

Workshop on Free Trade in the Asia-Pacific

Session 3 The Economic Impact of an FTAAP

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1. Conditions for a Desirable RTA

- ① Market size of the RTA: the larger the better
- ② Pre-RTA intra-regional tariff: the higher the better
- ③ Pre-RTA extra-regional tariff: the lower the better
- ④ Pre-RTA intra-regional trade share: the higher the better
- ⑤ Competitive pre-RTA industrial structure: the tougher the better
- ⑥ Complementary post-RTA industrial structure: the stronger the better
- ⑦ Pre-RTA level of economic development gap: the narrower the better
- ⑧ Geographical proximity: the closer the better

Table 1. Key Economic Indicators of APEC Economies in 2011

	Population (Million)	GDP (Current Billion US\$)	Per Capita GDP (Current US\$)	Simple Mean Applied Tariff Rate (%)**	Simple Mean MFN Applied Tariff Rate (%)**
Australia	22.6	1,379.4	60,979.0	2.8	2.8
Brunei Darussalam	0.4	16.4	40,301.2	3.8	2.5
Canada	34.5	1,736.1	50,345.4	2.9	2.7
Chile	17.3	248.6	14,394.5	4.9	6.0
China	1,344.1	7,318.5	5,444.8	7.7	9.7
Hong Kong, China	7.1	248.6	35,156.4	0.0	0.0
Indonesia	242.3	846.8	3,494.6	4.8	6.7
Japan	127.8	5,867.2	45,902.7	2.6	3.1
Korea	49.8	1,116.2	22,424.1	10.3	12.1
Malaysia	28.9	287.9	9,977.3	6.6***	8.6***
Mexico	114.8	1,153.3	10,047.1	7.4	9.0
New Zealand	4.4	159.7	36,253.9	2.5	2.1
Papua New Guinea	7.0	12.9	1,844.5	4.4	4.5
Peru	29.4	176.9	6,017.9	4.8	5.4
Philippines	94.9	224.8	2,369.5	5.3	6.3
Russian Federation	141.9	1,857.8	13,089.3	6.0	8.0
Singapore	5.2	239.7	46,241.0	0.0	0.0
Chinese Taipei	23.2*	466.4*	20,083.0*	6.0****	6.1*****
Thailand	69.5	345.7	4,972.4	11.2***	10.4***
United States	311.6	14,991.3	48,112.0	2.9	3.8
Vietnam	87.8	123.6	1,407.1	7.1	9.8
APEC (A)	2,764.5	38,817.8	22,802.6	5.0	5.7
World (B)	6,973.7	69,981.9	10,035.1	6.2	8.8
A/B (%)	39.6%	55.5%	227.2%	80.0%	64.7%

Notes: * - data from Department of Foreign Affairs and Trade, Australian Government, <http://www.dfat.gov.au/geo/index.html>; ** - year 2010; *** -year 2009; **** <https://www.apec.org>; ***** - year 2011, <http://stat.wto.org/TariffProfile/WSDBTariffPFView.aspx?Language=E&Country=TW>

Source: World Bank, World databank, <http://databank.worldbank.org/ddp/home.do?Step=1&id=4>

Table 2. Intraregional Trade Share: 2001-2010 (%)

Region	2001	2005	2007	2010
ASEAN	22.3	25.1	25.2	24.9
NAFTA	46.2	43.0	41.1	39.9
MERCOSUR	18.1	15.7	16.2	16.1
EU	66.7	66.5	66.5	64.0
APEC	71.7	69.6	67.4	67.5

Sources: WTO, International Trade Statistics 2011 (http://www.wto.org/english/res_e/statistics_e/its2011_e/its2011_e.pdf).

International Monetary Fund, Direction of Trade Statistics, 2013 CD-ROM.

Chinese Taipei Bureau of Foreign Trade, Taiwan Statistical Data Book 2012, (<http://cus93.trade.gov.tw/ENGLISH/FSCE/>).

