

Online Appendix for

Why do countries change the taxation of foreign-source income of multinational firms?

In this Online Appendix, I present (1) descriptive statistics for the variables used for Table 1 and for Table 2 in my analyses (Tables A1 and A2), (2) two sets of robustness checks (Tables A3 and A4), (3) some detailed information about descriptive statistics on the countries that changed their policy, the year of the change and the value of the main variables on the year of the changes (Table A 5 and Figures 1A and 2A) and (4) the US policy discussions about international taxation.

My sample consists of 15 industrialized countries. There are 23 OECD countries – Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States. Of these, I excluded seven that had a territorial tax system before 1981 – Austria, Belgium, Canada, Finland, France, Luxembourg, and Switzerland – and a country that changed its international tax system twice – New Zealand. This left me with 15 countries that might switch to a territorial tax system 1981 and 2013. The final sample and the transition year for those that have transitioned are Australia (1991), Denmark (1992), Germany (2001), Greece, Iceland (1998), Ireland, Italy (1990), Japan (2009), Netherlands (1982), Norway (2004), Portugal (1989), Spain (2000), Sweden (2003), United Kingdom (2009), and the United States. Table A1 presents the descriptive statistics reported in table 1 where the main dependent variable is event variable, coded 1 if a transition occurs and otherwise 0. Table A2 provides the descriptive statistics reported in table 2. The main dependent variable is binary, which is coded 1 if a country adopts a territorial tax system and otherwise 0.

Descriptive statistics

Table A1: Summary Statistics for Variables Used in Table 1

	Number	Mean	S.D.	Minimum	Maximum
Left-leaning	301	35.3	42.98	0	100
Trade openness	298	58.17	32.67	16.01	183.3
Debt	293	65.94	31.23	22	188.7
Unemployment	301	7.694	4.581	0.36	24.17
Corporate tax rate	274	0.404	0.108	0.13	0.601
Event	301	0.04	0.196	0	1

Checks	301	4.243	1.235	2	11
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Table A2: Summary Statistics for Variables Used in Table 2

	Number	Mean	S.D.	Minimum	Maximum
Left-leaning government	465	35.82	41.08	0	100
Trade openness	450	63.81	32.1	16.01	183.3
Debt	457	68.02	31.53	13.83	205.83
Unemployment	465	7.472	4.165	0.36	24.17
Corporate tax rate	437	0.375	0.103	0.13	0.601
Transition	465	0.378	0.486	0	1
Checks	465	4.228	1.244	2	11

Second, I have replicated all models reported in table 1 using alternative measures of economic globalization: 1) an aggregate indicator capturing economic globalization developed by Dreher et al. (2009); 2) the total flow of inward and outward FDI as the ratio of FDI flows to GDP; and 2) the outbound FDI as the ratio of FDI outflows to GDP as suggested by Kerner (2009). Table A3 presents the results. Models 1-2 includes economic globalization developed by Dreher et al. (2009); models 3-4 include a total flow of outward and inward FDI; and models 5-6 include an outbound FDI as suggested by Kerner (2009). As table A3 shows, the coefficient for the interactive effects, *the interactive effects between trade openness and the number of veto players*, remains unchanged (negative) and statistical significance disappears.

Table A3. Robustness checks using alternative measures

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Economic globalization	0.0519 (0.0487)	0.0719 (0.1460)				
Veto players	-0.4387 (0.5090)	-0.0955 (2.4637)	-0.2812 (0.4681)	-0.3462 (0.5648)	-0.2796 (0.4646)	-0.2183 (0.5081)
Corporate tax rate	10.8644* (5.1929)	10.8338* (5.2866)	7.2559 (4.5331)	7.5506 (4.7755)	6.8331 (4.5158)	6.8077 (4.5074)
Unemployment	0.0902	0.0886	0.0949	0.0953	0.0953	0.0994

