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TRADE RELATIONS BETWEEN AUSTRALIA AND THAILAND: 1990 TO 2011

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DISCUSSION PAPER 13.26

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ABSTRACT

This paper examines the trade relations between Australia and Thailand over the period 1990-2011 with special emphasis on the trade patterns and trade performance of these two nations. The trade patterns are examined with regard to the changes in trade composition, the intra-industry trade index and trade intensity index. Trade performance is measured with the aid of standard techniques used in the literature such as the revealed comparative advantage index, the cosine index of trade similarity, net exports ratio and constant market share analysis (CMS). The findings of the paper suggest that the composition of bilateral trade has changed significantly since the 1990s. These changes have resulted from the economic and trade reforms that have taken place in these two countries during the period under review. The changes reflect shifts in the production structures of each economy which are indicative of long-term economic structural changes. It is evident that the Thai-Australian trade relationship has undergone further adjustment since the establishment of the Thailand Australia Free Trade Agreement (TAFTA) in 2005. However, the changes in trade patterns are not necessarily due to TAFTA but, rather, part of a long term trend. With regard to the trade performance of each nation, the strongest trade link between the two countries has been the export of automotive vehicles from Thailand to Australia. Moreover, the CMS analysis indicates that Thailand's export competitiveness significantly contributed to the remarkable growth of exports to Australia it experienced over the period. In comparison, Australia's export growth to Thailand did not result from any improvements in its competitiveness. In fact, Australian exports to Thailand have suffered; the main reason being that Australia enjoys competitiveness in commodities, which are not in big demand in Thailand.

Keywords: Trade intensity, revealed comparative advantage, constant market share analysis and Free Trade Agreement.

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I. Background

Australia and Thailand began formal diplomatic relations in April 1952 when Mr. B.C. Ballad was named the Minister of the Australian Legation in Bangkok. By 1956 Australia and Thailand had each appointed ambassadors to strengthen ties to one another (DFAT, 2012a). The long-term culmination of these efforts was the establishment of the Thailand-Australia Free Trade Agreement (TAFTA) in 2005 (DFAT, 2011a). Seven years later, in 2012, Australia and Thailand marked 60 years of bilateral relations in recognition of the importance of their transnational ties and the need for the sustained growth of Australian-Thai relations into the future. During 2011, Australia ranked as Thailand's 6th largest trading partner, while Thailand ranked as Australia's 9th largest trading partner (DFAT, 2012b), highlighting the importance of bilateral trade relations between these two countries.

Over the period 1990-2011, both Thailand and Australia have experienced annual GDP growth at significant levels; 3.13% for Australia and 4.18% for Thailand (Table 1). In terms of growth in per capita GDP, Thailand also outperformed Australia. Thailand's per capita income grew at an average rate of 3.49% compared to Australia's 1.77% (Table 1).

Higher relative growth in Thailand can be explained with the aid of Gerschenkron's Relative Backwardness Hypothesis which predicts, "the lower a country's economic level (measured by GNP per capita) at its modern economic growth starting point, the higher its economic growth rate is thereafter" (Minami, 1994, p. 38,). According to this hypothesis, latecomers are able to adopt the advanced technology which has already been developed by the advanced countries. Thailand's per capita GDP in 1990 was US$1,391 compared to that of Australia's US$17,553. By 2011, Australia's per capita GDP increased by approximately 1.4 times to US$25,307; whereas Thailand's per capita GDP almost doubled to US$2,699.

The remarkable success in economic growth of these two countries resulted from numerous factors, the most dominant ones being the opening up of the two economies through various trade and economic reforms and shifts in trade and industrial policies. Australia embarked on a movement towards free trade agreements in 1983 with the adoption of the Australia-New Zealand Closer Economic Relations (ANZCER) agreement. Australia is a founding member of the Asia-Pacific Economic Cooperation (APEC) forum, founded in 1989, and is also involved in international organisations including the G20 summit, OECD[1] and WTO[2]. As of May 2013 Australia has 7 FTAs established[3] covering 28% of Australia's total trade, (DFAT, 2012c) with 9 more FTAs under consideration or negotiation.[4]

In addition to the TAFTA, Thailand has established free trade agreements with the Association of Southeast Asian Nations (ASEAN). It is a founding member of the ASEAN Free Trade Area (AFTA) which was signed on 28 January 1992 in Singapore. Thailand has other "discriminatory FTAs" with China, Japan, New Zealand, Peru and India, which vary in breadth and depth (Sally, 2007).