Table 3. Complementarity of APEC Economies in 2009

Source Destination	AUS	BRN	CAN	CHL	CHN	HKG	IDN	JPN	KOR	MYS	MEX	NZL	PNG	PER	PHL	RUS	SGP	THA	USA	VNM
Australia		27	34	47	40	26	42	56	54	33	30	37	40	37	43	27	44	44	40	35
Brunei Darussalam	17		14	26	14	8	21	32	31	12	9	17	18	16	18	4	28	22	22	13
Canada	66	57		73	54	38	66	69	65	55	57	69	65	66	62	54	61	64	68	58
Chile	18	18	20		23	15	17	25	19	19	17	19	16	17	19	22	14	20	18	21
China	61	58	59	54		70	53	53	54	70	69	55	52	54	63	62	66	60	63	55
Hong Kong China	47	37	43	38	49		36	45	43	57	52	42	32	36	52	43	54	48	48	42
Indonesia	53	40	50	62	51	38		72	64	46	43	54	48	52	52	42	57	55	59	50
Japan	64	62	66	57	66	54	60		59	69	74	57	56	62	59	64	60	67	60	60
Korea	59	52	59	53	72	61	60	47		74	75	56	50	59	66	55	63	65	60	61
Malaysia	62	49	58	61	68	68	61	57	62		67	59	58	60	75	50	77	69	63	58
Mexico	18	61	76	64	70	63	59	59	63	72		70	60	64	74	61	74	68	75	62
New Zealand	34	35	37	31	30	27	31	36	31	34	33		32	31	31	38	30	33	33	36
Papua New Guinea	23	9	17	23	24	13	22	31	26	16	11	20		19	22	8	24	27	25	16
Peru	26	19	25	22	28	23	20	28	24	24	20	24	19		22	20	20	26	24	25
Philippines	50	45	50	46	58	74	43	46	50	68	59	47	39	44		53	61	53	52	48
Russia	28	20	26	40	30	14	39	47	51	29	24	31	32	33	34		38	40	33	33
Singapore	65	50	61	65	70	62	69	63	69	75	69	61	56	60	76	52		75	70	56
Thailand	71	67	68	64	58	61	60	54	56	68	73	64	65	68	64	66	61		66	65
US	78	69	78	71	67	53	70	61	61	70	79	74	63	74	64	74	63	69		71
Vietnam	51	40	49	49	41	40	46	55	46	41	39	52	47	50	46	40	44	48	54	

The complementarity index takes a value between 0 and 100, with 0 indicating no overlap and 100 indicating perfect overlap. **The simple averaged complementarity index of APEC is 47.2**, a figure not excessively high or low.

2. Economic Impact of an FTAAP CGE Model Analysis

Model

- Global Trade Analysis Project (GTAP) model: Static and Capital Accumulation CGE model
- GTAP version 7 database (2004)
- 15 sectors
- 19 APEC economies and 2 regions (EU, ROW): Brunei Darussalam and Papua New Guinea are excluded

Model

Table 6. Model Aggregation

Economies	Sectors
Australia Canada Chile China Hong Kong, China Indonesia Japan Korea Malaysia Mexico New Zealand Peru Philippines Russia Singapore Thailand Chinese Taipei United States Viet Nam	Agriculture/Fishery Food products Textile Chemical products Steel and metal products Vehicle Other Transport equipments Electronic products Machinery Other manufactures Construction Trade Transportation/Communication Business/Financial services Other services
EU 25 Rest of the World	

Scenarios

Scenario I

- Basic Scenario for *Trade Liberalization* through Tariff Elimination
- For the economic impact analysis on both the members' and non-members' economies in general as a reference value, an elimination of all tariffs on trade in goods by all 19 member economies has been assumed

Scenario II

- *(I) + Liberalization of Trade in Services* through 10% reduction of tariff-equivalent barriers in construction, distribution, transportation and telecommunication, and business and financial services

