Domestic Institutions, Geographic Concentration, and Agricultural Liberalization

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A Additional Information for Empirical Analysis

A.1 Data

PTA name	Inforce	Inactive	PTA name	Inforce	Inactive
Albania - Bulgaria	2003	2007	Korea, Republic of - Viet Nam	2015	
Albania - Moldova	2004	2007	Kyrgyz Republic - Ukraine	1998	
Albania - North Macedonia	2002	2007	Malaysia - Australia	2013	
Armenia - Ukraine	1996		Mexico - Bolivia, Plurinational State of	2010	
Australia - Chile	2009		Mexico - Cuba	2001	
Australia - China	2015		Mexico - El Salvador	2001	2012
Brazil - Mexico	2003		Mexico - Guatemala	2001	2013
Bulgaria - Israel	2002	2007	Mexico - Honduras	2001	2013
Bulgaria - Lithuania	2002	2004	Mexico - Nicaragua	1998	2012
Bulgaria - North Macedonia	2000	2007	Mexico - Panama	2015	
Bulgaria - Turkey	1999	2007	Mexico - Uruguay	2004	
Canada - Chile	1997		Moldova - Bulgaria	2004	2007
Canada - Colombia	2011		Moldova - Croatia	2004	2007
Canada - Costa Rica	2002		Moldova - North Macedonia	2004	2007
Canada - Honduras	2014		New Zealand - Malaysia	2010	
Canada - Israel	1997		New Zealand - Singapore	2001	
Canada - Jordan	2012		Panama - Chile	2008	
Canada - Korea, Republic of	2015		Panama - Costa Rica	2008	
Canada - Panama	2013		Panama - El Salvador	2003	
Canada - Peru	2009		Panama - Guatemala	2009	
Chile - China	2006		Panama - Honduras	2009	
Chile - Colombia	2009		Panama - Nicaragua	2009	
Chile - Costa Rica	2002		Panama - Peru	2012	
Chile - El Salvador	2002		Panama - Singapore	2006	
Chile - Guatemala	2010		Peru - Chile	2009	
Chile - Honduras	2008		Peru - China	2010	
Chile - India	2007		Peru - Korea, Republic of	2011	
Chile - Japan	2007		Peru - Mexico	2012	
Chile - Malaysia	2012		Peru - Singapore	2009	
Chile - Mexico	1999		Poland - Israel	1998	2004
Chile - Nicaragua	2012		Poland - Latvia	1999	2004
Chile - Thailand	2015		Poland - Lithuania	1997	2004
Chile - Viet Nam	2014		Romania - Israel	2001	2007
China - Costa Rica	2011		Romania - North Macedonia	2004	2007
China - Korea, Republic of	2015		Romania - Turkey	1998	2007

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China - New Zealand	2008		Singapore - Australia	2003	
Colombia - Mexico	1995		Slovak Republic - Israel	1997	2004
Costa Rica - Colombia	2016		Slovak Republic - Lithuania	1997	2004
Costa Rica - Peru	2013		Slovak Republic - Turkey	1998	2004
Costa Rica - Singapore	2013		Slovenia - Israel	1998	2004
Czech Republic - Israel	1997	2004	Slovenia - Lithuania	1997	2004
Czech Republic - Lithuania	1997	2004	Switzerland - China	2014	
Czech Republic - Turkey	1998	2004	Thailand - Australia	2005	
Egypt - Turkey	2007		Thailand - New Zealand	2005	
El Salvador - Cuba	2012		Turkey - Albania	2008	
Georgia - Ukraine	1996		Turkey - Chile	2011	
Hungary - Israel	1998	2004	Turkey - Croatia	2003	2013
Hungary - Lithuania	2000	2004	Turkey - Estonia	1998	2004
Hungary - Turkey	1998	2004	Turkey - Georgia	2008	
India - Afghanistan	2003		Turkey - Israel	1997	
India - Bhutan	2006		Turkey - Jordan	2011	2018
India - Japan	2011		Turkey - Latvia	2000	2004
India - Malaysia	2011		Turkey - Lithuania	1998	2004
India - Nepal	2009		Turkey - Mauritius	2013	
India - Singapore	2005		Turkey - Morocco	2006	
India - Sri Lanka	2000		Turkey - North Macedonia	2000	
India - Thailand	2004		Turkey - Poland	2000	2004
Indonesia - Pakistan	2013		Turkey - Slovenia	2000	2004
Israel - Mexico	2000		Turkey - Syria	2007	
Japan - Australia	2015		Turkey - Tunisia	2005	
Japan - Indonesia	2008		Ukraine - Azerbaijan	1996	
Japan - Malaysia	2006		Ukraine - Belarus	2006	
Japan - Mexico	2005		Ukraine - Kazakhstan	1998	
Japan - Mongolia	2016		Ukraine - Moldova, Republic of	2005	
Japan - Peru	2012		Ukraine - North Macedonia	2001	
Japan - Philippines	2008		Ukraine - Tajikistan	2002	
Japan - Singapore	2002		Ukraine - Uzbekistan	1996	
Japan - Switzerland	2009		United States - Australia	2005	
Japan - Thailand	2007		United States - Bahrain	2006	
Japan - Viet Nam	2009		United States - Chile	2004	
Korea, Republic of - Australia	2014		United States - Colombia	2012	
Korea, Republic of - Chile	2004		United States - Jordan	2001	
Korea, Republic of - Colombia	2016		United States - Morocco	2006	
Korea, Republic of - India	2010		United States - Oman	2009	
Korea, Republic of - New Zealand	2015		United States - Panama	2012	
Korea, Republic of - Singapore	2006		United States - Peru	2009	
Korea, Republic of - Turkey	2013		United States - Singapore	2004	
Korea, Republic of - United States	2012				

Table A1: **List of PTAs**. Empty `Inactive` cells indicate that the corresponding PTAs are still active. Note that some PTAs become inactive because they are superseded by new agreements, such as joining EU.

Type	Source	Explanation
Trade	UN Comtrade	Total and crop specific import and export
	WITS	PTA and MFN tariff rates
	WTO	PTA list
Crop	EarthStat	Crop production map
	Rauch (1999)	Product differentiation
	Antràs and Chor (2018)	Product elasticity
	FAO	Crop production volume
Economic	World Bank	GDP per capita, population, land size, population in agricultural industry
Political	DPI (Cruz, Keefer and Scartascini, 2021)	Political institutions (constitutional systems)
	Bormann and Golder (2022)	Electoral systems
	Polity	Polity5
	Correlates of War	Shared border, joint WTO membership, joint RTA membership
	V-Dem (Coppedge et al., 2024)	Party discipline
	Election Guide, IDEA database	Types of PR (Close list PR / Other PR)

Table A2: **Explanation and sources of each variable used in the regression model.** Note that production differentiation and elasticity data are obtained from Liao et al. (2020). Correlates of War data are obtained from Barari and Kim (2020).

Variable	N	Mean	St. Dev.	Median	Min	Max
Country level						
Parliamentary	21,958	0.42	0.49	0	0	1
Polity	21,958	8.39	1.34	8.40	6	10
GDP (logged)	21,958	8.73	1.32	8.65	6.01	11.33
Population (logged)	21,958	17.41	1.54	17.60	14.50	20.91
Population in agriculture sector (logged)	21,958	2.58	1.03	2.85	0.31	4.11
Total export (logged)	21,958	24.50	1.83	24.42	19.14	27.87
Total import (logged)	21,958	24.65	1.73	24.45	20.56	28.31
Land size (logged)	21,958	13.28	1.72	13.52	9.91	16.03
Proportional system	21,958	0.53	0.50	1	0	1
Mixed system	21,958	0.25	0.43	0	0	1
Closed list PR	21,958	0.28	0.45	1	0	1
Other PR	21,958	0.25	0.43	0	0	1
Electoral district magnitude	6,109	14.00	33.53	2.00	1.00	120.00
Party discipline	21,958	0.91	0.95	1.08	-2.59	2.42
Country-crop level						
HHI (logged)	21,958	-5.68	2.91	-6.49	-10.80	0.00
Production (logged)	14,518	10.77	3.12	11.05	0.00	19.65
Crop-level export with the world (logged)	21,291	15.75	2.78	16.25	0.00	23.62
Crop-level import with the world (logged)	21,490	15.56	2.74	15.51	3.81	22.25
Liberalized	21,958	0.60	0.49	1	0	1
PTA partner level						
Parliamentary	21,958	0.40	0.49	0	0	1
Polity	21,958	5.62	5.55	8	-9	10
GDP (logged)	21,958	8.52	1.29	8.49	5.15	11.05
Population (logged)	21,958	16.75	1.63	16.62	13.35	21.03
Population in agriculture sector (logged)	21,958	2.57	1.28	2.81	-2.21	4.28
Total export (logged)	16,161	24.03	2.21	24.10	18.38	27.87
Total import (logged)	16,161	24.23	1.92	24.14	20.52	28.31
Land size (logged)	21,958	12.35	2.16	12.34	6.51	16.05
Proportional system	17,394	0.49	0.50	0	0	1
Mixed system	17,394	0.34	0.47	0	0	1
PTA partner-crop level						
Production (logged)	10,849	10.55	3.23	10.74	0.00	19.65
Crop-level export with the world (logged)	20,536	14.79	3.15	15.09	0.00	23.62
Crop-level import with the world (logged)	20,915	15.22	2.77	15.24	1.61	24.29
PTA (Dyad) level						
Crop-level pre-PTA MFN	21,958	22.68	35.87	14.95	0.00	692.88
Crop-level pre-PTA MFN = 0	21,958	0.02	0.15	0.00	0.00	1.00
% of liberalized non-crop tariff lines in PTA	21,958	0.54	0.27	0.54	0.00	1.00
Border shared with PTA partner	21,958	0.09	0.29	0	0	1
Joint RTA membership	21,958	0.27	0.44	0	0	1
Joint WTO membership	21,958	0.93	0.25	1	0	1
Avg tariff rate	21,958	10.24	10.10	8.53	0.44	110.82
Total export (logged)	21,558	19.30	2.51	19.37	11.26	25.63
Total import (logged)	21,558	19.14	2.62	19.25	11.36	25.13
PTA (Dyad)-crop level						
Liberalization (outcome)	21,958	0.60	0.49	1.00	0.00	1.00
Crop-level export (logged)	12,880	10.92	2.86	10.89	0.00	21.11
Crop-level import (logged)	11,499	10.70	3.20	10.66	0.00	21.26
Crop level						
Differentiation (Rauch N)	21,958	0.09	0.15	0	0	1
Homogeneous goods (Rauch W)	21,958	0.14	0.22	0	0	1
Elasticity	17,945	10.02	19.56	3.97	1.31	193.35

Table A3: **Summary statistics.**

List of Crops
almond, aniseetc, apple, apricot, areca, artichoke, asparagus, avocado, bambara, banana, barley, bean, berrynes, blueberry, brazil, broadbean, buckwheat, cabbage, canaryseed, carob, carrot, cashew, cashewapple, cassava, castor, cauliflower, cerealnes, cherry, chestnut, chickpea, chicory, chilleetc, cinnamon, citrusnes, clove, cocoa, coconut, coffee, cotton, cowpea, cranberry, cucumberetc, currant, date, eggplant, fig, fonio, fruitnes, garlic, ginger, gooseberry, grape, grapefruitetc, greenbean, greenbroadbean, greencorn, greenonion, greenpea, groundnut, hazelnut, hempseed, hop, karite, kiwi, kolanut, lemonlime, lentil, lettuce, linseed, lupin, maize, mango, mate, melonetc, melonseed, millet, mixedgrain, mushroom, mustard, nutmeg, nutnes, oats, oilpalm, oilseednes, okra, olive, onion, orange, papaya, pea, peachetc, pear, pepper, peppermint, persimmon, pigeonpea, pimento, pineapple, pistachio, plantain, plum, poppy, potato, pulsenes, pumpkinetc, pyrethrum, quince, quinoa, rapeseed, rasberry, rice, rootnes, rubber, rye, safflower, sesame, sorghum, sourcherry, soybean, spicenes, spinach, stonefruitnes, strawberry, stringbean, sugarbeet, sugarcane, sugarnes, sunflower, sweetpotato, tangetc, taro, tea, tobacco, tomato, triticale, tropicalnes, tung, vanilla, vegetablenes, vetch, walnut, watermelon, wheat, yam, yautia

