

Supplementary Material

Challenged in Geneva: WTO Litigation Experience and the Design of Preferential Trade Agreements

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Explanatory notes

The output tables presented on the following pages contain the detailed results from the robustness checks and additional estimations mentioned in the main article. For the sake of parsimony in model specification, estimations were performed without the covariates for experiences from prior interaction other than WTO litigation.

Robustness Checks

- Ordered logit estimation (table 1)
- Intervals for opposition in WTO disputes (table 2)
- Intra-industry trade, export orientation and retaliation (table 3)
- Power asymmetries (table 4)
- General litigation activity (table 5)

Additional Estimations

- WTO litigation experience and PTA depth (table 6)
- Escape flexibility as the dependent variable (table 7)
- PTAs signed after the inception of the WTO only (table 8)
- PTAs with full WTO membership only (table 9)
- Maximum opposition in litigation across PTA dyads (table 10)

Table 1: Ordered logit estimation

Variables	Retaliation mechanism	Flexibility strings
WTO disputes opposed	-0.874** (0.371)	-0.544* (0.301)
WTO disputes aligned	0.326 (0.329)	0.337 (0.281)
Polity2	0.116** (0.0523)	-0.0346 (0.0438)
Veto players	-1.091 (1.433)	-1.537 (1.229)
WTO membership	-0.00699 (0.344)	0.353 (0.315)
WTO mission size	0.157** (0.0702)	0.0803 (0.0571)
GDP asymmetry	-0.140 (0.127)	-0.0565 (0.109)
European Union	-0.869 (0.596)	1.951*** (0.557)
GDP	-0.139 (0.170)	0.137 (0.145)
Trade flows	0.168* (0.0952)	0.0136 (0.0805)
Member states	0.00339 (0.0226)	-0.0243 (0.0213)
Depth	0.141*** (0.0179)	0.0576*** (0.0151)
Escape flexibility		1.019*** (0.119)
Regional controls	Included	Included
Time trend	Included	Included
Observations	347	347
Model	Ordered logit	Ordered logit

Standard errors in parentheses. Constant (cuts) omitted from the output table.
Levels of statistical significance set conventionally: *** p<0.01, ** p<0.05, * p<0.1

Table 2: Intervals for opposition in WTO disputes

Variables	Retaliation mechanism	Flexibility strings
WTO disputes opposed (0, 1]	0.315 (0.224)	-0.149 (0.201)
WTO disputes opposed (1, 10]	0.042 (0.889)	-0.499* (0.261)
WTO disputes opposed (10, 37]	-1.67** (0.832)	-1.374* (0.769)
WTO disputes aligned	0.018 (0.037)	0.029 (0.034)
Polity2	0.066** (0.037)	-0.007 (0.024)
Veto players	-0.604 (0.828)	-1.030 (0.692)
WTO membership	0.080 (0.201)	0.275 (0.176)
WTO mission size	0.073** (0.037)	0.055* (0.032)
GDP asymmetry	-0.072 (0.070)	-0.013 (0.061)
European Union	-0.223 (0.346)	1.02** (0.332)
United States	0.512 (0.446)	-0.656* (0.392)
GDP	-0.094 (0.096)	0.034 (0.083)
Trade flows	0.077 (0.054)	0.033 (0.046)
Member states	-0.001 (0.014)	-0.012 (0.013)
Depth	0.082*** (0.010)	0.033*** (0.062)
Escape flexibility		0.572*** (0.201)
Regional controls	Included	Included
Time trend	Included	Included
Observations	347	347
Model	Ordered probit	Ordered probit

Standard errors in parentheses. Constant (cuts) omitted from the output table.
Levels of statistical significance set conventionally: *** p<0.01, ** p<0.05, * p<0.1