Scenario III

- *(II) + Trade Facilitation* through 5% trade cost reduction in four main areas (customs procedures, standard and conformity, business mobility, and, electronic commerce)
- With this scenario, APEC's contribution to the establishment of the infrastructure for member economies' sustainable development has been reflected

Impact: Scenario I

Table 5. Effects of an FTAAP: Scenario I (% deviations from the Base)
Tariff Elimination with Static Model

	Real GDP	Welfare	Welfare (mil. US\$)	Export	Import
19 APEC Economies	0.13	0.25	55,424	4.88	6.56
Australia	0.09	0.25	1,401	4.54	4.88
Canada	0.04	-0.07	-627	1.07	0.93
Chile	0.07	0.00	-2	-0.20	0.09
China	0.27	0.38	5,733	10.11	13.05
Hong Kong	0.00	1.67	2,419	4.03	4.15
Indonesia	0.17	-0.16	-378	5.08	6.79
Japan	0.14	0.37	14,887	6.41	8.39
Korea	0.86	1.36	8,109	6.79	9.97
Malaysia	2.45	2.69	3,029	3.73	7.22
Mexico	0.25	0.07	402	0.86	2.17
New Zealand	0.16	1.45	1,252	6.19	7.91
Peru	0.01	-0.25	-151	3.75	5.40
Philippines	0.26	0.69	519	3.69	4.86
Russia	-0.08	-0.09	-489	1.23	3.05
Singapore	0.03	1.16	1,098	0.05	0.01
Thailand	1.23	6.18	7,414	-0.03	23.09
Chinese Taipei	0.54	1.52	4,301	5.56	7.08
USA	0.01	0.03	3,520	3.63	1.91
Viet Nam	5.05	8.02	2,987	25.71	39.25
EU25	-0.04	-0.13	-14,346	-0.74	-1.48
ROW	-0.05	-0.48	-18,619	-1.72	-2.71

Impact: Scenario II

Table 6. Effects of an FTAAP: Scenario II (% deviations from the Base)
Tariff Elimination + Reduction in Tariff Equivalents of Services by 10%
with Static Model

	Real GDP	Welfare	Welfare (mil. US\$)	Export	Import
19 APEC Economies	0.20	0.36	75,621	5.12	6.88
Australia	0.23	0.44	2,501	5.26	5.69
Canada	0.17	0.09	769	1.31	1.27
Chile	0.19	0.14	117	-0.02	0.29
China	0.34	0.45	6,793	10.23	13.18
Hong Kong	0.60	2.65	3,848	5.07	5.54
Indonesia	0.47	1.84	1,590	6.98	9.01
Japan	0.21	0.45	18,097	6.71	8.89
Korea	1.17	1.68	10,023	6.93	10.18
Malaysia	2.70	3.00	3,373	3.84	7.39
Mexico	0.34	0.17	1,051	1.06	2.37
New Zealand	0.47	1.84	1,590	6.98	9.01
Peru	0.10	-0.14	-83	4.18	5.94
Philippines	0.35	0.82	615	3.78	4.99
Russia	0.03	0.03	147	1.42	3.36
Singapore	0.79	2.17	2,051	-0.07	-0.05
Thailand	1.45	6.63	7,948	-0.12	23.65
Chinese Taipei	0.73	1.75	4,950	5.71	7.25
USA	0.04	0.08	8,816	3.99	2.21
Viet Nam	5.29	8.30	3,093	25.74	39.37
EU25	-0.04	-0.14	-16,254	-0.82	-1.62
ROW	-0.05	-0.50	-19,662	-1.84	-2.89

Impact: Scenario III

Table 7. Effects of an FTAAP: Scenario III (% deviations from the Base)
Tariff Elimination + Reduction in Tariff Equivalents of Services by
10% + 5% Reduction in Trade Cost by Trade Facilitation

