Costa Rica had signed 13 PTAs, including CAFTA-DR with the U.S, EU, and China. Costa Rica has actively pursued policies to attract FDI. The government has sought growth through globalization, using FDI to insert the national economy into GVCs. Costa Rica has transformed its economic structure through this process so that now much of its production and exports are of higher-value goods and services, rather than agriculture or low value-added goods. The country has joined numerous GVCs, most of which are associated with efficiency-seeking FDI, rather than natural resources-seeking or market-seeking.

In order to understand how Costa Rica compares to other countries, we examine several sets of data to show that it is similar economically to many other countries. We first compare the levels of intra-industry trade between Costa Rica and other countries in the world using the Grubel-Lloyd index for each SITC 2 digit industry for each country.[1] Figure A1 shows the distribution of this measure for the countries across 50 years, whose median increases steadily over time. By the end of the period, the median level of the index (marked as the black line within each box-and-whister plot)

[1]Formally, the index for industry k in country i is given by $(1 - (|export_{ik} - import_{ik}|)/(export_{ik} + import_{ik}))$, where $export_{ik}$ ($import_{ik}$) denotes total exports (imports) of products in industry k by country i to (from) the world. We use SITC 2 digit "divisions" to define industries. Similar patterns arise when we use different industry groupings, e.g., Harmonized System 2 and 4 digit industries. The complete list of 104 countries used for this analysis is available in Table **??**.

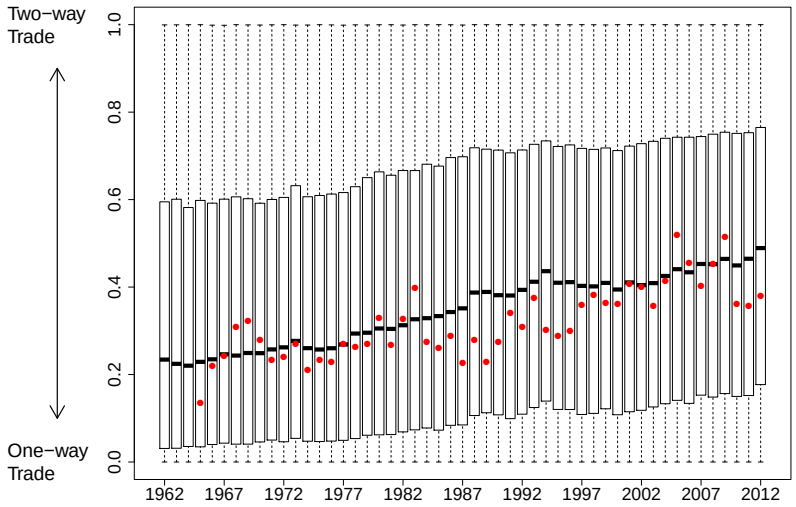

Figure A1: **Increasing Intra-industry Trade:** This figure displays the rising level of intra-industry trade, using the Grubel-Lloyd index across all SITC 2 digit industries from 1962 to 2012 across 104 nations. Each box-and-whister plot shows the full distribution of the index each year. The black horizontal line inside each box is the median level of the Grubel-Lloyd index for the given year across all industries and countries. The red dots indicate the median of the indices for Costa Rican industries, which mirrors the general rising trend.

was roughly 0.5, implying for example that a country imported 2 cars for every 6 cars exported. It also shows how Costa Rica (marked as red dots) has followed a similar time trend.

Algeria	Ecuador	Kuwait	Singapore
Angola	Egypt	Lebanon	Slovakia
Argentina	El Salvador	Libya	Slovenia
Australia	Ethiopia	Lithuania	So. African Customs Union
Austria	Finland	Luxembourg	South Africa
Azerbaijan	Fmr Arab Rep. of Yemen	Malaysia	Spain
Bangladesh	Fmr Ethiopia	Mexico	Sri Lanka
Belarus	Fmr Panama, excl.Canal Zone	Morocco	Sudan
Belgium	Fmr Rep. of Vietnam	Nepal	Sweden
Belgium-Luxembourg	France	Netherlands	Switzerland
Bolivia	Ghana	New Zealand	Syria
Brazil	Greece	Nigeria	Thailand
Bulgaria	Guatemala	Norway	Tunisia
Cameroon	Hungary	Oman	Turkey
Canada	India	Pakistan	Turkmenistan
Chile	India, excl. Sikkim	Panama	Uganda
China	Indonesia	Peru	Ukraine
China, Hong Kong SAR	Iran	Philippines	United Arab Emirates
Colombia	Iraq	Poland	United Kingdom
Costa Rica	Ireland	Portugal	United Rep. of Tanzania
Croatia	Israel	Qatar	Uruguay
Cuba	Italy	Rep. of Korea	USA
Czech Rep.	Japan	Romania	Uzbekistan
Denmark	Jordan	Russian Federation	Venezuela
Dominican Rep.	Kazakhstan	Saudi Arabia	Viet Nam
East and West Pakistan	Kenya	Serbia	Yemen

Table A2: List of 104 Countries Used for Computing the Measure of Intra-Industry Trade from 1962 to 2012