Table 3: Intra-industry trade, export orientation and retaliation

Variables	Retaliation mechanism (Grubel Lloyd)	Retaliation mechanism (Export orientation)	Flexibility strings (Grubel Lloyd)	Flexibility strings (Export orientation)
WTO disputes opposed	-0.457* (0.253)	-0.675 (0.463)	-0.363* (0.193)	-0.694** (0.306)
WTO disputes aligned	0.0687 (0.236)	-0.739 (0.464)	0.0763 (0.177)	0.112 (0.251)
Polity2	0.0564 (0.0347)	0.00628 (0.0655)	-0.0309 (0.0253)	0.0309 (0.0426)
Veto players	-0.375 (0.970)	0.682 (1.811)	-0.871 (0.727)	-2.365* (1.232)
WTO membership	-0.131 (0.222)	-0.838** (0.404)	0.253 (0.184)	0.737** (0.314)
WTO mission size	0.0988** (0.0485)	0.138* (0.0833)	0.0559 (0.0350)	0.00271 (0.0447)
GDP asymmetry	-0.118 (0.0858)	0.0354 (0.159)	-0.00313 (0.0667)	-0.0504 (0.111)
European Union	0.00907 (0.367)		1.035*** (0.337)	
GDP	-0.239* (0.123)	-0.170 (0.242)	0.102 (0.0909)	0.0740 (0.150)
Trade flows	0.262*** (0.0842)	0.232* (0.140)	-0.0397 (0.0606)	-0.0200 (0.0959)
Grubel Lloyd index	0.271 (1.107)		1.030 (0.814)	
Export orientation		-1.283** (0.520)		0.122 (0.326)
Retaliation	-6.169*** (1.632)	-6.581*** (2.322)	-0.254 (1.306)	-0.126 (1.819)
Member states	-0.0124 (0.0155)	-0.0628 (0.0402)	-0.0154 (0.0131)	0.0171 (0.0319)
Depth	0.109*** (0.0127)	0.182*** (0.0260)	0.0403*** (0.00877)	0.0419*** (0.0122)
United States		15.63 (1,281)		-0.710 (0.922)
Escape flexibility			0.618*** (0.0679)	
Regional controls	Included	Included	Included	Included
Time trend	Included	Included	Included	Included
Observations	320	132	320	132
Model	Ordered probit	Ordered probit	Ordered probit	Ordered probit

Standard errors in parentheses. Constant (cuts) omitted from the output table.

Levels of statistical significance set conventionally: *** p<0.01, ** p<0.05, * p<0.1

Data on the Grubel Lloyd index of IIT have been obtained from the research institute CEPII. Regarding export orientation, the following indicator has been created based on CEPII data: For each PTA member i , we calculated the share of one-way trade going to its PTA partners in the sum of its outgoing and incoming one-way trade with its PTA partners. We subsequently weighted the individual shares by the share of each PTA member's GDP in the PTA's aggregate GDP – assuming that the biggest country has the strongest export-oriented industry – and summed the individual values. The result was a -1 (complete domination by import-competing industries) to 1 (complete domination by export-oriented industries) indicator.

Table 4: Power asymmetries

Variables	Retaliation mechanism	Flexibility strings	Retaliation mechanism	Flexibility strings
	OECD	OECD	Template	Template
WTO disputes opposed	-0.475** (0.186)	-0.401** (0.162)	-0.445** (0.209)	-0.363** (0.183)
WTO disputes aligned	0.180 (0.177)	0.224 (0.156)	0.136 (0.206)	0.254 (0.180)
Polity2	0.0610** (0.0293)	-0.000180 (0.0238)	0.0552* (0.0331)	0.00472 (0.0281)
Veto players	-0.870 (0.828)	-0.964 (0.687)	-0.275 (0.902)	-1.679** (0.778)
WTO membership	0.0904 (0.201)	0.268 (0.174)	0.0827 (0.227)	0.348* (0.200)
WTO mission size	0.0711* (0.0369)	0.0456 (0.0318)	0.0721* (0.0400)	0.0506 (0.0348)
GDP asymmetry	-0.0236 (0.0669)	-0.0708 (0.0578)	-0.0704 (0.0763)	-0.00656 (0.0659)
GDP	-0.157* (0.0907)	0.136* (0.0778)	-0.0994 (0.100)	0.00986 (0.0877)
Trade flows	0.117** (0.0530)	-0.00119 (0.0447)	0.112** (0.0568)	0.00867 (0.0483)
Member states	-0.00926 (0.0120)	0.00766 (0.00947)	-0.00519 (0.0145)	-0.0132 (0.0121)
Depth	0.0784*** (0.00924)	0.0264*** (0.00755)	0.0741*** (0.0107)	0.0334*** (0.00886)
Escape flexibility		0.584*** (0.0634)		0.564*** (0.0709)
OECD	0.265 (0.201)	-0.0702 (0.178)		
Retaliation template			0.0408 (0.0679)	
Flexibility strings template				0.0178 (0.0696)
Regional controls	Included	Included	Included	Included
Time trend	Included	Included	Included	Included
Observations	347	347	287	287
Model	Ordered probit	Ordered probit	Ordered probit	Ordered probit