Australia and Thailand are members of APEC and WTO, both of which assist towards the establishment of free trade agreements to varying degrees. The ties between Thailand and Australia were significantly strengthened with the signing of the TAFTA in 2005 and further multilateral collaboration in similar forums (for example, ASEAN-Australia-New Zealand Free Trade

[1] Organisation for Economic Co-operation and Development
[2] World Trade Organisation
[3] ASEAN-New Zealand, Chile, New Zealand, the United States, Malaysia, Singapore and Thailand FTA.
[4] Australia-China FTA, Australia-Gulf Cooperation Council (GCC) FTA, Australia-India Comprehensive Economic Cooperation Agreement, Australia-Japan FTA, Australia-Korea FTA, Indonesia-Australia Comprehensive Economic Partnership Agreement, Pacific Agreement on Closer Economic Relations (PACER) Plus, Regional Comprehensive Economic Partnership and Trans-Pacific Partnership Agreement

Agreement signed in 2010) has enhanced a low-tariff environment with Australia and surrounding South-East Asian countries including Thailand (DFAT, 2012d).

The TAFTA resulted in the immediate removal of tariffs amounting to 78% of Thai imports from Australia and 47% of Australian imports from Thailand at the time of adoption in 2005. Another 36% of Australian imports from Thailand were already tariff free (DFAT, 2011b). The agreement was Thailand's first comprehensive bilateral Free Trade Agreement (FTA). In the 5 years since its adoption in January 2005, two-way trade doubled between Australia and Thailand, reaching AU$20 billion in 2010 (DFAT, 2012b).

Aside from the reduction of tariffs, the TAFTA provided other important benefits for Australia; the opening of inter-country service markets, increasing investor access and investor protection for foreign investment in Thailand, and easing visa requirements for temporary business people visiting Thailand (DFAT, 2011b).

However, it should be noted here that like the disparity in the level of per capita income and economic growth between Australia and Thailand, the average tariff rates of these two countries also differ significantly. Thailand, especially, is lagging behind Australia in this regard. In 2011, Australia had an applied tariff rate of 2.8% on all goods as opposed to Thailand's rate of 9.8% (WTO, 2012).

II. Motivation and Plan of the Study

Given the significant developments in trade relations between Australia and Thailand over the last two decades, an in-depth analysis of various aspects of the bilateral trade between these two nations warrants special attention. So far, as shown below, very few studies have conducted a comprehensive analysis on trade between these two countries utilising available measures for trade patterns and the trade performance of a nation.

Athukorala and Kohpaiboon (2011) examined the effect of the TAFTA on bilateral trade with attention given to rules of origin, tariff preferences and the consequences of these factors in analysis of the effectiveness of the agreement. They note that trade has risen between Australia and Thailand since the FTA was signed, however the rise has been fuelled by the expansion of imports to Australia, these imports being dominated by the supply of motor vehicles from Thailand. They suggested that the preference rates which were officially declared, as well as supply side factors, were likely to overstate trade flow effects of FTAs in trade flow modeling, including in the TAFTA.

Other studies have focused on Thailand's recent worldwide FTA initiative, development and future challenges. Sally (2007) describes how FTAs have become integral to Thai trade policy and suggested that other forms of free(r) trade are being neglected. These include unilateral liberalisation available to Thailand through the World Trade Organisation (WTO) and the Association of South East Asian Nations (ASEAN), in addition to internal regulatory reform. Sally comments that the FTAs Thailand has agreed to are weak and sector specific, which has reduced the potential of strong FTAs to create trade for Thailand.

Chirathivat and Mallikamas (2004) discuss Thailand's recent policy towards FTAs. Their paper generalises the implications of Thailand's emergence as a significant bilateral trade partner with other countries via FTAs. It was published before the TAFTA was adopted and provides a discussion of the general benefits and concerns of Thailand's recent proliferation of FTAs.

It appears from the above analysis that literature dealing with in-depth analysis of bilateral trade between Australia and Thailand is really quite scarce. The purpose of this paper is to fill this gap in

the literature. It aims to examine various aspects of bilateral trade between Australia and Thailand from 1990 to 2011 with particular emphasis on the measurement of trade competitiveness of these two countries. It is expected that the findings of the study will benefit policymakers in the trade areas of these two countries.

The paper is divided into 7 main sections. The next section (III) is devoted to an overview of various techniques that are used in the literature to measure the trade performance of a nation, followed by a brief description of the sources and classification of data used in this study in Section IV. Section V examines the patterns of bilateral trade between Australia and Thailand and Section VI analyses the trade competitiveness of these two countries. As usual, the last section deals with conclusions and policy implications in light of the major findings of the study.