Country	% For. Input	Upstream Exp	Upstream Imp	Country	% For. Input	Upstream Exp	Upstream Imp	Country	% For. Input	Upstream Exp	Upstream Imp
Argentina	0.08	2.54	2.39	Greece	0.17	2.07	1.87	Poland	0.19	2.01	2.10
Australia	0.07	2.24	1.84	Hong Kong	0.20	1.95	2.10	Portugal	0.26	1.84	2.02
Austria	0.26	2.11	2.00	Hungary	0.32	1.94	2.19	Russia	0.06	2.80	1.89
Brazil	0.05	2.21	2.33	Iceland	0.10	2.60	2.01	Saudi Arabia	0.13	2.85	1.90
Brunei	0.11	1.30	1.85	India	0.15	1.97	2.24	Singapore	0.38	2.30	2.25
Bulgaria	0.27	2.18	2.06	Indonesia	0.10	2.16	2.44	Slovakia	0.25	2.13	2.15
Cambodia	0.16	1.32	2.16	Ireland	0.30	2.07	2.09	Slovenia	0.24	1.95	2.18
Canada	0.22	2.03	1.96	Israel	0.26	1.84	1.82	South Africa	0.11	2.20	2.04
Chile	0.18	3.22	1.98	Italy	0.12	1.91	2.04	South Korea	0.11	2.07	2.39
China	0.07	1.78	2.47	Japan	0.02	1.98	2.01	Spain	0.19	1.91	1.99
Colombia	0.06	2.16	2.22	Latvia	0.28	2.33	2.01	Sweden	0.29	2.07	2.00
Costa Rica	0.17	2.04	2.23	Lithuania	0.23	1.97	1.99	Switzerland	0.17	1.98	1.96
Croatia	0.13	1.91	1.95	Luxembourg	0.66	2.05	1.98	Taiwan	0.12	2.28	2.44
Cyprus	0.17	1.55	1.72	Malaysia	0.23	2.21	2.43	Thailand	0.22	2.00	2.38
Czech Rep.	0.18	2.04	2.18	Malta	0.14	2.40	1.95	Tunisia	0.26	1.75	2.16
Denmark	0.22	1.85	1.94	Mexico	0.19	1.74	2.20	Turkey	0.08	1.80	2.30
Estonia	0.32	2.08	2.05	Netherlands	0.20	2.14	2.05	UK	0.17	2.00	1.86
Finland	0.20	2.20	2.06	New Zealand	0.15	2.09	1.89	USA	0.10	2.10	1.82
France	0.17	1.94	2.00	Norway	0.18	2.45	1.94	Viet Nam	0.27	1.44	2.32
Germany	0.22	1.97	2.02	Philippines	0.18	2.29	2.41	**World**	**0.15**	**2.04**	**2.01**

Table A3: **Involvement in Global Production Chains**: This table summarizes the extent to which countries are involved in global production chains. The first column, "For.Input %" compares the percentage of foreign inputs used to produce outputs across 60 countries (including Rest of the World). The following two columns summarize the extent to which each country specializes in upstream or downstream stages of global production. A higher number under "Exp" ("Imp") column implies that the country tends to export (import) products in the upstream stages, whereas lower values imply that it specializes in exporting (importing) downstream goods.

Next, we examine Costa Rica's involvement in GVCs. Table A3 reports descriptive statistics for foreign input usage and various degrees of country's participation in global production chains. The first column labeled as "% For. Input" presents the percentage of intermediate goods used for domestic production that are imported from foreign countries. This measure captures the extent to which countries rely on foreign intermediate goods. We used OECD's 2015 Input-Output Tables to first calculate how much of foreign inputs are used for the production of the outputs of 34 industries.[2] We use the median value of the industry specific measures across all industries for each country. Our measure reveals that most countries—including Costa Rica—now import significant parts of their inputs from abroad (15% on average).

Furthermore, we investigate in which stage of global production a country tends to be involved. That is, some countries are likely to export final goods (so called downstream production), whereas others focus more on exporting raw materials and intermediate goods (so called upstream) in global manufacturing. We used the measure developed by Antràs et al. (2012) which is based on trade data in 2002. The two columns in Table A3 labeled as "Exp" and "Imp" report the degrees of "upstreamness" for each country's exports and imports, where a higher (lower) value than the world mean implies that the country specializes in relatively upstream (downstream) stages of global

[2]We include all states on which the input-output data exists. See `http://www.oecd.org/sti/ind/IOT_Industries_Items.pdf` for the list of industries used for our calculation.

