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# Trade Costs and Facilitation in APEC and ASEAN: Delivering the Goods?

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**Abstract:** This paper uses a new methodology to provide some first evidence on the overall level of trade costs in APEC and ASEAN. On average, APEC member economies have met the Shanghai target of a 5% reduction in trade costs over five years, but only just. Performance of individual member economies varies substantially, and in some cases is far below the Shanghai target. ASEAN member countries have also experienced some declines in trade costs, but generally to a lesser extent than in APEC. In both groups, tariff reductions have played an important role in reducing overall trade costs. Progress on non-tariff trade costs has been much more limited. Moving forward, APEC and ASEAN should refocus their trade facilitation efforts on non-tariff trade costs. They also need to develop clearer metrics against which progress can be assessed, and move towards a focus on outputs (lower trade costs), rather than inputs (administrative and policy changes).

**Keywords:** International Trade; Regional Integration; APEC; ASEAN; Trade Costs; Trade Facilitation.

**JEL Codes:** F13; F15.

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# 1 Introduction

Trade facilitation is a popular idea in the Asia-Pacific. It is one of the more prominent initiatives in regional integration programs, in particular APEC and ASEAN. Both groups recognize that tariffs are just the tip of the iceberg (cost) when it comes to international and regional trade. So reducing trade costs and facilitating exports and imports must be about much more than just tariff cuts. This is the importance of “broad sense” trade facilitation, i.e. policies designed to reduce the transaction costs of international trade.

APEC has been particularly forthright in its commitment to trade facilitation. In the 2001 Shanghai Declaration, APEC leaders committed to reduce trade transaction costs by 5% over the following five years. In 2005 at Busan, they pledged an additional 5% cut. Implicitly, there must have been a consensus within APEC that the Shanghai goal had been reached. So it is remarkable that there is no analytical work to support this conclusion. A mid-term review (Woo, 2004) examined the nature and extent of trade facilitation initiatives undertaken by individual member economies, but did not conduct a quantitative assessment of the trade cost reductions those steps might have brought about.

This paper is a first attempt to fill that analytical gap, and answer the question: “has trade facilitation been delivering the goods?”. To do so, it uses a newly developed methodology to measure trade costs in APEC and ASEAN between 1995 and 2008, and 2001 and 2007 respectively. It shows that there has been some encouraging progress towards the Shanghai target among APEC members. There has also been some movement in ASEAN, although data

limitations make it harder to assess its full extent. In both cases, however, performance varies markedly across countries.

To better understand the role of trade facilitation in bringing about these changes in trade costs, a “back of the envelope” decomposition into tariff and non-tariff components is undertaken. In both APEC and ASEAN, tariff reductions have played an important role in reducing overall trade costs. Progress on non-tariff trade costs has been much less impressive. This finding raises serious questions as to the effectiveness of trade facilitation efforts in the Asia-Pacific, which should be clearly focused on non-tariff trade costs.

The next section briefly overviews trade facilitation initiatives in APEC and ASEAN. It also discusses the most important recent literature on their effectiveness. Section 3 discusses the paper’s methodology and dataset. It then presents overall results, decomposes them into tariff and non-tariff trade costs, and interprets them in terms of the trade facilitation objectives of APEC and ASEAN. Section 4 concludes, and discusses some possible policy implications.

## **2 Experience with Reducing Trade Costs in APEC and ASEAN**

This section briefly reviews the various trade facilitation initiatives undertaken by APEC and ASEAN.<sup>2</sup> It then examines the available evidence on the extent to which these initiatives have borne fruit in terms of lower trade transaction costs in the region.

### **2.1 Trade Facilitation in APEC and ASEAN**

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<sup>2</sup> This section draws on the comprehensive review of East Asian trade facilitation initiatives in Pomfret and Sourdin (2009).

APEC was brought into existence to promote the long-term goal of free and open trade and investment in the Asia-Pacific. According to the group's 1994 Bogor Goals, industrialized member economies are supposed to reach this goal by 2010, with developing member economies to follow by 2020. Notwithstanding APEC's initial focus on tariff reductions, the Bogor Goals recognize that traditional trade liberalization is a necessary but not sufficient condition for achieving free and open trade. Trade facilitation also has an important role to play in eliminating administrative and other impediments to international trade flows. It also fits well with member economies' preference for non-discriminatory measures: APEC is not designed as a traditional free trade agreement, but rather as a cooperative forum in which member economies can jointly engage on a path of unilateral reforms that are as compatible as possible with the broader objective of global free trade.

One of the most ambitious steps taken by APEC Member Economies was in 2001. At their Shanghai meeting, leaders agreed to reduce trade transaction costs by 5% over the following five years. With the aim of providing a roadmap for achieving that goal, APEC's Trade Facilitation Action Plan (TFAP) was released the following year. The TFAP established a set of trade facilitation measures covering four areas: customs procedures; standards and conformity assessment; business mobility; and electronic commerce. Member economies use their Individual Action Plans (IAPs) to provide annual progress reports. The next section reviews the extent of member economies' TFAP implementation based on their IAP reports.

ASEAN is another important regional grouping from a trade policy point of view, even though its membership is much more limited than APEC's. The overarching trade objective for ASEAN is

now the ASEAN Economic Community. It is intended to bring together existing arrangements on liberalizing trade, investment, and services. An ASEAN single market is supposed to be in place by 2015. Although progress on trade costs in ASEAN was initially very slow, it has accelerated somewhat since the mid- to late-1990s. As in APEC, trade facilitation and behind-the-border measures are an important part of the overall approach.

## **2.2 Trade Facilitation and Trade Costs: The Evidence So Far**

In 2004, APEC's Committee on Trade and Investment considered the results of a mid-term review of progress towards under the TFAP (Woo, 2004). The review provided a comprehensive assessment of actions taken by member economies under the four pillars of APEC's trade facilitation program. On a qualitative level, it showed evidence of substantial progress. Of the 1,300 action items identified under the TFAP, member economies had selected over 90% for implementation. Of those, about half had already been completed by the time of the mid-term review. The percentage of completed items was highest in customs, and lowest in the "other" category (including electronic commerce). (See Table 1.)