Table A4: **List of crops.**

crop	US	Japan	Chile	crop	US	Japan	Chile	crop	US	Japan	Chile
almond	-6.07		-7.16	garlic	-5.51	-2.86	-6.49	pimento			-0.77
aniseetc	-1.75	-2.86	-2.59	ginger		-2.86		pineapple		-7.45	-1.43
apple	-7.13	-7.45	-7.16	gooseberry	-10.80	-7.45		pistachio	-5.53		
apricot	-5.50	-2.86	-7.16	grape	-6.54	-7.45	-7.16	plantain	-2.59		-0.91
areca	-4.75	-2.86		grapefruitetc	-4.75		-2.04	plum	-5.66	-7.45	-7.16
artichoke	-4.74		-7.16	greenbean	-6.30	-7.45	-7.16	poppy	-7.23		
asparagus	-5.65	-7.45	-7.16	greenbroadbean		-2.86	-7.15	potato	-7.61	-7.45	-7.14
avocado	-4.82		-7.16	greencorn	-7.97	-7.45	-7.16	pulsenes	-1.75		0.00
bambara	-0.56		-2.31	greenonion	-3.31	-7.45		pumpkinetc	-7.78	-7.45	-7.16
banana	-2.59	-7.45	-0.91	greenpea	-7.40	-7.45	-7.16	quince	-1.75	-2.86	-2.28
barley	-8.50	-7.45	-6.55	groundnut	-7.24	-4.13	-2.10	quinoa	-9.97	-7.45	-1.95
bean	-7.79	-7.45	-6.27	hazelnut	-4.75	-2.86		rapeseed	-6.99	-7.44	-7.16
berrynes	-10.80			hempseed	-0.56	-2.86	-7.16	rasberry	-10.80	-7.46	
blueberry	-10.80	-7.45		hop	-4.72	-7.45	-2.59	rice	-6.94	-7.26	-6.34
brazil	-1.75		0.00	karite	-5.24		-7.16	rootnes	-3.19	-7.45	-1.39
broadbean	-1.91	-7.45	-1.46	kiwi	-5.54	-7.45	-6.15	rubber	-1.75	-2.86	
buckwheat	-10.78	-7.45		kolanut	-5.52			rye	-8.57		-6.20
cabbage	-10.80	-7.45	-7.16	lemonlime	-4.67		-6.02	safflower	-5.71	-2.86	
canaryseed	-0.95			lentil	-5.76		-5.71	sorghum	-8.55	-2.86	0.00
carob	-1.79			lettuce	-5.07	-7.45	-7.16	sourcherry	-4.91	-2.86	-7.16
carrot	-6.15	-7.46	-7.16	linseed	-7.18	-2.86	-7.17	soybean	-9.61	-7.03	0.00
cashew	-1.75		0.00	lupin	-1.75		-7.16	spicenes	-4.78		-1.08
cashewapple	-5.76	-7.45		maize	-9.61	-4.08	-6.10	spinach	-5.88	-7.45	0.00
cassava			-0.91	mango	-2.76		-0.29	stonefruitnes	-5.66	-7.45	-7.16
castor	-1.75	-2.86		mate		-7.45		strawberry	-10.80	-7.45	-7.16
cauliflower	-10.80	-7.45	-7.16	melonetc	-6.44	-7.45	-7.16	stringbean	-7.03		-1.77
cerealnes		-2.86	-1.92	millet	-7.00	-7.45	-2.66	sugarbeet	-7.57	-7.45	-7.16
cherry	-6.33	-7.45	-7.16	mixedgrain	-0.68			sugarcane	-5.19	-4.21	-0.18
chestnut	-1.75	-7.45	-2.00	mushroom			-7.16	sugarnes	-7.57		-7.16
chickpea	-0.41		-6.32	mustard	-7.23	-2.86		sunflower	-8.13		-7.16
chicory			-7.16	nutnes	-10.80	-2.86	0.00	sweetpotato	-6.06	-5.50	-7.16
chilleetc	-7.03	-7.45	-7.15	oats	-9.65	-7.45	-6.43	tangetc	-10.80	-7.45	-1.61
citrusnes	-10.12	-7.45	0.00	oilpalm			0.00	taro		-7.45	
cocoa		-2.86	-0.92	oilseednes	-7.98	-2.86		tea		-7.45	-0.63
coconut			0.00	okra	-5.25	-2.86		tobacco	-7.68	-7.45	-6.01
coffee		-2.86	-0.91	olive	-5.24		-7.16	tomato	-6.41	-7.46	-7.16
cotton	-8.26		0.00	onion	-7.31	-7.45	-7.16	triticale	-7.99		-2.07
cowpea	-6.46			orange	-6.23	-7.45	-5.92	tropicalnes			0.00
cranberry	-10.80	-7.45		papaya	-2.27		-7.16	tung	-6.99	-2.86	-2.59
cucumberetc	-7.47	-7.45	-7.16	pea	-6.48	-7.45	-5.39	vegetablenes	-10.80	-7.45	-7.17
currant		-7.46		peachetc	-6.49	-7.45	-7.16	vetch	-1.75		-2.31
date	-4.41		0.00	pear	-4.93	-7.45	-5.90	walnut	-6.01	-2.86	-6.09
eggplant	-6.48	-7.45		pepper	-1.75			watermelon	-7.96	-7.45	-7.16
fig	-4.94		-2.09	peppermint			-2.08	wheat	-9.72	-6.66	-7.04
fonio	-9.97	-7.45	-2.07	persimmon	-4.45	-7.45		yam		-7.45	
fruitnes	-10.80	-2.86	-7.16	pigeonpea	-2.85			yautia	-1.75		0.00

Table A5: **The distributions of crop production for Japan, the US, and Chile, which has the median level of GDP per capita among the countries in the sample.** The values are logged HHi. The empty cells indicate that the geographic distribution of production data is not available for the corresponding crop.

Harmonized System Code	Product Description
070420	Vegetables, brassica; brussel sprouts, fresh or chilled
070490	Vegetables, brassica; edible, n.e.s. in heading no. 0704, fresh or chilled
070511	Vegetables; cabbage (head) lettuce (lactuca sativa), fresh or chilled

Table A6: HS6 code and description related to "cabbage." The first and second columns show the HS6 codes and their description respectively. "n.e.s." stands for "not elsewhere specified."

A.2 Linking Crop Names to Harmonized System (HS) Code

This section explains the details of how we link and merge crop names and HS code descriptions. Our four research assistants work on the merging based on the following three steps: (1) for each crop in `EarthStat` data, we look for the exact crop name in HS product descriptions; (2) we check any alternative names of each crop in `EarthStat` data and search such terms in tariff descriptions; and (3) the crop that does not get matched in the first two steps is linked to tariff lines dedicated for a more general product category based on a careful search of more detailed tariff line descriptions from various countries (e.g., the U.S. Harmonized Tariff Schedule specifies "okra" to be 07099914 from which we can infer its HS6 category).[1] This process yields the links between 170 crops to 320 distinct tariff lines.

Note that one crop in the `EarthStat` data can be matched with multiple HS products. Table A6 illustrates this with an example agricultural good "cabbage." As shown in the table, "cabbage" is matched to three distinct HS6 products. Notice that the term "cabbage" does not even appear in two of the product descriptions, while we can still infer the correct HS product code from the product descriptions including the term "brassica."

A.3 Additional Results

This section explains additional results and several robustness checks we perform in addition to our main analysis in the main text. Figure A1 illustrates the predicted probabilities of trade liberalization for parliamentary and presidential systems. It shows that parliamentary systems are more likely to liberalize geographically concentrated crops. Although the slope looks flat, presidential systems are slightly more likely to liberalize diffused crops than concentrated crops.

Next, we present a series of robustness checks. First, we show the results from statistical model that incorporates variables related electoral systems. Existing studies on trade liberalization often focus on the role of electoral institutions on shaping trade policy (e.g., Rogowski, 1987). To study the robustness of our findings, we investigate whether the inclusion of election system in our statistical models changes the association between constitutional structure and trade liberalization. We incorporate binary variables of electoral systems where majoritarian systems serve as a baseline category, a continuous variable measuring the degree of party discipline, and a continuous variable representing the average district magnitude of each country to the statistical model presented in the main text.

Second, we examine the robustness of our results against different prior specifications. With the prior specification for the main analysis, Normal$(0, 2.5s_v)$ where s_v is the standard deviation of variable v, approximately 80% of the probability density is concentrated within the interval from -3 to 3, when $s_v = 1$ (i.e., if variable v is standardized). This range is reasonable for coefficients of logistic regressions when the variable is standardized. In fact, this choice is the default specification of the `rstanarm` package, which is recommended by the Stan community (Goodrich et al., 2024) for the reasons we discussed.

[1] An example of this kind of tariff line is `110290 -- Cereal flours; n.e.s. in heading no. 1102`, where `n.e.s.` stands for not elsewhere specified.

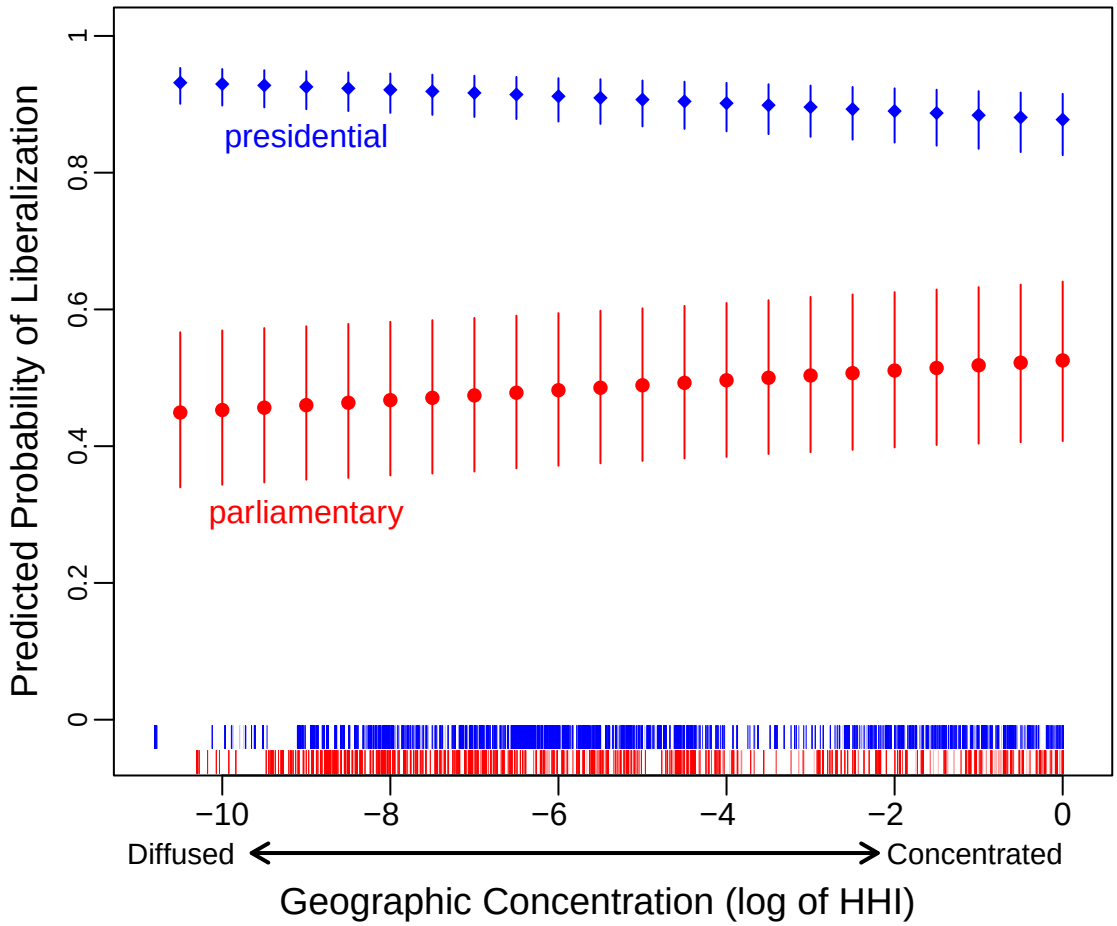

Figure A1: **The effect of geographic concentration on liberalization for parliamentary and presidential systems.** The x-axis shows the level of geographic concentration and the y-axis exhibits the predicted probabilities of liberalization for parliamentary and presidential systems respectively. Parliamentary systems are more likely to liberalize concentrated crops whereas presidential systems are slightly more likely to liberalize diffused crops. Figure **??** in the main text is based on the differences between blue and red points at each level of geographic concentration.

Still, we fit the same model with Laplace prior with mean zero to further demonstrate robustness of our findings. The Laplace prior is a double-exponential distribution with a sharp peak at its mean / median / mode and fairly long tails compared to the normal distribution, which is the main prior specification in the paper. This prior is often used in Bayesian statistics to incorporate sparsity and regularization to the model (Goodrich et al., 2024).

Third, we assess if the interaction term of the geographic concentration and the indicator of parliamentary systems shows positive relationship we expect, when we also interact the geographic concentration with other covariates. As Blackwell and Olson (2022) point out, only including the interaction that we are interested in can produce misleading estimates due to model misspecification. This fully moderated model incorporates the interaction term of the geographic concentration and all the other covariates. To address potential overfitting caused by including a large number of explanatory variables, we implement the "rigorous" Lasso and Post-Lasso logistic regression, which conduct a data-driven choice of the penalty level (Belloni, Chernozhukov and Hansen, 2014; Belloni, Chernozhukov and Kato, 2015).

