

Appendix C

The gravity models for GVC-related exports by Asia-Pacific economies

Determinants of GVC-related exports by Asia-Pacific economies within and outside the region are systematically investigated in this study based on the framework suggested by Baldwin and Taglioni (2011). The focus of the study was finding effective policy strategies to strengthen the position of Asia-Pacific economies in GVC networks.

The study applies the Baldwin and Taglioni (2011) framework to developing augmented gravity models to understanding the policy impacts on GVC-related exports of final and intermediate products based on the experience of Asia-Pacific economies from 1995 to 2013.

A major distinction of the Baldwin and Taglioni (2011) gravity model from the standard benchmark is in the “mass” variable. Standard theoretical gravity is derived based on Anderson and Van Wincoop’s (2003) consumer expenditure problem. As the GDP of home and destination economies are good proxies of mass variables for the gravity model of final traded goods, mass in Anderson and Van Wincoop (2003) is:

$$mass_{ijt} = \frac{GDP_{it}GDP_{jt}}{\omega_{it}P_{jt}}$$

However, in the presence of a global production network where intermediate goods are crucial factors in trade flows, GDP might not be a good proxy as it cannot be a good representation of true consumer and producer demand shifter. The study follows Baldwin and Taglioni (2011), who suggested the alternative mass that has been adjusted for consumer demand and demand for intermediate input as follows:

$$mass_{ij} = \frac{C_{it}E_{jt}}{\omega_{it}P_{jt}}$$

where

$$C_{it} = VA_{it}^{mfg} + \sum_{j \neq o} m_{ijt}^{itm}$$

$$E_{jt} = GDP_{jt} + \sum_{i \neq o} m_{jit}^{itm}$$

$$\omega_{it} = \left(\sum GDP_{jt} \times (dist_{ij})^{1-\sigma} \right)^{\frac{1}{1-\sigma}}$$

where $\sigma = 4$

P_{jt} = GDP deflator of destination j at time t

Specification of the gravity models

In order to avoid multicollinearity in policy variables, and between policy variables and fixed effects, the gravity model of GVC-related exports is divided into two parts: (a) a gravity model with only trade-policy variables; and (b) a gravity model with, not only trade policy variables but also trade facilitation and behind-the-border factors.

For the model with only trade policy factors, most of trade policy choices are imposed by a particular economy at a specific time to specific partners. Therefore, exporter-time, importer-time and sector-time fixed effects are applied. The baseline specification is:

$$X_{ijkt}^l = \beta_0 + \beta_1 mass_{ijt} + \beta_2 T_{ijkt}^l + \beta_3 T_{jikt}^l + \beta_4 RTA_{ijt} + \beta_5 G_{ij} + \delta_{it} + \delta_{jt} + \delta_{kt} + \varepsilon_{ijkt}^l .$$

For trade facilitation and behind-the-border conditions, data are country-time specific. The model then includes fixed effects separately by reporter, partner, time and sector:

$$X_{ijkt}^l = \beta_0 + \beta_1 mass_{ijt} + \beta_2 T_{ijkt}^l + \beta_3 T_{jikt}^l + \beta_4 RTA_{ijt} + \beta_5 G_{ij} + \beta_6 F_{it} + \beta_7 F_{jt} + \delta_i + \delta_j + \delta_k + \varepsilon_{ijkt}^l$$

where

X_{ijkt}^l is the bilateral exports of product l in sector k from country i to country j in year t .

$mass_{ijt}$ is the economic mass measured under the method suggested by Baldwin and Taglioni (2011).

T_{ijkt}^l is a vector of product-variant trade-policy variables imposed by country i faced by country j related to trade in product l of sector k at time t . The set of policy variables include applied MFN tariffs and non-tariff measures.

T_{jikt}^l is a vector of the same set of policies faced by country i when exporting product l to country j at period t .

RTA_{ijt} is a dummy variable capturing the RTA relationship between country i and country j at time t .

F_{it} and F_{jt} are the vectors of behind-the-border indicators at time t of country i and country j , respectively. The vectors include indices measuring behind-the-border conditions of a country

such as availability of ICT (proxied by Internet users per 100 people), port and logistics conditions (based on ISCC) and behind-the-border conditions that reflect business environment (Doing Business – distance to frontier), are country-time specific variables.