However, these overall figures obscure considerable variation at the country level. Table 1 shows that some member economies have been far more active than others in choosing TFAP action items for implementation. The degree of success in implementation—i.e., progress versus completion—also varies markedly across the region. One standout example is the United States, which has selected only 19 TFAP items, and has not reported implementation of any of them. The mid-term review (Woo, 2004) provides a comprehensive assessment of country efforts in each of the four main TFAP areas.

Although there is evidence that APEC member economies have pursued important items on their trade facilitation agenda—albeit with varying degrees of assiduity and success—there are far fewer indications of the extent to which these efforts have translated into lower trade costs. Member economies are not required to submit quantitative evidence showing that measures they have undertaken actually reduce trade costs. Even the TFAP mid-term review (Woo, 2004) lacks any quantitative investigation of the extent to which member economies’ implementation efforts are taking them closer to the goal of a 5% reduction in trade transaction costs.

Wilson et al. (2003) provide a first assessment of the possible extent to which improved trade facilitation in APEC could boost trade within the region. They measure trade facilitation using four dimensions: port efficiency; the customs environment; the regulatory environment; and e-business usage. Although not directly drawn from the four pillars listed in APEC’s TFAP, there is nonetheless some overlap between the two, particularly in relation to customs and e-business. Using a gravity model, the authors find that intra-APEC trade is particularly sensitive to the quality of ports, and the level of regulatory barriers. They suggest that these areas should be particular priorities for trade facilitation moving forward. Simple counterfactuals are consistent with improved trade facilitation being associated with a major boost in intra-APEC trade, and consequent growth in per capita incomes.

**Table 1: Progress on trade facilitation by APEC member economies. (Source: Helble et al., 2007.)**

	No. of Items Selected				No. of Items Implemented				No. of Items Completed			
	Customs	Standards	Mobility	E-Commerce	Customs	Standards	Mobility	E-Commerce	Customs	Standards	Mobility	E-Commerce
Australia	42	19	6	10	40	19	6	10	31	17	6	0
Brunei	45	12	4	6	35	12	4	6	26	8	3	3
Canada	39	16	6	11	39	16	6	11	30	13	5	3
Chile	42	20	6	11	40	11	4	8	31	4	3	1
China	60	20	6	11	45	12	5	4	43	7	3	1
Hong Kong, China	33	19	6	9	33	19	6	9	31	13	2	2
Indonesia	39	14	6	6	30	11	5	4	-	-	-	-
Japan	60	20	6	11	56	18	5	10	54	11	4	10
Korea	46	11	6	12	45	10	5	12	44	9	5	10
Malaysia	46	20	6	11	46	20	6	11	35	11	5	10
Mexico	60	20	6	11	50	16	6	7	23	2	2	7
New Zealand	42	56	17	6	40	55	15	4	31	53	12	3
Papua New Guinea	57	20	6	11	-	-	-	-	-	-	-	-
Peru	38	14	2	-	34	7	2	-	34	2	2	-
Philippines	12	5	2	5	28	3	2	3	37	9	3	7
Russian Federation	44	20	3	16	36	19	3	10	13	8	3	2
Singapore	39	11	5	8	39	11	5	8	38	10	5	8
Taiwan	40	26	6	11	39	24	4	11	32	20	4	4
Thailand	53	20	6	11	45	18	5	11	32	6	2	6
United States	17	-	-	2	-	-	-	-	-	-	-	-
Vietnam	49	20	6	11	21	11	5	6	19	10	2	5
<i>Total</i>	<i>903</i>	<i>383</i>	<i>117</i>	<i>190</i>	<i>741</i>	<i>312</i>	<i>99</i>	<i>145</i>	<i>584</i>	<i>213</i>	<i>71</i>	<i>82</i>



Shepherd and Wilson (2009) use a similar methodology to examine the effects of trade facilitation in South-East Asia, focusing on ASEAN members. They measure trade facilitation using the same four dimensional approach as in Wilson et al. (2004). They find that intra-ASEAN trade is particularly sensitive to infrastructure quality, and the use of information and communication technologies (ICTs). In line with the results from Wilson et al. (2004), the authors find that improvements in trade facilitation have significant potential to boost intra-regional trade.

Although Wilson et al. (2004) and Shepherd and Wilson (2009) provide substantial evidence on the sensitivity of trade flows with respect to trade facilitation, they do not undertake any direct analysis of the extent to which trade costs have fallen in the region in recent years. Nor do they reach any conclusions as to the effectiveness of trade facilitation in supporting trade cost reductions.

In light of this gap in the literature, Pomfret and Sourdin (2009) take a different approach. They focus much more directly on the issue of trade costs. They use Australian data on CIF and FOB trade values to estimate trade costs for Asian countries trading with Australia. Their measure essentially captures international shipping costs, which are an important part of the overall cost of moving goods between countries. For Asian APEC member economies, they find a reduction in trade costs from 6.1% to 4.3% ad valorem between 2001 and 2006 (a roughly 30% change), and then to 4.1% in 2007. For ASEAN, the comparable figures are 7% in 2001, 4.3% in 2005, and 3.9% in 2007, so about a 45% change from 2001-2007. These changes are quantitatively important, but need to be kept in perspective: they only relate to international transport costs,

and do not capture the broader range of trade costs that are central in the trade facilitation literature.

### 3 Trade Costs in APEC and ASEAN, 1995-2008

This section extends the work reviewed in the previous section by using a broader measure of trade costs to analyze the extent of progress on trade facilitation in the region. Whereas the CIF/FOB measure used by Pomfret and Sourdin (2009) essentially captures international shipping costs, the broader measure of trade costs used here includes the full range of costs involved in moving goods between countries. It is strongly grounded in recent trade theory, and potentially provides the basis for a comprehensive approach to trade facilitation.

#### 3.1 Methodology and Data

Starting from the standard, theory-consistent gravity model of Anderson and Van Wincoop (2003), Novy (2009) develops a comprehensive measure of bilateral trade costs.<sup>3</sup> Equation 1 presents that measure in ad valorem equivalent terms. It is the geometric average of bilateral trade costs for exports from country  $i$  to country  $j$  and from country  $j$  to country  $i$ , expressed relative to domestic trade costs in each country ( $\frac{t_{ij}}{t_{ii}}$  and  $\frac{t_{ji}}{t_{jj}}$  respectively). To calculate it, all that is required is data on domestic production relative to exports in both countries ( $\frac{x_{ii}}{x_{ij}}$  and  $\frac{x_{jj}}{x_{ji}}$ ). The parameter  $s$  is the elasticity of substitution among varieties in a sector, assuming the Anderson and Van Wincoop-based derivation of Novy's measure of trade costs.

