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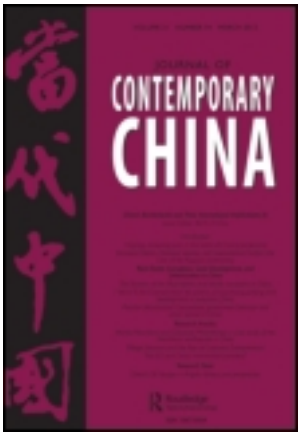

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The Trans-Pacific Partnership (TPP): the Chinese perspective

EVELYN S. DEVADASON*

The Trans-Pacific Partnership (TPP) was accepted by the Asia Pacific Economic Cooperation (APEC) as one among other pathfinders, for a comprehensive Free Trade Area of the Asia Pacific (FTAAP). Though the TPP negotiations do not include China at the moment, she has declared her interest in the TPP and is paying close attention to it. In fact, many question the likely success of the TPP with China's exclusion from it, given her prominence in the region. To provide insights for leveraging trade opportunities with the TPP economies, China's export potentials with the TPP are empirically tested and compared with those of alternative economic configurations in East Asia which China is a party to, namely the ASEAN + 1, ASEAN + 3 and ASEAN + 6. The empirical findings suggest that China's participation in the TPP will offer better market access for final goods, an important trade opportunity that is somewhat limited in partnerships through regional initiatives. Even then, the paper contends that the payoffs to China following the TPP deal remain intangible and at best speculative given the coverage (or substance) and depth of the agreement.

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I. Introduction

The Trans-Pacific Partnership (TPP) is a free trade agreement (FTA) initiative involving 12 Asia Pacific Economic Cooperation (APEC) countries from four different regions: East Asia (Malaysia, Singapore, Brunei, Vietnam, Japan), Oceania (Australia, New Zealand), Latin America (Chile, Peru) and North America (United States, Canada, Mexico). The TPP is built on the Trans-Pacific Strategic Economic Partnership (known as the P4 agreement) comprising Singapore, Chile, New Zealand and Brunei, which entered into force in 2006. The TPP was accepted by the APEC as one among other pathfinders, for a comprehensive Free Trade Area of the Asia Pacific

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(FTAAP). The other pathfinders towards a FTAAP include the ASEAN + 3 (or East Asian Free Trade Area, EAFTA) and the ASEAN + 6 (Comprehensive Economic Partnership for East Asia or CEPEA). The ASEAN + 3 comprise the ten ASEAN (Association of Southeast Asian Nations) economies, China, Japan and South Korea, whilst the ASEAN + 6 include ASEAN + 3 plus Australia, New Zealand and India.

The TPP, a twenty-first century high quality and comprehensive trans-regional agreement, is considered an attractive vehicle for 'multilateralizing regionalism'[1] with a broad-based membership. It allows for further expansion of its membership through its accession clause. The 12 participating countries accounted for US$27.5 trillion, more than half of APEC's gross domestic product (GDP) and more than 40% of global trade.[2]

Though the TPP negotiations do not include China at the moment, she has declared her interest in the TPP and is paying close attention to it. In fact, many question the likely success of the TPP with China's exclusion from it, given her prominence in the region.[3] China's membership in the TPP may in itself be a central strategic challenge for the TPP. The key question is thus: should China join the TPP?

This paper therefore seeks to assess the opportunities and challenges that prevail for China if she was to accede to the TPP. Specifically, the paper details China's trading relationships with the TPP members over the period 2000–2010. To provide insights for leveraging trade opportunities with the TPP economies, China's export potentials with the TPP are empirically tested and compared with those of alternative economic configurations in East Asia which China is a party to. The latter include the ASEAN + 1,[4] ASEAN + 3 and ASEAN + 6. Though cooperation in the latter two proposed blocs is not agreed on or entrenched at this stage,[5] there are efforts to re-energize these deals as a tactical response to the TPP. These blocs are also selected because seven (Malaysia, Singapore, Brunei, Vietnam, Japan, Australia and New Zealand) of the 12 participants in the TPP are already included in at least one of them. The export potentials are derived from an augmented panel gravity model.

1. Claude Barfield, 'The Trans-Pacific Partnership: a model for twenty-first-century trade agreements', *International Economic Outlook* no. 2, June (Washington, DC: American Enterprise Institute, 2011), available at: http://www.aei.org/article/economics/international-economy/the-trans-pacific-partnership/ (accessed 2 January 2012); Patricia Ranald, 'The Trans-Pacific Partnership agreement: contradictions in Australia and in the Asia Pacific region', *Economic and Labour Relations Review* 22(1), (2011), pp. 81–98.

2. Brock R. Williams, *Trans-Pacific Partnership (TPP) Countries: Comparative Trade and Economic Analysis* (Washington, DC: Congressional Research Service, 2013), available at: http://www.fas.org/sgp/crs/row/R42344.pdf (accessed 18 August 2013).

3. Shiro Armstrong, *Australia and the Future of the Trans-Pacific Partnership Agreement*, EABER Working Paper Series No. 71 (Australian National University, Canberra: East Asian Bureau of Economic Research, 2011), available at: http://www.eaber.org/sites/default/files/documents/EABER%20Working%20Paper%20no.%2071.pdf (accessed 2 January 2012).

4. The China–ASEAN FTA forms the world's largest FTA, comprising 1.9 billion consumers and US$4.3 trillion in trade.

5. The slow progress in the proposals for ASEAN+3 and ASEAN + 6 to date relates to the fact that some governments are concerned about the negative impact on sensitive domestic sectors of free trade with China and the deep-seated rivalry between China and Japan. The recently launched Regional Comprehensive Economic Partnership (RCEP) builds on the EAFTA and CEPEA initiatives, and is seen as a compromise between the Chinese-favoured EAFTA and the Japanese-favoured CEPEA.

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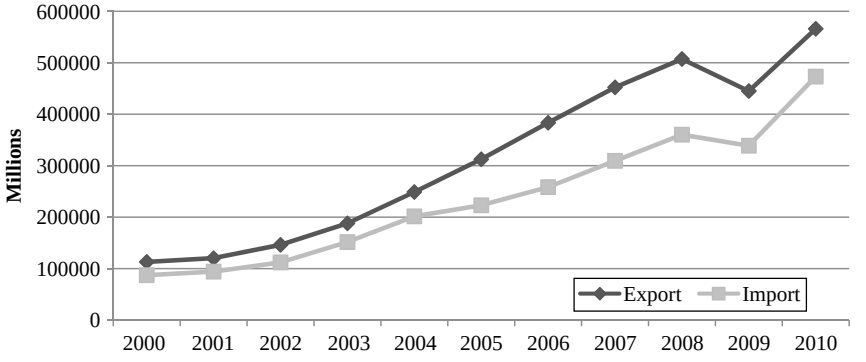

Figure 1. Trade flows between China and TPP, 2000–2010. *Source*: Calculated from UN COMTRADE.