Table A7 summarizes the regression coefficients of the aforementioned robustness checks in addition to the baseline model presented in the main text. Model 1 corresponds to the baseline model presented in the main text, Model 2 adds the electoral system indicators, party discipline, and district magnitude variables to Model 1. Model 3 uses the same variables as the model 1 but fit a model with Laplace prior to demonstrate the robustness of our results against different prior specifications. Posterior medians and 95% credible intervals are reported. Table A8 shows the results based on the Lasso and Post-Lasso approach. It shows coefficients of the variables of interest and their 95% confidence intervals. Note that Figure **??** in the main text and Figure A1 are based on Model 1.

These tables show that the interaction term between log of HHI and parliamentary system indicator is positive and its 95% interval does not cover zero across four different specifications. This is consistent with our hypothesis that parliamentary systems are more likely to liberalize (protect) concentrated (diffused) crops than presidential systems. These findings suggest that our results are robust to different model specifications. Substantively, it is worth noting that proportional and mixed electoral systems are less likely to liberalize than majoritarian systems, which is consistent with (Rogowski and Kayser, 2002) but contradicts other existing theoretical and empirical works (Grossman and Helpman, 2005).

	Outcome: Liberalization		
	Model 1	Model 2	Model 3
Main variables of interest			
Parliamentary×HHI (logged)	0.26^*	0.10^*	0.26^*
	$[0.18; 0.35]$	$[0.02; 0.19]$	$[0.18; 0.34]$
HHI (logged)	-0.18^*	-0.18^*	-0.18^*
	$[-0.26; -0.11]$	$[-0.25; -0.10]$	$[-0.25; -0.10]$
Parliamentary	-2.10^*	-2.03^*	-2.10^*
	$[-2.21; -1.99]$	$[-2.20; -1.86]$	$[-2.22; -1.99]$
Other variables			
(Intercept)	0.13	0.89^*	0.04
	$[-0.35; 0.60]$	$[0.28; 1.49]$	$[-0.45; 0.53]$
HHI (logged) mean	-0.02	0.01	-0.02
	$[-0.10; 0.05]$	$[-0.08; 0.09]$	$[-0.10; 0.05]$
Parliamentary mean	-0.26	-0.04	-0.23
	$[-0.55; 0.02]$	$[-0.68; 0.56]$	$[-0.50; 0.05]$
Max MFN rate zero	-7.83^*	-7.73^*	-7.83^*
	$[-9.82; -6.59]$	$[-9.76; -6.47]$	$[-9.86; -6.63]$
Joint WTO membership	1.16^*	3.74^*	1.16^*
	$[0.91; 1.39]$	$[3.43; 4.06]$	$[0.91; 1.41]$
Border	-0.63^*	-0.39^*	-0.63^*
	$[-0.79; -0.47]$	$[-0.57; -0.21]$	$[-0.79; -0.47]$
Joint RTA membership	-0.05	0.26^*	-0.04
	$[-0.16; 0.06]$	$[0.13; 0.39]$	$[-0.15; 0.07]$
Parliamentary partner	-1.01^*	-1.13^*	-1.02^*
	$[-1.11; -0.91]$	$[-1.24; -1.02]$	$[-1.12; -0.91]$
Max MFN rate	-0.24^*	-0.34^*	-0.24^*
	$[-0.28; -0.20]$	$[-0.38; -0.30]$	$[-0.28; -0.20]$
GDP (logged)	0.01	2.50^*	0.01
	$[-0.24; 0.27]$	$[2.12; 2.91]$	$[-0.24; 0.25]$
Population (logged)	-0.05	1.48^*	-0.05
	$[-0.27; 0.18]$	$[1.18; 1.79]$	$[-0.28; 0.18]$
Population agriculture (logged)	-0.19^*	0.63^*	-0.19^*
	$[-0.33; -0.05]$	$[0.41; 0.85]$	$[-0.33; -0.06]$
Polity	0.71^*	0.10^*	0.71^*
	$[0.65; 0.77]$	$[0.02; 0.18]$	$[0.66; 0.77]$
Production (logged)	-0.09	-0.19^*	-0.09
	$[-0.21; 0.03]$	$[-0.31; -0.06]$	$[-0.21; 0.03]$
Crop-level import with the world (logged)	0.39^*	0.30^*	0.39^*
	$[0.28; 0.50]$	$[0.18; 0.42]$	$[0.28; 0.49]$
Crop-level export with the world (logged)	-0.34^*	0.08	-0.34^*
	$[-0.43; -0.25]$	$[-0.02; 0.18]$	$[-0.43; -0.25]$
Total imports (logged)	-1.20^*	-5.45^*	-1.19^*

	[−1.65; −0.76]	[−6.05; −4.84]	[−1.62; −0.74]
Total exports (logged)	0.69*	2.07*	0.68*
	[0.31; 1.08]	[1.68; 2.46]	[0.30; 1.06]
Differentiation (Rauch N)	0.13	0.09	0.08
	[−3.32; 3.53]	[−3.25; 3.51]	[−3.57; 3.54]
Homogeneous goods (Rauch W)	0.02	0.01	0.00
	[−3.53; 3.54]	[−3.52; 3.56]	[−3.71; 3.83]
Elasticity	−0.07*	0.01	−0.07*
	[−0.12; −0.02]	[−0.05; 0.07]	[−0.12; −0.02]
Crop-level import pair (logged)	0.37*	0.26*	0.37*
	[0.24; 0.49]	[0.13; 0.39]	[0.25; 0.49]
Crop-level export pair (logged)	0.05	−0.14*	0.05
	[−0.07; 0.17]	[−0.27; −0.01]	[−0.07; 0.16]
Total import pair (logged)	1.51*	1.14*	1.54*
	[1.35; 1.68]	[0.96; 1.32]	[1.37; 1.70]
Total export pair (logged)	0.02	−0.11	0.00
	[−0.14; 0.18]	[−0.28; 0.07]	[−0.15; 0.16]
Avg tariff	−0.13*	−0.48*	−0.12*
	[−0.20; −0.06]	[−0.59; −0.38]	[−0.20; −0.06]
% of liberalized non-crop tariff lines in PTA	0.79*	1.21*	0.79*
	[0.73; 0.85]	[1.14; 1.27]	[0.73; 0.85]
GDP partner (logged)	−0.51*	−0.41*	−0.52*
	[−0.63; −0.39]	[−0.54; −0.28]	[−0.64; −0.40]
Population partner (logged)	−0.73*	−0.57*	−0.75*
	[−0.84; −0.63]	[−0.69; −0.45]	[−0.86; −0.64]
Population agriculture partner (logged)	−0.22*	−0.16*	−0.22*
	[−0.31; −0.13]	[−0.26; −0.07]	[−0.32; −0.13]
Polity partner	−0.02	0.27*	−0.01
	[−0.09; 0.06]	[0.18; 0.35]	[−0.09; 0.06]
Production partner (logged)	−0.07	−0.06	−0.08
	[−0.20; 0.05]	[−0.19; 0.07]	[−0.20; 0.05]
Crop-level import with the world partner (logged)	0.37*	0.55*	0.37*
	[0.25; 0.49]	[0.42; 0.68]	[0.24; 0.49]
Crop-level export with the world partner (logged)	−0.54*	−0.52*	−0.54*
	[−0.64; −0.44]	[−0.62; −0.41]	[−0.63; −0.44]
Total import partner (logged)	7.30*	8.37*	8.25*
	[5.73; 8.93]	[6.69; 10.10]	[6.41; 10.11]
Total export partner (logged)	−5.15*	−6.98*	−5.93*
	[−6.54; −3.82]	[−8.48; −5.54]	[−7.49; −4.35]
Land (logged)	−0.03	−0.54*	−0.03
	[−0.11; 0.06]	[−0.66; −0.42]	[−0.11; 0.06]
Land partner (logged)	0.34*	0.36*	0.34*
	[0.26; 0.41]	[0.28; 0.43]	[0.27; 0.42]
Max MFN rate zero mean	−0.18*	−0.15*	−0.17*
	[−0.26; −0.09]	[−0.25; −0.06]	[−0.25; −0.09]
Joint WTO membership mean	−0.17	−0.16	−0.09
	[−0.97; 0.60]	[−1.54; 1.19]	[−0.78; 0.60]
Border mean	−0.30	0.59	−0.24
	[−0.92; 0.31]	[−0.42; 1.57]	[−0.80; 0.35]
Joint RTA membership mean	−0.48*	−0.36	−0.44*
	[−0.85; −0.11]	[−0.79; 0.07]	[−0.79; −0.11]
Parliamentary partner mean	0.07	0.31	0.06
	[−0.18; 0.33]	[−0.00; 0.65]	[−0.18; 0.31]
Production	−0.05	0.01	−0.04
	[−0.36; 0.26]	[−0.34; 0.35]	[−0.35; 0.26]
Crop-level import with the world	−0.04	−0.03	−0.04
	[−0.22; 0.14]	[−0.23; 0.17]	[−0.21; 0.13]
Crop-level export with the world	0.03	−0.05	0.03
	[−0.14; 0.20]	[−0.24; 0.14]	[−0.15; 0.20]
Elasticity NA mean	0.06	−0.04	0.01
	[−0.25; 0.38]	[−0.48; 0.41]	[−0.31; 0.31]
Crop-level import pair	0.62*	0.59*	0.57*
	[0.14; 1.10]	[0.05; 1.16]	[0.11; 1.06]
Crop-level export pair	−0.53*	−0.52*	−0.49*
	[−0.93; −0.15]	[−0.96; −0.10]	[−0.89; −0.10]
Total import pair	−0.21	0.08	−0.19
	[−3.61; 3.38]	[−3.47; 3.64]	[−3.96; 3.25]

Total export pair	−0.21	0.11	−0.18
	[−3.81; 3.27]	[−3.43; 3.56]	[−3.76; 3.51]
Production partner	−0.25	−0.44	−0.26
	[−0.67; 0.14]	[−0.88; 0.00]	[−0.65; 0.13]
Crop-level import with the world partner	−0.21	−0.23	−0.20
	[−0.48; 0.06]	[−0.54; 0.07]	[−0.46; 0.06]
Crop-level export with the world partner	0.09	0.12	0.09
	[−0.17; 0.33]	[−0.16; 0.41]	[−0.16; 0.35]
Total import partner	0.15	−0.50	0.04
	[−3.73; 3.85]	[−4.41; 3.46]	[−4.03; 4.45]
Total export partner	0.12	−0.43	0.07
	[−3.59; 4.05]	[−4.50; 3.58]	[−4.24; 4.41]
Max MFN rate mean	0.03	0.06	0.04
	[−0.03; 0.10]	[−0.02; 0.13]	[−0.03; 0.10]
GDP mean (logged)	0.24	−0.74	0.05
	[−1.25; 1.78]	[−3.19; 1.80]	[−1.20; 1.41]
Population mean (logged)	−0.32	0.58	−0.29
	[−1.17; 0.57]	[−1.13; 2.25]	[−1.08; 0.50]
Population agriculture mean (logged)	0.62	−0.29	0.43
	[−0.32; 1.58]	[−2.26; 1.80]	[−0.36; 1.31]
Polity mean	−0.25	0.35	−0.23
	[−0.72; 0.22]	[−0.29; 1.02]	[−0.68; 0.20]
Production mean (logged)	−0.17	−0.08	−0.15
	[−0.57; 0.23]	[−0.53; 0.38]	[−0.56; 0.24]
Crop-level import with the world mean (logged)	−0.26	−0.25	−0.24
	[−0.65; 0.12]	[−0.67; 0.15]	[−0.62; 0.13]
Crop-level export with the world mean (logged)	0.19	−0.09	0.16
	[−0.17; 0.55]	[−0.52; 0.32]	[−0.20; 0.53]
Total imports mean (logged)	−2.40*	−0.00	−2.22
	[−4.61; −0.17]	[−3.76; 3.63]	[−4.70; 0.09]
Total exports mean (logged)	2.65*	1.99	2.56*
	[0.80; 4.51]	[−0.25; 4.36]	[0.65; 4.57]
Differentiation (Rauch N) mean	0.02	0.06	0.07
	[−3.38; 3.47]	[−3.39; 3.38]	[−3.39; 3.70]
Homogeneous goods (Rauch W) mean	−0.03	−0.04	−0.01
	[−3.56; 3.51]	[−3.59; 3.51]	[−3.84; 3.69]
Elasticity mean	0.02	0.01	0.02
	[−0.04; 0.08]	[−0.06; 0.08]	[−0.04; 0.08]
Crop-level import pair mean (logged)	0.38	0.43	0.34
	[−0.13; 0.89]	[−0.15; 1.02]	[−0.15; 0.86]
Crop-level export pair mean (logged)	−0.33	−0.25	−0.28
	[−0.75; 0.10]	[−0.72; 0.20]	[−0.70; 0.13]
Total import pair mean (logged)	0.16	−0.25	0.05
	[−1.54; 1.86]	[−2.40; 1.97]	[−1.54; 1.64]
Total export pair mean (logged)	−0.35	−2.13*	−0.34
	[−1.69; 0.97]	[−3.98; −0.36]	[−1.59; 0.83]
Avg tariff mean	0.21	−0.04	0.17
	[−0.17; 0.59]	[−0.92; 0.84]	[−0.17; 0.52]
% of liberalized non-crop tariff lines in PTA mean	−0.15	−0.30	−0.16
	[−0.39; 0.10]	[−0.69; 0.07]	[−0.39; 0.06]
GDP partner mean (logged)	0.28	0.95	0.14
	[−1.03; 1.54]	[−0.98; 2.93]	[−0.99; 1.39]
Population partner mean (logged)	−0.27	0.25	−0.10
	[−1.31; 0.76]	[−1.13; 1.69]	[−1.10; 0.84]
Population agriculture partner mean (logged)	0.40	−0.81	0.28
	[−0.46; 1.27]	[−2.08; 0.44]	[−0.49; 1.06]
Polity partner mean	−0.77*	−1.01*	−0.69*
	[−1.31; −0.23]	[−1.96; −0.11]	[−1.18; −0.19]
Production partner mean (logged)	−0.03	−0.14	−0.04
	[−0.50; 0.43]	[−0.67; 0.38]	[−0.50; 0.41]
Crop-level import with the world partner mean (logged)	−0.32	−0.33	−0.33
	[−0.78; 0.16]	[−0.81; 0.18]	[−0.78; 0.12]
Crop-level export with the world partner mean (logged)	0.53*	0.54*	0.55*
	[0.09; 0.98]	[0.04; 1.03]	[0.11; 0.98]
Total import partner mean (logged)	−0.77	−0.15	−1.08
	[−4.92; 3.30]	[−4.13; 3.94]	[−7.10; 2.81]
Total export partner mean (logged)	1.49	0.02	1.63