	STATIC MODEL					CAPITAL ACCUMULATION MODEL				
	Real GDP	Welfare	Welfare (mil. US\$)	Export	Import	Real GDP	Welfare	Welfare (mil. US\$)	Export	Import
19 APEC Economies	1.13	1.38	284,844	8.53	10.91	3.31	3.08	636,009	14.73	15.89
Australia	1.18	1.55	8,829	7.09	8.41	3.20	3.29	18,778	10.79	10.57
Canada	1.73	2.10	18,481	3.62	5.33	3.70	3.55	31,282	6.12	6.59
Chile	1.61	1.95	1,611	0.75	0.95	4.90	4.89	4,055	3.88	4.17
China	2.24	2.41	36,529	16.20	19.76	7.68	6.96	105,509	21.11	26.59
Hong Kong	3.09	6.68	9,696	6.30	7.52	11.39	13.28	19,263	13.07	13.36
Indonesia	1.73	1.60	3,736	8.46	11.31	6.22	5.70	13,288	13.65	15.56
Japan	0.74	1.05	42,037	10.30	14.03	1.78	1.86	74,021	12.98	15.71
Korea	2.99	3.76	22,440	9.93	14.23	9.47	8.76	52,299	17.07	20.09
Malaysia	7.34	9.56	10,795	5.64	10.22	19.97	17.96	20,382	17.04	18.78
Mexico	-0.06	-0.19	-1,132	-0.76	-2.77	6.53	5.94	35,959	10.24	10.51
New Zealand	1.77	3.49	3,017	8.54	12.00	7.55	8.42	7,284	15.52	16.30
Peru	0.92	0.79	482	8.04	10.96	1.78	1.48	903	9.92	12.11
Philippines	3.16	4.25	3,207	3.56	6.69	16.80	15.32	11,597	19.41	19.88
Russia	1.26	1.41	7,635	3.67	6.31	3.87	3.92	21,298	6.00	9.26
Singapore	7.20	10.56	9,963	3.97	4.82	20.55	18.82	17,765	16.25	16.59
Thailand	4.69	12.19	14,637	-4.28	30.64	34.13	27.74	33,409	47.18	50.47
Chinese Taipei	3.47	5.14	14,515	8.32	10.43	11.54	11.56	32,674	16.32	17.88
USA	0.70	0.69	73,020	9.12	6.15	1.30	1.19	126,355	10.93	7.40
Viet Nam	10.50	14.34	5,346	28.16	45.10	33.52	26.49	9,886	63.84	66.65
EU25	-0.09	-0.19	-22,142	-0.84	-2.37	-0.11	-0.09	-10,297	-1.54	-1.56
ROW	-0.06	-0.43	-16,930	-1.67	-3.36	-0.38	-0.50	-19,414	-2.36	-2.43

Comparison (Petri et al., 2012)

	Petri et al. (2012)	Kim et al.(2013a)
	GDP in 2025 (% change): dynamic effect	GDP (% change): static effect
APEC	3.48	0.13
China	3.93	0.04
Japan	4.27	0.14
Korea	6.11	0.86
Taiwan	6.31	0.54
Indonesia	2.45	0.17
Malaysia	8.90	2.45
Philippines	4.95	0.26
Thailand	4.91	1.23
Singapore	3.28	0.03
Viet Nam	21.46	5.05
Canada	1.32	0.04
US	1.31	0.01
Australia	1.84	0.09
New Zealand	2.86	0.16
Europe	-0.14	-0.04
ROW	-0.44	-0.05

Comparison (Park, 2009)

Table 3. Effects of the Proposed East Asian RTAs on Regional and Global Economies (% Deviation from the Base)