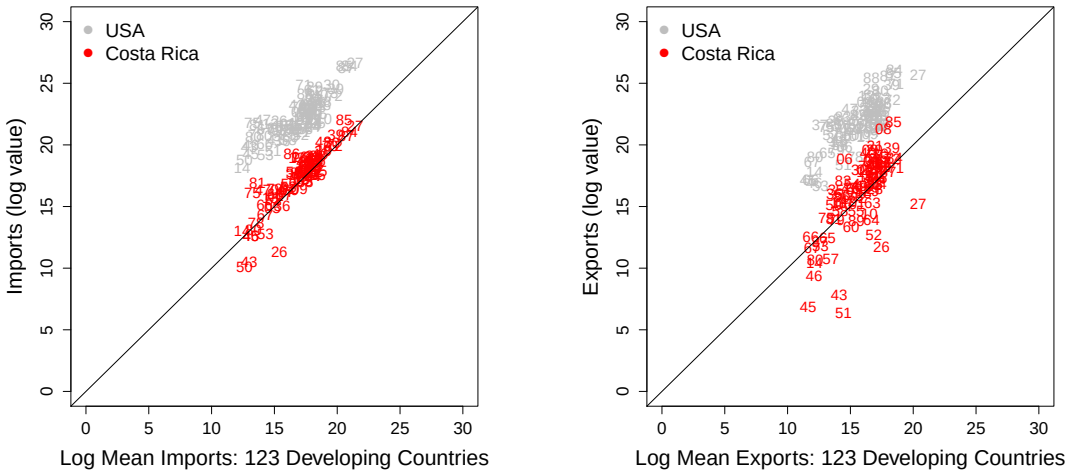

Figure A2: **Costa Rica's Imports/Exports Patterns:** This figure compares Costa Rica's imports and exports for each HS 2 digit industry (y-axis) against the median levels of imports and exports across 123 developing countries (x-axis). Each two digit number represents a HS2 industry. As a comparison, we also plot imports and exports of the U.S. (in grey), which are well above the 45 degree line.

production. For example, the table shows that China's exports consist more of goods for the final process of the production (value-added products in the downstream), while it tends to import more upstream products such as raw materials. We note that both the foreign input usage and the degree of upstreamness of Costa Rica (marked in red) is comparable to the average across all countries (marked in bold).

Finally, Figure A2 provides another view of Costa Rica's trade compared to other economies with similar sizes. This figure shows the amount of exports and imports by different sectors for Costa Rica compared to the medians of 123 other developing countries. What it reveals is that nature of Costa Rica's trade is very similar to that of other developing countries for numerous industries. In contrast, it shows that the U.S., a country that is commonly used as a testing ground in the new-new trade theory literature, has significantly higher levels of imports and exports compared to most countries. Taken together, the analyses in this section provide evidence that the country's economy is a representative example of many countries with similar economic sizes. Costa Rica may differ politically from other developing countries, but we focus on how its firms react given the economy they are in. We thus think that the results from our analysis may apply to other countries that are parts of global production networks.

A4 Supplementary Results from Conjoint Analysis

A4.1 Results based on All Respondents

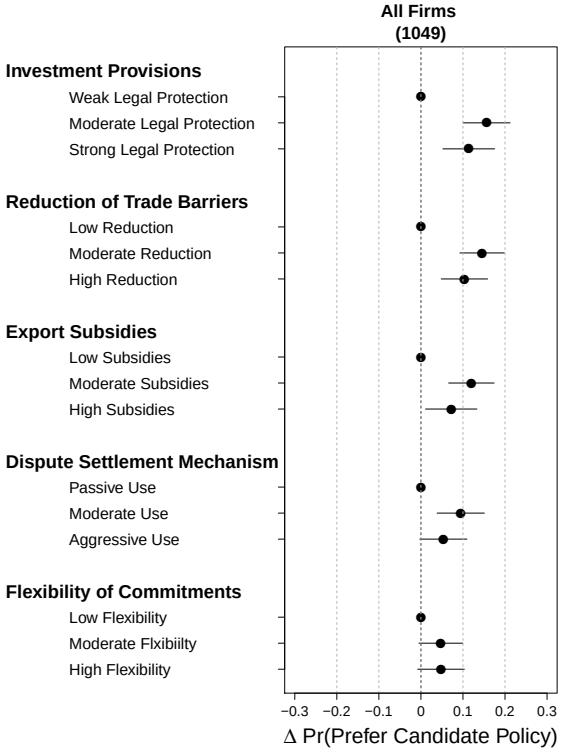

Figure A3: **The Significance of Investment Provisions:** This figure summarizes the preferences of our respondents over five dimensions of trade policy. It shows that the depth of investment provisions is most influential in firms' evaluation of trade policy. The result is based on 1,049 tasks completed by all 214 firms that produce tradable goods. Black dots are our point estimates for the Average Marginal Component Effect. Horizontal lines are 95% confidence intervals. We use standard errors clustered by respondent in order to deal with intra-firm correlation.

Figure A3 summarizes the results over all 214 respondents who completed 1,049 tasks. We find that, on average, investment protection is the most salient dimension of trade policy, followed by the reduction of tariffs and non-tariffs barriers, and then the use of export subsidies. In particular, a policy with strong legal protection for foreign investments is 12 percentage points more likely to be chosen by our respondents compared to similar trade policies with weak legal protection, even when other policy dimensions are considered. We observe that moderate attributes (e.g., Moderate Legal Protection) from each dimension tend to attract more positive choices. This is due to the forced choice conjoint design in which firm representatives are required to choose one of the two alternative policies with no option of choosing neither. That is, the moderate category might receive more favorable interpretation (i.e., "least bad") in addition to its ordinal ranking with respect to the other categories. The overall results show that our respondents are generally in favor of trade liberalization across all five dimensions. This is expected as our sample comprises of a large number of exporters.