III. Measurement of Trade Performance

The analysis of trade performance can be traced back to 1949 with Brown's pioneering work on developing trade intensities (Brown, 1949). Prior to this, as acknowledged by Brown himself, studies regarding the pattern of international trade were scarce, thus highlighting the potential for research in this field. In his book *Applied Economics*, Brown developed a trade intensity index to analyse aspects of the pattern of world trade and to provide a deeper understanding of the importance of particular trading relationships. Brown's work laid the foundation for further studies to examine trade patterns and the trade performance of a nation. This section examines various tools that have been developed over the years to measure trade patterns and the relative trade performance of a country since Brown's publication in 1949.

(i) Intra-Industry Trade Index (IITI)

Grubel and Lloyd (1975) developed the Intra-industry Trade Index to measure trade in similar products between two countries or regions. It is a relatively simple index that does not differentiate between horizontal and vertical trade flows in similar products. As highlighted by the OECD Economic Outlook (OECD, 2002), horizontal trade flows allow countries with similar factors of production to benefit from economies of scale, while vertical trade may reflect different factor endowments across economies, thus indicating two different trading relationships are captured by the same measure.

The IITI is given by:

$$IITI = \left(1 - \frac{\left|X_{ij} - M_{ij}\right|}{X_{ij} + M_{ij}}\right) * 100 \qquad (1)$$

Where X_{ij} is country i's exports of product j to its trading partner, and M_{ij} is country j's imports of product j from the same trading partner.

The IITI varies from 0 and 100. When it is zero, it indicates the complete absence of intra-industry trade; and when at 100, the exports and imports value of a given product between the trading partners are exactly the same, i.e. there is 'perfect' intra-industry trade.

(ii) Trade Intensity Index (TII)

Kojima (1964) utilised a **trade intensity index** to analyse the pattern of trade among advanced countries, for example, amongst the European Economic Community (as it was then). The relative importance of a particular trading partner to a country is measured by the intensity indices of either

exports or imports. It measures the share of one country's trade with a selected trading partner as a proportion of the latter country's share of trade with the rest of the world. Symbolically,

$$TII_{X_{ij}} = \frac{\frac{X_{ij}}{X_i}}{\frac{M_j}{M_w - M_i}} \qquad (2)$$

Where: X_{ij} = Country i's exports to country j; X_i = Country i's total exports to the world; M_j = Country j's total imports from the world; M_w = total world imports; and M_i = Country i's total imports from the world. The trade intensity index takes values ranging from 0 to finite positive numbers.

(iii) Revealed Comparative Advantage Index

Balassa (1965) introduced the **export specialisation ratio** as a measure of comparative advantage. He examined the effects of trade liberalisation in the long-run, inferring that the changing commodity pattern of trade reflects changing relative costs as well as differences in non-price factors. In this sense, changes in comparative advantage were 'revealed' over time and so developed the **revealed comparative advantage index (RCAI)**. Some difficulties exist with the measure. For example, the assumptions made are relatively unrealistic, such as the uniformity of tastes and import duties. Also, the calculation may be distorted by trade barriers. Nonetheless, the aim of the measure was to determine and show the benefits of international specialisation and associated economies of scale. The index is given by:

$$RCAI_{ij} = \frac{X_{ij} / X_i}{X_{wj} / X_w} \qquad (3)$$

Where X_{ij} is country i's exports of product j, X_i is country i's total exports, X_{wj} is world exports of product j, and X_w is world exports. The index returns positive values. A value of unity implies the export performance of country i for product j matches its relative size as an exporter. Any revealed comparative advantage index greater than one implies country i exports a particular good above what should be expected given its size therefore suggesting country i has a competitive advantage in that commodity. This index can therefore be applied to see whether variations in the composition of trade are consistent with variation in each nation's competitive advantage.

(iv) Cosine Index of Trade Similarity

The cosine index of trade similarity is designed to show the extent to which a nation's exports are compatible with another nation's imports (Linnermann, 1966). In this sense, it is a useful approximation of the potential for trade between nations. The index is calculated as follows:

$$CITS_{ij} = \frac{\sum_k x_{ik} m_{jk}}{\sqrt{\sum_k x_{ik}^2 \sum_k m_{jk}^2}} \qquad (4)$$

Where i, j and k refer to the exporting country, importing country and commodity class, respectively. Further x and m refer to exports and imports, respectively. This index is the cosine of the angle between the vector of country i's exports x, and the vector of country j's imports m. The index varies between zero and one. A value of unity implies that the nation's exports are very

similar to its partner's imports, making bilateral trade likely. In contrast, a value of zero implies there is no potential for trade.