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Finally, the paper contends with the reality of China joining the TPP by examining some of the challenges emanating from the trade-related issues that are considered to be overtly politicized in the TPP.

II. Data note: China–TPP trade patterns

The TPP economies constituted 23% of China's global trade in 2010. The TPP made up 19% and 15% of total Chinese exports and imports, respectively. China's trade with the TPP had grown steadily during the period 2000–2010, recording an average annual growth rate of 19% (Figure 1).

Overall, China is a net exporter to the TPP. However, by country, China is only a net exporter to the United States (US), Singapore, Vietnam, Canada and Mexico. In terms of trade by broad product groups with the TPP, China is a net importer of agricultural products (in the recent past) and consistently a net exporter of manufactures. This follows from the fact that most of the TPP economies are net agricultural exporters or have little domestic agriculture. The US, Canada, Australia, New Zealand, Chile and Vietnam are net agricultural exporters, whilst Singapore and Brunei have tiny agricultural sectors. The positive trade balances for manufactures for China in trade with the US, Canada, Mexico, New Zealand, Singapore and Vietnam, instead augurs well for China since manufactures represent 95% of total exports to the TPP group.

Within the TPP, the US and Japan command the largest market share in China (Table 1). Given China's position as the second largest trading economy of the Asia–Pacific and the importance of the Sino–US trading relationship, it is even more inconceivable for the US to lead the Trans-Pacific integration without China. This plausibly explains the recent invitation extended by the US to China to join the TPP.

In terms of the structure of trade, it is rather obvious that trade between China and the TPP is one of inter-industry (IT) trade (Table 1). The extremely low levels of trade overlap or two-way trade flows are noted in the case of China's trade with Chile,

Table 1. Structure of China's trade with TPP economies (%in per cent)

	2000	2005	2010	2000	2005	2010	2000	2005	2010
	Trade concentration (%)								
Partner country	Exports			Imports			Total		
Malaysia	2.27	3.39	4.20	6.28	9.01	10.66	4.02	5.73	7.14
Singapore	5.10	5.32	5.71	5.80	7.40	5.23	5.41	6.19	5.49
Vietnam	1.36	1.81	4.08	1.07	1.14	1.48	1.23	1.53	2.89
Brunei	0.01	0.02	0.06	0.07	0.09	0.14	0.04	0.05	0.10
Japan	36.88	26.88	21.38	47.59	45.02	37.35	41.55	34.43	28.65
Australia	3.04	3.54	4.81	5.76	7.26	12.92	4.22	5.09	8.50
New Zealand	0.37	0.43	0.49	0.73	0.59	0.80	0.53	0.50	0.63
Chile	0.69	0.69	1.42	1.53	2.24	3.79	1.06	1.33	2.50
Peru	0.13	0.19	0.63	0.64	1.02	1.35	0.35	0.54	0.95
Canada	2.80	3.73	3.92	4.30	3.37	3.15	3.45	3.58	3.57
Mexico	1.18	1.77	3.16	0.56	1.00	1.45	0.91	1.45	2.38
United States	46.18	52.22	50.13	25.65	21.85	21.71	37.23	39.57	37.19
	AGL index (%)								
Partner country	All products			Agricultural			Manufactures		
Malaysia	17.43	20.95	15.99	1.84	11.24	4.29	22.18	22.33	20.09
Singapore	36.09	33.57	23.03	5.99	4.49	5.40	37.75	34.50	24.01
Vietnam	1.57	4.33	8.92	0.81	1.77	6.69	2.16	5.76	9.54
Brunei	0	0	0.03	0	0	0.01	0	0.03	0.06
Japan	20.20	25.48	26.16	4.83	3.07	5.54	22.21	27.56	27.64
Australia	5.36	4.15	1.69	3.16	2.10	0.35	7.33	6.42	4.37
New Zealand	1.79	3.39	2.30	0.67	1.45	0.92	2.74	4.84	4.07
Chile	0.05	0.12	0.09	0.01	0.04	0.14	0.06	0.16	0.07
Peru	0.39	0.10	0.23	0.48	0.01	0.06	0.08	0.36	0.47
Canada	4.54	7.92	6.21	1.28	1.98	1.63	5.65	9.39	8.13
Mexico	10.94	16.78	10.93	1.28	1.12	1.30	11.83	18.59	12.69
United States	15.35	13.80	12.92	6.27	4.90	4.22	16.17	14.54	13.96

Notes: The trade concentration represents the importance of each trading partner in China's total trade with the TPP. The Aggregate Grubel–-Lloyd (AGL) index is calculated at the 5-digit SITC (Standard International Trade Classification) level, prior to aggregation.
Source: Calculated from UN COMTRADE.

Brunei and Peru. Though one of the aims of the TPP is to deepen regional integration[6] through production networks, the key question is whether the TPP can deliver this given that the existing trading patterns between China and the TPP members indicate otherwise.

6. Peter A. Petri, Michael G. Plummer and Fan Zhai, *The Trans-Pacific Partnership and Asia–Pacific Integration: A Quantitative Assessment*, East–West Center Working Paper No. 119 (Honolulu: East–West Center, 2011), available at: http://www.eastwestcenter.org/sites/default/files/private/econwp119_2.pdf (accessed 28 January 2012).

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III. Potentials for export expansion: China–TPP versus China–East Asia groupings

III.1. Model specification

This paper employs the extended gravity model, developed by Chengang *et al.*[7] based on Baltagi *et al.*,[8] to investigate the influence of simple economic factors on bilateral trade flows between China and the TPP members. Their specification is considered appropriate given that the TPP economies differ considerably from China in terms of factor endowments (capital–labour ratios). Using a panel data framework, the equation is specified as follows:

$$\begin{aligned}\ln\ TRADE_{ijt} = {} & \beta_1 \ln GDPT_{ijt} + \beta_2 SIMGDP_{ijt} + \beta_3 \ln GD_{ij} + \beta_4 \ln FDST_{ijt} \\ & + \beta_5 SIMFDS_{ijt} + \beta_6 RLFAC_{ijt} + \beta_7 DUMContig_{ij} \\ & + \beta_8 DUMLand_{ij} + \beta_9 DUMComlang_{ij} + \zeta_t + \varepsilon_{ijt} \qquad (1)\end{aligned}$$

where $TRADE_{ijt}$ is country i's (reporter) trade with country j (partner) in year t. The trade model identification above is particularly important when a gravity model is applied to a single-country, instead of to pairs of countries.[9] Since this study examines one-way bilateral trade flows, country i or the reporter country refers specifically to China. The other variables are as defined below.