A4.2 Analysis on the Differences within Exporters

This section presents the differences in the estimated effects between exporters in different categories used in the main manuscript. We first present all numerical values for point estimates and standard errros used for producing Figure 6 in the main text. For interested readers, we can provide the table representation of each figure presented in the main text and this appendix.

	Domestic	Autonomous Exporter	Exporter in GVCs	Multinational
Investment Protection				
Moderate Legal Protection	0.073	0.191**	0.162**	0.207**
	(0.066)	(0.073)	(0.040)	(0.055)
Strong Legal Protection	-0.108	0.089	0.143**	0.215**
	(0.068)	(0.071)	(0.041)	(0.053)
Reduction of Trade Barriers				
Moderate Reduction	0.132*	0.148**	0.134**	0.181**
	(0.069)	(0.075)	(0.041)	(0.056)
High Reduction	0.182**	0.134*	0.023	0.187**
	(0.068)	(0.072)	(0.043)	(0.055)
Export Subsidies				
Moderate Subsidies	0.109	0.061	0.132**	0.130**
	(0.069)	(0.074)	(0.041)	(0.055)
High Subsidies	0.091	0.054	0.088*	0.034
	(0.067)	(0.073)	(0.048)	(0.055)
Dispute Settlement Mechanism				
Moderate Use	-0.002	0.192**	0.058	0.173**
	(0.071)	(0.073)	(0.041)	(0.055)
Aggressive Use	-0.047	0.166**	0.015	0.123**
	(0.066)	(0.072)	(0.040)	(0.055)
Flexibility of Commitments				
Moderate Flexibility	0.164**	0.023	0.039	0.001
	(0.068)	(0.073)	(0.036)	(0.055)
High Flexibility	0.100	0.112	-0.010	0.102*
	(0.067)	(0.071)	(0.041)	(0.054)
Note:				*p<0.10; **p<0.05;

Table A4: **Table Representation of Figure 8 in the Main Text**: This table presents the numeric values for both point estimates and standard errors that correspond to Figure 8 in the main text. We regress the choice dummy on sets of dummy variables for the policy attributes and use cluster-robust standard errors to account for the correlation across tasks completed by the same firm.

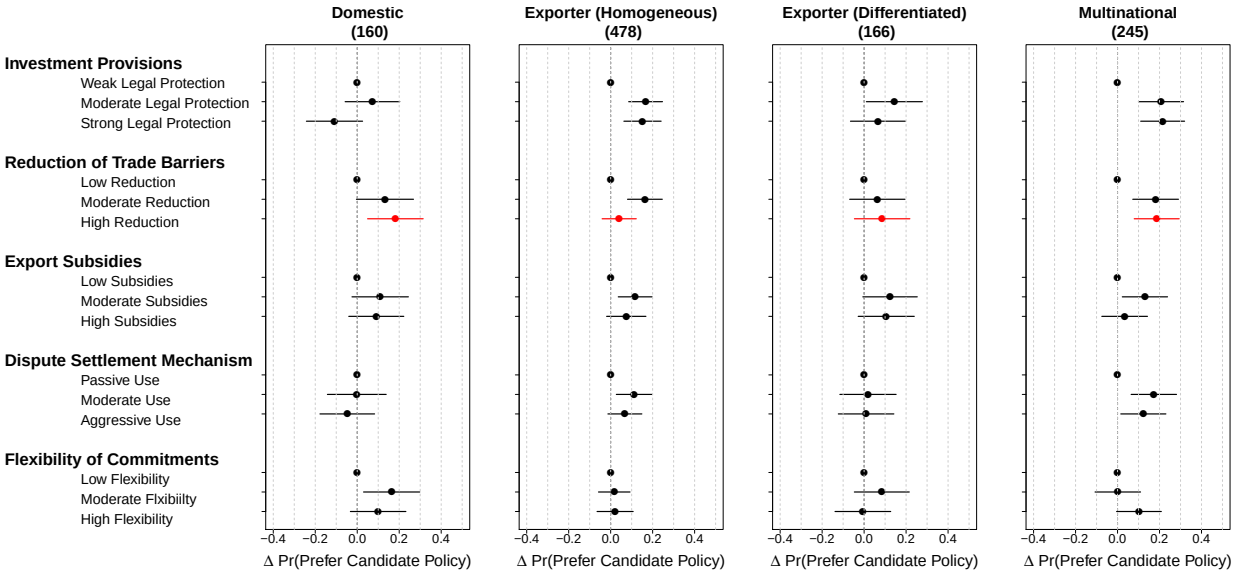

Figure A4: This figure demonstrates the difference between exporters producing homogeneous products and differentiated products.