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<sup>3</sup> In fact, Novy (2009) shows that basically the same measure can be derived from a wide variety of theoretical models of international trade. The interpretation of some parameters changes depending on the model used, but the overall approach remains very similar.

$$\overline{t_{ij}} = \left( \frac{t_{ij} t_{ji}}{t_{ii} t_{jj}} \right)^{\frac{1}{2}} - 1 = \left( \frac{x_{ii} x_{jj}}{x_{ij} x_{ji}} \right)^{\frac{1}{2(s-1)}} - 1 \quad (1)$$

Intuitively, Novy's measure captures the fact that if a country's trade costs vis-à-vis the rest of the world fall, then a part of its production that was previously consumed domestically will instead be shipped overseas. Trade costs are thus closely related to the extent to which a country trades with itself rather than other countries, and data on this kind of relative openness can be used to make inferences about the level of trade costs and their variation over time.

This approach has three main advantages over the readily available alternatives. First, it represents a comprehensive measure of the full range of trade costs, namely the costs of moving goods between countries relative to the costs of moving them within countries. It captures international shipping—as in work using CIF/FOB ratios—but also a much wider variety of cost factors. (See Anderson and Van Wincoop, 2004 for a full review.) It takes account of all factors that make it harder to ship goods between rather than inside countries, for example: border infrastructure; customs and clearance procedures; access to trade finance; differences in business and investment climates; and behind-the-border regulatory measures, including standards and conformity assessment, which have asymmetric impacts on local versus foreign producers. Even the effects of regulatory measures that are discriminatory in fact but not in law are included in this measure of trade costs.

The second advantage of Novy's measure is that its data requirements are minimal. As a result, it is feasible to obtain measures of trade costs across a wide variety of countries and time periods. Third, it relies on a theory-based rearrangement of data, rather than econometric

estimation. It thus does not suffer from the possibility of omitted variables bias, which plagues gravity model estimates.<sup>4</sup>

The remainder of the paper presents results for  $\bar{t}_{ij}$  calculated as the ad valorem equivalent of trade costs between APEC member economies, ASEAN member countries, and the world as a whole.<sup>5</sup> Trade flows—exports and imports with the world—are sourced from UN Comtrade via WITS. GDP data are taken from the World Development Indicators. Domestic production is proxied by GDP less total exports.<sup>6</sup> Since GDP is calculated on a value added basis, but  $x_{ii}$  and  $x_{jj}$  should be gross shipments,  $\bar{t}_{ij}$  as calculated here tends to understate the true level of trade costs. Estimates of ad valorem equivalents should therefore be regarded as lower bounds.

The elasticity of substitution  $s$  is set equal to 8, which is a common rule of thumb (Novy, 2009). Although ad valorem equivalents are quite sensitive to the value chosen for  $s$ , using indices relative to a base year reduces that problem to economically insignificant levels. The index number approach also makes the value added versus gross shipments problem less serious, on the assumption that the ratio of the two remains relatively stable through time. The next section presents results using both methods.

### **3.2 APEC Trade Cost Reductions: Was the Shanghai Goal Met?**

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<sup>4</sup> Novy (2009) shows that even allowing for measurement error does not introduce substantial uncertainty into measures of trade costs inferred using equation (1).

<sup>5</sup> Future work in this research project will separately identify intra- and extra-bloc trade costs, in order to assess the extent to which discrimination among trading partners might be an issue. Given APEC's aim of consistency with multilateral liberalization efforts, however, it is pertinent to start by calculating trade costs vis-à-vis the world as a whole.

<sup>6</sup> The research project of which this paper is part is currently compiling comparable data on production and trade across a wide range of countries. However, it is not possible to present results for APEC and ASEAN using these data at the present time.

Table 2 presents ad valorem equivalents of trade costs in APEC member economies, calculated using equation (1). On their face, these estimates might appear very high: they are an order of magnitude greater than the trade costs calculated by Pomfret and Sourdin (2009) using CIF/FOB ratios, for example. It is important to be aware of the differences between the two measures, however. CIF/FOB ratios do not capture impediments to international trade other than those directly associated with shipping the goods. However, the trade facilitation literature has identified many other factors that also impact trade flows, and those findings are reflected in APEC's approach to trade facilitation, which encompasses a wide range of policy areas.

A partial reality check for the figures presented in

Table 2 is provided by Anderson and Van Wincoop (2004). Those authors conducted a comprehensive review of the gravity modeling literature, and identified a set of factors—policy-related and “natural”—that have been robustly found to have significant trade impacts. Their back-of-the-envelope aggregate measure of international trade costs based on the evidence reviewed suggested an ad valorem equivalent of approximately 55%. The numbers presented here are quite similar to that benchmark.

**Table 2: Trade costs in APEC member economies vis-à-vis the world, expressed as ad valorem equivalents. Shading indicates the “5% in five years” goal stated in the Shanghai Declaration.<sup>7</sup>**

	2001	2002	2003	2004	2005	2006	2007	2008	Absolute Change 2001-2006
Australia	66.21%	65.34%	65.52%	65.25%	63.38%	61.76%	61.23%	58.83%	<b>-4.45%</b>
Brunei	90.94%	88.07%	91.24%			86.00%			<b>-4.94%</b>
Canada	42.41%	43.75%	45.30%	45.68%	45.00%	45.13%	44.87%	43.80%	<b>2.72%</b>
Chile	74.44%	76.29%	75.39%	70.74%	68.02%	64.35%	62.30%	59.60%	<b>-10.09%</b>
China	49.90%	47.14%	42.80%	39.08%	36.89%	34.92%	34.31%	34.63%	<b>-14.98%</b>
Hong Kong, China	57.54%	58.62%	57.37%	57.07%	57.50%	56.22%	60.00%	61.48%	<b>-1.32%</b>
Indonesia	63.03%	66.37%	68.95%	64.97%	62.19%	63.46%	63.04%	57.92%	<b>0.42%</b>
Japan	54.32%	54.17%	53.42%	51.57%	50.23%	48.24%	47.42%	46.52%	<b>-6.08%</b>
Korea	49.74%	50.14%	48.69%	45.18%	44.95%	43.66%	42.79%		<b>-6.09%</b>
Mexico	50.16%	50.88%	52.53%	51.42%	50.55%	49.15%	49.12%	48.92%	<b>-1.01%</b>
Malaysia	21.69%	23.71%	21.61%				20.68%		
New Zealand	77.85%	79.51%	80.38%	79.23%	77.80%	78.11%	77.88%	75.15%	<b>0.25%</b>
Peru	95.96%	95.50%	94.23%	89.75%	84.92%	80.34%	78.02%		<b>-15.63%</b>
Philippines	57.26%	55.66%	56.56%	56.70%	58.27%	58.56%	61.35%	64.62%	<b>1.31%</b>
Papua New Guinea	88.81%	92.81%	87.87%	83.79%					
Russian Federation	60.99%	61.17%	59.96%	58.23%	55.65%	53.38%	52.20%	49.23%	<b>-7.62%</b>
Thailand	47.12%	48.04%	46.49%	43.97%	40.02%	39.72%	39.89%	37.71%	<b>-7.40%</b>
United States	46.47%	47.58%	47.97%	46.91%	45.89%	44.57%	44.35%	43.65%	<b>-1.90%</b>
Vietnam	65.14%	62.66%	59.38%	55.19%	53.06%	49.39%	45.22%		<b>-15.75%</b>