GDPT = total GDP of countries *i* and *j*
SIMGDP = similarity in the levels of GDP in *i* and *j*
GD = geographical distance between *i* and *j*
FDST = total inward FDI stock of *i* and *j*
SIMFDS = similarity in inward FDI stocks in *i* and *j*
RLFAC = relative factor endowments in *i* and *j*
DUMContig = dummy variable set equal to 1 if *i* and *j* are contiguous, and 0 otherwise
DUMLand = dummy variable set equal to 1 if either *i* or *j* is a landlocked country, and 0 otherwise
DUMComlang = dummy variable set equal to 1 if *i* and *j* share a common official language, and 0 otherwise

In equation (1), β represents the coefficient estimates, ζ_t is time effects and ϵ_{ijt} is a white-noise disturbance term.

The above equation follows from a standard gravity model comprising gross domestic product (*GDP*) and geographical distance (*GD*) between countries,

7. Chengang Wang, Yimgqi Wei and Xiaming Liu, 'Determinants of bilateral trade flows in OECD countries: evidence from gravity panel data models', *World Economy* 33(7), (2010), pp. 894–915.
8. Badi H. Baltagi, Peter Egger and Michael Pfaffermayr, 'A generalized design for bilateral trade flow models', *Economics Letters* 80(3), (2003), pp. 391–397.
9. Chan-Hyun Sohn, 'Does the gravity model explain South Korea's trade flows?', *Japanese Economic Review* 56(4), (2005), pp. 417–430.

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augmented with the stocks of inward foreign direct investment (*FDS*) and relative factor endowments (*RLFAC*) on the basis that the latter two variables are closely related to a country's trade capabilities and transaction costs, respectively. The following explains the theories that underlie the selection of the explanatory variables in equation (1), beginning with the core variables of the gravity model.

The level of GDP of both reporter and partner countries is supposed to positively affect their trade. Instead of using the levels of GDP of both countries independently, the total GDP of both partners, *GDPT*, is included in the estimations to jointly capture economies of scale or the size effect. The higher the *GDPT*, the larger the trade flows, given that a greater division of labour and specialization becomes feasible under a larger scale of operation.

However, the level of GDP alone may not be sufficient to explain trade as the similarities of the two trading partners' GDPs are of no less importance. From a theoretical perspective, similarity in the level of GDP (*SIMGDP*) or convergence in income levels (or tastes) is likely to increase trade, either through the expansions in trade in manufactures or the increase in scope for product diversity.

The next core argument of the gravity model is the *GD* variable. *GD* remains important for considerations of transport costs,[10] transaction costs[11] and timeliness in delivery,[12] and is included in the estimations. Thus, the expectations are for $\beta_3 < 0$.[13]

Theoretically, foreign direct investment (FDI) contributes to intra-firm trade through global production networks and the increase in product variety in the host economy. This in turn increases the volume of trade, mainly through intra-industry trade (IIT). However, if FDI and trade are substitutes, for example if FDI is mainly channelled into domestic production of the host economy, then, it does not necessarily contribute to expansions in exports. As such, the relationship between *FDS* and international trade remains inconclusive.

The distribution of *FDS* amongst trade partners is also considered important for international trade. If the size of *FDS* is similar between trade partners, one may expect similar volumes and varieties of bilateral exports from the partner countries. Following which, the import capabilities of both partner countries are also likely to be similar, leading to expansions in bilateral trade. Conversely, if the size of *FDS* is uneven between trade partners, the country with a smaller stock, offers less export capabilities and likewise smaller import capabilities, resulting in lower expansions in bilateral trade. Based on this reasoning, a positive relationship is envisaged between *SIMFDS* and exports.

10. Peter Egger, 'A note on the proper econometric specification of the gravity equation', *Economics Letters* 66(1), (2000), pp. 25–31.

11. Jeffrey H. Bergstrand, 'The gravity equation in international trade: some microeconomic foundations and empirical evidence', *Review of Economics and Statistics* 67(3), (1985), pp. 474–481; Christopher Edmonds, Sumner L. Croix and Yao Li, 'China trade: busting gravity's bounds', *Journal of Asian Economies* 19(5–6), (2008), pp. 455–466.

12. Sawkut Rojid, 'COMESA trade potential: a gravity approach', *Applied Economics Letters* 13(14), (2006), pp. 947–951.

13. Jan Tinbergen, *Shaping the World Economy: Suggestions for an International Economic Policy* (New York: Twentieth Century Fund, 1962); Pentti Poyhonen, 'A tentative model for the volume of trade between countries', *Weltwirtschafliches Archiv* 90(1), (1963), pp. 93–99.

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Differences in factor endowments or factor intensity (capital–labour ratio or *K/L*) do matter for international trade.[14] Traditional neoclassical trade theories suggest that comparative advantages based on differences in factor endowments explain basically IT. Alternatively, newer trade theories based on economies of scale and product differentiation attribute similarities in factor endowments to trade expansions through IIT. Thus, the differences and similarities of factor endowments (apart from *SIMGDP*) are closely linked to the structure of trade. If the structure of trade is IT-based, differences in factor endowments[15] will most likely facilitate trade expansion vis-à-vis similarities in factor endowments. In this respect, the expected sign for β_6 will be positive (negative) if IT (IIT) dominates.

Finally, border or contiguity effects (*DUMContig*), landlocked effects (*DUMLand*) and a common language (*DUMComlang*) are included in the baseline estimations. Common language is considered a measure of cultural distance. When two countries speak the same language, it makes communication easy and reduces transaction costs between them.

