

Cost and Benefit Analysis of Possible Philippine Participation in the Trans-Pacific Partnership Agreement

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THE TRANS PACIFIC PARTNERSHIP (TPP) AGREEMENT:

WHAT ARE THE STAKES FOR THE PHILIPPINES?

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Romulo Hall, Philippine Institute for Development Studies

NEDA sa Makati Building

Philippines

Objectives

- To quantify the trade creation (among participating nations) and the trade diversion (from non-participating nations) effects of Trans-Pacific Partnership (TPP)
- To quantify the potential economic effects of possible Philippine participation in the TPP
 - Effects on exports
 - Effects on major sectors
 - Overall change in welfare

Method Used

- Global computable general equilibrium (CGE) model calibrated to the GTAP 8 database
- The simulation analysis focuses on:
 - Reduction in tariffs among TPP members
 - Reduction in non-tariff barriers (NTBs) among TPP members
 - Increase inflow of capital to the Philippines
- Overall protection country z imposes on imports i : $T_{i,z} = AVE_{i,z} + t_{i,z}$ where $AVE_{i,z}$ is ad-valorem equivalent (AVE) NTBs in country z on imports i ; and $t_{i,z}$ is applied tariff.

(Estimates of AVE NTBs from Kee, Nicita, and Olarreaga, 2006)

Population and GDP of TPP Member and Interested Countries

	Status	Date	2012 Population million	2012 Gross Domestic Product US\$ billion
Brunei	Original signatory	6/2005	0.4	17.0
Chile	Original signatory	6/2005	17.5	268.2
New Zealand	Original signatory	6/2005	4.4	167.3
Singapore	Original signatory	6/2005	4.8	274.7
United States	Negotiating	2/2008	313.0	15,684.8
Australia	Negotiating	10/2008	21.9	1,520.6
Peru	Negotiating	10/2008	30.3	197.0
Viet Nam	Negotiating	10/2008	89.8	141.7
Malaysia	Negotiating	10/2010	28.6	303.5
Mexico	Negotiating	10/2012	112.7	1,178.0
Canada	Negotiating	10/2012	33.7	1,821.4
Japan	Negotiating	3/2013	126.6	5,959.7
Total - TPP			783.6	27,533.9
Taiwan	Announced interest	9/2013	23.2	481.8
South Korea	Announced interest	11/2013	49.7	1,129.6
Philippines	Deciding		95.9	250.2

Destination of Philippine Merchandise Exports

	Exports, US\$ million				Ave. 2010-13
	2010	2011	2012	2013	Share (%)
Japan	7,840	8,885	9,880	11,423	18.5
United States	7,559	7,102	7,417	7,819	14.5
European Union	7,401	5,949	5,929	6,172	12.4
China	5,724	6,237	6,169	6,583	12.0
Singapore	7,319	4,279	4,867	4,014	9.9
Hong Kong	4,336	3,701	4,776	4,418	8.4
South Korea	2,243	2,237	2,882	3,126	5.1
Thailand	1,783	1,906	2,446	1,936	3.9
Taiwan	1,752	1,993	1,943	1,801	3.6
Malaysia	1,396	1,099	1,018	1,297	2.3
Indonesia	449	627	840	803	1.3
Canada	334	416	508	545	0.9
Australia	350	394	387	807	0.9
New Zealand	33	45	49	47	0.1
Others	2,977	3,435	2,989	3,187	6.1
Total	51,496	48,305	52,100	53,978	100.0
% of GDP	25.8	22.5	22.3	21.1	

Sources of Philippine Merchandise Imports

	Imports, US\$ million				Ave 20103
	2010	2011	2012	2013	Share (%)
United States	5,887	6,536	7,124	6,686	11.0
European Union	7,401	5,949	5,929	6,172	10.6
China	4,628	6,085	6,680	8,033	10.6
Japan	6,744	6,516	6,470	5,184	10.4
Singapore	5,187	4,899	4,405	4,227	7.8
Taiwan	3,676	4,209	4,855	4,879	7.4
South Korea	3,833	4,420	4,526	4,800	7.3
Thailand	3,871	3,464	3,461	3,381	5.9
Indonesia	2,295	2,459	2,767	2,709	4.3
Malaysia	2,515	2,640	2,504	2,288	4.2
Hong Kong	1,470	1,510	1,466	1,297	2.4
Australia	839	1,071	1,347	975	1.8
Canada	334	416	508	545	0.8
New Zealand	409	524	459	470	0.8
Others	5,843	9,797	9,628	10,185	14.8
Total	54,932	60,495	62,129	61,831	100.0
% of GDP	27.5	28.1	26.5	24.2	