As can be seen from the table, a number of APEC member economies have experienced significant reductions in trade costs over the Shanghai Declaration’s 2001-2006 timeline. The final column of the table shows the absolute (percentage point) change in ad valorem trade costs over that period. Eight member economies have met or exceeded the 5% goal, with another two very close to it. On the other hand, six member economies still had a considerable extra distance to travel in 2006; there is even evidence of slight backsliding in some cases.

Among APEC member economies, China, Peru, and Vietnam stand out in particular. Their trade costs have fallen by around 15 percentage point in each case. It is important not to overstate

<sup>7</sup> Ad valorem equivalents are calculated using equation (1) and assuming  $s = 8$ , as in Novy (2009).

this result, however. As pointed out above, the trade costs measure used in this paper is a geometric average of trade costs in each direction for a given bilateral link. Lower trade barriers in the rest of the world are therefore reflected in these figures too. In some cases, this can be quantitatively important. China, for instance, has made genuine progress in lowering its own trade barriers in recent years. But at the same time, its WTO accession has meant gradually improving market access abroad.



Table 2 reflects both of those dynamics.

In addition to looking at individual country performance, it is also useful to consider average performance across the region. Figure 1 uses ad valorem equivalents to summarize APEC's performance as a whole. In simple average terms, APEC's trade costs with the rest of the world fell from 61% to 56% ad valorem over the 2001-2006 period. APEC appears to have met its 5% in five years goal, but only just. A GDP weighted average reinforces this impression: trade costs fell from 50% to 46%, i.e. slightly less than the 5% goal.

**Figure 1: APEC trade costs vis-à-vis the world in percent ad valorem equivalent terms, simple and GDP weighted averages. Vertical lines indicate the period of the "5% in five years" goal in the Shanghai Declaration.<sup>8</sup>**



<sup>8</sup> Averages are calculated using a consistent sample, i.e. only those APEC member economies for which data are available over the full 1995-2008 period. The sample includes: Australia, Canada, Indonesia, Japan, Mexico, Philippines, USA, and Vietnam.

A more generous metric than percentage point changes in ad valorem equivalents is to look at percentage changes in trade costs relative to the 2001 benchmark level. This approach has the added benefit of being much less sensitive to the choice of the elasticity parameter  $s$ . Figure 2 presents results, with trade costs expressed as an index number. Results from the simple and GDP weighted averages are much closer in this case: they both indicate a fall in the trade costs index from 100 in 2001 to 92 or 93 in 2006, i.e. a 7%-8% reduction. If the “5% in five years” criterion is interpreted as a relative, rather than absolute, objective then there is clear evidence that APEC as a whole has achieved this aim.

**Figure 2: Index of APEC trade costs vis-à-vis the world, simple and GDP weighted averages. 2001=100. Vertical lines indicate the period of the “5% in five years” goal in the Shanghai Declaration.<sup>9</sup>**



<sup>9</sup> Averages are calculated using a consistent sample, i.e. only those APEC member economies for which data are available over the full 1995-2008 period. The sample includes: Australia, Canada, Indonesia, Japan, Mexico, Philippines, USA, and Vietnam.

### **3.3 Trade Cost Reductions in ASEAN**

This section examines the evolution of trade costs in ASEAN over the period 2001-2007. This shorter time interval reflects data limitations; but as Table 3 shows, even this restriction only makes it possible to obtain partial results for seven out of ten ASEAN member countries.

**Table 3: Trade costs in ASEAN member states vis-à-vis the world, expressed as ad valorem equivalents.<sup>10</sup>**

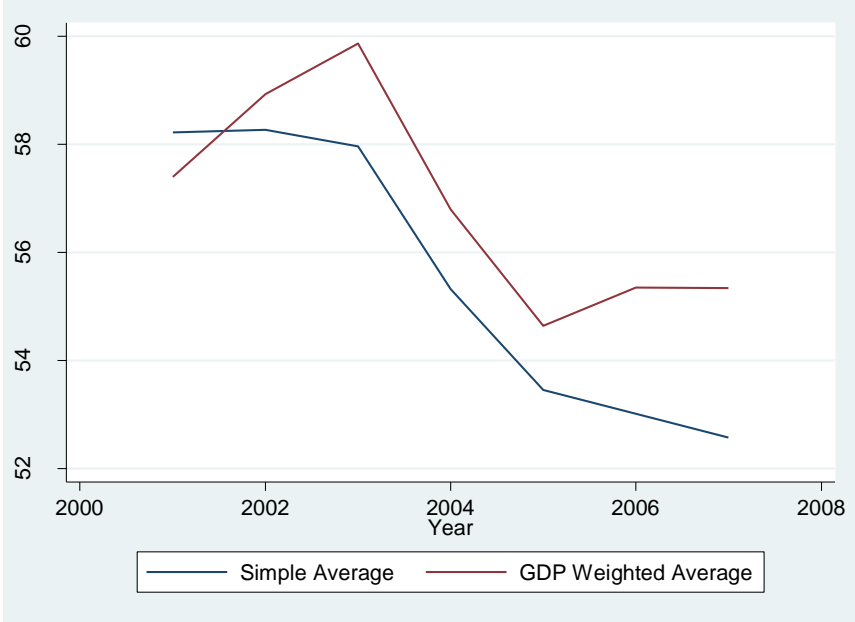
	2001	2002	2003	2004	2005	2006	2007	<b>Absolute Change (2001-2007)</b>
Brunei Darussalam	90.94%	88.07%	91.24%			86.00%		
Indonesia	63.16%	66.45%	69.02%	65.02%	62.19%	63.54%	63.13%	<b>-0.03%</b>
Cambodia	98.36%	93.01%	94.21%	90.24%				
Malaysia	21.95%	23.93%	21.97%				21.30%	<b>-0.65%</b>
Philippines	57.31%	55.72%	56.65%	56.75%	58.32%	58.72%	61.46%	<b>4.15%</b>
Thailand	47.27%	48.24%	46.70%	44.13%	40.02%	39.97%	40.27%	<b>-7.00%</b>
Vietnam	65.14%	62.67%	59.46%	55.38%	53.30%	49.83%	45.44%	<b>-19.71%</b>