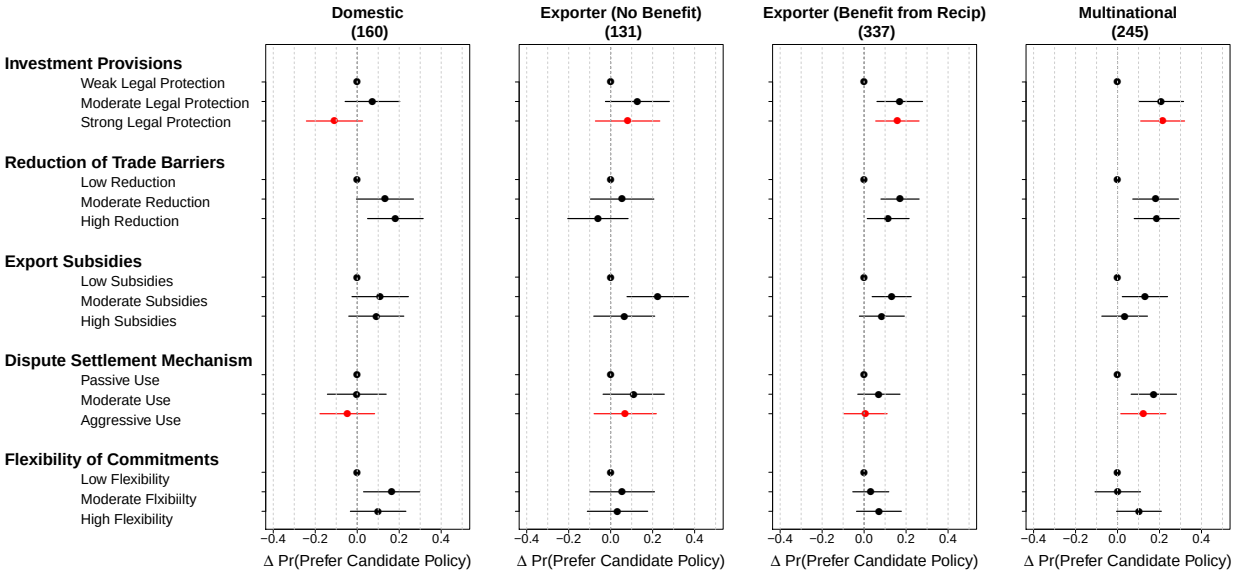

Figure A5: This figure demonstrates the difference between exporters that would benefit from reciprocal trade liberalization and others that do not benefit.

We now present the results based on different threshold values for foreign ownership.