Net Foreign Direct Investments in the Philippines (US\$ million)

						Total	Percent
	2009	2010	2011	2012	2013	2009-2013	Distribution, %
Total	1,731	-396	558	2,006	563	4,462	100.0
United States	719	229	225	554	-653	1,073	24.0
Japan	626	247	367	146	438	1,823	40.9
European Union	-13	-1,411	-292	369	61	-1,286	-28.8
ASEAN	19	44	43	-62	-42	3	0.1
ANIEs /1/	424	240	132	659	-80	1,375	30.8
South Korea	14	7	21	4	2	49	1.1
Hong Kong	408	216	100	655	-86	1,292	29.0
Taiwan	1	17	11	0	4	34	0.8
Others	-43	254	83	339	840	1,473	33.0

Estimates of Tariff and Non-Tariff Barriers

	Simple Average Tariffs			AVE of Non-Tariff Barriers /1/	
	Agriculture	Mining	Manufacturing	Agriculture	Manufacturing
Australia	0.003	0.013	0.031	0.210	0.052
New Zealand	0.001	0.016	0.023	0.254	0.084
Japan	0.050	0.003	0.031	0.345	0.043
Korea	0.540	0.028	0.065	0.262	0.040
Taiwan	0.097	0.026	0.048	0.262	0.040
Malaysia	0.069	0.037	0.052	0.423	0.181
Philippines	0.049	0.036	0.045	0.398	0.177
Singapore	0.000	0.000	0.000	0.262	0.040
Viet Nam	0.083	0.067	0.104	0.306	0.197
Indonesia	0.024	0.029	0.042	0.146	0.026
Thailand	0.124	0.037	0.096	0.087	0.017
Canada	0.008	0.007	0.033	0.127	0.021
United States	0.018	0.008	0.018	0.138	0.046
Mexico	0.068	0.091	0.090	0.266	0.126
Chile	0.027	0.030	0.035	0.113	0.038
Peru	0.052	0.073	0.079	0.146	0.055
European Union	0.029	0.008	0.026	0.345	0.057
Latin America	0.055	0.051	0.083	0.149	0.066
Africa	0.090	0.064	0.104	0.146	0.093
Rest of the World	0.084	0.053	0.096	0.430	0.040

Alternative Foreign Direct Investment Scenarios (US\$ millions)

	Actual FDI	Alternative estimated stocks (2006)		
	stock (2006)	Top 3 years	75th percentile	1/2 to 90th
ASEAN	420,025	536,993	648,178	643,649
Brunei	9,861	19,057	15,312	15,312
Cambodia	2,954	3,245	3,481	3,969
Indonesia	19,056	77,545	178,794	134,655
Lao	856	1,209	1,686	1,599
Malaysia	53,575	90,704	73,067	78,074
Myanmar	5,005	7,165	6,378	7,280
Philippines	17,120	17,849	57,364	48,757
Singapore	210,089	211,070	210,521	210,521
Thailand	68,068	68,928	101,180	104,599
Vietnam	33,451	40,221	36,395	38,883

Source: Petri, Plummer, and Zhai (2011).