G_{ij} is a vector includes time-invariant controlled variables as per standard gravity model, i.e., distance, contingency, and common official language.

δ_i, δ_j , and δ_k are included in the model to capture unobserved time-invariant fixed effects by country and sector levels. By adding t to the subscript, the variables become time-variant fixed effects.

Data source, variable description and expected signs

Variable	Unit	Expected signs	Source	Description
ln_xij	US dollar		WITS	Export of country i to destination j , through import flows ¹
mass	-	+	Author's calculation based on WB-WDI	See Baldwin and Taglioni, 2011
dist	Kilometer	-	CEPII	Distance between source country i and host country j
contig	-	+	CEPII	Dummy variable indicating 1 if 2 countries share common border, 0 otherwise
comlang_off	-	+	CEPII	Dummy variable indicating 1 if 2 countries share common official language, 0 otherwise
tariff_ij	1+percent	-	TRAINS through WITS download platform	Simple average tariff of country i charging on importation from country j
tariff_ji	1+percent	-	TRAINS through WITS	Simple average tariff of country j charging on importation from country i

¹ The study uses import flows of, for example, Thailand from the Republic of Korea to represent exports of the Republic of Korea to Thailand. This method solves the missing data problem, especially in small least developed economies.

Variable	Unit	Expected signs	Source	Description
			download platform	
NTM_num_ij	Number	-	Author's calculation based on WTO-ITIP	Number of NTM measures that country <i>i</i> imposes on country <i>j</i>
NTM_num_ji	Number	-	Author's calculation based on WTO-ITIP	Number of NTM measures that country <i>j</i> imposes on country <i>i</i>
RTA	-	+	de Sousa (2012)	Dummy variable indicating 1 if 2 countries have RTA, 0 otherwise
d2f_xtab_i	Score (0-100)	+	Doing Business	Ease of doing business index: distance to frontier (excluding electricity) of country <i>i</i>
d2f_xtab_j	Score (0-100)	+	Doing Business	Ease of doing business index: distance to frontier (excluding electricity) of country <i>j</i>
iscc_i	Index	+	UNCTAD	Liner shipping connectivity index of country <i>i</i>
iscc_i	Index	+	UNCTAD	Liner shipping connectivity index of country <i>i</i> / <i>j</i>
intusers_i	Users/100 people	+	WB-WDI	internet users per 100 people of country <i>j</i>
intusers_j	Users/100 people	+	WB-WDI	internet users per 100 people of country <i>j</i>

Empirical results

Table D.1. Gravity model with trade-policy variables

	Final exports	Intermediate	Intraregional (final)	Intraregional (intermediate)
Variables	(1)	(2)	(3)	(4)
ln_mass	10.97 [-1.141]	19.53** [-2.082]	8.397 [-1.341]	17.78*** [-2.618]
ln_dist	-1.229*** [-16.64]	-1.201*** [-15.46]	-1.368*** [-12.54]	-1.228*** [-10.89]
contig	0.193 [0.755]	0.210 [0.798]	-0.102 [-0.401]	-0.193 [-0.725]
comlang_off	0.373*** [3.133]	0.604*** [5.073]	0.150 [0.813]	0.385** [2.215]
ln_tariff_ij	-2.192*** [-9.214]	-3.975*** [-13.29]	-2.047*** [-3.654]	-5.024*** [-8.846]
ln_tariff_ji	-0.935*** [-3.012]	-1.703*** [-3.670]	-1.016** [-2.261]	-1.383* [-1.894]
rta	0.739*** [6.345]	0.586*** [4.884]	0.789*** [4.926]	0.731*** [4.526]
NTM_num_ij	-0.00180** [-2.573]	-0.00392*** [-4.169]	-0.00165 [-1.224]	0.000488 [0.268]
NTM_num_ji	-0.00154*** [-2.814]	-0.000738 [-1.112]	-0.00142 [-0.976]	-0.00104 [-0.589]
Constant	512.9 [1.175]	918.0** [2.140]	530.0 [1.417]	1,007*** [2.689]
Observations	91,499	82,739	23,285	22,119
R-squared	0.525	0.508	0.551	0.534
Reporter-year FE	Yes	Yes	Yes	Yes
Partner-year FE	Yes	Yes	Yes	Yes
Sector-year FE	Yes	Yes	Yes	Yes
Clustered SE	Pair	pair	pair	pair
Adjusted R-squared	0.512	0.494	0.535	0.517

Notes: *** p<0.01, ** p<0.05, * p<0.1. t-stat is in square bracket. The results are based on robust standard errors, which are not reported in this table.