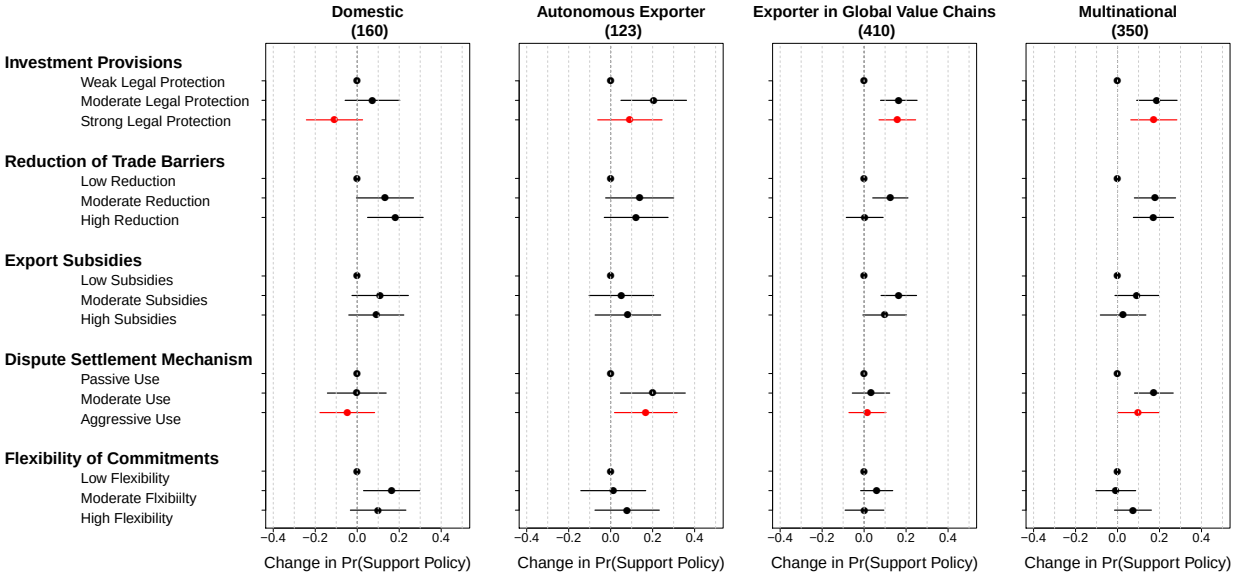

Figure A6: Robustness Check with 10% Cutoff for Foreign Ownership

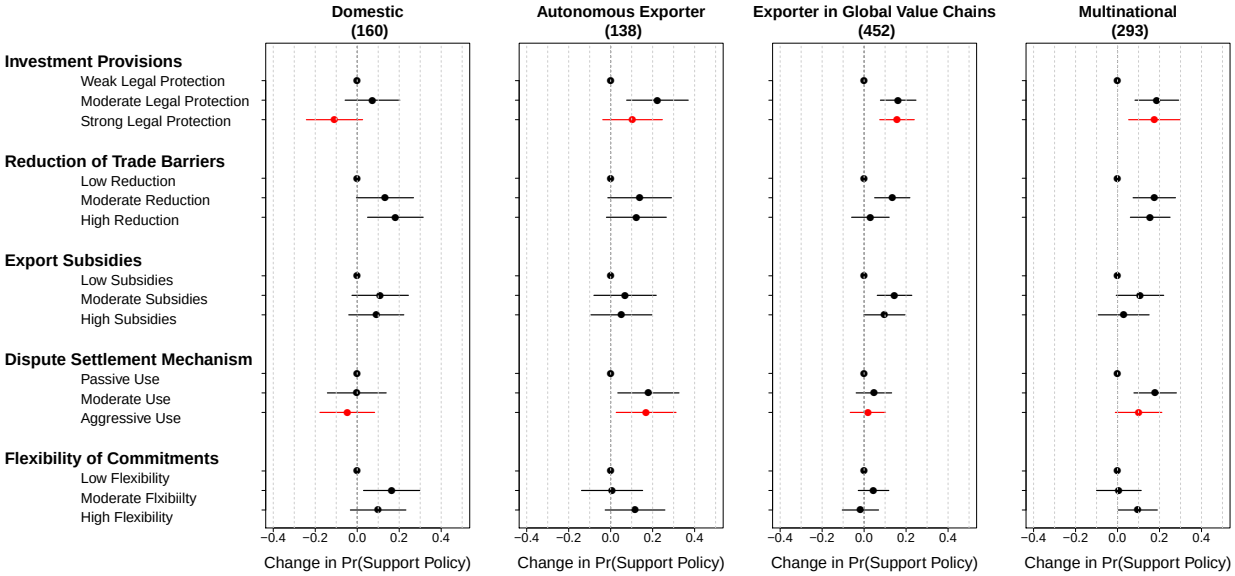

Figure A7: Robustness Check with 50% Cutoff for Foreign Ownership

A4.3 Analysis on the Differences within Domestic Firms

This section presents the differences in the estimated effects between domestic firms in different categories used in the main manuscript.

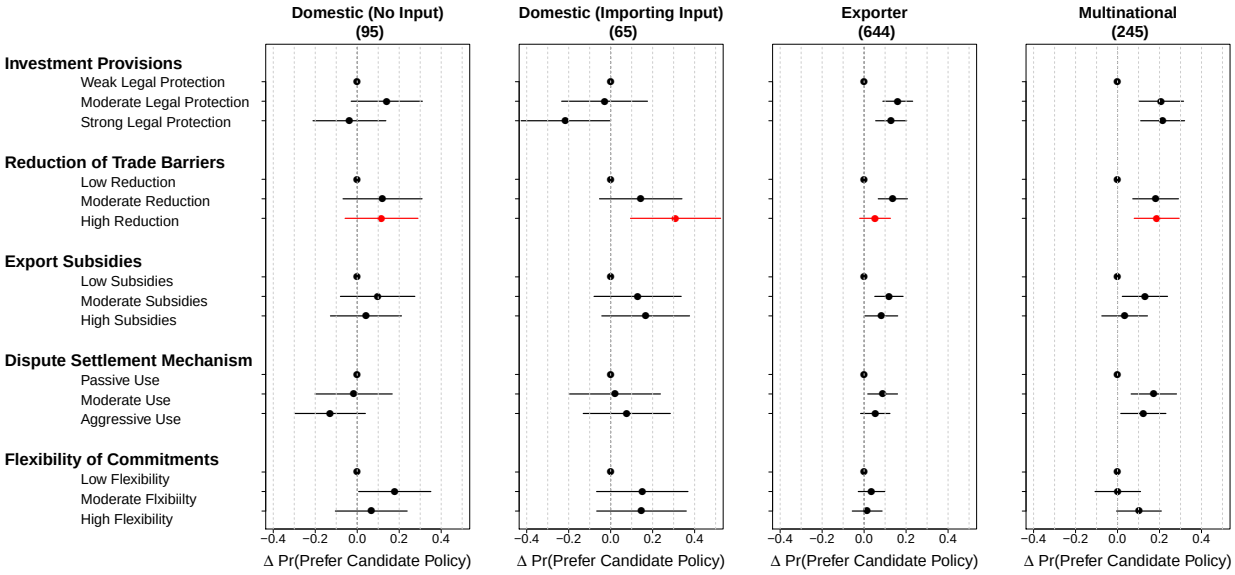

Figure A8: **Increased Opportunities for Importing Foreign Inputs for Domestic Firms:** Domestic firms that see increased opportunities for importing foreign inputs tend to favor a trade policy with a primary focus on reducing trade barriers.

We examine heterogeneity among domestic firms. In Figure 8 of the main text, it appears that domestic firms support action to reduce trade barriers. This might seem counter-intuitive, but again the changing nature of trade is influencing this. We expect that domestic firms that import many inputs into their production process are different from domestic firms that do not. Many more firms that are not part of the global economy actually use imported inputs these days, and these firms will be concerned with trade policy and especially with tariffs on their inputs. To examine this, we define a domestic firm to be Domestic (Importing Input) if it answered either "fairly important" or "very important" to the following question about importing inputs: "In evaluating the impact of reductions in international trade barriers on your firm's profits, how important [is the] increased opportunities for sourcing of inputs from abroad." Domestic firms that answered either "not important" or "somewhat important" are defined to be Domestic (No Input). Figure A8 shows that domestic firms that benefit from cheaper foreign inputs (second column) favor reduction of tariffs and non-tariffs barriers, whereas others will generally value a more flexible trade policy.