Although there is some evidence of falling trade costs among ASEAN member states, the pace and scope of changes are less impressive than for APEC. Of the five countries for which data are available over the full sample period, only two have experienced reductions of more than 5%. Brunei and Cambodia, for which only partial data are available, also show signs of significant reductions.

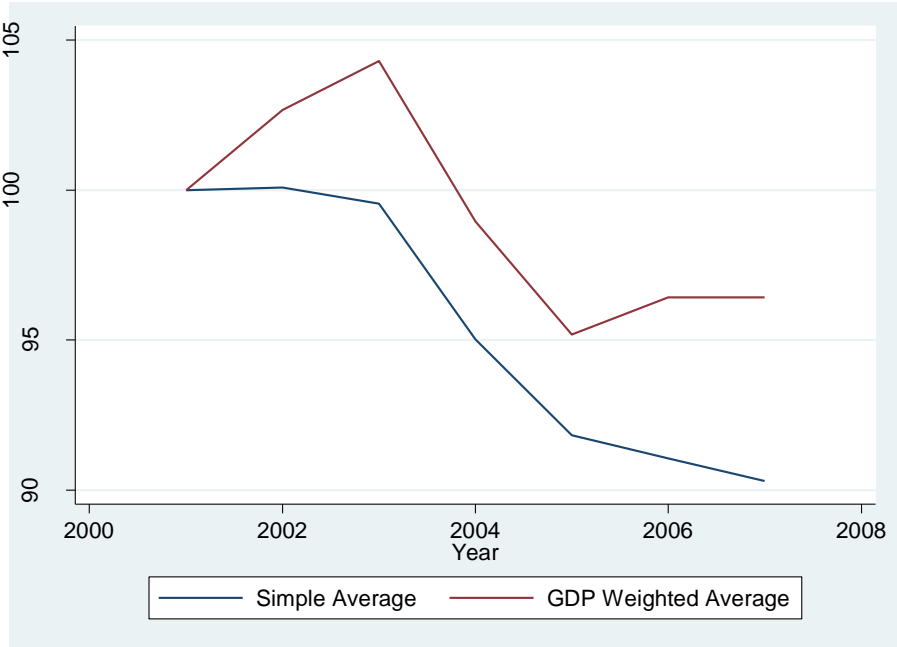
At first glance, the regional averages in Figure 3 (ad valorem equivalents) and Figure 4 (trade costs index, 2001=100) appear to suggest more significant trade cost reductions than the country numbers in Table 3. In simple average terms, ad valorem equivalent trade costs fell from 58% to 53% between 2001 and 2007, but the reduction is only from 57% to 55% on a GDP-weighted basis. It is important to keep in mind, however, that these averages are calculated on the basis of a consistent sample over the full time period being studied. Only four countries satisfy the requirement of having data available for all periods, and two of them—Thailand and Vietnam—have experienced significant trade cost reductions. So Figure 3 and Figure 4 probably overstate the extent to which ASEAN trade costs have been reduced.

<sup>10</sup> Ad valorem equivalents are calculated using equation (1) and assuming  $s = 8$ , as in Novy (2009).

**Figure 3: ASEAN trade costs vis-à-vis the world in percent ad valorem equivalent terms, simple and GDP weighted averages.<sup>11</sup>**



**Figure 4: Index of ASEAN trade costs vis-à-vis the world, simple and GDP weighted averages. 2001=100.<sup>12</sup>**



<sup>11</sup> Averages are calculated using a consistent sample, i.e. only those ASEAN member economies for which data are available over the full 1995-2008 period. The sample includes: Indonesia, Philippines, Thailand, and Vietnam.

<sup>12</sup> Averages are calculated using a consistent sample, i.e. only those ASEAN member economies for which data are available over the full 1995-2008 period. The sample includes: Indonesia, Philippines, Thailand, and Vietnam.

### **3.4 What Role for Trade Facilitation?**

Since the trade cost measures discussed thus far are very broad in terms of what they capture, it would be inaccurate to ascribe the full cost reductions calculated in the previous section to trade facilitation. Lower tariffs could also have played an important role in lowering overall trade costs. It is important to push the data a little further in order to assess the relative importance of tariffs and trade facilitation, used here in the broad sense—consistent with APEC’s approach—of measures designed to reduce costs, other than tariff cuts.

Data on applied tariffs are available from UNCTAD’s Trains database via WITS. Since trade costs in

Table 2 are in ad valorem equivalent terms, it is possible to obtain a rough decomposition of the total into tariff and non-tariff elements by subtracting the geometric mean of a country's tariffs on foreign imports and the tariffs its exports face abroad. This decomposition is important because the Shanghai goal should in theory apply to non-tariff trade costs only. Results are presented in Table 4, which suppresses numbers for all but the starting and ending years in the interests of readability. Full results are available on request.