III.2. Data description

The dataset includes China's trade with 12 countries of the TPP (Malaysia, Singapore, Brunei, Vietnam, Japan, Australia, New Zealand, Peru, Chile, Canada, Mexico and the US). The data span the period 2000–2010 (annual). The primary data on export (*X*) flows based on the Harmonized System (HS) nomenclature are derived from the UN COMTRADE database. The data on *GDP*, labour force (*L*) and gross fixed capital formation (*GFCF*)[16] are sourced from the World Bank Development Indicators and Global Development Finance (online World dataBANK). The data on *FDS* are obtained from the online database of the United Nations Conference on Trade and Development (UNCTAD), which is UNCTADstat. Data for *GD* on the basis of the average distance between the capitals for country-pairs and the information for country-pair contiguity (*DUMContig*), country-pair common language (*DUMComlang*) and landlocked (*DUMLand*) countries are extracted

14. Peter Debaere, 'Relative factor abundance and trade', *Journal of Political Economy* 11(3), (2003), pp. 589–610; Jeffrey Frankel, Ernesto Stein and Shang-Jin Wei, 'Trading blocs and the Americas: the natural, the unnatural and the supernatural', *Journal of Development Economics* 47(1), (1995), pp. 61–95; Sucharita Ghosh and Steven Yamarik, 'Are regional trading arrangements trade creating? An application of extreme bounds analysis', *Journal of International Economics* 63(2), (2004), pp. 369–395; Marianne Baxter and Michael A. Kouparitsas, *What Determines Bilateral Trade Flows?*, NBER Working Paper No. 12188 (Cambridge, MA: National Bureau of Economic Research, 2006), available at: http://cid.bcrp.gob.pe/biblio/papers/nber/2006/abril/w12188.pdf (accessed 12 December 2011); Andrzej Cieslik, 'Bilateral trade volumes, the gravity equation and factor proportions', *Journal of International Trade and Economic Development* 18(1), (2009), pp. 37–59.

15. It should be borne in mind that differences in factor endowments are also crucial in determining vertical IIT, but, to a lesser degree (see Sohn, 'Does the gravity model explain South Korea's trade flows?').

16. Using the data on GFCF, capital stock (*K*) is estimated as follows: $K_0 = GFCF_0/[\lambda gd + (1 - \lambda)gw + \delta]$ where the initial or base year is 1970; *gd* is the average growth rate of the GDP series for the country in question for the period 2000–2010; *gw* is the estimated world growth rate at 4.16% for the period 2000–2010; $\lambda = 0.25$, is a measure of mean reversion in growth rates, and $\delta = 0.05$, is the assumed rate of depreciation. The estimated capital stock is $K_t = GFCF_t + (1 - \delta)K_{t-1}$.

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from the CEPII database. The definition and measurement of the key variables used in regression analysis are summarized in Appendix Table A1.

Potentials for expansions in the Chinese exports are estimated separately for trade with the individual economies of TPP, and then compared with three groups, ASEAN, ASEAN + 3 and ASEAN + 6. The empirical estimations constitute a three-dimensional balanced panel of 264 observations (12 country-pairs × 2 product groups × 11 years; the cross-section dimension relates to the country-pair-product group) for China–TPP trade, 220 observations (10 country-groups × 2 product groups × 11 years) for China–ASEAN trade, 264 observations (12 country-groups × 2 product groups × 11 years) for China-ASEAN + 3 trade and 330 observations (15 country-groups × 2 product groups × 11 years) for China-ASEAN + 6 trade. The broad product groups[17] in the cross-sectional dimension refer to agricultural (HS01–HS24) and industrial (HS25–HS97) sectors.

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III.3. Empirical findings

Table 2 presents the results of the Random Effects (RE) models. The Breusch–Pagan Lagrange Multiplier (LM) test is employed to determine whether RE Generalized Least Squares (GLS) is appropriate and the simple pooling can be rejected. The LM statistics are overwhelmingly significant and support the appropriateness of the panel GLS model for all specifications.

The RE estimator is chosen for the following reasons, despite the fact that the Fixed Effects (FE) estimator is much more common in gravity models than the RE estimator. The RE estimator has the advantage of not requiring the exclusion of variables that are time invariant. In this case, both the distance (*GD*), border or contiguity effects (*DUMContig*), landlocked effects (*DUMLand*) and common language (*DUMComlang*) are invariant across time periods, and these variables are of considerable interest to this study. Furthermore, all of the variables exhibit more variation in the data across country-pair-product group (between variation) than over time (within variation). This is not surprising given the large number of cross-section entities (based on country-pair-product groups) used for the estimations, which are believed to have some influence on bilateral exports. As such, a FE may not work well for data with minimal within variation or for variables that change slowly over time.

Since FDI and new growth theories suggest that *GDPT* and *FDST* are likely to be endogenous, the Hausman and Taylor's estimator (henceforth HT) technique is employed. Qualitatively, the HT results in Table 2 are similar to the RE estimates. Based on the HT estimations of the gravity model, China's export potentials to the TPP, ASEAN, ASEAN + 3, ASEAN + 6 are derived. The export potentials, the ratio of predicted exports (*P*, arrived at by the estimated value of the dependent variable) to actual exports (*A*), for China's trade with the four agreements are reported in Table 3. The export potentials for the entire time span (2000–2010) are calculated on the basis

17. This level of aggregation would balance the issue of disaggregated versus aggregated analysis, in addition to reflecting the agriculture- and industry-based products. This level of aggregation also reduces the problem of a standard sample selection bias, as many more trade relationships on a product-specific level at HS2 are nonexistent. Instead, at this level of aggregation there are no observations with zero trade flows.

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Table 2. Determinants of trade flows, 2000–2010

	RE				HT			
	TPP	ASEAN	ASEAN + 3	ASEAN + 6	TPP	ASEAN	ASEAN + 3	ASEAN + 6
ln*GDPT*	1.496***	−3.340***	0.611***	0.682***	1.480***	−3.437***	0.600***	0.673***
	(0.490)	(0.825)	(0.177)	(0.169)	(0.207)	(0.828)	(0.190)	(0.180)
SIMGDP	0.003	0.066***	−0.009	−0.012*	0.002	0.069***	−0.009	−0.012**
	(0.012)	(0.021)	(0.007)	(0.006)	(0.006)	(0.024)	(0.006)	(0.006)
ln*GD*	−0.002	−0.247	−2.912**	−1.542**	−0.007	−0.261	−2.944**	−1.559*
	(0.911)	(2.429)	(1.148)	(0.657)	(0.830)	(2.758)	(1.319)	(0.855)
ln*FDST*	−0.357	−1.730	−0.756	0.295	−0.353	−1.765	−0.736	0.322
	(0.340)	(1.301)	(1.128)	(0.464)	(0.207)	(1.112)	(1.031)	(0.582)
SIMFDS	0.020*	0.021*	0.014	0.013**	0.020**	0.022**	0.013	0.012*
	(0.011)	(0.011)	(0.012)	(0.007)	(0.008)	(0.011)	(0.011)	(0.007)
RLFAC	0.541*	−0.271**	0.130	0.172**	0.543***	−0.283**	0.138	0.181**
	(0.320)	(0.112)	(0.093)	(0.083)	(0.158)	(0.106)	(0.084)	(0.075)
DUMContig	2.006	1.554	−1.351	−0.623	1.990	1.580	−1.393	−0.650
	(1.980)	(1.567)	(1.279)	(1.158)	(2.088)	(1.537)	(1.430)	(1.193)
DUMComlang	1.646	2.176*	1.948*	1.047	1.634	2.180*	1.959	1.051
	(1.279)	(1.205)	(1.048)	(1.026)	(1.416)	(1.268)	(1.364)	(1.296)
DUMLand	−	−3.957	−2.709	−3.346	−	−3.954**	−2.688	−3.338*
		(2.817)	(2.657)	(2.731)		(1.749)	(1.959)	(1.866)
Constant	−15.013	158.246***	45.304	5.450	−14.587	161.990***	45.312	5.120
	(14.041)	(45.731)	(33.445)	(15.549)	(10.844)	(42.591)	(29.939)	(18.300)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. of observations	264	220	264	330	264	220	264	330
No. of groups	24	20	24	30	24	20	24	30
R^2 overall	0.466	0.489	0.379	0.299				
Wald test	1,832.96	755.41	614.55	987.41	1,675.20	717.53	706.34	1,114.24
Breusch–Pagan LM test	1,225.70	1,001.33	1,109.52	1,489.02				