	[−2.41; 5.24]	[−4.00; 4.25]	[−2.05; 7.16]
Land mean (logged)	0.17	−0.84	0.10
	[−0.18; 0.53]	[−1.95; 0.21]	[−0.23; 0.45]
Land partner mean (logged)	0.17	0.46	0.12
	[−0.52; 0.87]	[−0.36; 1.23]	[−0.52; 0.78]
Production	−0.18	−0.09	−0.18
	[−0.41; 0.04]	[−0.32; 0.15]	[−0.40; 0.04]
Crop-level import with the world	0.33	0.16	0.32
	[−0.63; 1.20]	[−0.82; 1.10]	[−0.60; 1.22]
Crop-level export with the world	−0.12	0.57*	−0.11
	[−0.59; 0.33]	[0.08; 1.07]	[−0.57; 0.35]
Elasticity NA	−1.75*	−2.21*	−1.75*
	[−1.93; −1.58]	[−2.44; −1.98]	[−1.93; −1.58]
Crop-level import pair	0.20	0.17	0.19
	[−0.03; 0.43]	[−0.06; 0.42]	[−0.03; 0.41]
Crop-level export pair	−0.16	−0.38*	−0.16
	[−0.37; 0.04]	[−0.61; −0.13]	[−0.37; 0.04]
Total import pair	−9.58	−10.42	−9.86
	[−41.32; 20.42]	[−41.54; 19.62]	[−71.48; 21.27]
Total export pair	−9.33	−10.68	−9.28
	[−40.78; 20.38]	[−42.33; 19.48]	[−64.82; 22.30]
Production partner	0.11	0.07	0.10
	[−0.11; 0.33]	[−0.16; 0.30]	[−0.12; 0.33]
Crop-level import with the world partner	1.44*	1.93*	1.42*
	[0.96; 1.91]	[1.41; 2.48]	[0.94; 1.91]
Crop-level export with the world partner	−0.64*	−0.61*	−0.62*
	[−0.99; −0.28]	[−0.99; −0.23]	[−0.96; −0.29]
Total import partner	2.35	1.57	2.58
	[−5.87; 10.78]	[−6.32; 9.34]	[−6.22; 12.03]
Total export partner	2.18	1.71	2.30
	[−6.08; 10.52]	[−6.01; 9.46]	[−6.91; 11.23]
Parliamentary mean×HHI (logged) mean	0.04	0.04	0.04
	[−0.01; 0.08]	[−0.02; 0.09]	[−0.01; 0.09]
Mixed		−1.83*	
		[−2.14; −1.52]	
Closed PR		−4.64*	
		[−4.95; −4.33]	
Other PR		−4.62*	
		[−5.01; −4.23]	
Party discipline		−0.41*	
		[−0.51; −0.32]	
District magnitude		0.19*	
		[0.12; 0.26]	
Closed PR mean		0.96*	
		[0.08; 1.81]	
Other PR mean		1.63*	
		[0.20; 3.05]	
Mixed mean		0.59	
		[−0.15; 1.31]	
District magnitude NA mean		−0.56*	
		[−1.01; −0.14]	
Party discipline mean		0.92*	
		[0.13; 1.69]	
District magnitude mean		0.04	
		[−1.09; 1.13]	
District magnitude NA		0.21*	
		[0.10; 0.33]	
N	21,958	21,958	21,958

* Null hypothesis value (i.e., 0) outside the 95% credible interval.

Table A7: **Coefficients of the Regression Models.** This table shows the posterior medians and 95% credible intervals for all the variables included in the regressions. The variable names including "mean" correspond to the mean of each variable at crop level and the variable names including "NA" correspond to the NA-indicator (i.e., missingness indicator) of incomplete variables. The interaction term of the geographic concentration of crop production and the parliamentary system indicator is positively correlated with trade liberalization across different model specifications. This suggests that geographic concentration is positively correlated with liberalization in parliamentary systems and is negatively correlated in presidential systems, which is consistent with our hypothesis.

	Outcome: Liberalization
Parliamentary	1.69*
	[1.00; 2.38]
log(HHI)	0.74*
	[0.23; 1.25]
Parliamentary×log(HHI)	0.14*
	[0.01; 0.27]
N	21,958

* Null hypothesis value (i.e., 0) outside the 95% confidence interval.

Table A8: **Coefficients of the Lasso / Post-lasso Models.** The coefficients of the key variables of interest and 95% confidence intervals are shown in the brackets. Again, the interaction term of the geographic concentration of crop production and the parliamentary system indicator is positively correlated with trade liberalization across different model specifications.

We next present additional results focusing on Japan and the US. Figures A2 and A3 show the predicted probabilities of liberalization for the US and Japan and their differences respectively. To create these figures, we use the same model as the one we used to create figure in the main text (Figure **??**, model 1 in Table A7) and construct the predicted probabilities only based on the observations from the US and Japan. They demonstrate that the US (presidential system) is more likely to liberalize diffused crops whereas Japan (parliamentary system) is more likely to liberalize concentrated crops, which is consistent with our hypothesis.

At the 90th percentile of geographic concentration (i.e., concentrated product), we observe that Japan is 0.5 percentage points more likely, and presidential systems are 0.1 percentage points less likely, to liberalize crops with the given concentration level, relative to their respective mean predicted probabilities of liberalization. Conversely, at the 10th percentile of geographic concentration (i.e., diffused product), parliamentary systems exhibit a 0.005 percentage point lower likelihood of liberalization, while presidential systems show a 0.1 percentage point higher likelihood for crops with the given concentration level, compared to their respective mean predicted probabilities of liberalization. In each of these cases, 95% credible intervals of these differences do not cover zero, which suggests that there are meaningful differences in the predicted probabilities of liberalization within each of these two countries. Although the magnitude of the differences is smaller than the differences among the entire sample, the pattern is consistent with our hypothesis.

Furthermore, Figures A4 and A5 show the proportions of liberalized crops for the US and Japan and their differences respectively. We categorize crops into into three categories based on the 33rd and

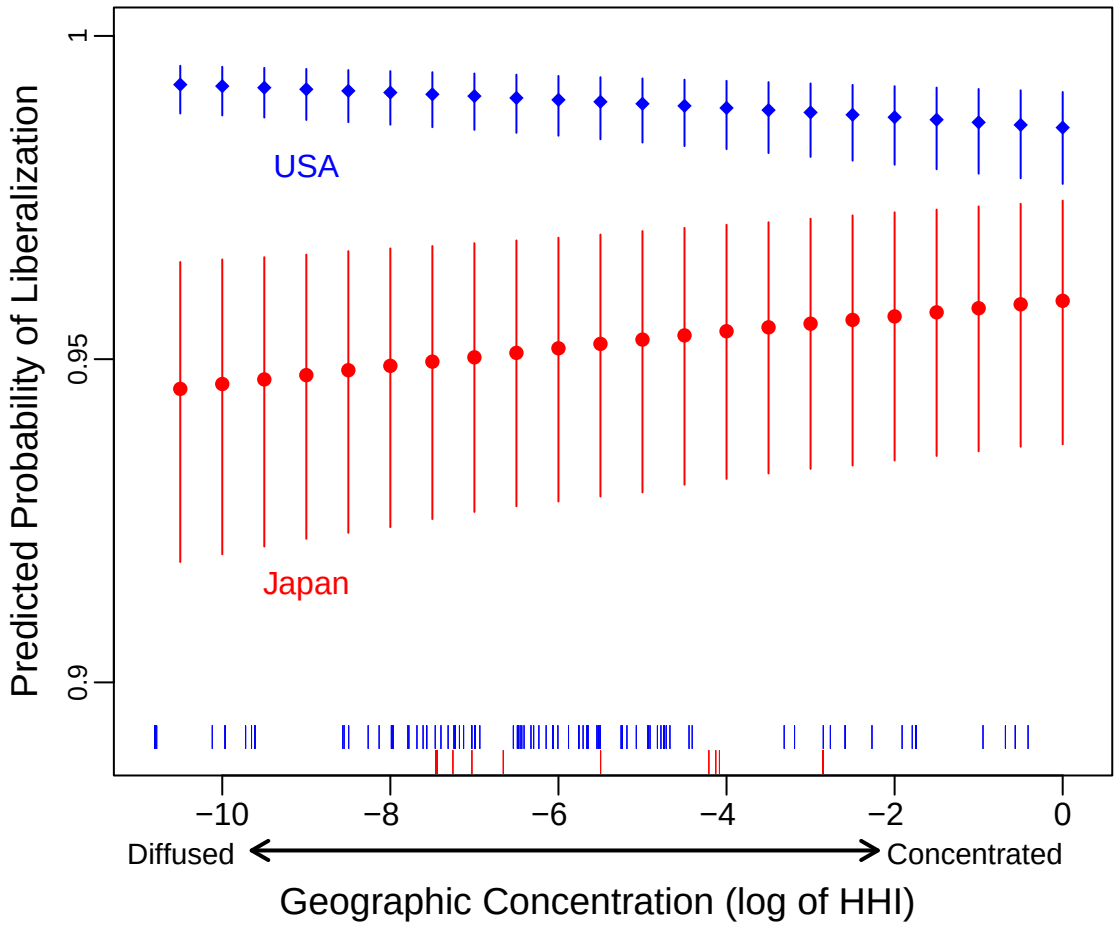

Figure A2: **Predicted probabilities of liberalization.** The figure shows the predicted probabilities of liberalization for different levels of geographic concentration of crop production (HHI) for the US and Japan. The predicted probabilities are constructed based on model 1 in Table A7 and the observations from the US and Japan only.

66th quantile of the log of HHI for Japan and the US respectively. Although there is not a meaningful difference in the proportion for crops with low geographic concentration, Japan is more likely to liberalize concentrated crops than the US, which supports our hypothesis.

Next, we conduct additional robustness checks by excluding Japan and the US. One could argue that Japan is an "easy" case to test our argument due to a long-term dominance of the Liberal Democratic Party and well-documented party tendency to deliver pork spending (Catalinac, Bueno de Mesquita and Smith, 2020). The US is a unique case because it is a presidential system with an independent agency, USTR, which is responsible for trade negotiations and is unique in its trade policy making process. In addition, these two countries are chosen as motivating examples in our qualitative analysis and excluding these two countries from the analysis would serve as an "out-of-sample" test for our hypothesis. The results are presented in the first and the second columns of Table A9. The interaction term of the geographic concentration of crop production and the parliamentary system indicator is positively correlated with trade liberalization across two scenarios, which demonstrates that our hypothesis is robust against the exclusion of Japan and the US.