Existing RTA		Welfare (EV)	Real GDP	Exports	Imports	Bilateral Trade				
						Members (ASEAN)		Nonmembers	World	
AFTA	Members (ASEAN)	1.06	1.45	2.22	2.90	23.01		-2.84	0.15	
	Nonmembers	-0.03	-0.01	-0.05	-0.06	-2.84		0.07	-0.15	
	World	0.28	0.02	0.09	0.09	0.15		-0.15	0.08	
Overlapping RTA (Hub and Spoke)		Welfare (EV)	Real GDP	Exports	Imports	Bilateral Trade				
						Members	ASEAN	CJK	Nonmembers	World
ASEAN Hub	Members	2.54	0.30	1.81	2.33	10.31	15.55	6.56	-1.50	1.90
	ASEAN	3.77	4.78	2.59	5.22	15.55	16.32	15.24	-6.39	2.33
	CJK	-0.33	-0.23	1.47	1.05	6.56	15.24	-2.36	0.18	1.72
	Nonmembers	-0.06	-0.00	-0.12	-0.13	-1.50	-6.39	0.18	0.09	-0.24
	World	0.98	0.06	0.29	0.29	1.90	2.33	1.72	-0.24	0.24
Duplicating (Competing) RTA		Welfare (EV)	Real GDP	Exports	Imports	Bilateral Trade				
						Members	ASEAN	CJK	Nonmembers	World
AFTA vs China-Japan-Korea	Members	0.78	1.76	6.23	7.89	15.54	0.86	26.04	-3.80	1.77
	ASEAN	0.38	0.89	2.03	2.34	0.86	25.02	-9.08	-1.35	-0.48
	CJK	1.70	1.87	8.02	10.33	26.04	-9.08	62.15	-4.64	2.75
	Nonmembers	-0.16	-0.02	-0.22	-0.24	-3.80	-1.35	-4.64	0.34	-0.52
	World	0.21	0.33	1.16	1.16	1.77	-0.48	2.75	-0.52	0.95
Expansionary RTA		Welfare (EV)	Real GDP	Exports	Imports	Bilateral Trade				
						Members	ASEAN	CJK	Nonmembers	World
ASEAN+3	Members	2.33	1.86	7.10	9.01	23.12	10.66	32.04	-4.50	3.46
	ASEAN	2.69	3.77	2.28	4.25	10.66	19.02	7.22	-4.81	1.33
	CJK	1.50	1.63	9.16	11.11	32.04	7.22	57.56	-4.39	4.38
	Nonmembers	-0.18	-0.01	-0.28	-0.31	-4.50	-4.81	-4.39	0.38	-0.64
	World	0.82	0.36	1.30	1.30	3.46	1.33	4.38	-0.64	1.07
Global RTA		Welfare (EV)	Real GDP	Exports	Imports	Bilateral Trade				
						Members		Nonmembers	World	
FTAAP	Members	1.47	1.32	7.16	7.14	14.25		-3.94	4.59	
	Nonmembers	-0.24	-0.14	-0.65	-0.65	-3.94		0.79	-0.64	
	World	1.11	0.78	3.05	3.06	4.59		-0.64	2.53	

Note: In order to calculate the percentage deviations of members, nonmembers, and world as a group, each individual country's (see footnote 15 in page 9) deviations are measured and added for the corresponding group.

3. Best Practiced FTAAP

Table 8. Effects of an FTAAP on APEC as a whole:
Comparison by Models and Scenarios

		Real GDP	Welfare (Million US \$)	Export	Import
Absolute Effects (% deviations from the Base)					
Static CGE Model	Scenario I	0.13	55,424	4.88	6.56
Static CGE Model	Scenario II	0.20	75,621	5.12	6.88
Static CGE Model	Scenario III	1.13	284,844	8.53	10.91
Capital Accumulation CGE Model	Scenario III	3.31	636,009	14.73	15.89
Relative Effects to Scenario III with Static CGE Model (Ratio)					
Static CGE Model	Scenario III	1.00	1.00	1.00	1.00
Capital Accumulation CGE Model	Scenario III	2.93	2.23	1.73	1.46
Relative Effects to Scenario I with Static CGE Model (Ratio)					
Static CGE Model	Scenario I	1.00	1.00	1.00	1.00
Static CGE Model	Scenario II	1.54	1.36	1.05	1.05
Static CGE Model	Scenario III	8.69	5.14	1.75	1.66
Capital Accumulation CGE Model	Scenario III	25.46	11.48	3.02	2.42

Notes: Scenario I-Tariff elimination

Scenario II-Tariff elimination + Reduction in tariff equivalents of services by 10%

Scenario III-Tariff elimination + Reduction in tariff equivalents of services by 10% + 5% reduction in trade cost by trade facilitation.