Notes: The figures in parentheses for the RE model are the standard errors, adjusted for clustering on country-pair-product group.
*** Significant at 1%, ** significant at 5% and * significant at 10%.

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Table 3. Potentials for export expansion

	Agriculture		Industry			Agriculture		Industry	
TPP	2000–2005	2006–2010	2000–2005	2006–2010	ASEAN	2000–2005	2006–2010	2000–2005	2006–2010
Malaysia	1.016	1.043	0.916	0.921	Malaysia	1.064	1.080	0.959	0.954
Singapore	1.115	1.155	0.942	0.947	Singapore	1.077	1.101	0.909	0.903
Brunei	1.275	1.291	1.108	1.074	Thailand	1.037	1.023	0.892	0.890
Vietnam	1.066	1.081	0.933	0.940	Indonesia	1.006	1.019	0.900	0.901
Japan	0.974	0.991	0.891	0.893	Philippines	1.013	1.015	0.902	0.899
Australia	1.074	1.077	0.902	0.910	Brunei	1.230	1.247	1.068	1.037
New Zealand	1.139	1.134	0.946	0.961	Cambodia	1.129	1.165	0.945	0.942
Chile	1.209	1.150	0.901	0.924	Laos	1.125	1.157	0.894	0.889
Peru	1.220	1.166	0.919	0.901	Myanmar	1.068	1.079	0.927	0.913
Canada	1.060	1.063	0.910	0.908	Vietnam	1.090	1.073	0.954	0.934
Mexico	1.081	1.056	0.896	0.891					
United States	1.012	1.003	0.857	0.852					

	Agriculture		Industry			Agriculture		Industry	
ASEAN + 3	2000–2005	2006–2010	2000–2005	2006–2010	ASEAN + 6	2000–2005	2006–2010	2000–2005	2006–2010
Malaysia	1.048	1.057	0.945	0.934	Malaysia	1.036	1.046	0.934	0.923
Singapore	1.098	1.120	0.928	0.918	Singapore	1.108	1.136	0.936	0.932
Thailand	1.046	1.026	0.899	0.893	Thailand	1.058	1.041	0.910	0.906
Indonesia	0.919	0.938	0.822	0.829	Indonesia	0.956	0.981	0.855	0.867
Philippines	1.042	1.044	0.927	0.925	Philippines	1.036	1.040	0.922	0.922
Brunei	1.317	1.308	1.144	1.089	Brunei	1.347	1.337	1.170	1.112
Cambodia	1.214	1.246	1.016	1.088	Cambodia	1.225	1.259	1.025	1.018
Laos	1.128	1.153	0.897	0.886	Laos	1.128	1.154	0.896	0.887
Myanmar	1.112	1.142	0.964	0.966	Myanmar	1.178	1.207	1.022	1.021
Vietnam	1.025	1.010	0.896	0.879	Vietnam	1.049	1.035	0.918	0.901
South Korea	1.069	1.087	0.965	0.959	South Korea	1.019	1.048	0.928	0.925
Japan	0.978	0.992	0.895	0.894	Japan	0.972	0.986	0.890	0.888
					New Zealand	1.115	1.091	0.926	0.925
					Australia	1.013	1.010	0.851	0.853
					India	1.077	1.084	0.875	0.857

Source: The predicted (*P*) values are derived from the HT estimates in Table 2.

of the average[18] values of *P* and *A*. If the value of *P*/*A* exceeds one, then there is the potential for the expansion of exports with the respective country.

The combined total size of China with her trading partners positively affects the volume of trade activity. The coefficient of the product of GDPs is undeniably high for China–TPP trade flows relative to China–East Asia groupings, indicating that an increased size has a more than proportional effect on exports for the former partnership. One plausible reason why the increase in bilateral trade volume is more than proportionate to the increase in GDP is the fact that China's trade with the TPP economies relative to the ASEAN + 3 and ASEAN + 6 depends more on exporting quantity-based final products that are sensitive to overall market size. This relates to the existing structure of trade, which is the lack of trade overlap between China and the TPP economies, as illustrated previously in Table 1. Further, partnership with ASEAN + 3 (or even ASEAN + 6), particularly with South Korea, entails greater competition in high-technology exports, that may outweigh size effects.

The coefficient estimate on the export impact of *RLFAC* further explains the underlying IT structure between China and the TPP members. It is posited that comparative advantage based on differences in factor endowments is most likely to explain trade behaviour between China and the TPP given the significant positive impact of *RLFAC* on trade. Likewise, positive coefficient estimates for *RLFAC* are also noted in the case of China's trade with ASEAN + 3 (albeit insignificant) and ASEAN + 6. The lack of trade dependency on regional economies such as South Korea, and the positive influences of differences in factor endowments for export expansion between China and ASEAN + 6, bring to the fore possible untapped trade potentials with northeast Asia. Thus, the TPP may not be the only avenue for China to diversify her markets but the region-wide (beyond Southeast Asia) ASEAN + 3 and ASEAN + 6 may offer alternative strategic forms of viable trade cooperation.

How do the above trading relationships between China and the TPP translate into trade potentials for the former? Based on Table 3, potentials[19] appear to exist for expansions in agricultural exports to TPP economies (with the exception for Japan) vis-à-vis industrial goods. Looking back at the data on export product concentration of China's trade with the TPP members, the above results on export potentials can be explained by the small shares of agricultural products in existing export flows. In contrast to exports of agricultural products, China's actual exports of industrial products to the TPP have only marginally exceeded the predicted level ($P/A < 1$), with the exception of Brunei. Interestingly, the magnitude of China's industrial export expansions is lowest for trade with the US, followed by Mexico and Japan. This implies that China is overtrading with these economies; this result is not surprising given that these three countries constitute

18. The average export potentials for the sub-periods chosen represent the yearly export potentials as they do not seem to change significantly.