Table D.2. Gravity model with trade facilitation and behind-the-border conditions

Variables	Final exports (1)	Intermediate (2)	Intraregional (final) (3)	Intraregional (intermediate) (4)
ln_mass	0.738*** [11.66]	0.346*** [4.671]	0.409*** [3.290]	0.114 [0.773]
ln_dist	-1.189*** [-15.36]	-1.205*** [-14.22]	-1.406*** [-12.37]	-1.326*** [-11.56]
contig	0.427 [1.584]	0.487* [1.678]	-0.0198 [-0.0699]	-0.0590 [-0.194]
comlang_off	0.347*** [2.710]	0.589*** [4.345]	0.173 [0.785]	0.410* [1.941]
ln_tariffj	-1.978*** [-7.964]	-3.831*** [-11.79]	-1.972*** [-3.414]	-4.875*** [-7.643]
ln_tariffji	-1.403*** [-4.361]	-2.059*** [-3.824]	-1.503*** [-3.214]	-1.777** [-2.212]
rta	0.784*** [6.710]	0.667*** [5.454]	0.993*** [6.409]	1.015*** [6.290]
NTM_num_ij	-0.00174*** [-2.653]	-0.00417*** [-4.820]	-0.00184 [-1.449]	-0.000487 [-0.294]
NTM_num_ji	-0.00147*** [-2.681]	-0.000818 [-1.229]	-0.000599 [-0.431]	-0.000244 [-0.148]
ln_intusers_i	0.192*** [4.520]	0.170*** [3.253]	0.136 [1.632]	-0.00927 [-0.0959]
ln_iscc_i	0.629*** [4.227]	0.262 [1.483]	0.697** [2.528]	0.357 [1.054]
ln_d2fxtab_i	-0.503 [-1.256]	-0.0381 [-0.0813]	-0.0508 [-0.0621]	-0.151 [-0.179]
ln_intusers_j	0.295*** [6.510]	0.238*** [4.194]	-0.102 [-1.479]	-0.00981 [-0.111]
ln_iscc_j	-0.0250 [-0.164]	-0.393** [-2.192]	-0.370 [-1.294]	-0.643* [-1.849]
ln_d2fxtab_j	0.931*** [3.987]	0.773*** [2.628]	2.858*** [3.985]	2.070** [2.249]
Constant	-21.41	-4.542 [-0.997]	-9.583 [-1.359]	8.730 [1.173]

	Final exports	Intermediate	Intraregional (final)	Intraregional (intermediate)
Variables	(1)	(2)	(3)	(4)
Observations	49,022	43,741	12,209	11,425
R-squared	0.520	0.491	0.545	0.524
Reporter FE	Yes	Yes	Yes	Yes
Partner FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes
Clustered SE	pair	pair	pair	pair
Adjusted R-squared	0.518	0.489	0.542	0.521

Notes: *** p<0.01, ** p<0.05, * p<0.1. t-stat is in square bracket. The results are based on robust standard errors, which are not reported in this table.

Table D.3. Gravity model of final exports from low-income Asia-Pacific economies

	High-income market	Non-high income market	Intraregional market (high-income)	Intraregional market (non-high income)
Variables	(1)	(2)	(3)	(4)
ln_mass	0.328 [0.984]	1.244*** [2.991]	-0.237 [-0.427]	0.482 [0.847]
ln_dist	-0.494 [-1.013]	-1.637*** [-3.624]	-1.444** [-2.218]	-1.653*** [-3.730]
contig		-0.0208 [-0.0392]		-0.0855 [-0.165]
comlang_off		3.495** [2.387]		2.561* [1.911]
ln_tariffij	5.927*** [3.661]	-0.0399 [-0.0169]	0.656 [0.217]	1.280 [0.367]
ln_tariffji	-3.460*** [-2.705]	-1.125 [-0.867]	-1.999** [-2.331]	-3.475*** [-2.729]
rta	1.732** [2.354]	0.446 [0.937]	0.740 [1.482]	0.255 [0.533]
ln_intusers_i	0.274**	-0.817***	0.426*	-0.587**