Then, we conduct robustness checks where we classify the constitutional systems into three categories,

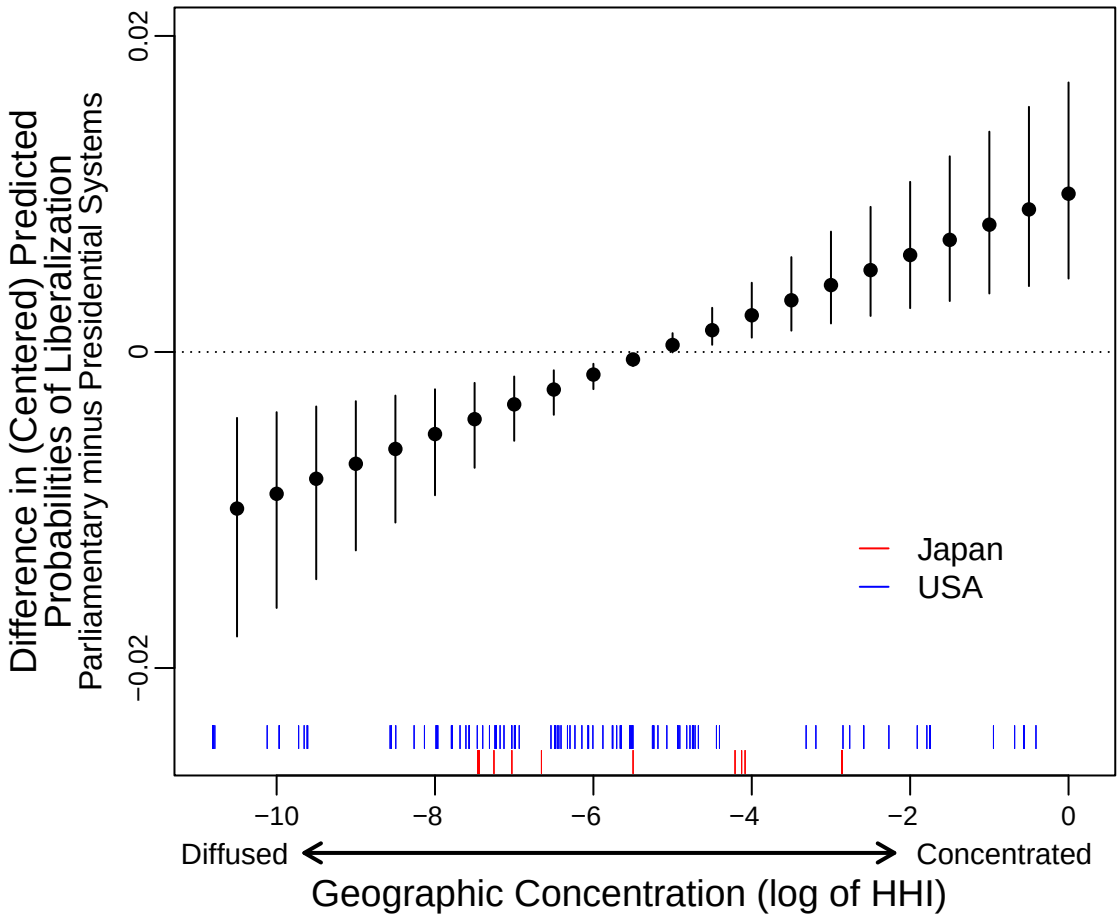

Figure A3: **Differences in predicted probabilities of liberalization between USA and Japan.** The figure shows the differences in predicted probabilities of liberalization for different levels of geographic concentration of crop production (HHI) between the US and Japan. The predicted probabilities are constructed based on model 1 in Table A7 and the observations from the US and Japan only.

instead of two. Following Scartascini, Cruz and Keefer (2021), we create a binary indicators for parliamentary and semi-presidential systems. A semi-presidential system is defined as a country which elects the President in the assembly but cannot easily recall him/her (Scartascini, Cruz and Keefer, 2021).[2] This analysis ensures that our results are not driven by simple dichotomy of presidential–parliamentary systems. The results are presented in the third column of Table A9. It shows that the interaction term of the geographic concentration of crop production and the parliamentary system indicator is positively correlated with trade liberalization, which is consistent with our hypothesis. In addition, the interaction term between semi-presidential systems and the geographic concentration of crop production is not statistically significant. This finding suggests that the presidential systems and semi-presidential systems exhibit similar trends in terms of the relationship between geographic concentration of industries and trade liberalization and empirically validates our binary classification of constitutional systems.

Lastly, we conduct additional robustness checks by employing a Heckman-type selection model to account for potential selection bias due to the level of subsidy in the pre-PTA period. One could argue

[2]See Scartascini, Cruz and Keefer (2021) for the further discussion about the classification of constitutional systems. In our main analysis, we classified semi-presidential systems as presidential systems for simplicity.

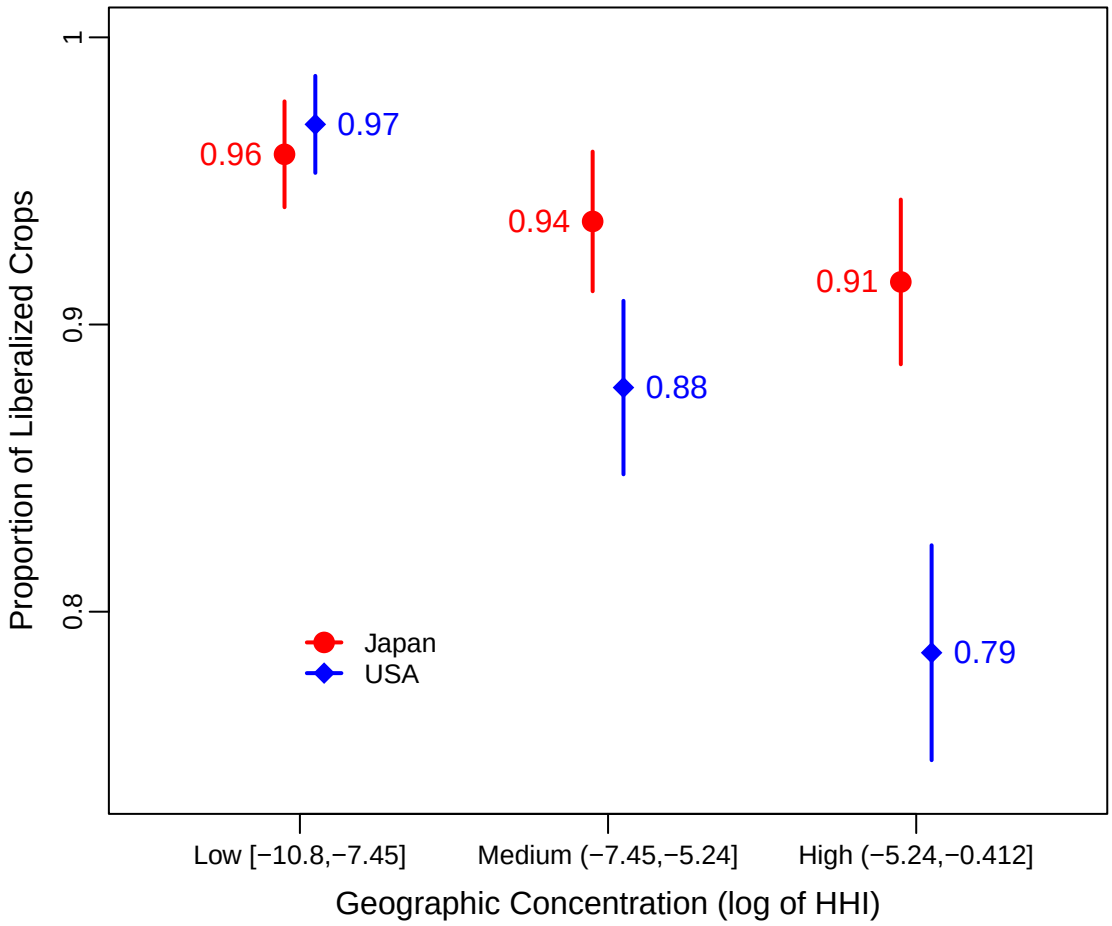

Figure A4: **Proportion of liberalized crops for USA and Japan.** The figure shows the proportion of liberalized crops for different levels of geographic concentration of crop production (HHI) for the US and Japan. Low, medium, and high categories are chosen based on the 33rd and 66th percentiles of the log of HHI.

that the availability of agricultural subsidies might still encourage or discourage certain crop producers to either relocate or exit the industry. Ideally, directly addressing this would require not only geographic concentration measures at the crop- and country-level before and after individual subsidies but also ability to distinguish whether subsidies are geographically or crop targeted, which, as we discuss in Appendix A.4, is not feasible with the existing data.

To partially address this potential selection mechanism, we employ Heckman's two-stage selection method, using the presence of subsidies in the pre-PTA period to compute the inverse Mills ratio. Under this model specification, the outcome variable in the first stage is binary variable which takes one if nominal rate of assistance (NRA) / Market Price Support (MPS) is positive in pre-PTA periods. The second stage is a linear regression model where the outcome variable is the liberalization, as same as the main model, and we include inverse Mills ratio as one of the control variables.[3] As explained in Appendix A.4, these datasets have limited crop coverage and cannot directly incorporate in our statistical analysis. Following (Stekhoven and Bühlmann, 2012), we employ a Random Forest based method to impute the missing data. This approach allows us to directly incorporate crop-level pre-PTA subsidy allocations for each country

[3]Positive values of NRA / MPS indicate subsidies from consumers (and states) to farmers.

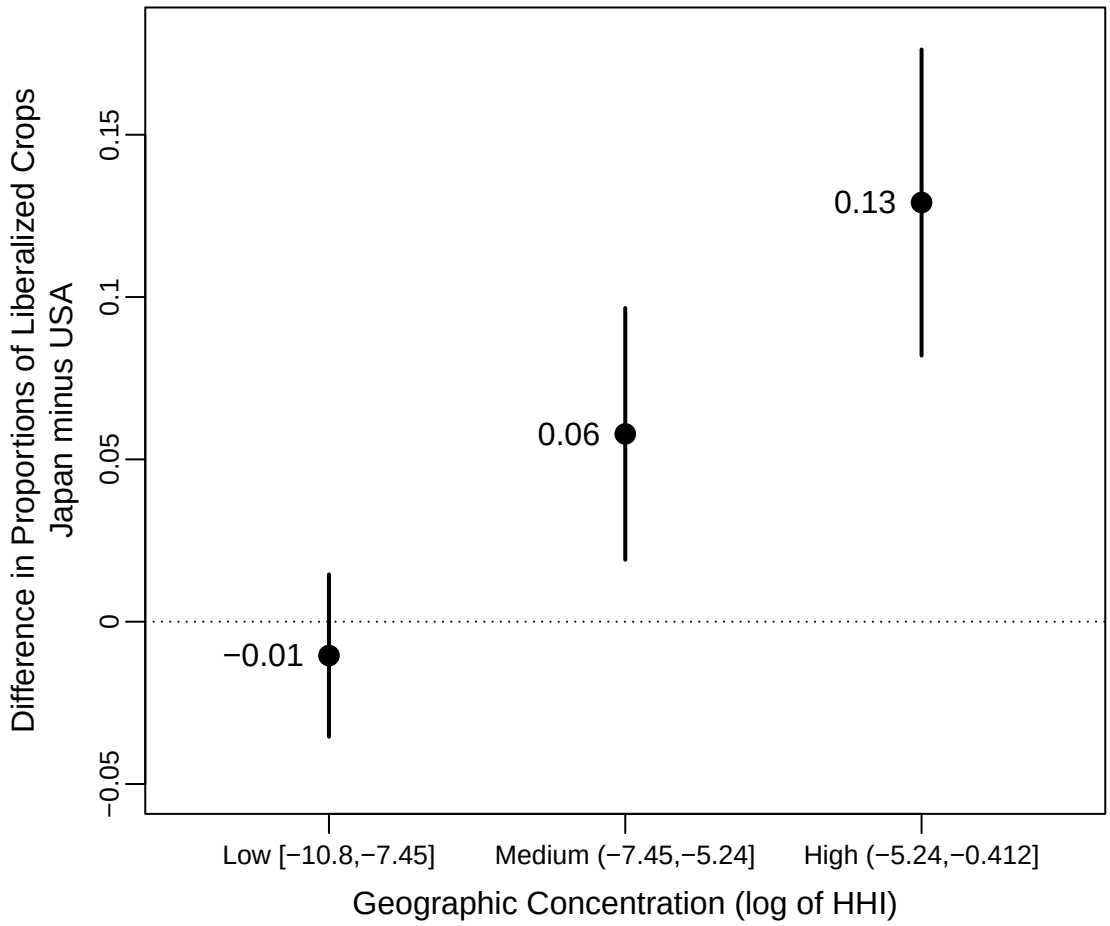

Figure A5: **Differences in the proportion of liberalized crops between USA and Japan.** The figure shows the differences in the proportion of liberalized crops for different levels of geographic concentration of crop production (HHI) between the US and Japan. Low, medium, and high categories are chosen based on the 33rd and 66th percentiles of the log of HHI.

into our analysis. We impute the variables 20 times and create 20 datasets with different imputations. Uncertainty estimates are obtained by performing nonparametric bootstrap with 100 replications for each of the 20 imputed datasets. We then pool the results across the imputed datasets to obtain the final estimates.[4] Note that under this methodological framework, we employ a linear model in the second stage, unlike a logistic regression in the main analysis.

The results are presented in Table A10. In both NRA and MPS scenarios at the first stage (first and second columns respectively), the interaction term between geographic concentration and the constitutional institution variable remains positive and statistically significant at the 95% level. This suggests that our results are robust against potential selection bias due to the level of subsidy in the pre-PTA period.