Definition of Simulations (until 2024)

- Baseline
 - 2007-2013: Using actual GDP and population growth of countries and regions
 - 2014-2024: Using World Bank GDP growth and United Nations population growth projections
 - A pre-solved multifactor productivity in each country/region replicates exactly real GDP used in the baseline, both actual and projected
- No Philippine Participation in the Original TPP
 - 2007-2014: same as in baseline
 - 2015-2024:
 - Original TPP members reduce tariffs by 90% and NTBs by 20% (reduction using geometric growth method)
 - Non-TPP including the Philippines retain trade barriers

Definition of Simulations (until 2024)

- TPP + Philippines without FDI Inflow Effects in the Philippines
 - 2007-2014: same as in baseline
 - 2015-2024:
 - TPP+Philippines reduce tariffs by 90% and NTBs by 20%
 - Non-TPP excluding the Philippines retain trade barriers
- TPP + Philippines with FDI Inflow Effects in the Philippines
 - 2007-2014: same as in baseline
 - 2015-2024:
 - TPP+Philippines reduce tariffs by 90% and NTBs by 20%
 - Non-TPP excluding the Philippines retain trade barriers
 - US\$ 1 billion per year capital inflow into the Philippines

Effects of 90 and 20% Reduction in Tariffs and NTBs (diff. from baseline, US\$ billion in 2007 prices)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	Agreements within original TPP members									
World Exports	8.32	16.26	23.87	31.16	38.19	45.06	51.78	58.43	65.05	71.71
Within TPP	10.13	19.78	29.01	37.87	46.43	54.80	63.01	71.13	79.23	87.38
Non-TPP	-1.80	-3.52	-5.15	-6.72	-8.24	-9.74	-11.22	-12.70	-14.18	-15.67
World export effects	8.32	16.26	23.87	31.16	38.19	45.06	51.78	58.43	65.05	71.71
Due to tariff change	5.25	9.96	14.15	17.87	21.16	24.06	26.64	28.92	30.98	32.84
Due to NTB change	3.05	6.22	9.53	12.98	16.58	20.37	24.35	28.53	32.91	37.51
	Agreements within Original TPP + Philippines									
World Exports	8.85	17.32	25.47	33.31	40.92	48.36	55.71	62.98	70.27	77.62
Within TPP + Philippines	10.82	21.17	31.11	40.69	49.99	59.10	68.09	77.01	85.94	94.96
Non-TPP excluding Philippines	-1.97	-3.85	-5.64	-7.38	-9.07	-10.74	-12.39	-14.03	-15.67	-17.34

Effects of 90 and 20% Reduction in Tariffs and NTBs (diff. from baseline, US\$ billion in 2007 prices)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	Philippines									
	<i>No Philippine Participation</i>									
Total Exports	-0.01	-0.03	-0.06	-0.08	-0.12	-0.16	-0.20	-0.25	-0.30	-0.35
TPP	-0.03	-0.06	-0.09	-0.13	-0.16	-0.20	-0.24	-0.28	-0.33	-0.37
Non-TPP	0.02	0.03	0.04	0.04	0.05	0.05	0.04	0.04	0.03	0.02
	<i>Philippine Participation, No FDI Effects</i>									
Total Exports	0.25	0.51	0.78	1.05	1.34	1.64	1.96	2.29	2.64	3.00
TPP	0.29	0.58	0.87	1.17	1.48	1.79	2.11	2.44	2.78	3.14
Non-TPP	-0.03	-0.07	-0.09	-0.12	-0.13	-0.15	-0.15	-0.15	-0.15	-0.14
	<i>Philippine Participation and FDI Effects (US\$ 10 billion increase in 10 years)</i>									
Total Exports	0.19	0.39	0.60	0.84	1.09	1.36	1.65	1.95	2.27	2.61
TPP	0.26	0.53	0.81	1.10	1.39	1.70	2.02	2.34	2.68	3.04
Non-TPP	-0.08	-0.15	-0.21	-0.26	-0.30	-0.34	-0.37	-0.40	-0.41	-0.43
FOREX appreciation	-0.11	-0.18	-0.24	-0.28	-0.33	-0.37	-0.41	-0.45	-0.50	-0.54