**Table 4: Changes in tariff and non-tariff trade costs in APEC, 2001-2006.**

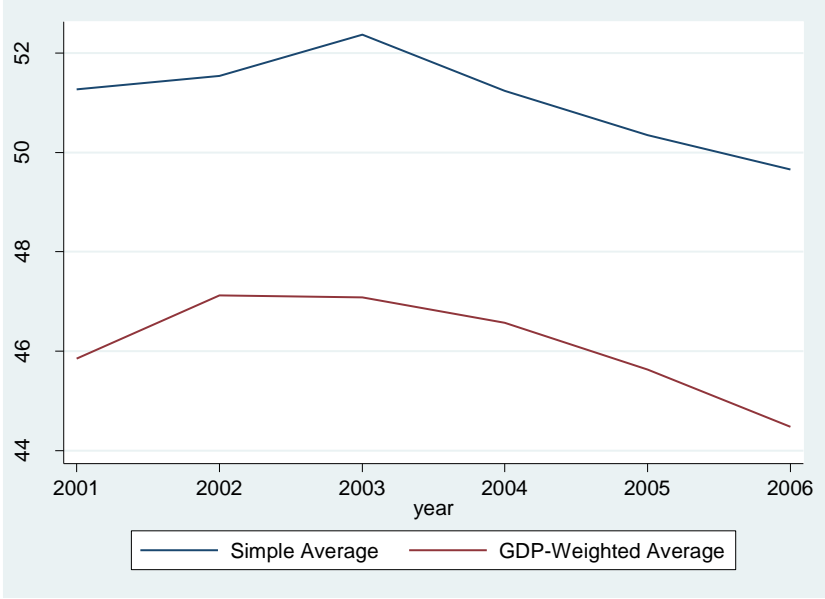
	2001			2006			Absolute Change		
	Total	Tariff	Non-Tariff	Total	Tariff	Non-Tariff	Total	Tariff	Non-Tariff
Australia	66.21%	4.22%	61.99%	61.76%	2.90%	58.86%	<b>-4.45%</b>	<b>-1.32%</b>	<b>-3.13%</b>
Brunei Darussalam	90.94%	4.06%	86.88%	86.00%	2.29%	83.70%	<b>-4.94%</b>	<b>-1.76%</b>	<b>-3.18%</b>
Canada	42.41%	1.06%	41.35%	45.13%	0.70%	44.42%	<b>2.72%</b>	<b>-0.36%</b>	<b>3.08%</b>
Chile	74.44%	5.97%	68.47%	64.35%	1.44%	62.92%	<b>-10.09%</b>	<b>-4.53%</b>	<b>-5.56%</b>
China	49.90%	8.40%	41.50%	34.92%	4.07%	30.85%	<b>-14.98%</b>	<b>-4.32%</b>	<b>-10.66%</b>
Hong Kong, China	57.54%			56.22%	0.00%	56.22%	<b>-1.32%</b>		
Indonesia	63.03%	4.70%	58.34%	63.46%	4.14%	59.32%	<b>0.42%</b>	<b>-0.56%</b>	<b>0.98%</b>
Japan	54.32%	3.53%	50.79%	48.24%	2.44%	45.80%	<b>-6.08%</b>	<b>-1.10%</b>	<b>-4.99%</b>
Korea, Rep.	49.74%			43.66%	5.48%	38.17%	<b>-6.09%</b>		
Malaysia	21.69%	3.46%	18.23%		2.44%			<b>-1.02%</b>	
Mexico	50.16%	3.61%	46.55%	49.15%	1.14%	48.00%	<b>-1.01%</b>	<b>-2.47%</b>	<b>1.46%</b>
New Zealand	77.85%			78.11%	3.77%	74.33%	<b>0.25%</b>		
Papua New Guinea	88.81%				0.90%				
Peru	95.96%			80.34%	2.58%	77.75%	<b>-15.63%</b>		
Philippines	57.26%	3.01%	54.25%	58.56%	2.17%	56.40%	<b>1.31%</b>	<b>-0.84%</b>	<b>2.14%</b>
Russian Federation	60.99%	4.96%	56.04%	53.38%					
Thailand	47.12%	6.76%	40.36%	39.72%	4.03%	35.69%	<b>-7.40%</b>	<b>-2.73%</b>	<b>-4.67%</b>
United States	46.47%	3.23%	43.24%	44.57%	2.09%	42.48%	<b>-1.90%</b>	<b>-1.14%</b>	<b>-0.76%</b>
Vietnam	65.14%	11.48%	53.66%	49.39%	7.45%	41.94%	<b>-15.75%</b>	<b>-4.03%</b>	<b>-11.72%</b>



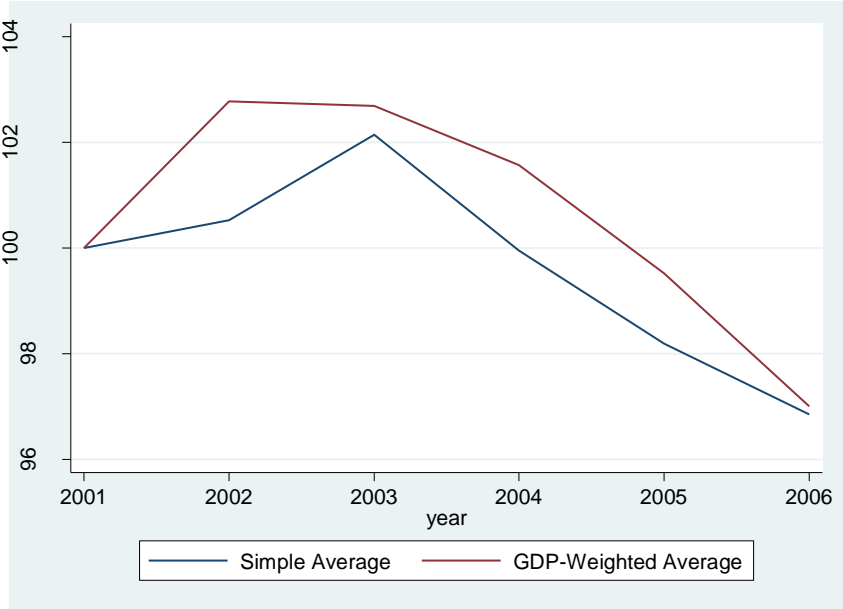
The table shows that tariff reductions at home and overseas have played a significant role in lowering trade costs in a number of countries. However, there is also a group of countries for which non-tariff trade costs have fallen substantially. Four countries—Chile, China, Japan, and Vietnam—meet or exceed the 5% target. Thailand comes quite close to doing so. Significant backsliding, in the sense of increases in non-tariff trade costs, is evident for Canada and the Philippines.