	Outcome: Liberalization		
	Model 4	Model 5	Model 6
Main variables of interest			

[4]For the detailed discussion and procedure about pooling the results across the imputed datasets, see Blackwell, Honaker and King (2017).

Parliamentary×HHI (logged)	0.24^{*}	0.27^{*}	0.26^{*}
	[0.15; 0.33]	[0.19; 0.35]	[0.17; 0.34]
Semi presidential×HHI (logged)			0.03
			[−0.18; 0.23]
HHI (logged)	-0.15^{*}	-0.16^{*}	-0.21^{*}
	[−0.22; −0.07]	[−0.23; −0.09]	[−0.29; −0.13]
Parliamentary	-2.36^{*}	-2.43^{*}	-2.16^{*}
	[−2.48; −2.24]	[−2.57; −2.30]	[−2.28; −2.05]
Semi presidential			-1.98^{*}
			[−2.24; −1.70]
Other variables			
(Intercept)	0.07	0.14	−0.42
	[−0.41; 0.56]	[−0.34; 0.60]	[−0.89; 0.08]
HHI (logged) mean	−0.06	−0.03	−0.02
	[−0.13; 0.02]	[−0.11; 0.04]	[−0.09; 0.06]
Parliamentary mean	-0.35^{*}	−0.39	−0.26
	[−0.65; −0.06]	[−0.88; 0.09]	[−0.58; 0.05]
Max MFN rate zero	-16.63^{*}	-6.41^{*}	-7.70^{*}
	[−38.89; −8.41]	[−8.34; −5.15]	[−9.53; −6.46]
Joint WTO membership	1.15^{*}	1.17^{*}	1.73^{*}
	[0.91; 1.38]	[0.93; 1.41]	[1.48; 1.99]
Border	-0.57^{*}	-0.62^{*}	-0.41^{*}
	[−0.73; −0.42]	[−0.78; −0.46]	[−0.58; −0.25]
Joint RTA membership	−0.02	−0.03	−0.01
	[−0.13; 0.09]	[−0.14; 0.08]	[−0.13; 0.11]
Parliamentary partner	-1.01^{*}	-0.94^{*}	-0.93^{*}
	[−1.12; −0.91]	[−1.05; −0.84]	[−1.04; −0.83]
Max MFN rate	-0.16^{*}	-0.26^{*}	-0.24^{*}
	[−0.20; −0.11]	[−0.30; −0.22]	[−0.28; −0.20]
GDP (logged)	-1.03^{*}	0.01	-0.37^{*}
	[−1.31; −0.76]	[−0.24; 0.27]	[−0.63; −0.10]
Population (logged)	-1.55^{*}	0.17	−0.03
	[−1.85; −1.24]	[−0.05; 0.40]	[−0.25; 0.20]
Population agriculture (logged)	-0.14^{*}	-0.40^{*}	-0.47^{*}
	[−0.28; −0.01]	[−0.53; −0.28]	[−0.62; −0.33]
Polity	0.59^{*}	0.78^{*}	0.69^{*}
	[0.53; 0.65]	[0.72; 0.84]	[0.64; 0.75]
Production (logged)	-0.15^{*}	−0.07	−0.08
	[−0.27; −0.02]	[−0.19; 0.06]	[−0.20; 0.04]
Crop-level import with the world (logged)	0.28^{*}	0.30^{*}	0.48^{*}
	[0.16; 0.39]	[0.19; 0.41]	[0.38; 0.59]
Crop-level export with the world (logged)	-0.10^{*}	-0.32^{*}	-0.35^{*}
	[−0.20; −0.01]	[−0.41; −0.23]	[−0.44; −0.26]
Total imports (logged)	1.05^{*}	−0.14	-1.84^{*}
	[0.54; 1.55]	[−0.56; 0.27]	[−2.27; −1.38]
Total exports (logged)	-0.46^{*}	-0.46^{*}	1.23^{*}
	[−0.85; −0.07]	[−0.83; −0.07]	[0.83; 1.63]
Differentiation (Rauch N)	0.05	0.03	0.05
	[−3.51; 3.51]	[−3.31; 3.58]	[−3.41; 3.57]
Homogeneous goods (Rauch W)	−0.01	0.06	−0.00
	[−3.49; 3.55]	[−3.40; 3.50]	[−3.39; 3.48]
Elasticity	-0.08^{*}	-0.09^{*}	-0.09^{*}
	[−0.13; −0.02]	[−0.14; −0.03]	[−0.14; −0.04]
Crop-level import pair (logged)	0.34^{*}	0.37^{*}	0.35^{*}
	[0.22; 0.46]	[0.25; 0.49]	[0.22; 0.47]
Crop-level export pair (logged)	0.04	0.04	0.05
	[−0.08; 0.16]	[−0.07; 0.17]	[−0.07; 0.18]
Total import pair (logged)	1.28^{*}	1.54^{*}	1.60^{*}
	[1.12; 1.45]	[1.36; 1.70]	[1.44; 1.77]
Total export pair (logged)	0.18^{*}	0.05	−0.08
	[0.01; 0.35]	[−0.11; 0.22]	[−0.24; 0.08]
Avg tariff	0.07	-0.19^{*}	-0.25^{*}
	[−0.00; 0.13]	[−0.27; −0.12]	[−0.32; −0.17]
% of liberalized non-crop tariff lines in PTA	0.88^{*}	0.84^{*}	0.84^{*}
	[0.81; 0.94]	[0.78; 0.90]	[0.78; 0.90]
GDP partner (logged)	-0.44^{*}	-0.62^{*}	-0.48^{*}
	[−0.56; −0.32]	[−0.74; −0.49]	[−0.60; −0.36]

Population partner (logged)	-0.69^{*}	-0.83^{*}	-0.74^{*}
	$[-0.80; -0.58]$	$[-0.94; -0.72]$	$[-0.85; -0.63]$
Population agriculture partner (logged)	-0.19^{*}	-0.28^{*}	-0.18^{*}
	$[-0.29; -0.10]$	$[-0.38; -0.19]$	$[-0.27; -0.09]$
Polity partner	-0.02	-0.04	-0.06
	$[-0.10; 0.05]$	$[-0.12; 0.03]$	$[-0.13; 0.02]$
Production partner (logged)	-0.06	-0.05	-0.08
	$[-0.19; 0.07]$	$[-0.18; 0.08]$	$[-0.21; 0.05]$
Crop-level import with the world partner (logged)	0.42^{*}	0.42^{*}	0.34^{*}
	$[0.29; 0.54]$	$[0.29; 0.54]$	$[0.21; 0.47]$
Crop-level export with the world partner (logged)	-0.53^{*}	-0.53^{*}	-0.56^{*}
	$[-0.63; -0.43]$	$[-0.63; -0.43]$	$[-0.67; -0.46]$
Total import partner (logged)	6.30^{*}	8.10^{*}	8.07^{*}
	$[4.65; 7.93]$	$[6.54; 9.73]$	$[6.45; 9.76]$
Total export partner (logged)	-4.25^{*}	-5.91^{*}	-5.79^{*}
	$[-5.66; -2.85]$	$[-7.29; -4.50]$	$[-7.21; -4.34]$
Land (logged)	0.64^{*}	-0.00	-0.07
	$[0.52; 0.76]$	$[-0.08; 0.08]$	$[-0.15; 0.02]$
Land partner (logged)	0.31^{*}	0.40^{*}	0.33^{*}
	$[0.23; 0.39]$	$[0.32; 0.48]$	$[0.25; 0.41]$
Max MFN rate zero mean	-0.17^{*}	-0.08	-0.18^{*}
	$[-0.26; -0.08]$	$[-0.16; 0.00]$	$[-0.27; -0.10]$
Joint WTO membership mean	-0.56	0.02	-0.23
	$[-1.49; 0.32]$	$[-0.76; 0.82]$	$[-1.00; 0.57]$
Border mean	-0.34	-0.47	-0.32
	$[-0.94; 0.28]$	$[-1.11; 0.17]$	$[-0.94; 0.31]$
Joint RTA membership mean	-0.57^{*}	-0.41^{*}	-0.49^{*}
	$[-0.95; -0.21]$	$[-0.75; -0.08]$	$[-0.92; -0.08]$
Parliamentary partner mean	0.08	0.09	0.08
	$[-0.18; 0.35]$	$[-0.22; 0.40]$	$[-0.29; 0.44]$
Production	-0.03	-0.02	-0.08
	$[-0.33; 0.26]$	$[-0.32; 0.30]$	$[-0.40; 0.25]$
Crop-level import with the world	-0.02	-0.16	-0.05
	$[-0.20; 0.16]$	$[-0.34; 0.01]$	$[-0.23; 0.14]$
Crop-level export with the world	-0.09	-0.06	0.04
	$[-0.27; 0.09]$	$[-0.23; 0.11]$	$[-0.15; 0.21]$
Elasticity NA mean	-0.01	-0.04	0.04
	$[-0.35; 0.32]$	$[-0.37; 0.30]$	$[-0.28; 0.37]$
Crop-level import pair	0.55^{*}	0.70^{*}	0.65^{*}
	$[0.07; 1.03]$	$[0.23; 1.19]$	$[0.13; 1.16]$
Crop-level export pair	-0.76^{*}	-0.48^{*}	-0.54^{*}
	$[-1.18; -0.33]$	$[-0.85; -0.08]$	$[-0.92; -0.15]$
Total import pair	-0.44	-0.01	-0.20
	$[-3.91; 3.01]$	$[-3.51; 3.48]$	$[-3.61; 3.23]$
Total export pair	-0.41	-0.03	-0.20
	$[-3.95; 2.97]$	$[-3.46; 3.48]$	$[-3.62; 3.28]$
Production partner	-0.19	-0.29	-0.24
	$[-0.58; 0.19]$	$[-0.72; 0.12]$	$[-0.66; 0.17]$
Crop-level import with the world partner	-0.26	-0.01	-0.20
	$[-0.56; 0.03]$	$[-0.29; 0.27]$	$[-0.50; 0.08]$
Crop-level export with the world partner	0.22	0.09	0.08
	$[-0.03; 0.46]$	$[-0.17; 0.34]$	$[-0.18; 0.37]$
Total import partner	-0.03	-0.37	0.09
	$[-3.64; 3.85]$	$[-4.13; 3.47]$	$[-3.69; 4.01]$
Total export partner	0.00	-0.47	0.12
	$[-3.87; 3.82]$	$[-4.31; 3.49]$	$[-3.94; 3.96]$
Max MFN rate mean	0.02	0.05	0.04
	$[-0.05; 0.08]$	$[-0.02; 0.12]$	$[-0.02; 0.11]$
GDP mean (logged)	-0.89	0.43	0.32
	$[-2.53; 0.74]$	$[-0.97; 1.82]$	$[-1.29; 1.99]$
Population mean (logged)	-1.54^{*}	-0.09	-0.30
	$[-2.88; -0.15]$	$[-0.96; 0.84]$	$[-1.16; 0.57]$
Population agriculture mean (logged)	0.41	0.55	0.65
	$[-0.48; 1.29]$	$[-0.24; 1.40]$	$[-0.57; 1.88]$
Polity mean	-0.50	-0.03	-0.26
	$[-1.00; 0.00]$	$[-0.48; 0.43]$	$[-0.70; 0.21]$
Production mean (logged)	-0.12	-0.18	-0.19