19. Given the nature of dynamism of trade potentials, that is they change over time, they emerge, evolve or disappear, the export potentials with China and the TPP are compared over two sub-periods, 2000–2005 and 2006–2010. The average export potentials remain fairly robust for the different sub-periods, implying some form of stability with the passage of time.

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substantial export market shares for China (see data on export market concentration in Table 1).

Following which, it can be inferred that the Chinese potentials for augmenting exports to the TPP economies rest on the agricultural sector. However, strong conclusions on trade potentials cannot be solely based on the predicted and actual trade flows. For example, Beijing's unwillingness to open its agricultural sectors to New Zealand and Australia[20] is already a telling factor that this could constitute a major hurdle to China negotiating any single-undertaking agreement such as that of the TPP. Pressure from domestic interest groups in the farm sector has constrained the pace of trade liberalization in agriculture, thereby influencing the scope and depth of China's FTAs. Further, the analysis of China's decision to join the TPP is incomplete without considering China's FTA diplomacy[21] and other strategic considerations, particularly China's motives for pursuing regional trade liberalization or any expanded FTA.

IV. Regional role and attitude towards TPP: Chinese perspective

To assess the Chinese attitude towards TPP, one has to identify with how regional relations are understood in China. Economic integration in Asia is largely market-driven and the expansion of trade in parts and components is achieved through the development of regional production networks or production fragmentation. Despite being a latecomer in the international division of labour in Asia, China has emerged as a large final assembler positioned very much at the centre of the regional production networks.[22] China's processed exports comprise a high content of imported Asian goods, confirming that production networks are indeed a regional process. China is therefore considered a catalyst to this development approach in Asia.[23] The priority in Asia now is to deepen integration and increase the density of networks with the participation of least-developed economies and the establishment of new supply chains to close the development gaps between nations. Underpinning this form of trade cooperation, regional institutional building in Asia has been defined primarily by a consensus decision-making process, consultative procedures, voluntarism and non-interference in member states' internal affairs.[24] The Asian style of integration, 'soft regionalism', is also considered somewhat flexible and follows an incremental path.

20. Ka Zeng, 'Multilateral versus bilateral and regional trade liberalization: explaining China's pursuit of free trade agreements (FTAs)', *Journal of Contemporary China* 19(66), (2012), pp. 635–652.

21. Wen Jin Yuan, *The Trans-Pacific Partnership and China's Corresponding Strategies*, Freeman Briefing Report (Washington, DC: Center for Strategic and International Studies, June 2012), available at: http://csis.org/files/publication/120620_Freeman_Brief.pdf (accessed 13 January 2013).

22. Francoise Nicolas, 'De facto and de jure regional economic integration in East Asia: how do they interact', *Singapore Economic Review* 55(1), (2011), pp. 7–25.

23. Lok Sang Ho and John Wong, eds, *APEC and the Rise of China* (Singapore: World Scientific, 2011), pp. 1–12.

24. Suisheng Zhao, 'China's approaches toward regional cooperation in East Asia: motivations and calculations', *Journal of Contemporary China* 20(68), (2011), pp. 53–67; Mark Beeson and Fujian Li, 'Charmed or alarmed? Reading China's regional relations', *Journal of Contemporary China* 21(73), (2012), pp. 35–51.

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The TPP agenda, which currently includes a majority of Asian participants, ironically appears to disconnect with the regional initiatives for the following reasons. First, the TPP does not include China, which is a powerhouse central to the existing regional trading relationships. Arguably, China's positioning in Asia may not represent the centre–periphery relationships in the traditional sense of hierarchy, but she is said to occupy a geographically central position.[25] Second, the TPP is unfortunately not pointed in the direction of the soft Asian integration style. Though some question this approach on the grounds that it may constrain instead of consolidate China's relations with her Asian partners in the long run, it is maintained that this is a preferred approach shared by China and many East Asian countries. Therefore, the TPP still appears to be in conflict with the pre-existing links that have been established and at risk of attaining the long-term goal of an FTAAP.

The success of regional integration (in a wider context based on the TPP) is likely to be riddled with difficulties without the cooperation of China. China's role in Asia is clearly rooted, with the ASEAN + 1 and other potential economic configurations, namely the ASEAN + 3 and the ASEAN + 6. Six of the nine participants of the TPP are party to at least one of the afore-mentioned blocs. In fact, the existing FTAs already link many of the TPP partners with China, either at bilateral or sub-regional levels. For example, China has concluded agreements with ASEAN10, Singapore, New Zealand, Chile and Peru and is engaged in negotiations with Australia. Therefore China has access to these markets through other agreements. Such pre-existing links also suggest that there will be, at best, moderate *economic* benefits for China in joining the deal. Therefore, the American engagement in Asia through the TPP, though it may exacerbate China's concerns about 'containment',[26] is not likely to isolate, or pose a threat and undermine China's regional identity, especially given her leverage vis-à-vis the US through East Asian cooperation. Having said that, China's regional rise is not devoid of problems. China's relations with some of her neighbours are recently strained over the disputed maritime territories in the South China Sea. This in turn is encouraging some form of 'soft balancing'[27] of these Asian neighbours as they seek to hedge against China's rise by seeking US leadership.[28] These countries seek the US presence in Asia as a balancing power, but certainly not as a primary power.

The pursuit of 'soft balancing' has, however, not undermined the pivotal influence of China within the region, given the growing trade interdependency. Thus, neighbouring Asian countries are compelled to cultivate good relations,[29] and in some instances recalibrate their relations with China. The strategic importance of China is further reflected by Japan's approach to the TPP membership. Japan cajoled China that it would move forward on a bilateral FTA with China at the same time that it moves to

25. *Ibid.*, p. 57.

26. Ann Capling and John Ravenhill, 'Multilateralising regionalism: what role for the Trans-Pacific Partnership Agreement?', *The Pacific Review* 24(5), (2011), pp. 553–575.

27. 'Soft balancing' can be considered part of the hedging strategy in response to China's rise for the middle and smaller powers of the Asian region, though the emphasis may be on the latter; see Derek McDougall, 'Responses to "rising China" in the East Asian region: soft balancing with accommodation', *Journal of Contemporary China* 21(73), (2012), pp. 1–17.

28. Suisheng Zhao, 'Shaping the regional context of China's rise: how the Obama administration brought back hedge in its engagement with China', *Journal of Contemporary China* 21(75), (2012), pp. 369–389.