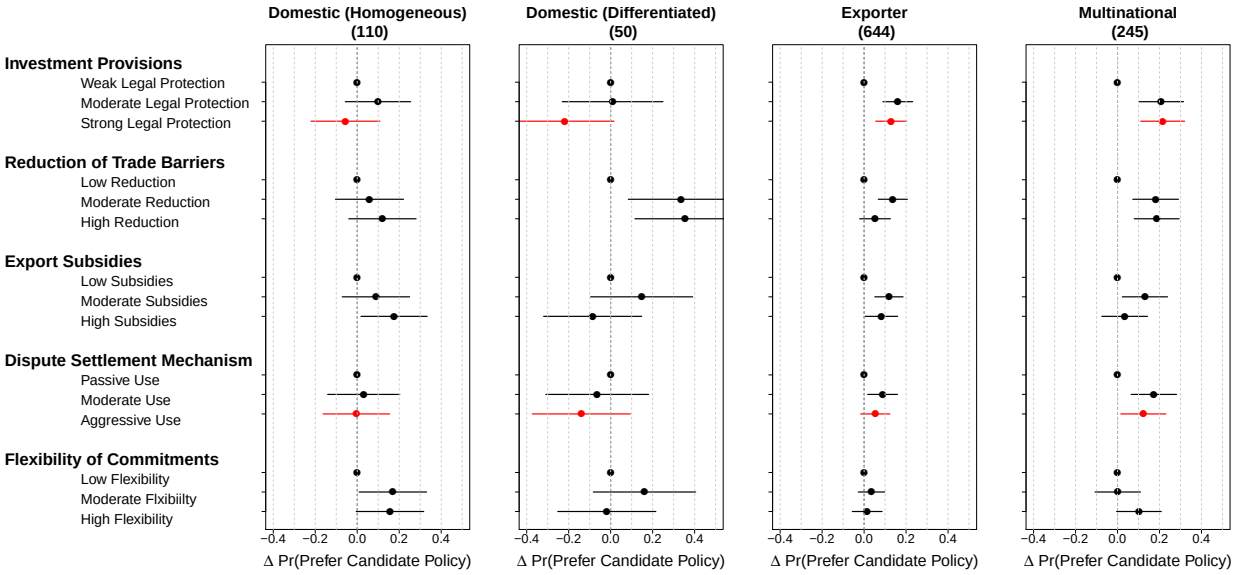

Figure A9: This figure demonstrates the difference between domestic firms producing homogeneous products and differentiated products.

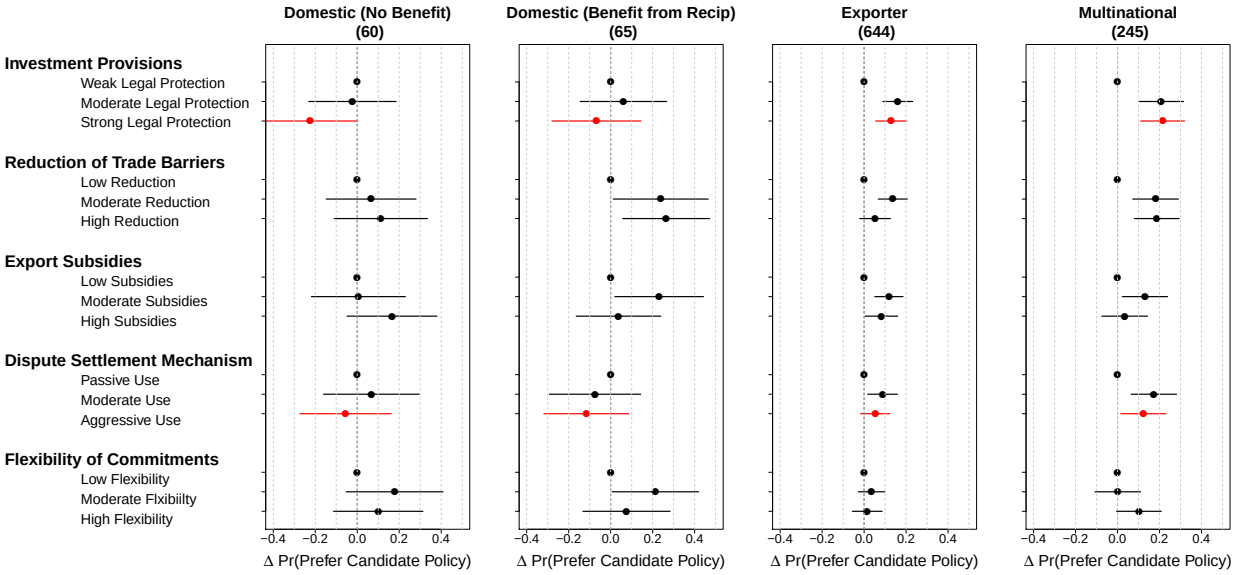

Figure A10: This figure demonstrates the difference between domestic firms that would benefit from reciprocal trade liberalization and others that do not benefit.