	High-income market	Non-high income market	Intraregional market (high-income)	Intraregional market (non-high income)
Variables	(1)	(2)	(3)	(4)
	[2.172]	[-3.636]	[1.914]	[-2.137]
ln_iscc_i	2.675*	9.422***	1.625	10.02***
	[1.772]	[4.585]	[0.500]	[4.175]
ln_d2fxtab_i	-4.895***	0.558	-5.868**	2.528
	[-3.900]	[0.397]	[-2.522]	[1.473]
ln_intusers_j	0.579	-0.123	0.0290	-0.0442
	[1.615]	[-0.530]	[0.0419]	[-0.176]
ln_iscc_j	0.601	-0.324	-0.490	-1.418
	[0.960]	[-0.420]	[-0.350]	[-1.344]
ln_d2fxtab_j	1.646	-0.643	8.804	1.368
	[1.283]	[-0.397]	[1.193]	[0.520]
Observations	3,041	2,008	736	1,097
R-squared	0.625	0.470	0.638	0.433
Reporter FE	Yes	Yes	Yes	Yes
Partner FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes
Clustered SE	pair	pair	pair	pair
Adjusted R-squared	0.615	0.439	0.621	0.405

Notes: *** p<0.01, ** p<0.05, * p<0.1. t-stat is in square bracket. The results are based on robust standard errors, which are not reported in this table.

Table 4. The gravity model of intermediate exports from low-income Asia-Pacific economies

	High-income market	Non-high income market	Intraregional market (high-income)	Intraregional market (non-high income)
Variables	(1)	(2)	(3)	(4)
ln_mass	0.837	-0.135	2.023	-0.0786
	[1.419]	[-0.184]	[1.665]	[-0.0781]
ln_dist	-0.839*	-2.106***	-0.589	-2.089***

	High-income market	Non-high income market	Intraregional market (high-income)	Intraregional market (non-high income)
Variables	(1)	(2)	(3)	(4)
	[-1.784]	[-5.920]	[-0.932]	[-6.928]
contig		0.980**		0.969***
		[2.356]		[2.800]
comlang_off		-0.491		-0.0186
		[-0.451]		[-0.0166]
ln_tariffij	0.406	-1.400	-3.532	-3.579
	[0.219]	[-0.445]	[-0.956]	[-0.670]
ln_tariffji	-2.262*	-1.877	-2.117*	-1.612
	[-1.884]	[-0.753]	[-1.779]	[-0.502]
rta	1.531**	-0.326	1.586**	-0.497
	[2.417]	[-0.704]	[2.580]	[-1.136]
ln_intusers_i	0.196	-0.414	-0.487	-0.835**
	[0.877]	[-1.304]	[-1.171]	[-2.540]
ln_iscc_i	-1.988	-0.0734	-0.159	-0.0824
	[-1.070]	[-0.0229]	[-0.0426]	[-0.0229]
ln_d2fxtab_i	-1.548	0.746	-1.209	3.035*
	[-1.047]	[0.404]	[-0.470]	[1.754]
ln_intusers_j	1.211**	0.0994	1.175	0.100
	[2.164]	[0.271]	[1.185]	[0.263]
ln_iscc_j	-1.368	1.637	-0.678	0.879
	[-1.613]	[1.163]	[-0.350]	[0.587]
ln_d2fxtab_j	1.418	0.929	-15.02	-2.155
	[0.779]	[0.437]	[-1.236]	[-0.648]
Observations	2,044	1,139	546	788
R-squared	0.369	0.438	0.423	0.387
Reporter FE	Yes	Yes	Yes	Yes
Partner FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes
Clustered SE	pair	pair	pair	pair
Adjusted R-squared	0.345	0.391	0.386	0.347

Notes: *** p<0.01, ** p<0.05, * p<0.1. t-stat is in square bracket. The results are based on robust standard errors, which are not reported in this table.