Unsurprisingly in light of Table 4, regional average progress on non-tariff trade costs has been disappointing. Figure 5 shows at most a 1.5% decline in non-tariff trade costs. The difference between the simple and GDP-weighted bases is insignificant in this case. Using the looser criterion of a 5% reduction in trade costs compared with the 2001 baseline results in slightly more encouraging results (Figure 6). The non-tariff trade costs index has fallen from 100 to around 97 from 2001 to 2006, i.e. a roughly 3% reduction.

**Figure 5: APEC non-tariff trade costs vis-à-vis the world in percent ad valorem equivalent terms, simple and GDP weighted averages.<sup>13</sup>**



**Figure 6: Index of APEC non-tariff trade costs vis-à-vis the world, simple and GDP weighted averages. 2001=100.<sup>14</sup>**



<sup>13</sup> Averages are calculated using a consistent sample, i.e. only those APEC member economies for which data are available over the full 1995-2008 period. The sample includes: Australia, Canada, Indonesia, Japan, Mexico, Philippines, United States, and Vietnam.

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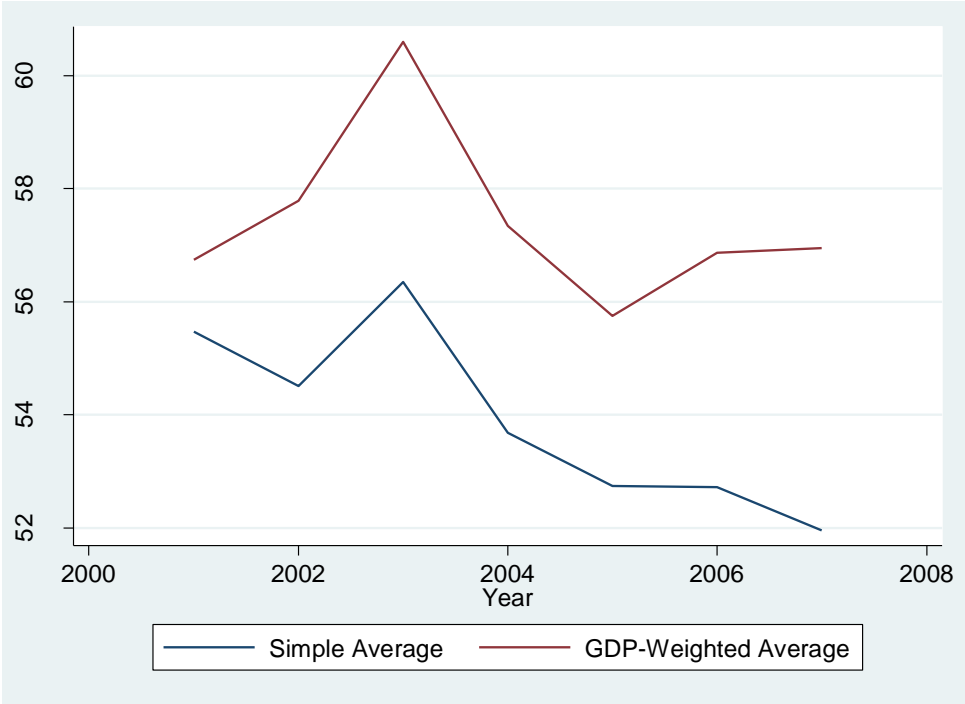
Due to data limitations, the overall situation in ASEAN is more difficult to assess. But the available evidence in Table 5 suggests that trade facilitation—in the sense of reducing non-tariff trade costs—has played a relatively minor role. Only for Vietnam is there evidence of a substantial fall in non-tariff trade costs. There is even some evidence of backsliding in other countries, particularly in the Philippines.

Regional averages (Figure 7 and Figure 8) are difficult to interpret due the small number of countries (three) for which all required data are available. Although the two simple average curves suggest that there have been some reductions in non-tariff trade costs, the GDP-weighted averages are more suggestive of very little change having taken place. Analyzing the graphs together with Table 5 tends to indicate that whatever changes in non-tariff trade costs have taken place have probably been relatively minor.

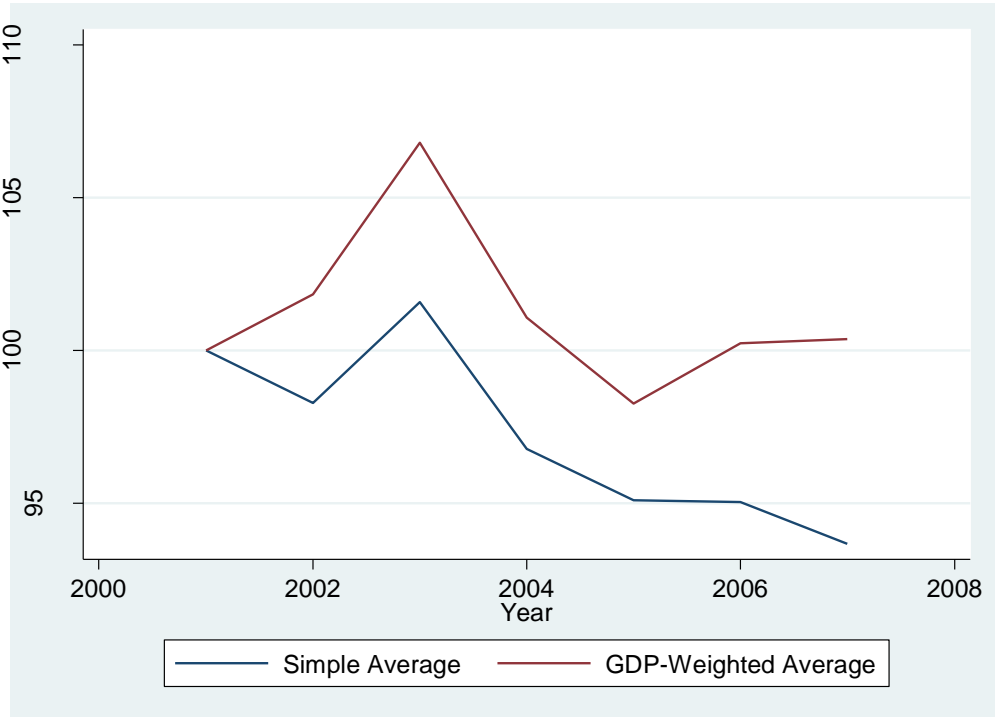
**Table 5: Changes in tariff and non-tariff trade costs in ASEAN, 2001-2006.**