	(0.1031)	(0.1072)	(0.0979)	(0.0996)	(0.0969)	(0.0988)
Debt	-0.0141	-0.0138	-0.0178	-0.0178	-0.0184	-0.0182
	(0.0138)	(0.0144)	(0.0130)	(0.0132)	(0.0129)	(0.0130)
Left-leaning government	-0.0035	-0.0038	-0.0010	-0.0007	-0.0009	-0.0016
	(0.0090)	(0.0091)	(0.0089)	(0.0092)	(0.0089)	(0.0092)
Economic globalization × veto players		-0.0047				
		(0.0330)				
FDI Outward			-0.0120	-0.1349		
			(0.1320)	(0.5895)		
FDI Outward*veto players				0.0307		
				(0.1428)		
FDI					-0.0281	0.0639
					(0.0726)	(0.3347)
FDI*veto players						-0.0211
						(0.0755)
AIC	81.6732	81.9799	84.4748	85.2030	84.3820	85.5172
R ²	0.0942	0.1000	0.0877	0.0919	0.0880	0.0911
Max. R ²	0.2933	0.2933	0.3046	0.3046	0.3046	0.3046
Num. events	11	11	11	11	11	11
Num. obs.	266	266	254	254	254	254
PH test	0.4506	0.4901	0.5406	0.6297	0.5573	0.6930

*** p < 0.001, ** p < 0.01, * p < 0.05

Statistical models

Note. Dependent variables are whether the transition to a territorial tax system occurred. Estimates are obtained from the cox proportional hazard models with fragility. Standard errors are in parentheses.

Third, I use an alternative estimator – multilevel logit model – accounting for a country and time effect and the fixed-effects models. I have replicated all models using alternative estimators – multilevel logit model accounting for a country and time effect (models 1-2) and the fixed-effects model (models 3-4). Table A4 present the results. As it shows, the coefficient for the interactive effects, *the interactive effects between trade openness and the number of veto players*, remains changed (positive).

Table A4: Robustness checks using alternative estimators

	Model 1	Model 2	Model 3	Model 4
(Intercept)	-19.7547** (7.0686)	-12.2083 (25.4428)	4.6355 (5.2909)	23.7393* (10.3301)
Trade openness	0.3798*** (0.0017)	0.1704 (0.3340)	0.2529*** (0.0663)	-0.0434 (0.1432)
Veto players	0.7343 (0.6276)	-3.8591 (5.2389)	0.2456 (0.4105)	-4.1717* (2.0238)
Corporate tax rate	-40.9510** (15.1460)	-48.8964 (26.5958)	-37.6308*** (10.3132)	-40.0221*** (10.2203)
Unemployment	-1.2656*** (0.0017)	-1.4417* (0.6074)	-0.4057** (0.1417)	-0.4052** (0.1470)
Debt	0.2269*** (0.0017)	0.3267* (0.1542)	0.1672*** (0.0341)	0.1806*** (0.0381)
Left-leaning government	0.0036* (0.0017)	0.0075 (0.0136)	0.0025 (0.0081)	0.0071 (0.0083)
Trade openness*veto players		0.0756		0.0667*

		(0.0826)		(0.0301)
AIC	178.2849	175.8686	146.9970	143.9461
BIC	214.5177	216.1273	231.5402	232.5151
Log Likelihood	-80.1424	-77.9343	-52.4985	-49.9730
Num. obs.	414	414	414	414
Num. groups: year	30	30		
Num. groups: country	15	15		
Var: year (Intercept)	31.4335	47.9469		
Var: country (Intercept)	912.6067	1005.6825		
Deviance			104.9970	99.9461

*** p < 0.001, ** p < 0.01, * p < 0.05

Fourth, I present some detailed information about descriptive statistics on the countries that changed their policy, the year of the change, and the value of the main variables on the year of the changes seen in table A5. The data covers the 15 advanced industrialized countries in the sample between 1981 and 2013: Australia (1991), Denmark (1992), Germany (2001), Greece, Iceland (1998), Ireland, Italy (1990), Japan (2009), Netherlands (1982), Norway (2004), Portugal (1989), Spain (2000), Sweden (2003), United Kingdom (2009), and the United States. In addition to the descriptive statistics, I draw some illustrative figures capturing a) an association between trade openness and the transition to a territorial system and b) an association between the number of veto players and the transition to a territorial system. Figure A1 shows that on average, countries with more open trade policy are more likely to have a territorial tax system while figure A2 illustrates that, on average, countries with fewer veto players are more likely to adopt a worldwide tax system. These figures suggest that, at least on average, there is a correlation between trade openness and the transition and between veto players and countries' transition to a territorial tax system.