A4.4 Analysis on the Differences *within* Industries

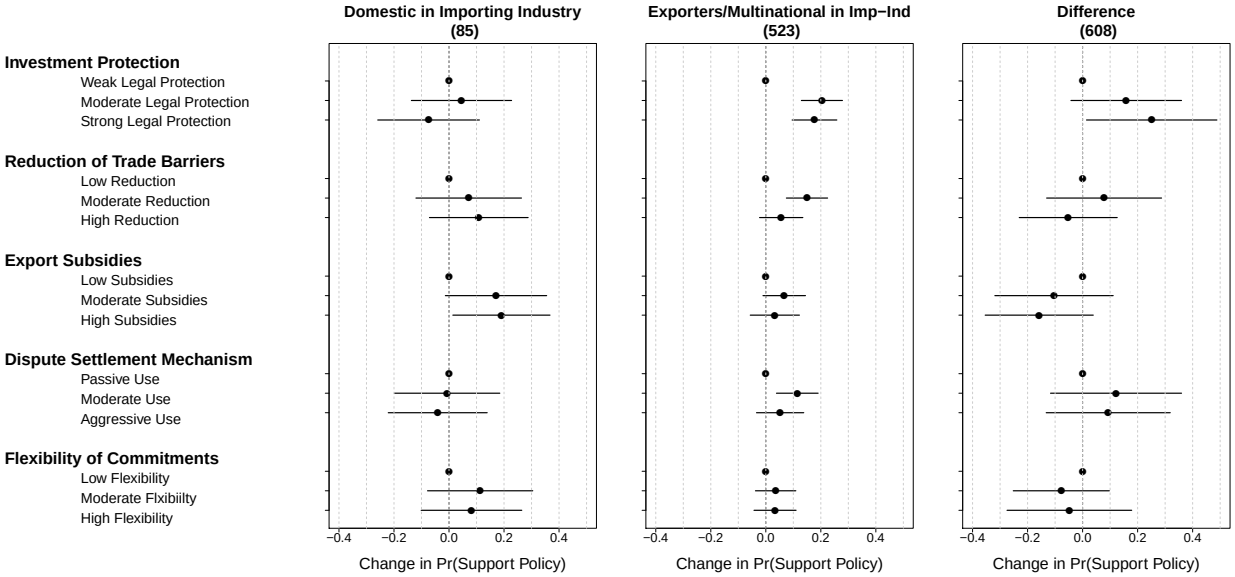

Figure A11: This figure demonstrates the difference between domestic firms and exporters/multinational firms within net exporting industry.

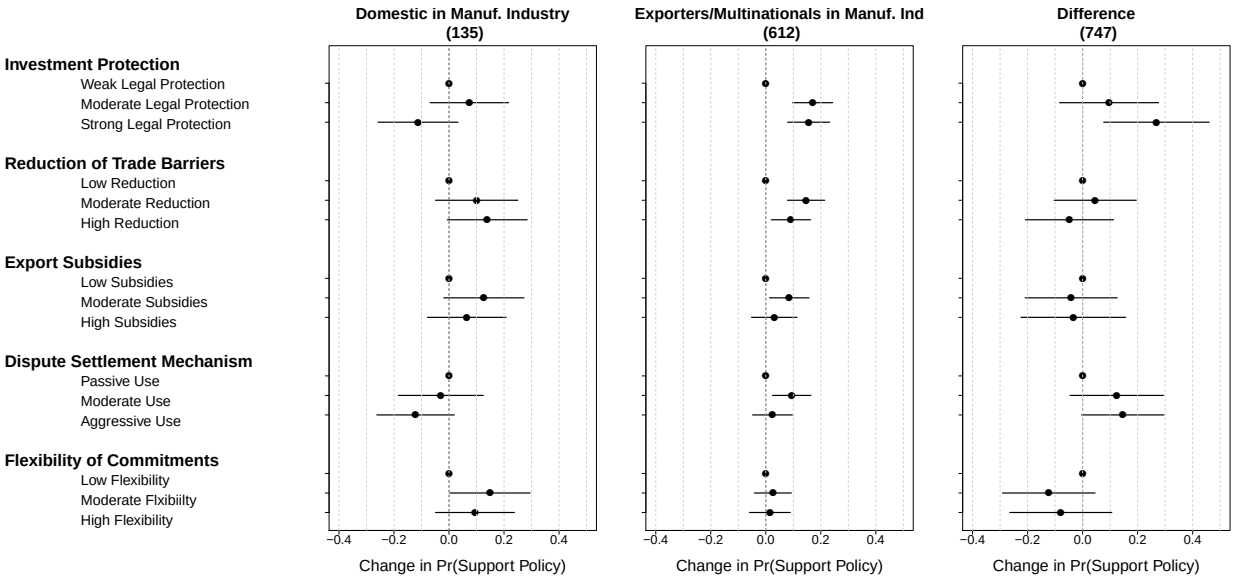

Figure A12: This figure demonstrates the difference between domestic firms and exporters/multinational firms within manufacturing industry.

References

Antràs, Pol, Davin Chor, Thibault Fally, and Russell Hillberry. 2012. Measuring the Upstreamness of Production and Trade Flows. *The American Economic Review* 102 (3):412–416.

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