Table D.5. Gravity model of final exports from lower-middle income Asia-Pacific economies

	High-income market	Non-high income market	Intraregional market (high-income)	Intraregional market (non-high income)
Variables	(1)	(2)	(3)	(4)
ln_mass	0.803*** [4.876]	0.571*** [2.950]	0.129 [0.387]	0.759* [1.979]
ln_dist	-1.413*** [-10.66]	-1.003*** [-4.704]	-1.373*** [-6.690]	-1.005*** [-4.070]
contig	-0.406 [-0.465]	-0.130 [-0.354]	-1.009 [-1.426]	-0.355 [-0.922]
comlang_off	0.252 [1.119]	0.627* [1.922]	0.805* [1.990]	-0.495 [-0.913]
ln_tariffij	1.401*** [2.905]	-0.332 [-0.632]	0.431 [0.413]	-1.599 [-1.371]
ln_tariffji	-1.413*** [-2.801]	-1.805*** [-2.697]	-1.369** [-2.147]	-3.658*** [-3.842]
rta	0.612 [1.645]	1.908*** [8.130]	0.790*** [3.494]	1.798*** [7.032]
NTM_num_ij	-0.00851*** [-2.741]	-0.0156*** [-4.355]	0.00607 [0.956]	-0.0209*** [-4.245]
NTM_num_ji	-0.00226*** [-2.639]	-0.00242 [-1.494]	-0.00423 [-1.389]	-0.00155 [-0.474]
ln_intusers_i	-0.107 [-1.225]	-0.112 [-0.989]	-0.380** [-2.020]	-0.101 [-0.644]
ln_iscc_i	1.171*** [3.278]	1.224** [2.103]	0.566 [0.706]	1.616* [1.671]
ln_d2fxtab_i	-0.293 [-0.445]	-1.255 [-1.278]	0.927 [0.784]	-3.628** [-2.104]
ln_intusers_j	0.355** [2.195]	0.0459 [0.332]	-0.206 [-0.527]	-0.370** [-2.004]
ln_iscc_j	0.178 [0.540]	-0.141 [-0.339]	-1.288** [-2.195]	0.370 [0.503]
ln_d2fxtab_j	0.691 [1.521]	1.663** [2.418]	9.060** [2.601]	0.835 [0.505]
Observations	9,905	7,292	1,845	2,593

	High-income market	Non-high income market	Intraregional market (high-income)	Intraregional market (non-high income)
Variables	(1)	(2)	(3)	(4)
R-squared	0.637	0.521	0.701	0.578
Reporter FE	Yes	Yes	Yes	Yes
Partner FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes
Clustered SE	pair	pair	pair	pair
Adjusted R-squared	0.634	0.515	0.694	0.570

Notes: *** p<0.01, ** p<0.05, * p<0.1. t-stat is in square bracket. The results are based on robust standard errors, which are not reported in this table.

Table D.6. Gravity model of intermediate exports from lower-middle income Asia-Pacific economies

	High-income market	Non-high income market	Intraregional market (high-income)	Intraregional market (non-high income)
Variables	(1)	(2)	(3)	(4)
ln_mass	0.479** [2.429]	0.161 [0.693]	0.428 [1.414]	0.108 [0.285]
ln_dist	-1.256*** [-7.019]	-1.083*** [-4.124]	-0.480** [-2.511]	-0.971*** [-3.454]
contig	-0.219 [-0.173]	-0.563 [-1.046]	0.170 [0.148]	-0.378 [-0.646]
comlang_off	0.585*** [2.592]	0.118 [0.298]	0.485 [1.556]	-0.755 [-1.362]
ln_tariffij	-0.843 [-1.308]	-0.927 [-1.209]	-1.478 [-1.054]	-1.791 [-1.350]
ln_tariffji	-0.912 [-1.513]	-3.357*** [-3.420]	0.589 [0.752]	-5.255*** [-3.994]
rta	0.515** [2.057]	1.482*** [5.292]	0.160 [0.847]	1.396*** [4.779]
NTM_num_ij	-0.00464* [-1.846]	-0.00910** [-2.296]	-0.00476 [-0.946]	-0.0205*** [-3.630]