Standard errors in parentheses. Constant (cuts) omitted from the output table.
Levels of statistical significance set conventionally: *** p<0.01, ** p<0.05, * p<0.1

Table 5: General WTO litigation experience

Variables	Retaliation mechanism	Flexibility strings
WTO disputes opposed	-0.517*** (0.194)	-0.343** (0.167)
WTO disputes aligned	0.167 (0.181)	0.246 (0.159)
WTO disputes defendant activity	-0.558** (0.235)	-0.622*** (0.202)
WTO disputes complainant activity	0.437** (0.184)	0.392** (0.160)
Polity2	0.0758** (0.0303)	-0.00599 (0.0246)
Veto players	-0.729 (0.832)	-1.086 (0.696)
WTO membership	0.0321 (0.202)	0.300* (0.176)
WTO mission size	0.0876** (0.0422)	0.0645* (0.0364)
GDP asymmetry	-0.0624 (0.0719)	0.00772 (0.0623)
GDP	-0.114 (0.103)	0.0414 (0.0879)
Trade flows	0.0992* (0.0532)	0.00846 (0.0456)
Member states	0.00331 (0.0126)	-0.0156 (0.0128)
Depth	0.0757*** (0.00979)	0.0277*** (0.00832)
Escape flexibility		0.603*** (0.0642)
Regional controls	Included	Included
Time trend	Included	Included
Observations	347	347
Model	Ordered probit	Ordered probit

Standard errors in parentheses. Constant (cuts) omitted from the output table.
Levels of statistical significance set conventionally: *** p<0.01, ** p<0.05, * p<0.1

Table 6: WTO litigation experience and PTA depth

Variables	Depth overall	Depth domestic regulation	Depth issue area coverage
WTO disputes opposed	-0.0209 (0.155)	-0.0945 (0.155)	-0.0326 (0.166)
WTO disputes aligned	-0.00613 (0.143)	0.0198 (0.144)	0.175 (0.148)
Polity2	0.0720*** (0.0210)	0.0607*** (0.0213)	0.0644*** (0.0217)
Veto players	0.972 (0.592)	0.117 (0.600)	0.333 (0.615)
WTO membership	0.287* (0.159)	0.194 (0.161)	0.342** (0.166)
WTO mission size	0.0728** (0.0291)	0.0489* (0.0293)	0.0450 (0.0302)
GDP asymmetry	-0.187*** (0.0544)	-0.170*** (0.0551)	-0.182*** (0.0563)
European Union	-0.0920 (0.299)	0.0980 (0.301)	0.270 (0.309)
United States	3.079*** (0.396)	2.094*** (0.363)	2.465*** (0.406)
GDP	0.181** (0.0740)	0.109 (0.0747)	0.152** (0.0769)
Trade flows	0.0785* (0.0413)	0.0923** (0.0422)	0.131*** (0.0433)
Member states	0.0237** (0.00976)	0.0176* (0.00982)	0.0212** (0.0101)
Regional controls	Included	Included	Included
Time trend	Included	Included	Included
Observations	347	347	347
Model	Ordered probit	Ordered probit	Ordered probit

Standard errors in parentheses. Constant (cuts) omitted from the output table.
Levels of statistical significance set conventionally: *** p<0.01, ** p<0.05, * p<0.1

The three variables used for these estimations have been derived from Dür et al., 2014 as well as Allee and Elsig, 2016: *Depth overall* is an ordinal 0-48 index reflecting the depth of PTA provisions across the issue areas of goods (scope of PTA), services, investment, intellectual property rights, standards, competition policy, as well as procurement. *Depth domestic regulation* is an ordinal 0-18 index reflecting to what extent PTA provisions in the different issue areas require member states to modify domestic regulations. Finally, *Depth issue area coverage* is a composite 0-7 index indicating whether a PTA contains tangible provisions regarding each individual issue area.