Sectoral Output Effects in the Philippines, 90 and 20% Reduction in Tariffs and NTBs (% change from the baseline)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	<i>No Philippine Participation</i>									
Crops	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02
All other agriculture	0.00	0.00	0.00	0.00	0.00	-0.01	-0.01	-0.02	-0.02	-0.02
Mining	0.00	0.01	0.02	0.03	0.04	0.04	0.05	0.05	0.06	0.06
Food	0.01	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02
Textile &wearing apparel	-0.02	-0.07	-0.12	-0.18	-0.24	-0.31	-0.37	-0.43	-0.49	-0.55
Petroleum products	-0.02	-0.05	-0.07	-0.10	-0.13	-0.16	-0.19	-0.21	-0.24	-0.27
Chemical & others	0.00	0.00	-0.01	-0.02	-0.03	-0.05	-0.06	-0.08	-0.08	-0.10
Metal products	0.00	0.00	-0.01	-0.03	-0.04	-0.06	-0.08	-0.09	-0.11	-0.13
Transport & machinery	0.01	0.00	-0.01	-0.02	-0.04	-0.06	-0.08	-0.10	-0.13	-0.15
Electronic equipment	0.01	0.01	0.01	0.00	-0.01	-0.03	-0.05	-0.07	-0.09	-0.12
All other manufacturing	0.02	0.03	0.05	0.06	0.06	0.07	0.08	0.08	0.08	0.08
Utilities	-0.01	-0.02	-0.03	-0.05	-0.07	-0.08	-0.10	-0.12	-0.14	-0.15
Construction	0.00	-0.01	-0.02	-0.04	-0.06	-0.09	-0.11	-0.14	-0.17	-0.20
Services	-0.01	-0.02	-0.03	-0.05	-0.07	-0.09	-0.11	-0.13	-0.14	-0.16

	<i>Philippine Participation, No FDI Effects</i>									
Crops	-0.04	-0.07	-0.11	-0.14	-0.16	-0.18	-0.20	-0.21	-0.22	-0.23
All other agriculture	-0.02	-0.06	-0.10	-0.13	-0.16	-0.19	-0.20	-0.22	-0.23	-0.24
Mining	-0.03	-0.22	-0.47	-0.75	-1.03	-1.31	-1.58	-1.84	-2.07	-2.30
Food	-0.06	-0.13	-0.21	-0.28	-0.34	-0.40	-0.44	-0.47	-0.50	-0.52
Textile & wearing apparel	0.97	2.31	3.87	5.49	7.16	8.75	10.31	11.73	13.09	14.28
Petroleum products	0.15	0.28	0.39	0.50	0.60	0.70	0.79	0.88	0.97	1.06
Chemical & others	0.02	0.11	0.13	0.23	0.26	0.37	0.40	0.50	0.55	0.62
Metal products	-0.18	-0.44	-0.75	-1.07	-1.37	-1.66	-1.92	-2.16	-2.37	-2.56
Transport & machinery	-0.20	-0.49	-0.83	-1.18	-1.53	-1.86	-2.17	-2.47	-2.74	-3.00
Electronic equipment	0.04	0.10	0.18	0.29	0.41	0.54	0.68	0.83	1.00	1.15
All other manufacturing	-0.07	-0.15	-0.23	-0.29	-0.36	-0.40	-0.43	-0.46	-0.48	-0.50
Utilities	0.08	0.16	0.23	0.29	0.35	0.41	0.47	0.53	0.59	0.65
Construction	-0.52	-1.05	-1.56	-2.06	-2.53	-2.98	-3.39	-3.79	-4.16	-4.52
Services	0.08	0.16	0.24	0.32	0.40	0.48	0.56	0.64	0.73	0.80