Policy Implications

- ❖ Apply tariff elimination in goods trade under the ***legal provision of GATT Article XXIV comprehensively*** (Park and Park, 2011).
- ❖ ***Liberalize trade in services*** by reducing non-tariff barriers.
- ❖ Strengthen ***trade facilitation in all four areas***: customs procedures, standard and conformity, business mobility, and electronic commerce.
- ❖ Apply less restrictive rules of origin (ROO) and ***regime-wide ROO: Pan Asia-Pacific ROO***, Self Certification, DeMinimis, and etc. (Kim et al. 2013b and Chung et al., 2013).

Trade Facilitation and Deepening Production Networks in APEC (Chung et al., 2013)

Table 5-6. Effect of Trade Facilitation on Trade in Goods

Trade	OLS		PPML	
	(1)	(2)	(3)	(4)
$\ln(\text{GDP}_i)$	0.939 (0.016)***	0.935 (0.016)***	0.711 (0.030)***	0.696 (0.032)***
$\ln(\text{GDP}_j)$	0.919 (0.016)***	0.915 (0.016)***	0.689 (0.036)***	0.671 (0.040)***
$\ln(\text{Dist})$	-1.435 (0.037)***	-1.422 (0.038)***	-0.692 (0.050)***	-0.623 (0.046)***
Colony	0.121 (0.251)	0.115 (0.064)***	0.014 (0.208)	-0.029 (0.209)
Common Language	0.153 (0.064)**	0.157 (0.064)**	0.052 (0.095)	0.088 (0.084)
Continent	1.026 (0.160)***	1.035 (0.161)***	0.497 (0.197)**	0.552 (0.205)***
MDist	1.497 (0.092)***	1.430 (0.096)***	1.063 (0.130)***	0.630 (0.256)**
MConti	3.727 (1.424)***	3.726 (1.414)***	3.943 (1.914)**	3.638 (1.919)*
$\ln(\text{LPI}_i + \text{LPI}_j)$	7.454 (0.272)***	7.409 (0.272)***	5.184 (0.547)***	4.918 (0.493)***
$\ln(\text{LPI}_i + \text{LPI}_j)_{\text{APEC}}$		0.244 (0.052)***		0.227 (0.119)*
# of Observations	5,761	5,761	6,470	6,470
R ²	0.75	0.75	0.78	0.78

*, **, and *** indicate that the estimated coefficients are statistically significant at 10 percent, 5 percent, and 1 percent, respectively.

Trade Facilitation and Deepening Production Networks in APEC (Chung et al., 2013)

Table 5-7. Effect of Trade Facilitation on Trade in Final Goods

Final Goods	OLS		PPML	
	(5)	(6)	(7)	(8)
$\ln(\text{GDP}_i)$	0.922 (0.018)***	0.918 (0.017)***	0.755 (0.030)***	0.747 (0.030)***
$\ln(\text{GDP}_j)$	0.911 (0.017)***	0.908 (0.017)***	0.700 (0.037)***	0.686 (0.037)***
$\ln(\text{Dist})$	-1.470 (0.041)***	-1.459 (0.042)***	-0.680 (0.051)***	-0.634 (0.053)***
Colony	0.293 (0.310)	0.287 (0.310)	-0.156 (0.231)	-0.183 (0.233)
Common Language	0.160 (0.070)**	0.163 (0.070)**	0.073 (0.097)	0.100 (0.091)
Continent	1.108 (0.170)***	1.115 (0.170)***	0.566 (0.177)***	0.602 (0.180)***
MDist	1.323 (0.101)***	1.289 (0.106)***	0.428 (0.141)***	0.145 (0.246)
MConti	1.703 (1.406)	1.701 (1.399)	1.818 (1.757)	1.603 (1.747)
$\ln(\text{LPI}_i + \text{LPI}_j)$	7.303 (0.291)***	7.268 (0.292)***	4.042 (0.487)***	3.922 (0.465)***
$\ln(\text{LPI}_i + \text{LPI}_j)_{\text{APEC}}$		0.190 (0.058)***		0.155 (0.115)
# of Observations	5,618	5,618	5,691	5,691
R^2	0.72	0.72	0.76	0.76