29. Beeson and Li, 'Charmed or alarmed?', p. 46.

join the TPP negotiations. The assertion made by Japan is a clear indication of China's influence over the region and Japan's own stake in the Chinese economy, given that China has already emerged as Japan's top trading partner. Despite the fact that Japan considers China a powerful rival and has long established ties with the US to hedge against China's rise,[30] Japan has to make a calculated move when joining the TPP since a substantial portion of its offshore manufacturing output is located in China.

Though the TPP may play out as an attempt to deconstruct East Asian cooperation and reconstruct Trans-Pacific cooperation, the growing China–Japan interactions suggest otherwise, that is the potential for the creation of a powerful Asian trading bloc. The China–Japan relationship, though fragile due to the ups and downs of politics, plays a major role in the East Asian economic interdependence, following from the expansion of regional production networks. Further, South Korea's recent interest in integration with the East Asian region augurs well for the realization of pushing for broader regionalism beyond that which is established around ASEAN. The trilateral partnership between China, Japan and South Korea is important as these three economies account for 90% of East Asian GDP. Advancing the importance of the trilateral partnership in a larger process of regional cooperation is the launch of the negotiations of the Regional Comprehensive Partnership Agreement (RCEP) in the 21st ASEAN Summit. The RCEP—which links 16 Asia Pacific countries, the ten ASEAN countries plus China, Japan, South Korea, India, Australia and New Zealand—accounts for a combined GDP of US$17 trillion and approximately 40% of world trade. Both the RCEP and the TPP are not mutually exclusive arrangements. However, the ASEAN-led RCEP is assumed to take a more Asian approach of gradual liberalization, and therefore may be considered a more attractive alternative to the TPP. RCEP may serve as a suitable arrangement to deepen production networks and trade in goods as the templates for liberalization are tailored to serve the emerging markets. From the Chinese perspective, the RCEP is definitely an attractive option for the following reasons: first, it offers access to markets in Japan, India and Australia, otherwise not possible as previous attempts to establish FTAs with these three countries have not borne fruit. Second, it is a convenient way for China to exclude the US in the regional-building of Asia. China avoids direct confrontation with the US since the RCEP is ASEAN-led. Notwithstanding that, it is worth mentioning here that the US is not completely disengaged from Asia. The US–ASEAN Expanded Economic Engagement or the E3 initiative, launched in November 2012, provides for the US to enhance trade flows and supply chains throughout ASEAN.

Despite the positive developments within the region at large, the pressing concern for China is the exclusion from the preferential market access accorded to TPP members to the US. Petri *et al.*[31] project that the trade diversion effects of the TPP would fall mainly on China, though the effects may be small.[32] China is expected to face some competition for US market access from small member economies of the TPP, such as Vietnam. The Chinese fears in terms of market access are founded for

30. Zhao, 'China's approaches toward regional cooperation in East Asia', p. 59.
31. Petri *et al.*, 'The Trans-Pacific Partnership and Asia–Pacific integration', p. 35.
32. Chunding Li and John Whalley, *China and the TPP: A Numerical Simulation Assessment of the Effects Involved*, NBER Working Paper No. 18090 (Cambridge, MA: National Bureau of Economic Research, 2012), available at: http://www.nber.org/papers/w18090.pdf?new_window=1 (accessed 6 February 2012).

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the following reasons: first, existing studies reveal that the TPP would only benefit members.[33] Second, just like the effects of the TPP on non-members, negative effects of the EAFTA on non-members such as the US are also conceivable if the EAFTA crystallizes. Empirical studies report that the US would stand to lose US$25 billion in exports and US$5 billion in the form of welfare following the EAFTA.[34] Apart from market access, the Chinese are also concerned with the difficulties of joining the TPP at a later stage once the design of the TPP is finalized. This is because the agreements between China and the ASEAN are typically far less ambitious than PTAs involving the US,[35] of which the latter largely involves legally binding and enforceable obligations that are litigally motivated. Instead, China's PTAs with the region are narrower in the coverage of trade in goods and services,[36] and, with a few exceptions, having no World Trade Organization (WTO)—plus provisions.

The structure and design of the TPP is considered comprehensive in that it includes provisions on market access for trade in goods and related rules, trade in services, intellectual property, government procurement, competition policy and dispute settlement. It also includes agreements on cooperation in matters relating to labour and the environment. In short, the TPP is supposed to deal with twenty-first century issues that other PTAs do not deal with. Despite its coverage, there is much scepticism on the viability of the TPP framework on the following grounds: (1) Are these stringent standards achievable given that similar negotiations have failed in other forums? (2) Are these mandated issues sufficient for making markets more contestable and efficient?[37] (3) Will there be adequate business support to counter protectionist forces? The above are valid questions given the rise of many ineffective trade agreements.

From the Chinese perspective, the major problem lies in the so-called 'platinum' (not gold) standards the US is pushing for in the TPP. These include stronger intellectual property rights (IPRs) and tighter labour and environmental standards and regulatory discipline of state-owned enterprises. These standards are inconsistent with China's principles of international relations, which is non-interference in other nation's domestic affairs.[38] Further, there are some concerns on US proposals in the TPP, which go beyond the WTO rules. These include the imposition of restrictions on pre-grant patent oppositions, the increase in the term of the patents to more than 20 years, and the addition of patents for plants, animals, diagnostics and therapeutic surgical methods for the treatment of humans.[39] It would thus be more difficult for China and other developing countries to join this deal once these stringent standards

33. *Ibid.*, p. 40.
34. Fred C. Bergsten, Marcus Noland and Jeffrey J. Schott, *The Free Trade Area of the Asia–Pacific: A Constructive Approach to Multilateralizing Asian Regionalism*, ADBI Working Paper Series No. 336 (Japan: Asian Development Bank Institute, 2011), available at: http://www.adbi.org/files/2011.12.22.wp336.fta.asia.pacific.asian.regionalism.pdf (accessed 6 January 2012).
35. John Ravenhill and Yang Jiang, 'China's move to preferential trading: a new direction in China's diplomacy', *Journal of Contemporary China* 18(58), (2009), pp. 27–46.
36. Ka Zeng, 'Multilateral versus bilateral and regional trade liberalization', p. 638.
37. For example, IPR measures that are stringent are not just costly (particularly for developing countries that are net IPR importers), but could impede innovation and equitable access to goods and services (healthcare and entertainment) (cited from Armstrong, 'Australia and the future of the Trans-Pacific Partnership agreement'; Petri *et al.*, 'The Trans-Pacific Partnership and Asia–Pacific integration').
38. Dean Baker, 'The Pacific free trade deal that's anything but free', *The Star*, (29 August 2012), p. 13.
39. Martin Khor, 'Concerns over dearer drugs', *The Star*, (27 August 2012), p. 20.