Sectoral Output Effects in the Philippines, 90 and 20% Reduction in Tariffs and NTBs (% change from the baseline)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	<i>Philippine Participation, No FDI Effects</i>									
Crops	-0.04	-0.07	-0.11	-0.14	-0.16	-0.18	-0.20	-0.21	-0.22	-0.23
All other agriculture	-0.02	-0.06	-0.10	-0.13	-0.16	-0.19	-0.20	-0.22	-0.23	-0.24
Mining	-0.03	-0.22	-0.47	-0.75	-1.03	-1.31	-1.58	-1.84	-2.07	-2.30
Food	-0.06	-0.13	-0.21	-0.28	-0.34	-0.40	-0.44	-0.47	-0.50	-0.52
Textile & wearing apparel	0.97	2.31	3.87	5.49	7.16	8.75	10.31	11.73	13.09	14.28
Petroleum products	0.15	0.28	0.39	0.50	0.60	0.70	0.79	0.88	0.97	1.06
Chemical & others	0.02	0.11	0.13	0.23	0.26	0.37	0.40	0.50	0.55	0.62
Metal products	-0.18	-0.44	-0.75	-1.07	-1.37	-1.66	-1.92	-2.16	-2.37	-2.56
Transport & machinery	-0.20	-0.49	-0.83	-1.18	-1.53	-1.86	-2.17	-2.47	-2.74	-3.00
Electronic equipment	0.04	0.10	0.18	0.29	0.41	0.54	0.68	0.83	1.00	1.15
All other manufacturing	-0.07	-0.15	-0.23	-0.29	-0.36	-0.40	-0.43	-0.46	-0.48	-0.50
Utilities	0.08	0.16	0.23	0.29	0.35	0.41	0.47	0.53	0.59	0.65
Construction	-0.52	-1.05	-1.56	-2.06	-2.53	-2.98	-3.39	-3.79	-4.16	-4.52
Services	0.08	0.16	0.24	0.32	0.40	0.48	0.56	0.64	0.73	0.80

	<i>Philippine Participation and FDI effects (US\$ 10 billion increase in 10 years)</i>									
Crops	-0.04	-0.08	-0.12	-0.14	-0.16	-0.17	-0.18	-0.19	-0.19	-0.20
All other agriculture	-0.01	-0.03	-0.04	-0.05	-0.04	-0.03	-0.02	0.00	0.02	0.04
Mining	-0.04	-0.23	-0.45	-0.68	-0.89	-1.09	-1.25	-1.39	-1.51	-1.61
Food	-0.08	-0.16	-0.23	-0.30	-0.35	-0.39	-0.42	-0.44	-0.45	-0.47
Textile & wearing apparel	0.90	2.19	3.71	5.32	6.98	8.57	10.14	11.58	12.95	14.18
Petroleum products	0.14	0.28	0.42	0.56	0.70	0.85	1.00	1.15	1.30	1.45
Chemical & others	0.01	0.10	0.14	0.29	0.34	0.52	0.58	0.78	0.84	1.03
Metal products	-0.21	-0.48	-0.75	-1.00	-1.22	-1.40	-1.54	-1.65	-1.73	-1.78
Transport & machinery	-0.20	-0.44	-0.69	-0.91	-1.10	-1.27	-1.39	-1.49	-1.56	-1.60
Electronic equipment	-0.04	-0.06	-0.04	-0.01	0.06	0.13	0.22	0.31	0.42	0.53
All other manufacturing	-0.11	-0.20	-0.26	-0.28	-0.30	-0.27	-0.25	-0.19	-0.14	-0.07
Utilities	0.07	0.17	0.28	0.39	0.51	0.63	0.77	0.90	1.04	1.18
Construction	-0.26	-0.48	-0.64	-0.75	-0.81	-0.83	-0.81	-0.76	-0.68	-0.58
Services	0.07	0.18	0.30	0.44	0.59	0.74	0.91	1.07	1.24	1.40

Effects on Factor Returns in the Philippines, 90 and 20% Reduction in Tariffs and NTBs (% diff. from the baseline)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	No Philippine Participation									
Skilled wages	-0.04	-0.08	-0.12	-0.16	-0.20	-0.24	-0.27	-0.31	-0.34	-0.38
Unskilled wages	-0.04	-0.08	-0.11	-0.15	-0.19	-0.23	-0.26	-0.30	-0.33	-0.36
Returns to capital	-0.04	-0.07	-0.09	-0.11	-0.13	-0.14	-0.15	-0.16	-0.17	-0.18
Returns to land	0.01	0.02	0.01	0.00	-0.02	-0.04	-0.06	-0.09	-0.11	-0.14

	Philippine Participation, No FDI Effects									
Skilled wages	0.34	0.63	0.88	1.13	1.36	1.59	1.80	2.01	2.22	2.41
Unskilled wages	0.28	0.53	0.74	0.96	1.16	1.36	1.55	1.73	1.92	2.10
Returns to capital	0.38	0.68	0.96	1.19	1.41	1.60	1.78	1.94	2.08	2.24
Returns to land	-0.15	-0.29	-0.45	-0.61	-0.74	-0.87	-0.97	-1.06	-1.12	-1.20