*, **, and *** indicate that the estimated coefficients are statistically significant at 10 percent, 5 percent, and 1 percent, respectively.

Trade Facilitation and Deepening Production Networks in APEC (Chung et al., 2013)

Table 5-8. Effect of Trade Facilitation on Trade in Intermediate Goods

Intermediate Goods	OLS		PPML	
	(9)	(10)	(11)	(12)
$\ln(\text{GDP}_i)$	1.078 (0.027)***	1.069 (0.027)***	0.600 (0.052)***	0.569 (0.058)***
$\ln(\text{GDP}_j)$	1.055 (0.025)***	1.049 (0.025)***	0.678 (0.043)***	0.652 (0.053)***
$\ln(\text{Dist})$	-1.657 (0.051)***	-1.638 (0.052)***	-0.665 (0.073)***	-0.565 (0.063)***
Colony	-1.595 (0.634)**	-1.598 (0.635)**	0.539 (0.320)*	0.474 (0.321)
Common Language	0.019 (0.109)	0.025 (0.109)	-0.003 (0.165)	0.026 (0.173)
Continent	0.874 (0.202)***	0.886 (0.203)***	0.426 (0.268)	0.510 (0.301)*
MDist	1.806 (0.138)***	1.721 (0.145)***	2.534 (0.196)***	1.862 (0.336)***
MConti	5.816 (2.181)***	5.823 (2.152)***	8.871 (2.974)***	8.549 (2.977)***
$\ln(\text{LPI}_i + \text{LPI}_j)$	8.574 (0.421)***	8.507 (0.421)***	8.170 (0.967)***	7.360 (0.850)***
$\ln(\text{LPI}_i + \text{LPI}_j)_{\text{APEC}}$		0.282 (0.071)***		0.332 (0.152)**
# of Observations	4,219	4,219	5,691	5,691
R^2	0.67	0.67	0.75	0.76

*, **, and *** indicate that the estimated coefficients are statistically significant at 10 percent, 5 percent, and 1 percent, respectively.

Regime-wide Rules of Origin (ROO) in General (Kim et al., 2013b)

Table 2. Trade effect of FTA with regime-wide ROOs: % change in bilateral trade^a

	Standard log-linearized model: $\ln(T_{ijt})$					PPML: $T_{ijt} > 0$				
	Cumulation		Certification			Cumulation		Certification		
	Bilateral	Diagonal	Public	Self	De Minimis	Bilateral	Diagonal	Public	Self	De Minimis
Without 'zero' trade										
CU(γ_1)	76.3***	87.6***	59.8***	59.8***	86.5***	58.2***	60.0***	48.3***	48.3***	58.6***
FTA(γ_2)	64.5***	10.6*		23.2***	-22.9**	24.5***				
ROO(γ_3)	-35.1***	79.1***			89.3***	-15.3**	20.0**			44.2**
FTA + ROO($\gamma_2 + \gamma_3$) ^b	29.5	89.8		23.2	66.4	9.2	20.0			44.2
	Standard log-linearized model: $\ln(1 + T_{ijt})$					PPML: T_{ijt}				
	Cumulation		Certification			Cumulation		Certification		
	Bilateral	Diagonal	Public	Self	De Minimis	Bilateral	Diagonal	Public	Self	De Minimis
With 'zero' trade										
CU(γ_1)	81.1***	94.6***	69.9***	69.9***	81.3***	58.2***	59.8***	48.3***	48.3***	58.6***
FTA(γ_2)	48.9***	14.2***	39.8***	24.0***		24.4***				
ROO(γ_3)	-23.1***	61.3***			27.0***	-15.3**	19.8**			44.2**
FTA + ROO($\gamma_2 + \gamma_3$) ^b	25.8	75.5	39.8	24.0	27.0	9.1	19.8			44.2