	High-income market	Non-high income market	Intraregional market (high-income)	Intraregional market (non-high income)
Variables	(1)	(2)	(3)	(4)
NTM_num_ji	0.000644 [0.709]	-0.000614 [-0.374]	0.00290 [0.884]	-0.00209 [-0.716]
ln_intusers_i	0.0371 [0.342]	-0.0673 [-0.421]	-0.193 [-1.059]	0.0409 [0.157]
ln_iscc_i	0.0507 [0.111]	0.510 [0.901]	-0.371 [-0.437]	0.872 [1.277]
ln_d2fxtab_i	-1.110 [-1.514]	-0.353 [-0.324]	-3.584*** [-2.757]	-2.369 [-1.620]
ln_intusers_j	0.295 [1.570]	0.0171 [0.120]	0.308 [0.570]	-0.152 [-0.783]
ln_iscc_j	-0.738* [-1.815]	-0.594 [-1.381]	0.177 [0.196]	-1.011 [-1.433]
ln_d2fxtab_j	1.416** [2.272]	-0.305 [-0.405]	3.761 [0.983]	2.031 [1.220]
Observations	8,760	6,085	1,782	2,367
R-squared	0.594	0.548	0.622	0.604
Reporter FE	Yes	Yes	Yes	Yes
Partner FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes
Clustered SE	pair	pair	pair	pair
Adjusted R-squared	0.590	0.541	0.613	0.596

Notes: *** p<0.01, ** p<0.05, * p<0.1. t-stat is in square bracket. The results are based on robust standard errors, which are not reported in this table.

Table D.7. Gravity model of final exports from upper-middle income Asia-Pacific economies

	High-income market	Non-high income market	Intraregional market (high-income)	Intraregional market (non-high income)
Variables	(1)	(2)	(3)	(4)
ln_mass	0.813*** [4.568]	0.852*** [4.591]	-0.0427 [-0.107]	0.352 [1.032]
ln_dist	-1.318*** [-11.54]	-1.829*** [-17.43]	-1.402*** [-8.448]	-2.508*** [-6.470]
contig	-0.0416 [-0.121]	0.0524 [0.150]	0.105 [0.253]	-0.428 [-1.161]
comlang_off	0.0325 [0.0609]	-0.0720 [-0.329]	0.552 [1.590]	0.203 [0.649]
ln_tariffij	0.126 [0.289]	1.767*** [3.278]	1.435* [1.842]	4.214*** [5.753]
ln_tariffji	-1.114 [-1.203]	-2.728*** [-3.608]	2.060* [1.703]	-3.820*** [-3.025]
rta	0.735*** [4.723]	0.216 [1.264]	0.663*** [3.509]	0.426 [1.374]
NTM_num_ij	0.000140 [0.130]	0.00321** [2.554]	-0.00224 [-0.830]	0.00299 [1.345]
NTM_num_ji	-0.00279*** [-3.021]	-0.00207 [-1.054]	-2.27e-06 [-0.000638]	0.00167 [0.359]
ln_intusers_i	0.236* [1.753]	-0.367* [-1.818]	0.517*** [2.726]	-0.331 [-0.882]
ln_iscc_i	0.540 [1.523]	-0.440 [-0.976]	0.579 [1.434]	-2.008** [-2.489]
ln_d2fxtab_i	-2.835*** [-3.186]	-2.821** [-2.436]	-2.191* [-1.901]	-3.071* [-1.671]
ln_intusers_j	0.239 [1.574]	0.187* [1.746]	-0.0976 [-0.401]	0.0410 [0.319]
ln_iscc_j	-0.491 [-1.619]	-0.0792 [-0.213]	-1.363*** [-2.805]	-0.701 [-0.954]
ln_d2fxtab_j	0.232 [0.576]	0.497 [0.803]	5.217** [2.450]	1.259 [1.025]
Observations	5,912	5,723	1,085	1,701
R-squared	0.679	0.646	0.707	0.662

	High-income market	Non-high income market	Intraregional market (high-income)	Intraregional market (non-high income)
Variables	(1)	(2)	(3)	(4)
Reporter FE	Yes	Yes	Yes	Yes
Partner FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes
Clustered SE	pair	pair	pair	pair
Adjusted R-squared	0.675	0.639	0.697	0.653

Noted: *** p<0.01, ** p<0.05, * p<0.1. t-stat is in square bracket. The results are based on robust standard errors, which are not reported in this table.