	Philippine Participation and FDI effects (US\$ 10 billion increase in 10 years)									
Skilled wages	0.46	0.85	1.20	1.54	1.86	2.18	2.47	2.77	3.05	3.34
Unskilled wages	0.41	0.77	1.09	1.41	1.71	2.02	2.30	2.59	2.86	3.14
Returns to capital	0.46	0.79	1.07	1.28	1.47	1.62	1.76	1.85	1.95	2.02
Returns to land	-0.05	-0.06	-0.07	-0.05	0.00	0.07	0.16	0.27	0.40	0.53

Welfare Effects in the Philippines, 90 and 20% Reduction in Tariffs and NTBs

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
	US\$ billion									
No Participation	-0.03	-0.07	-0.11	-0.15	-0.20	-0.24	-0.29	-0.34	-0.38	-0.44
Participation, No FDI	0.34	0.67	1.00	1.33	1.67	2.01	2.36	2.72	3.09	3.46
Combined welfare effects /1/	0.37	0.74	1.12	1.49	1.87	2.25	2.65	3.05	3.47	3.90
Participation with FDI /2/	0.38	0.78	1.20	1.63	2.08	2.54	3.02	3.52	4.04	4.58
	% of GDP									
No Participation	-0.002	-0.003	-0.005	-0.007	-0.008	-0.010	-0.011	-0.012	-0.013	-0.015
Combined welfare effects /1/	0.019	0.036	0.051	0.065	0.078	0.089	0.101	0.111	0.120	0.129
Participation with FDI /2/	0.019	0.038	0.055	0.071	0.086	0.101	0.114	0.127	0.140	0.151

/1/ The sum of the opportunity cost of non-participation and the estimated effects of participation

/2/ The sum of the opportunity cost of non-participation and the estimated effects of participation with FDI effects

Conclusions and Insights

- TPP region is a huge market with 780 million people and a total GDP of US\$27.5 trillion
- TPP members are major Philippine export markets, sources of imports and investments. They are also a major source of R&D and technology in the world.
- TPP members gain from trade creation (exports increase annually starting by US\$10 billion in 2015 and increasing to US\$87 billion in 2024), while non-TPP lose from trade diversion (exports decline annually starting by US\$1.8 billion in 2015 and decreasing to US\$15.7 billion in 2024)
- The effects of the 90% reduction in tariffs dominate the 20% reduction in NTBs in the trade creation until 2022

Conclusions and Insights

- If the Philippines decides not to join TPP, the trade diversion effects are small. Philippine exports decline annually starting by US\$0.01 billion in 2015 and decreasing to US\$0.4 billion in 2024.
- If the Philippines joins TPP, the trade creation effects are larger. Philippine exports improve annually starting by US\$0.25 billion in 2015 and increasing to US\$3 billion in 2024.
- If the Philippines joins TPP and is able to attract additional FDI of US\$1 billion per year, there is currency appreciation which will lower the improvement in Philippine exports. Exports improve annually starting by US\$0.2 billion in 2015 and increasing to US\$2.6 billion in 2024.

Conclusions and Insights

- There are interesting Philippine sectoral effects
 - Philippine non-TPP participation will negatively affect 10 of the 14 sectors in the analysis
 - Philippine TPP participation will positively affect textile and wearing apparel. Only 8 of the 14 sectors in the analysis will have negative effects. Construction, being non-tradable, declines the most.
 - Although the currency appreciation of FDI inflows lowers the improvement in Philippine exports, it creates over time scale effects that reduce the negative effects of the currency appreciation on output of most of the sectors. Construction benefits the most from additional FDI inflows and currency appreciation.

Conclusions and Insights

- Factor prices decline under Philippine non-TPP participation. Factor prices improve with participation. The increase in factor prices is higher if TPP participation attracts additional FDI inflows to the Philippines.
- The negative Philippine welfare effect of non-TPP participation is small. But the opportunity loss of non-TPP participation is relatively larger. The Philippine welfare effect is highest when TPP participation comes with higher FDI inflows.

Thank you