Notes: ^aSince $\exp^{0.567} = 1.763$, an increase from zero (no membership) to one (membership) in the dummy variable raises bilateral trade by 76.3%.

^bFor the total trade effect we only consider the statistically significant estimates over 10%.

Regime-wide Rules of Origin (ROO) in FTAAP (Chung et al., 2013)

Trade Effect of FTA with Regime-wide ROOs: % Change in Bilateral Trade										
Without "Zero" Trade	Panel: $\ln(T_{ijt})$: 28,548 [#]					PPML: $T_{ijt} > 0$: 27,492 [#]				
	Cumulation		Certification		De Minimis	Cumulation		Certification		De Minimis
	Bilateral	Diagonal	Public	Self		Bilateral	Diagonal	Public	Self	
CU	77.7	87.6	62.4	59.8	87.4	57.1	60.0	54.0	48.3	56.7
	(0.116)***	(0.118)***	(0.116)***	(0.209)***	(0.119)***	(0.002)***	(0.105)***	(0.002)***	(0.002)***	(0.002)***
FTA	65.5	10.6	27.9	23.2	-22.9	23.2	6.4	23.5	5.1	-18.5
	(0.075)***	(0.058)*	(-0.234)	(0.057)***	(0.110)**	(0.002)***	(-0.124)	(-0.328)	(0.002)***	(0.003)***
ROO	-34.8	79.1	-1.9	2.8	90.2	-15.9	20.0	-9.3	9.9	41.1
	(0.075)***	(0.097)***	(-0.238)	(-0.302)	(0.130)***	(0.002)***	(0.085)**	(-0.334)	(0.015)***	(0.004)***
ROO_APEC	-18.0		-39.5	3.1	-15.1	3.7		-30.5	7.4	5.8
	(-0.226)		(0.279)*	(-0.464)	(-0.326)	(0.003)***		(0.147)**	(0.015)***	(0.003)***
With "Zero" Trade	Panel: $\ln(1+T_{ijt})$: 36,238 [#]					PPML: T_{ijt} : 32,984 [#]				
	Cumulation		Certification		De Minimis	Cumulation		Certification		De Minimis
	Bilateral	Diagonal	Public	Self		Bilateral	Diagonal	Public	Self	
CU	81.1	94.6	70.4	69.9	82.0	57.1	59.8	54.0	48.3	56.5
	(0.064)***	(0.065)***	(0.063)***	(0.063)***	(0.065)***	(0.002)***	(0.105)***	(0.002)***	(0.002)***	(0.002)***
FTA	49.0	14.2	39.8	23.9	5.0	23.1	6.4	23.5	5.1	-18.5
	(0.041)***	(0.031)***	(0.132)**	(0.030)***	(-0.056)	(0.002)***	(-0.124)	(-0.328)	(0.002)***	(0.003)***
ROO	-23.1	61.3	-11.0	24.1	27.6	-15.9	19.8	-9.3	9.9	41.1
	(0.041)***	(0.053)***	-0.134	-0.17	(0.067)***	(0.002)***	(0.085)**	(-0.334)	(0.015)***	(0.004)***
ROO_APEC	-1.1		-8.2	-21.3	-14.2	3.7		-30.5	7.4	5.8
	(-0.126)		(-0.156)	(-0.261)	(-0.184)	(0.003)***		(0.147)**	(0.015)***	(0.003)***

*, **, and *** indicate that the estimated coefficients are statistically significant at 10 percent, 5 percent, and 1 percent, respectively.

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