	2001			2007			Absolute Change		
	Total	Tariff	Non-Tariff	Total	Tariff	Non-Tariff	Total	Tariff	Non-Tariff
Brunei Darussalam	90.94%	4.06%	86.88%		2.00%			<b>-2.06%</b>	
Indonesia	63.16%	4.71%	58.45%	63.13%	3.74%	59.40%	<b>-0.03%</b>	<b>-0.98%</b>	<b>0.95%</b>
Cambodia	98.36%	11.46%	86.90%		8.99%			<b>-2.47%</b>	
Lao PDR		6.84%			3.50%			<b>-3.34%</b>	
Myanmar		6.67%			4.36%			<b>-2.30%</b>	
Malaysia	21.95%	3.49%	18.46%	21.30%	2.57%	18.73%	<b>-0.65%</b>	<b>-0.92%</b>	<b>0.27%</b>
Philippines	57.31%	3.01%	54.30%	61.46%	2.67%	58.79%	<b>4.15%</b>	<b>-0.34%</b>	<b>4.49%</b>
Thailand	47.27%	6.81%	40.46%	40.27%			<b>-7.00%</b>		
Vietnam	65.14%	11.49%	53.65%	45.44%	7.75%	37.69%	<b>-19.71%</b>	<b>-3.75%</b>	<b>-15.96%</b>

**Figure 7: ASEAN non-tariff trade costs vis-à-vis the world in percent ad valorem equivalent terms, simple and GDP weighted averages.**



**Figure 8: Index of ASEAN non-tariff trade costs vis-à-vis the world, simple and GDP weighted averages. 2001=100.**



## 4 Conclusions and Policy Implications

This paper has used a new theory-consistent methodology to provide some first measures of trade costs in APEC and ASEAN. The extent to which trade costs fall over time—and in particular, non-tariff trade costs—is an important metric of the success of trade facilitation programs. Previous analytical work shows that trade flows are sensitive to improvements in trade facilitation, and provides an idea of the economic gains to be had. But this is the first ex post assessment of the success or otherwise of particular trade facilitation programs. In particular, it is the first rigorous attempt to bring APEC’s Shanghai goal—a 5% reduction in trade costs over five years—into contact with the data.

In the case of APEC, there is some evidence indicating that the Shanghai goal was more or less achieved on a regional average basis. Individual country performance varies considerably, however. Some countries, such as China, Peru, and Vietnam, have experienced major reductions in trade costs, on the order of 15% ad valorem. But others have essentially stayed still, or even regressed slightly.

In interpreting these results, it is important to keep in mind that changes in tariff policy seem to have a lot to do with the changes observed in overall levels of trade costs. Progress on non-tariff trade costs is generally much less impressive. In most cases, it falls well below the Shanghai target of 5% in five years. This finding is important, since the 5% goal relates to the “transaction costs of international trade”. It is a trade facilitation objective, not a tariff reduction objective. On this basis, it is difficult to conclude that APEC’s trade facilitation program has been a complete success.

Results for ASEAN are harder to interpret, since data limitations are far more problematic. But as in the APEC case, there is some evidence of significant reductions in the level of overall trade costs. However, tariffs again seem to play an important role. There is little evidence of widespread reductions in non-tariff trade costs.

It is also important to keep in mind that results for both regions are based on aggregate GDP and trade flow data. Future research will need to use production data, rather than value added, in order to produce more accurate measures of trade costs. It will also be important to move from aggregate to sectoral data, to gauge the extent to which different product groups have benefitted, or otherwise, from increased attention to trade facilitation.

What do these results mean for the future of trade facilitation policies in the Asia-Pacific? There are two main implications. First, attention should be clearly focused on non-tariff trade costs, and measures designed to reduce them. A broad approach to trade facilitation is essential, and is reflected in numerous APEC statements. But the evidence suggests that there might be a significant gap between intentions and implementation.

Second, it is important to set up clear metrics by which progress on trade facilitation can be assessed. Taking APEC as an example, the IAP process and the mid-term review (Woo, 2004) focus on inputs to trade facilitation rather than outputs. A country appears successful if it takes steps to implement a large number of measures. But not all measures are created equal. Some have much stronger economic impacts than others. Politically difficult though it may be, some type of prioritization is required. Ideally, future progress reviews would include a quantitative assessment of the extent to which trade costs in the region have fallen over time.

In addition to the methodology adopted in this paper, there is now a wide variety of international data sources on trade facilitation. Examples include the *Doing Business* project, the World Bank's *Logistics Performance Index*, and the World Economic Forum's *Global Enabling Trade Index*. Although none of these measures gives a perfect picture of the trade facilitation environment, each of them provides some useful information. Their easy availability means that the private sector and civil society can also play a useful role in making sure that there is a closer match between intentions and implementation.

## References

- Anderson, James E.; and Eric Van Wincoop. 2003. "Gravity with Gravitas: A Solution to the Border Puzzle". *American Economic Review* 93(1): 170-192.
- Anderson, James E.; and Eric Van Wincoop. 2004. "Trade Costs". *Journal of Economic Literature* 42(3): 691-751.
- Helble, Matthias; Ben Shepherd; and John S. Wilson. 2007. *Transparency and Trade Facilitation in the Asia-Pacific: Estimating the Gains from Reform*. Canberra: Department of Foreign Affairs and Trade.
- Novy, Dennis. 2009. "Gravity Redux: Measuring International Trade Costs with Panel Data". Working Paper, <http://www2.warwick.ac.uk/fac/soc/economics/staff/academic/novy/redux.pdf>.
- Pomfret, Richard; and Patricia Sourdin. 2009. "Have Asian Trade Agreements Reduced Trade Costs?". *Journal of Asian Economics* 20(3): 255-268.



Shepherd, Ben; and John S. Wilson. 2009. "Trade Facilitation in ASEAN Member Countries: Measuring Progress and Assessing Priorities". *Journal of Asian Economics* 20(4): 367-383.

Wilson, John S.; Catherine L. Mann; and Tsunehiro Otsuki. 2003. "Trade Facilitation and Economic Development: Measuring the Impact". Policy Research Working Paper No. 2988, World Bank.

Woo, Yuen-Pau. 2004. *APEC's Trade Facilitation Action Plan: A Mid-Term Assessment*. Canada: Asia-Pacific Foundation of Canada.