Table A5 Descriptive statistics about countries listed in the empirical analysis

Country	Year of transition	Trade openness	The number of veto players
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Australia	1991	35.56	4.387
Denmark	1992	79.13	6.065
Germany	2001	59.25	4.645
<i>Greece</i>		52.14	3.032
Iceland	1998	73.50	3.742
<i>Ireland</i>		134.71	5.903
Italy	1990	45.85	4.032
Japan	2009	22.67	3.613
Netherlands	2009	119.16	5.000
Norway	2004	72.45	4.484
Portugal	1989	63.21	2.516
Spain	2000	46.80	3.839
Sweden	2003	74.79	3.968
United Kingdom	2009	54.22	3.581
<i>United States</i>		22.67	4.613

Figure 1A The correlation between trade openness and the transition to a territorial tax system

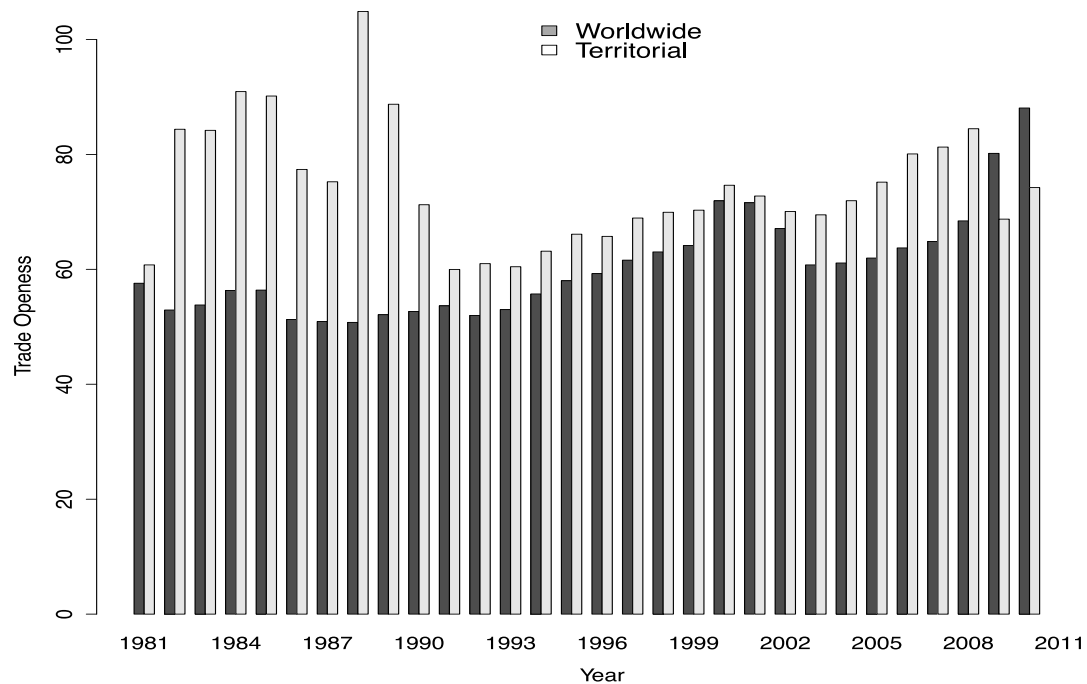
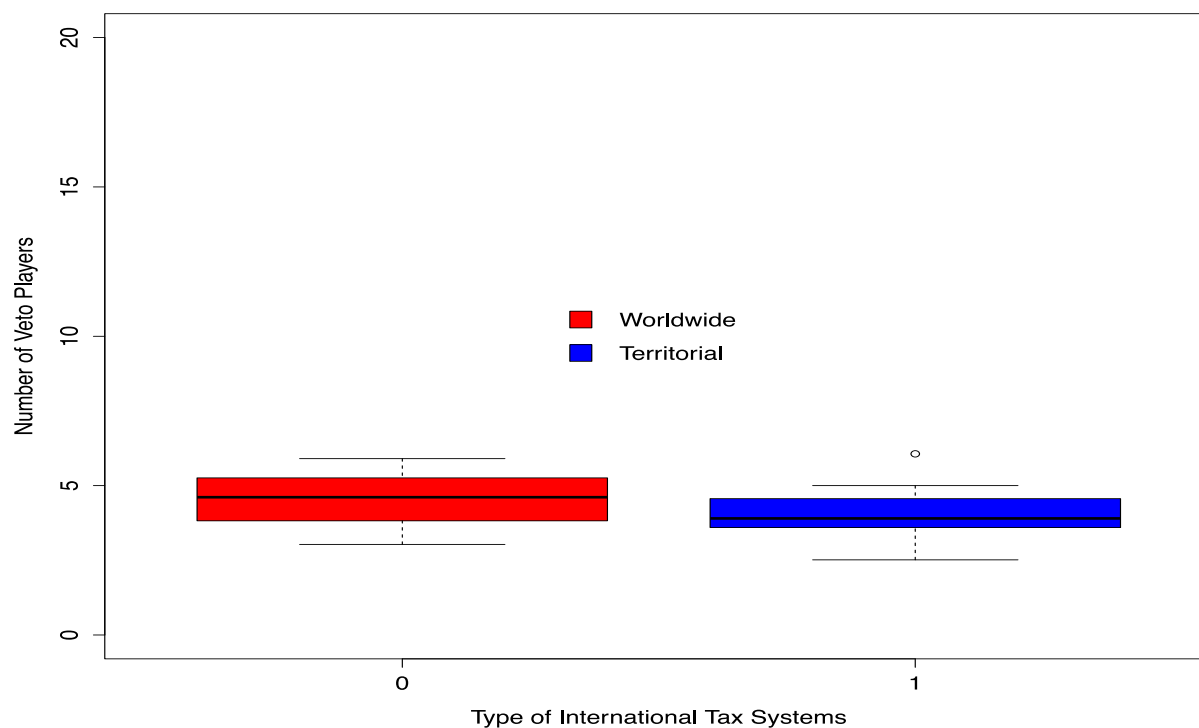