Table D.8. Gravity model of intermediate exports from upper-middle income Asia-Pacific economies

	High-income market	Non-high income market	Intraregional market (high-income)	Intraregional market (non-high income)
Variables	(1)	(2)	(3)	(4)
ln_mass	-0.0167 [-0.0709]	0.364* [1.759]	-0.891** [-2.509]	-0.630 [-1.379]
ln_dist	-1.299*** [-11.74]	-1.724*** [-11.32]	-1.340*** [-7.171]	-1.758*** [-4.181]
contig	0.682** [2.248]	-0.171 [-0.421]	0.519 [1.060]	-0.154 [-0.412]
comlang_off	0.0439 [0.108]	-0.783* [-1.948]	1.279*** [2.847]	-0.426 [-0.826]
ln_tariffij	-1.358** [-2.030]	-1.175 [-1.192]	-0.513 [-0.538]	-0.697 [-0.491]
ln_tariffji	-2.509* [-1.781]	-3.913*** [-3.304]	-0.0537 [-0.0366]	-7.328*** [-3.781]
rta	0.386** [2.285]	0.0230 [0.0893]	0.330 [1.473]	0.806** [2.256]
NTM_num_ij	0.00366** [2.537]	-0.00485*** [-2.790]	0.00743*** [3.108]	0.00246 [0.923]
NTM_num_ji	-0.00360***	-0.000366	-0.00134	0.00316

	High-income market	Non-high income market	Intraregional market (high-income)	Intraregional market (non-high income)
Variables	(1)	(2)	(3)	(4)
	[-3.029]	[-0.187]	[-0.379]	[0.732]
ln_intusers_i	0.291*	0.699***	0.316	0.220
	[1.653]	[2.948]	[0.993]	[0.519]
ln_iscc_i	-0.215	-0.291	1.045*	-0.876
	[-0.556]	[-0.531]	[1.901]	[-0.893]
ln_d2fxtab_i	-0.985	-0.152	-1.942	2.144
	[-0.931]	[-0.127]	[-1.359]	[1.122]
ln_intusers_j	0.216	0.0209	-0.245	-0.0927
	[0.956]	[0.159]	[-0.540]	[-0.450]
ln_iscc_j	-0.312	-0.526	-1.223*	-1.211
	[-0.737]	[-1.125]	[-1.715]	[-1.345]
ln_d2fxtab_j	0.374	0.459	3.677	1.895
	[0.604]	[0.680]	[1.050]	[1.207]
Observations	5,842	5,363	1,084	1,605
R-squared	0.647	0.632	0.727	0.648
Reporter FE	Yes	Yes	Yes	Yes
Partner FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes
Clustered SE	pair	pair	pair	pair
Adjusted R-squared	0.642	0.625	0.717	0.637

Notes: *** p<0.01, ** p<0.05, * p<0.1. t-stat is in square bracket. The results are based on robust standard errors, which are not reported in this table.

Table D.9. Gravity model of final exports from high income Asia-Pacific economies

	High-income market	Non-high income market	Intraregional market (high-income)	Intraregional market (non-high income)
Variables	(1)	(2)	(3)	(4)
ln_mass	0.733***	0.411**	0.233	0.156
	[5.640]	[2.499]	[1.227]	[0.536]

	High-income market	Non-high income market	Intraregional market (high-income)	Intraregional market (non-high income)
Variables	(1)	(2)	(3)	(4)
ln_dist	-1.040*** [-5.609]	-0.860*** [-4.113]	-1.157*** [-3.890]	-1.172*** [-3.433]
contig	2.559*** [3.833]	0.964 [0.943]		0.181 [0.164]
comlang_off	0.538** [2.295]	0.511* [1.650]	1.687*** [2.758]	0.489 [0.975]
ln_tariffij	-4.850*** [-6.172]	-3.648*** [-5.237]	-4.499** [-2.127]	-4.223** [-2.563]
ln_tariffji	2.719*** [3.576]	-3.289*** [-3.786]	3.170* [1.865]	-4.937*** [-3.824]
rta	-0.204 [-1.320]	1.062*** [3.203]	-0.228 [-0.630]	0.722* [1.859]
NTM_num_ij	0.0108*** [6.700]	0.00627*** [3.233]	0.00958*** [3.546]	0.00664** [2.003]
NTM_num_ji	-0.00400*** [-3.516]	-0.00552*** [-3.234]	-0.00603** [-2.400]	0.00194 [0.722]
ln_intusers_i	0.448** [2.031]	0.536** [2.375]	1.282*** [4.934]	0.636* [1.884]
ln_iscc_i	1.680*** [4.469]	1.494*** [3.467]	0.727 [1.284]	1.443** [2.424]
ln_d2fxtab_i	-5.272*** [-2.899]	-2.385 [-1.115]	1.570 [0.467]	-1.037 [-0.338]
ln_intusers_j	0.206 [1.152]	0.132 [1.315]	-0.693** [-2.598]	-0.123 [-1.020]
ln_iscc_j	-0.263 [-0.820]	-0.0187 [-0.0493]	-1.603** [-2.267]	-0.662 [-1.188]
ln_d2fxtab_j	0.589 [1.128]	0.521 [0.772]	4.672 [1.423]	2.450* [1.770]
Observations	9,694	9,590	1,552	3,065
R-squared	0.500	0.482	0.604	0.460
Reporter FE	Yes	Yes	Yes	Yes
Partner FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes

	High-income market	Non-high income market	Intraregional market (high-income)	Intraregional market (non-high income)
Variables	(1)	(2)	(3)	(4)
Clustered SE	pair	pair	pair	pair
Adjusted R-squared	0.496	0.477	0.594	0.451

Notes: *** p<0.01, ** p<0.05, * p<0.1. t-stat is in square bracket. The results are based on robust standard errors, which are not reported in this table.

Table D.10. Gravity model of intermediate exports from high income Asia-Pacific economies

	High-income market	Non-high income market	Intraregional market (high-income)	Intraregional market (non-high income)
Variables	(1)	(2)	(3)	(4)
ln_mass	0.336** [2.315]	0.177 [0.935]	0.195 [0.687]	0.131 [0.388]
ln_dist	-1.561*** [-9.613]	-1.076*** [-5.144]	-0.825*** [-3.185]	-1.657*** [-5.378]
contig	3.044*** [5.545]	0.108 [0.106]		-0.456 [-0.442]
comlang_off	0.880*** [3.820]	0.660** [1.994]	2.322*** [4.471]	0.239 [0.501]
ln_tariffij	-5.888*** [-10.20]	-6.598*** [-9.654]	-6.556*** [-5.619]	-7.246*** [-6.666]
ln_tariffji	-0.173 [-0.140]	-4.784*** [-3.282]	0.909 [0.496]	-6.028** [-2.560]
rta	0.149 [0.843]	1.266*** [4.076]	0.485 [1.530]	1.211*** [3.394]
NTM_num_ij	0.00369 [1.612]	-0.000969 [-0.275]	0.0154*** [3.708]	0.00224 [0.420]
NTM_num_ji	-0.00646*** [-4.638]	-0.00724*** [-2.950]	-0.000742 [-0.227]	-0.00284 [-0.738]
ln_intusers_i	0.0443 [0.201]	0.987** [2.424]	-0.835** [-2.645]	0.0431 [0.0687]

	High-income market	Non-high income market	Intraregional market (high-income)	Intraregional market (non-high income)
Variables	(1)	(2)	(3)	(4)
ln_iscc_i	1.652*** [4.156]	1.164** [1.997]	1.354* [1.694]	-0.412 [-0.444]
ln_d2fxtab_i	-0.218 [-0.116]	-3.769 [-1.340]	5.985* [1.792]	5.410 [1.175]
ln_intusers_j	0.282 [1.496]	0.246* [1.789]	0.0407 [0.0914]	0.0103 [0.0590]
ln_iscc_j	0.0597 [0.150]	-0.574 [-1.260]	-0.114 [-0.152]	-0.690 [-0.811]
ln_d2fxtab_j	0.741 [1.253]	0.280 [0.313]	2.901 [1.054]	2.615 [1.463]
Observations	8,993	8,324	1,498	2,898
R-squared	0.553	0.416	0.686	0.431
Reporter FE	Yes	Yes	Yes	Yes
Partner FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes
Clustered SE	pair	pair	pair	pair
Adjusted R-squared	0.549	0.409	0.677	0.421

Notes: *** p<0.01, ** p<0.05, * p<0.1. t-stat is in square bracket. The results are based on robust standard errors, which are not reported in this table.