	[−0.51; 0.27]	[−0.58; 0.23]	[−0.61; 0.22]
Crop-level import with the world mean (logged)	−0.43*	−0.25	−0.31
	[−0.82; −0.04]	[−0.65; 0.15]	[−0.69; 0.08]
Crop-level export with the world mean (logged)	0.09	0.05	0.20
	[−0.27; 0.46]	[−0.31; 0.42]	[−0.17; 0.57]
Total imports mean (logged)	−0.83	−1.85	−2.49*
	[−3.45; 1.79]	[−3.97; 0.24]	[−4.85; −0.18]
Total exports mean (logged)	2.22*	1.65	2.71*
	[0.50; 4.03]	[−0.47; 3.77]	[0.82; 4.61]
Differentiation (Rauch N) mean	0.10	0.07	0.10
	[−3.36; 3.65]	[−3.44; 3.45]	[−3.42; 3.57]
Homogeneous goods (Rauch W) mean	0.01	−0.12	0.01
	[−3.54; 3.47]	[−3.55; 3.33]	[−3.48; 3.40]
Elasticity mean	0.01	−0.01	0.02
	[−0.06; 0.07]	[−0.07; 0.06]	[−0.05; 0.09]
Crop-level import pair mean (logged)	0.46	0.45	0.43
	[−0.06; 0.96]	[−0.07; 0.98]	[−0.12; 0.98]
Crop-level export pair mean (logged)	−0.58*	−0.21	−0.34
	[−1.02; −0.14]	[−0.60; 0.21]	[−0.76; 0.08]
Total import pair mean (logged)	−0.66	−0.01	0.18
	[−2.69; 1.35]	[−1.92; 1.85]	[−1.62; 1.93]
Total export pair mean (logged)	−0.06	0.16	−0.36
	[−1.48; 1.34]	[−1.31; 1.59]	[−1.78; 1.01]
Avg tariff mean	0.44*	0.27	0.23
	[0.02; 0.85]	[−0.11; 0.65]	[−0.21; 0.66]
% of liberalized non-crop tariff lines in PTA mean	0.01	−0.10	−0.15
	[−0.26; 0.28]	[−0.36; 0.16]	[−0.41; 0.12]
GDP partner mean (logged)	0.43	0.05	0.34
	[−0.92; 1.83]	[−1.30; 1.45]	[−1.14; 1.80]
Population partner mean (logged)	−0.12	−0.47	−0.30
	[−1.17; 0.97]	[−1.62; 0.65]	[−1.36; 0.81]
Population agriculture partner mean (logged)	0.06	0.05	0.44
	[−0.86; 1.02]	[−0.85; 0.96]	[−0.57; 1.41]
Polity partner mean	−1.05*	−0.53*	−0.81*
	[−1.72; −0.42]	[−1.05; −0.02]	[−1.43; −0.16]
Production partner mean (logged)	0.03	−0.03	−0.01
	[−0.43; 0.46]	[−0.53; 0.44]	[−0.50; 0.47]
Crop-level import with the world partner mean (logged)	0.02	−0.28	−0.30
	[−0.49; 0.50]	[−0.76; 0.21]	[−0.79; 0.17]
Crop-level export with the world partner mean (logged)	0.32	0.58*	0.53*
	[−0.12; 0.76]	[0.14; 1.03]	[0.07; 0.98]
Total import partner mean (logged)	−0.45	−0.82	−0.88
	[−4.60; 3.69]	[−4.99; 3.41]	[−4.91; 3.08]
Total export partner mean (logged)	0.65	0.05	1.55
	[−3.15; 4.61]	[−3.96; 3.90]	[−2.29; 5.35]
Land mean (logged)	0.80*	0.12	0.19
	[0.18; 1.43]	[−0.18; 0.41]	[−0.19; 0.57]
Land partner mean (logged)	0.38	0.23	0.16
	[−0.35; 1.09]	[−0.51; 0.95]	[−0.52; 0.84]
Production	−0.25*	−0.18	−0.13
	[−0.49; −0.03]	[−0.41; 0.04]	[−0.36; 0.10]
Crop-level import with the world	0.24	0.10	0.57
	[−0.70; 1.19]	[−0.82; 1.02]	[−0.37; 1.46]
Crop-level export with the world	0.19	−0.14	−0.13
	[−0.30; 0.69]	[−0.63; 0.32]	[−0.61; 0.35]
Elasticity NA	−1.99*	−1.81*	−1.42*
	[−2.17; −1.81]	[−2.00; −1.63]	[−1.61; −1.24]
Crop-level import pair	0.10	0.25*	0.16
	[−0.13; 0.33]	[0.02; 0.48]	[−0.06; 0.39]
Crop-level export pair	−0.17	−0.24*	−0.21
	[−0.39; 0.06]	[−0.46; −0.01]	[−0.43; 0.01]
Total import pair	−9.46	−8.78	−9.24
	[−38.60; 18.85]	[−39.42; 17.68]	[−41.39; 20.81]
Total export pair	−8.59	−8.24	−9.56
	[−39.57; 18.09]	[−39.99; 18.83]	[−41.46; 21.02]
Production partner	0.14	0.13	0.05
	[−0.09; 0.37]	[−0.10; 0.36]	[−0.18; 0.28]

Crop-level import with the world partner	1.67*	1.49*	1.25*
	[1.17; 2.16]	[1.01; 2.00]	[0.77; 1.75]
Crop-level export with the world partner	−0.56*	−0.70*	−0.74*
	[−0.93; −0.20]	[−1.05; −0.36]	[−1.09; −0.38]
Total import partner	2.26	2.49	2.39
	[−5.43; 9.80]	[−5.26; 10.48]	[−5.26; 10.27]
Total export partner	2.07	2.28	2.39
	[−5.31; 9.85]	[−5.72; 10.13]	[−5.33; 10.26]
Parliamentary mean×HHI (logged) mean	0.02	0.03	0.04
	[−0.03; 0.07]	[−0.02; 0.08]	[−0.03; 0.10]
Semi presidential mean			0.02
			[−0.25; 0.30]
Semi presidential mean×HHI (logged) mean			0.00
			[−0.06; 0.07]
N	20,762	20,649	21,958

* Null hypothesis value (i.e., 0) outside the 95% credible interval.

Table A9: **Coefficients of the Regression Models for results excluding Japan and the US.** Model 4 and model 5 exclude Japan and the US respectively. Model 6 uses three categories of constitutional systems as one of the main explanatory variables.

	Outcome: Liberalization	
	Model 7	Model 8
Main variables of interest		
Parliamentary×HHI (logged)	0.05^*	0.04^*
	[0.02; 0.08]	[0.02; 0.06]
HHI (logged)	-0.04^*	-0.02^*
	[−0.06; −0.01]	[−0.04; −0.01]
Parliamentary	-0.19^*	-0.28^*
	[−0.23; −0.16]	[−0.30; −0.26]
Other variables		
(Intercept)	0.13	0.40^*
	[−0.14; 0.40]	[0.28; 0.52]
HHI (logged) mean	−0.02	−0.00
	[−0.05; 0.01]	[−0.02; 0.01]
Parliamentary mean	0.00	−0.02
	[−0.12; 0.13]	[−0.09; 0.06]
Max MFN rate zero	-0.68^*	-0.63^*
	[−0.76; −0.60]	[−0.69; −0.58]
Joint WTO membership	0.16^*	0.20^*
	[0.10; 0.22]	[0.16; 0.23]
Border	-0.04^*	-0.05^*
	[−0.07; −0.01]	[−0.07; −0.04]
Joint RTA membership	0.04^*	-0.01^*
	[0.02; 0.06]	[−0.02; −0.00]
Parliamentary partner	-0.12^*	-0.13^*
	[−0.13; −0.10]	[−0.14; −0.12]
Max MFN rate	−0.01	-0.03^*
	[−0.03; 0.00]	[−0.05; −0.01]
GDP (logged)	0.03	0.02
	[−0.04; 0.11]	[−0.03; 0.06]
Population (logged)	0.04	−0.01
	[−0.02; 0.10]	[−0.05; 0.03]
Population agriculture (logged)	−0.03	0.01
	[−0.08; 0.02]	[−0.02; 0.03]
Polity	0.17^*	0.10^*
	[0.14; 0.20]	[0.09; 0.11]
Production (logged)	−0.05	−0.03
	[−0.11; 0.01]	[−0.08; 0.01]
Crop-level import with the world (logged)	0.07^*	0.06^*
	[0.03; 0.10]	[0.04; 0.09]
Crop-level export with the world (logged)	-0.05^*	-0.05^*
	[−0.08; −0.02]	[−0.07; −0.03]
Total imports (logged)	-0.23^*	-0.25^*
	[−0.34; −0.11]	[−0.33; −0.17]
Total exports (logged)	0.12^*	0.20^*
	[0.04; 0.21]	[0.14; 0.25]
Differentiation (Rauch N)	0.02	0.01
	[−0.01; 0.05]	[−0.00; 0.03]
Homogeneous goods (Rauch W)	−0.01	−0.01
	[−0.05; 0.02]	[−0.03; 0.01]
Elasticity	-0.03^*	-0.02^*
	[−0.04; −0.01]	[−0.03; −0.01]
Crop-level import pair (logged)	0.04^*	0.04^*
	[0.02; 0.06]	[0.02; 0.05]
Crop-level export pair (logged)	−0.02	−0.02
	[−0.05; 0.01]	[−0.04; 0.00]
Total import pair (logged)	0.20^*	0.21^*
	[0.17; 0.23]	[0.19; 0.23]
Total export pair (logged)	−0.03	−0.01
	[−0.06; 0.00]	[−0.03; 0.01]
Avg tariff	-0.03^*	-0.02^*
	[−0.04; −0.02]	[−0.02; −0.01]
% of liberalized non-crop tariff lines in PTA	0.09^*	0.08^*
	[0.08; 0.11]	[0.07; 0.09]
GDP partner (logged)	-0.06^*	-0.06^*
	[−0.08; −0.04]	[−0.07; −0.04]

Population partner (logged)	-0.08^{*}	-0.10^{*}
	$[-0.10; -0.06]$	$[-0.11; -0.09]$
Population agriculture partner (logged)	-0.04^{*}	-0.02^{*}
	$[-0.06; -0.02]$	$[-0.02; -0.01]$
Polity partner	0.00	-0.01^{*}
	$[-0.01; 0.02]$	$[-0.02; -0.00]$
Production partner (logged)	-0.04^{*}	-0.01
	$[-0.06; -0.01]$	$[-0.03; 0.01]$
Crop-level import with the world partner (logged)	0.06^{*}	0.04^{*}
	$[0.03; 0.08]$	$[0.03; 0.06]$
Crop-level export with the world partner (logged)	-0.07^{*}	-0.07^{*}
	$[-0.09; -0.05]$	$[-0.09; -0.06]$
Total import partner (logged)	0.97^{*}	0.80^{*}
	$[0.57; 1.37]$	$[0.61; 0.99]$
Total export partner (logged)	-0.63^{*}	-0.44^{*}
	$[-0.97; -0.30]$	$[-0.61; -0.26]$
Land (logged)	-0.05^{*}	-0.01
	$[-0.08; -0.01]$	$[-0.02; 0.01]$
Land partner (logged)	0.04^{*}	0.04^{*}
	$[0.03; 0.05]$	$[0.03; 0.04]$
Max MFN rate zero mean	-0.01	-0.01
	$[-0.05; 0.03]$	$[-0.03; 0.01]$
Joint WTO membership mean	-0.08	-0.02
	$[-0.33; 0.16]$	$[-0.18; 0.14]$
Border mean	-0.09	0.06
	$[-0.40; 0.22]$	$[-0.13; 0.25]$
Joint RTA membership mean	-0.05	-0.05
	$[-0.19; 0.10]$	$[-0.14; 0.05]$
Parliamentary partner mean	0.05	0.05
	$[-0.11; 0.21]$	$[-0.04; 0.14]$
Production NA mean (logged)	-0.03	0.00
	$[-0.16; 0.09]$	$[-0.06; 0.06]$
Crop-level import with the world NA mean (logged)	0.03	-0.00
	$[-0.08; 0.13]$	$[-0.06; 0.05]$
Crop-level export with the world NA mean (logged)	-0.00	-0.01
	$[-0.09; 0.08]$	$[-0.06; 0.04]$
Elasticity NA mean	-0.02	-0.02
	$[-0.17; 0.12]$	$[-0.12; 0.07]$
Crop-level import pair NA mean (logged)	0.10	0.06
	$[-0.07; 0.26]$	$[-0.06; 0.17]$
Crop-level export pair NA mean (logged)	-0.14	-0.06
	$[-0.30; 0.02]$	$[-0.14; 0.02]$
Total import pair NA mean (logged)	0.18	-0.02
	$[-0.33; 0.68]$	$[-0.32; 0.28]$
Production partner NA mean (logged)	-0.01	-0.03
	$[-0.18; 0.16]$	$[-0.13; 0.06]$
Crop-level import with the world partner NA mean (logged)	-0.02	-0.01
	$[-0.15; 0.11]$	$[-0.09; 0.07]$
Crop-level export with the world partner NA mean (logged)	-0.01	0.01
	$[-0.13; 0.12]$	$[-0.06; 0.09]$
Total import partner NA mean (logged)	-2.41	-0.95
	$[-5.52; 0.69]$	$[-2.79; 0.89]$
Max MFN rate mean	0.01	0.01
	$[-0.02; 0.03]$	$[-0.01; 0.02]$
GDP mean (logged)	0.35	0.17
	$[-0.27; 0.96]$	$[-0.15; 0.50]$
Population mean (logged)	0.45	0.22
	$[-0.18; 1.08]$	$[-0.14; 0.58]$
Population agriculture mean (logged)	-0.02	-0.07
	$[-0.45; 0.41]$	$[-0.35; 0.21]$
Polity mean	-0.01	-0.08
	$[-0.18; 0.17]$	$[-0.18; 0.03]$
Production mean (logged)	-0.09	-0.03
	$[-0.27; 0.08]$	$[-0.10; 0.05]$
Crop-level import with the world mean (logged)	0.00	-0.05
	$[-0.14; 0.15]$	$[-0.13; 0.03]$
Crop-level export with the world mean (logged)	-0.07	0.00