Table 7: Escape flexibility as the dependent variable

Variables	Escape flexibility
WTO disputes opposed	0.263* (0.159)
WTO disputes aligned	-0.549*** (0.152)
Polity2	0.0454** (0.0221)
Veto players	2.654*** (0.630)
WTO membership	-0.240 (0.181)
WTO mission size	0.00888 (0.0310)
GDP asymmetry	-0.109* (0.0580)
European Union	-0.200 (0.343)
United States	0.0291 (0.366)
GDP	0.0192 (0.0767)
Trade flows	-0.0331 (0.0439)
Member states	0.00573 (0.0103)
Depth	0.0151* (0.00794)
Flexibility strings	0.589*** (0.0686)
Regional controls	Included
Time trend	Included
Observations	347
Model	Ordered probit

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 8: PTAs signed after the inception of the WTO only

Variables	Retaliation mechanism	Flexibility strings
WTO disputes opposed	-0.544*** (0.208)	-0.443** (0.182)
WTO disputes aligned	0.191 (0.197)	0.240 (0.176)
Polity2	0.0570* (0.0330)	0.00223 (0.0267)
Veto players	-0.195 (0.990)	-1.694** (0.848)
WTO membership	0.243 (0.228)	0.312 (0.198)
WTO mission size	0.0317 (0.0405)	0.0399 (0.0357)
GDP asymmetry	-0.00936 (0.0780)	0.0145 (0.0702)
European Union	0.0669 (0.426)	0.928** (0.386)
United States	0.513 (0.461)	-0.744* (0.411)
GDP	-0.205* (0.108)	0.0741 (0.0976)
Trade flows	0.147** (0.0608)	-0.0379 (0.0539)
Member states	-0.0111 (0.0163)	-0.0166 (0.0141)
Depth	0.0760*** (0.0106)	0.0329*** (0.00899)
Escape flexibility		0.546*** (0.0715)
Regional controls	Included	Included
Time trend	Included	Included
Observations	273	273
Model	Ordered probit	Ordered probit

Standard errors in parentheses. Constant (cuts) omitted from the output table.
Levels of statistical significance set conventionally: *** p<0.01, ** p<0.05, * p<0.1

Table 9: PTAs with full WTO membership only

Variables	Retaliation mechanism	Flexibility strings
WTO disputes opposed	-0.655*** (0.221)	-0.435** (0.183)
WTO disputes aligned	0.361* (0.205)	0.296* (0.176)
Polity2	0.0680* (0.0377)	-0.0112 (0.0306)
Veto players	-1.168 (1.277)	-3.439*** (1.068)
WTO mission size	-0.0257 (0.0521)	0.0192 (0.0453)
GDP asymmetry	-0.166* (0.0966)	-0.113 (0.0850)
European Union	-0.267 (0.593)	0.0373 (0.557)
United States	0.307 (0.509)	-0.592 (0.437)
GDP	0.225 (0.158)	0.247* (0.137)
Trade flows	-0.0467 (0.0820)	-0.0641 (0.0746)
Member states	-0.0155 (0.0292)	0.0202 (0.0277)
Depth	0.0915*** (0.0118)	0.0363*** (0.00959)
Escape flexibility		0.625*** (0.101)
Regional controls	Included	Included
Time trend	Included	Included
Observations	193	193
Model	Ordered probit	Ordered probit

Standard errors in parentheses. Constant (cuts) omitted from the output table.
Levels of statistical significance set conventionally: *** p<0.01, ** p<0.05, * p<0.1

Table 10: Maximum opposition in litigation across PTA dyads

Variables	Retaliation mechanism	Flexibility strings
WTO disputes opposed (max)	-0.534*** (0.192)	-0.337** (0.166)
WTO disputes aligned (max)	0.193 (0.179)	0.239 (0.157)
Polity2	0.0700** (0.0295)	-0.0113 (0.0239)
Veto players	-0.767 (0.826)	-1.039 (0.690)
WTO membership	0.0520 (0.201)	0.302* (0.175)
WTO mission size	0.0809** (0.0377)	0.0475 (0.0324)
GDP asymmetry	-0.0642 (0.0703)	-0.00401 (0.0606)
European Union	-0.441 (0.335)	1.027*** (0.323)
United States	0.381 (0.434)	-0.660* (0.383)
GDP	-0.0837 (0.0953)	0.0474 (0.0827)
Trade flows	0.103* (0.0528)	0.0116 (0.0453)
Member states	0.00308 (0.0128)	-0.0145 (0.0124)
Depth	0.0787*** (0.00968)	0.0323*** (0.00816)
Escape flexibility		0.579*** (0.0628)
Regional controls	Included	Included
Time trend	Included	Included
Observations	347	347
Model	Ordered probit	Ordered probit

Standard errors in parentheses. Constant (cuts) omitted from the output table.
Levels of statistical significance set conventionally: *** p<0.01, ** p<0.05, * p<0.1