Figure 2A The correlation between the number of veto players and the transition to a territorial tax system



Finally, I provide some policy discussions about international taxation in the United States. These are the Grubert-Mutti proposal (included in President George W. Bush's Advisory Panel on Tax Reform proposal in 2005) and, more recently, the Ways and Means Committee proposal and Senate bill S. 2091. The Grubert-Mutti proposal is a general prototype of a move to a territorial tax and an increase in revenue by increasing taxes on royalties and the allocation of parent company expenses between taxable and exempt income. This proposal does not address the treatment of existing accumulated earning abroad or profit shifting of multinational firms via intangible assets. Following up on this proposal, the Ways and Means Committee also outlined a transition to a territorial tax system in 2011. This proposal discusses the transition to a territorial tax system accompanied by a general tax reform that decreases the corporate tax rate from 35% to 25%. Similarly, Senator Mike Enzi introduced S. 2091, which was similar to a draft released by

the Ways and Means Committee, except that it omits general tax reform that reduces the corporate tax rate (Ernst Young 2012). In line with these efforts, the National Commission on Fiscal Responsibility and Reform, President Obama's bipartisan commission, proposed to switch to a territorial tax system while including increases on the taxation of foreign source income (Gravelle 2015). The Treasury Department under the Obama administration also reported that the switch to a territorial system would boost their production, investment, and employment in the United States. Such a transition to a territorial tax system would also allow US firms to compete with foreign firms on a level playing field. The US Congress enacted 'An Act to provide for reconciliation pursuant to titles II and IV of the concurrent resolution on the budget for fiscal year 2018', also informally known as the 'Tax Cut and Jobs Act of 2017', in December 2017. This legislation introduced a divided exemption system for repatriations from foreign affiliates to their US parents but imposed a new type of US tax on foreign source income like the 'Global Intangible Low-Taxed Income' tax. While the new legislation could help solve the lockout problem, it could also levy a potentially considerable US tax burden on US residence (Dharmapala 2018).

References

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