	[−0.21; 0.08]	[−0.08; 0.08]
Total imports mean (logged)	−1.03	−0.59
	[−2.18; 0.12]	[−1.30; 0.12]
Total exports mean (logged)	0.48	0.43
	[−0.31; 1.27]	[−0.03; 0.88]
Elasticity mean	0.01	0.01
	[−0.02; 0.03]	[−0.00; 0.02]
Crop-level import pair mean (logged)	0.04	0.03
	[−0.15; 0.22]	[−0.09; 0.15]
Crop-level export pair mean (logged)	−0.07	−0.02
	[−0.24; 0.09]	[−0.11; 0.07]
Total import pair mean (logged)	0.26	0.09
	[−0.52; 1.05]	[−0.37; 0.56]
Total export pair mean (logged)	−0.46	−0.35
	[−1.18; 0.27]	[−0.77; 0.07]
Avg tariff mean	0.09	−0.00
	[−0.11; 0.28]	[−0.11; 0.11]
% of liberalized non-crop tariff lines in PTA mean	0.08	0.02
	[−0.03; 0.19]	[−0.04; 0.08]
GDP partner mean (logged)	0.60	0.23
	[−0.13; 1.33]	[−0.25; 0.71]
Population partner mean (logged)	0.23	0.17
	[−0.37; 0.82]	[−0.20; 0.54]
Population agriculture partner mean (logged)	0.04	0.02
	[−0.38; 0.46]	[−0.27; 0.31]
Polity partner mean	−0.14	−0.08
	[−0.32; 0.04]	[−0.21; 0.04]
Production partner mean (logged)	0.07	0.00
	[−0.14; 0.27]	[−0.10; 0.11]
Crop-level import with the world partner mean (logged)	−0.08	−0.03
	[−0.26; 0.09]	[−0.13; 0.07]
Crop-level export with the world partner mean (logged)	0.16	0.08
	[−0.01; 0.34]	[−0.02; 0.17]
Total import partner mean (logged)	−4.99	−3.25
	[−11.74; 1.77]	[−7.29; 0.79]
Total export partner mean (logged)	2.37	2.29
	[−2.65; 7.40]	[−0.60; 5.17]
Land mean (logged)	−0.02	−0.00
	[−0.16; 0.13]	[−0.09; 0.09]
Land partner mean (logged)	−0.10	−0.03
	[−0.38; 0.19]	[−0.20; 0.15]
Production NA (logged)	−0.08	−0.07
	[−0.18; 0.02]	[−0.15; 0.01]
Crop-level import with the world NA (logged)	0.19	0.15
	[−0.03; 0.41]	[−0.04; 0.34]
Crop-level export with the world NA (logged)	0.03	−0.01
	[−0.12; 0.18]	[−0.11; 0.08]
Elasticity NA	−0.18*	−0.25*
	[−0.23; −0.12]	[−0.28; −0.22]
Crop-level import pair NA (logged)	−0.01	−0.00
	[−0.05; 0.02]	[−0.03; 0.02]
Crop-level export pair NA (logged)	−0.06*	−0.06*
	[−0.11; −0.01]	[−0.09; −0.03]
Total import pair NA (logged)	0.62*	0.69*
	[0.34; 0.90]	[0.47; 0.91]
Production partner NA (logged)	−0.05	0.02
	[−0.10; 0.01]	[−0.02; 0.06]
Crop-level import with the world partner NA (logged)	0.17*	0.16*
	[0.06; 0.27]	[0.10; 0.23]
Crop-level export with the world partner NA (logged)	−0.06	−0.09*
	[−0.14; 0.03]	[−0.13; −0.04]
Total import partner NA (logged)	0.75*	0.75*
	[0.46; 1.04]	[0.64; 0.86]
Inverse mills ratio	0.90*	0.28
	[0.39; 1.41]	[−0.07; 0.63]
Parliamentary mean×HHI (logged) mean	0.01	0.00
	[−0.01; 0.02]	[−0.01; 0.02]

N	21,958	21,958

* Null hypothesis value (i.e., 0) outside the 95% bootstrap confidence interval.

Table A10: **Coefficients of the Regression Models for results with two-step estimation.** Model 7 and model 8 correspond to the regression models with NRA and MPS as the dependent variable for the first stage respectively.

A.4 Limitations of Existing Subsidy Data

This section complements the explanation in our qualitative case studies and describes the limitations of existing subsidy data. In particular, we focus on data provided by OECD and NRA made available by Anderson and Nelgen (2013). Since the Producer Support Estimate (PSE) data is only available at country-year level, we explore the MPS, which is a crop-year level variable and consists of the basis of the PSE.

Table A11 reports the proportion of observations for MPS and NRA that overlap with our EarthStats and PTA datasets as well as the number and list of crops for which these two subsidy data are available. It demonstrates that these two variables are only available for around 5% of the total observations in our datasets. Furthermore, these two subsidy measures lack nearly three-fourths of the crops available from our EarthStats and PTA tariff deduction datasets. Furthermore, missingness is not at random. Commercial crops, which are more likely to be geographically diffused, such as wheat, corn and soy, are less likely to be missing. Due to this non-random and substantive proportion of missingness, we decided not to conduct statistical analysis with existing subsidy data and instead conduct a qualitative case study.

Source	Covered Crops
NRA	apple, avocado, banana, barley, bean, cabbage, cassava, chickpea, coconut, coffee,cotton, cucumber etc, garlic, grape, grapefruit etc, groundnut, hazelnut, maize,oilseed nes, olive, onion, orange, pea, pear, potato, rapeseed, rice, rubber, rye, sesame,sorghum, soybean, spinach, strawberry, sugarbeet, sugarcane, sugar nes, sunflower, tobacco, tomato, wheat (41/145)
MPS	apple, avocado, banana, barley, cabbage, cassava, cocoa, coffee, cotton, cucumber etc, garlic, grape, grapefruit etc, greenonion, lentil, maize, oats, orange, pear, potato, rapeseed, rice, rubber, sorghum, soybean, spinach, strawberry, sugarbeet, sugarcane, sugar nes, sunflower, tomato, wheat (33/145)

Table A11: **Limited Availability of Subsidy Data.** The data source is shown in the left column. The center and right columns indicate the proportion of observations and the list of crops for which the subsidy data is available respectively. Only 41 crops out and 33 crops out of the total of 145 crops are available in the NRA and MPS data respectively.

B Institutional Specificities of the U.S.

This section describes the institutional specificities of the U.S., which is briefly discussed in our interviews. To situate the U.S. case in a broader spectrum of presidential systems, it is important to discuss formal procedures and authorities governing the negotiation and ratification of trade agreements. Since the 1974 Trade Act, the U.S. Congress has enacted the Trade Promotion Authority (TPA) laws that govern executive and legislative roles in negotiating and ratifying trade agreements. The TPA laws empower the president

(the executive branch) to negotiate a trade agreement based on congressional and private sector input, and Congress is only allowed to vote Yes or No during the ratification phase without amendment. The TPA laws are designed to empower the executive over legislature in order to expedite the trade liberalization process (Trade Act of 1974; Public Law 93-618 as amended, see Congressional Research Service (2022)). Because the TPA procedure does not allow amendment by Congress during the ratification phase, it is critical that Congressional members communicate their demands for trade protection or compensation during the trade negotiation phase.

The USTR acknowledges the importance of congressional input to address the ratification requirement. To do so, the Trade Act and subsequent legislation instituted and expanded two systems: advisory committee system, where USTR appoints private sector actors to advise the executive branch on trade policy priorities and consultation system, where USTR officials hold meetings with legislators and stakeholders (interest groups) to inform and discuss progress and agenda during the trade negotiations.

Although this advisory system improves the flow of information between private sectors and an executive branch, this system allows private sectors to bypass legislators and make trade policy demands directly to an executive branch. This increased information flow, thus, is not sufficient to bind a contract between legislative and executive branches (Smith, 2004; McClean, 2021).

Another system to increase congressional input is a consultation system where USTR officials hold meetings with legislators to discuss the current state of trade negotiations. During the Obama administration, Congress passed bipartisan legislation to further expand the consultation requirements beyond Advisory Committee members to increase Congressional input into the trade negotiation process (Congressional Trade Priorities and Accountability Act of 2015, S.995). Under this Act, Congress and the administration must consult each other before and during the trade negotiations (U.S. Government Accountability Office, 2007; Office of the United States Trade Representative, 2015).

A former trade negotiator at USTR laments that when USTR seeks to receive feedback from the Congressional members during the active negotiation phase, Congressional members are generally disinterested and not available to talk. The report by Government Accountability Office published in 2007 indeed documents this observation with data that legislator requests to meet with USTR officials generally surge after a trade agreement negotiation is concluded and before the agreement reaches Congressional floor for ratification (U.S. Government Accountability Office, 2007; Office of the United States Trade Representative, 2015). That legislator requests surge not during the active negotiation phase, as intended by the 1974 Trade Act and Trade Promotion Authority procedure, but during the ratification phase, suggests that legislators contact USTR to learn the contents of a final trade agreement to request compensation in exchange for their support to ratification. Without overlapping and concurrent appointments of legislators into the executive branch, a compensation contract is formed and enforced in a legislature during the ratification phase, not within a party, in presidential systems.

C Interview Methodology

As we describe in our interviews, we conducted fourteen in-depth interviews with trade policy makers in Japan and the U.S. to validate our theoretical mechanisms. This section details the selection criteria for interviewees.

One of the authors (Megumi Naoi) created a list of interviewees based on the following three criteria:

1. Japanese and U.S. trade negotiators (the highest rank possible) appointed by the head of states, who participated in trade agreement negotiations signed between 2007 and 2018. These trade agreements were: Korea-U.S. Trade Agreement, Trans-Pacific Partnership Agreement, Japan-Australia

Economic Partnership Agreement and Japan-EU Economic Partnership Agreement.

2. Japanese government officials who were involved in designing compensation programs for trade agreement losers since the Uruguay round until 2021 and worked at the Ministry of Finance, Ministry of Agriculture, Forestry and Fisheries, and Ministry of Economy, Industry and Trade.

3. U.S. political appointees who served for USTR and White House overseeing trade policy making and strategies

Based on the list, three people assisted one of the authors (Megumi Naoi) in contacting and arranging these interviews on Japan side: Shujiro Urata (Professor at Waseda University), a mid-career LDP legislator, and a mid-career Ministry of Finance official. Response rate to our requests for interview was 100%, and participation rate was 93% as one government official cancelled our scheduled meeting due to a new scheduling conflict.

For the U.S. side, using USTR's website and personal acquaintances, one of the authors (Megumi Naoi) contacted past USTR officials and political appointees at USTR and White House who served between 2010 and 2018. Response and participation rates were 100%.

The following project members, funded by the Center for Global Partnership/Japan Foundation, conducted interview IDs 1, 2, 4, 6, 8 and 9: Kazunobu Hayakawa, In Song Kim, Megumi Naoi and Shujiro Urata. Megumi Naoi conducted interviews 3, 4, 7, 11, 12, and 13 alone. UCSD's IRB approved the four members' interviews (# 190885). Tomoya Sasaki joined the project after we finished all the interviews and he only has access to anonymized quotes used in this paper, and not our interview list or transcriptions.

D Discussion of Ethical and Human Subjects Principles

This section discusses ethical and human subjects principles related to our interviews. Although our subjects were all highest-profile public officials and many of them had already retired or moved onto private sector positions, which implies that there are lower concerns for reputation and employability per the APSA's guideline about potential harms to public officials, we adhered to the higher standard to protect their reputation and employability than required by the IRB.

Consent: We explained in the initial email reaching out to make an interview appointment about the aim and scope of our research project, a funder (Japanese government), and how we would use interview materials in our written work that would be available to the public and a community of scholars. We also included the list of 4–5 key questions we will ask the interviewees during the meeting. Once interviewees agreed to meet and discuss these questions with us, we explained the conditions of the interviews again in person at the beginning of our meeting including their preference for how much anonymity protection they would like. Then we used their "That's fine with me" answer before we went down on the list of interview questions as their consent.

Confidentiality: We explained the range of options to protect anonymity and protection and let each interviewee chooses one of the four following options regarding the protection of anonymity following USTR's guideline about interviewing officials.[5]

1. "On the Record": Cite and quote the interviewee by name/position in the organization at the time of trade negotiations (if different from their positions at the time of interview).

[5] `https://ustr.gov/about-us/policy-offices/press-office/Ground-Rules-for-Interviewing-USTR-Officials` Note that all of our interviewees did not hold USTR positions at the time of the interviews, though.

2. "On Background": Anonymize the interviewee's name but can quote/paraphrase what the interviewee said with a reference to an organizational affiliation when an interviewee was involved in trade negotiations.

3. On Deep Background: we do not quote or identify the source in any way and we describe the source as what we understood based on our conversation.

4. Off the Record: Don't quote or cite any information from the interviews.

All interviewers have agreed with #2, "On Background." We further protect the anonymity by not specifying the time period in which an interviewee worked for the organization.

Minimizing Potential Harms: Furthermore, we did not quote or discuss any interview contents from legislators admitting their role/agency in liberalizing a particular product, which can potentially lead to loss of votes or campaign contributions. Rather, we focused on discussing the process of negotiating a trade agreement and compensation, which is much less controversial than discussing policy outcomes.

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