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are enforced.[40] Problems related to accession to the TPP will be further compounded if the agreement includes exemptions and exclusions. This would mean that accession of future members will have to be negotiated separately with each TPP member, undeniably leaving the veto power with the original signatories. In this respect, instead of the TPP being inclusive in terms of its membership, it may in fact do the reverse. If the TPP is not enlargement-friendly, the path towards an FTAAP would pose risks to the region both economically and politically.[41] It may lead to the rise of a politically-driven divergent dual-track: China taking the lead through the Asian (EAFTA and indirectly through its influence *via* the RCEP) track and the US taking the lead through the TPP track.

For China, the ultimate decision to join the TPP is more of a political than an economic question. Following from the above discussion, the decision to join at a later stage will not provide the opportunity for China to push for changes that will promote trans-Pacific integration but instead be reduced to one of compliance to the established terms. Thus, the recent turn of events with the unexpected invitation extended to China by the US to join the TPP, and China's declared interest in the arrangement, is a clear indication that China wants to be engaged in shaping the rules of the TPP.

Notwithstanding that, it is unlikely that China is going to make a hasty decision to join the TPP.[42] The decision to join the TPP will definitely be on its own terms, as China is not only an important element in Asia and in any arrangement towards a FTAAP, but is also poised to gain more from a FTAAP than any other narrower regional initiatives that are likely to apply less rigorous rules. Further, the TPP remains an arrangement that is a 'potential' pathway, and not a 'sole' pathway towards a FTAAP, particularly when the RCEP is underway. Thus, whilst pursuing the Asian track, the TPP will remain on the 'front burner' of Chinese policy.[43]

V. Concluding remarks

The contemporary debate and discourse on the TPP very much centres on its benefits and the broad realization of its outcome, which hinges upon its potential expansion to other nations. Whilst proponents of the TPP view it as a vehicle to multilateralize regionalism, opponents of this deal feel that it would certainly not tame the 'noodle bowl' effect. This paper provides a different take to the ongoing debate on TPP by providing a Chinese perspective to this deal. China is not a party to the TPP, yet it remains a powerhouse in Asia that one needs to reckon with. What would the TPP mean for China? The paper addresses the export potentials that can be derived through membership in the TPP vis-à-vis other Asian economic configurations which China is already a party to (the ASEAN) or is pursuing (the ASEAN + 3 and ASEAN + 6).

40. Armstrong, 'Australia and the future of the Trans-Pacific Partnership agreement', p. 10; Petri *et al.*, 'The Trans-Pacific Partnership and Asia–Pacific integration', p. 11.

41. Andrew Elek, 'Towards a single market: a 21st century vision for Asia–Pacific economic integration', *Journal of East Asian Economic Integration* 14(1), (2010), pp. 89–120.

42. Zhongying Pang, 'Rebalancing relations between East Asian and trans-Pacific institutions: evolving regional architectural features', in Ho and Wong, eds, *APEC and the Rise of China*, pp. 45–63.

43. Petri *et al.*, 'The Trans-Pacific Partnership and Asia–Pacific integration', p. 48.

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The empirical findings reveal the following. The combined total size of China with the TPP members has a more than proportional positive effect on the volume of trade activity vis-à-vis the China–East Asia groupings, reflecting the differences in the structure of trade in both partnerships. The results suggest that China's trade with the TPP economies relative to ASEAN + 3 and ASEAN + 6 specifically depends more on exporting quantity-based final products that are sensitive to overall market size. From this perspective, China's participation in the TPP will offer better market access for final goods, an important trade opportunity that is somewhat limited in partnerships through regional initiatives.

Even then, the payoffs to China following the TPP deal remain intangible and at best speculative given the coverage (or substance) and depth of the agreement. The strategic meaning of TPP for China is one that not only involves economic significance, but also security and politics. Thus, with all certainty, China's focus in the short to medium term will be on driving East Asian integration (through the RCEP), whilst considering joining the TPP.

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Appendix

Table A1. Definition and measurement of variables

Variable	Definition	Measurement
X	Real exports	The *X* for agricultural and manufactures, expressed in current US$, is deflated by the export price index for agricultural and manufactures respectively, with 2000 as the base year
TRADE	Total real trade	$TRADE_{ij} = X_{ij} + M_{ij}$ where M = imports. The *M*, expressed in current US$, is deflated by the import price index, with 2000 as the base year
GDPT	Total real gross domestic product (GDP)	$GDPT_{ij} = GDP_i + GDP_j$ The *GDP*, expressed in current US$, is deflated by the *GDP* deflator with 2000 as the base year
SIMGDP	Similarity in the levels of GDP or relative size of trade partners	$SIMGDP_{ij} = 1 - \frac{GDP_i^2}{(GDP_i+GDP_j)^2} - \frac{GDP_j^2}{(GDP_i+GDP_j)^2}$ where $0 \leq SIMGDP_{ij} \leq 0.5$. If $SIMGDP_{ij} = 0$ (absolute divergence in size), if $SIMGDP_{ij} = 0.5$ (equal country size)
FDST	Total real inward foreign direct investment (FDI) stock	$FDST_{ij} = FDS_i + FDS_j$ For associate and subsidiary enterprises, it is the value of the share of their capital and reserves (including retained profits) attributable to the parent enterprise (this is equal to total assets minus total liabilities), plus the net indebtedness of the associate or subsidiary to the parent firm. For branches, it is current assets and the value of fixed assets and the investments, excluding amounts due from the parent, less liabilities to third parties. The *FDS*, expressed in current US$, is deflated by the CPI index with 2000 as the base year
SIMFDS	Similarity in the inward FDI stock of trade partners	$SIMFDS_{ij} = 1 - \frac{FDS_i^2}{(FDS_i+FDS_j)^2} - \frac{FDS_j^2}{(FDS_i+FDS_j)^2}$
RLFAC	Similarity in capital–labour ratios or the distance between countries in terms of relative factor endowments	$RLFAC_{ij} = \lvert \ln(K_{jt}/L_{jt}) - \ln(K_{it}/L_{it}) \rvert$ where K = capital stock; and L = labour force. If $RLFAC_{ij} = 0$ (same proportion of factor endowments). Total labour force comprises people ages 15 and older who meet the International Labour Organization definition of economically active population. Capital stock is estimated from the GFCF using the standard perpetual inventory calculation method (see footnote 16). The GFCF consists of outlays on additions to the fixed assets (land improvements; plant, machinery and equipment purchases; construction of roads, railways and the like) of the economy plus net changes in the level of inventories. The GFCF, expressed in current US$, is deflated by the CPI index with 2000 as the base year
GD	Geographical distance	The average distance (in kilometres) between the capitals of *i* and *j*