(v) Net Exports Ratio

The net export ratio is a simple measure, reflecting the magnitude of the trade balance between two nations for a given commodity, expressed as a percentage. It is constructed as follows:

$$nx_{ij} = \left(\frac{X_{ij} - M_{ij}}{X_{ij} + M_{ij}} \right) \qquad (5)$$

Where: X_{ij} = country i's exports of commodity j to a given nation

M_{ij} = country i's imports of commodity j to the same given nation

The index ranges between -100%, when the good is imported to country *i* but not exported, and +100%, when the good is exported from country i but not imported. The net exports ratio can be used as an approximation to identify which country has a comparative advantage in each industry. However, it does suffer from the same problems as the revealed comparative advantage index, in that it cannot exclude price-distorting influences. The net export ratio differs from the revealed comparative advantage index in that it considers bilateral trade flows.

(vi) Constant Market Share Analysis

The CMS analysis was designed to decompose various sources of export growth. Assuming a country's share of exports in world markets remains unchanged over time, export growth may be divided into structural and 'competitiveness' terms. According to Leamer and Stern (1970) CMS analysis could be used to indicate to policy makers the most advantageous distribution of exports and to provide reasons as to why export growth might not reach its potential. Furthermore, they suggested CMS analysis might be useful in export projections, with the associated but potentially important assuming away of the competitiveness effect.

The measure it set out below;

$$\underbrace{\frac{E_{ij} - E_{ij}^{'}}{E_{ij}^{'}}}_{\text{export growth}} = \underbrace{r_{wj}}_{\text{standard growth}} + \underbrace{\frac{\sum_{k=1}^{comm} \left(r_{kwj} - r_{wj} \right) E_{kij}^{'}}{E_{ij}^{'}}}_{\text{commodity consumption}} + \underbrace{\frac{\sum_{k=1}^{comm} \left(E_{kij} - E_{kij}^{'} \left(1 + r_{kwj}^{'} \right) \right)}{E_{ij}^{'}}}_{\text{competitiveness}} \qquad (6)$$

$$r_{wj} = \frac{W_{wj} - W_{wj}^{'}}{W_{wj}^{'}} \qquad (7) \qquad r_{kwj} = \frac{W_{kwj} - W_{kwj}^{'}}{W_{kwj}^{'}} \qquad (8)$$

Where: r_{wj} = growth of world exports to Country j

r_{kwj} = growth of world exports of commodity k to Country j

E_{ij} = Country i's exports to country j

E_{kij} = Country i's exports of commodity k to Country j

W_{wj} = World exports to Country j

W_{kwj} = World exports of commodity k to Country j

'Indicates the value is from the previous time period

The terms on the right-hand-side represent the standard growth component, the commodity composition effect and the competitiveness residual respectively. The standard growth component measures the growth in world exports to country *j*. Discrepancies between world export growth and country *i*'s export growth to country *j* can be attributed to the commodity composition effect and the competitiveness residual. The commodity composition effect shows the extent to which country i is exporting commodities in high demand from country *j*. The competitiveness residual is assumed to be the change in export performance caused by a change in the competitiveness of country *i*'s export industry. A positive competitiveness residual suggests country *i*'s export growth to country *j* exceeds world growth for most commodities. The analysis can also be expanded to examine cases for multilateral trade flows, in which case a market distribution effect is also included.

Despite the appeal of CMS analysis, Richardson (1971) has identified some 'fundamental' problems with the tool, both theoretical and practical. On a theoretical basis, the 'competitiveness' residual, might not accurately convey changes in relative price competitiveness and could encompass changes in other factors not normally associated with competitiveness. Practical difficulties include the 'arbitrary' assumptions that have to be made, for example, the levels of commodity aggregation. Such questioning of the basis of CMS analysis erodes its policy relevance. Nevertheless, CMS analysis remains a useful tool to analyse and decompose different influences on trade flows.

IV. Sources and Classification of Trade Data

As this paper employs various quantitative techniques, it requires the classification of trade data into several types of goods. The classification used in this paper is based on the Standard International Trade Classification (SITC-revision 3) which classifies trade flow data into 10 different categories indexed from 0-9, as shown below. The figures are taken from relevant issues of Comtrade, from the United Nations Statistics Division. Most of the calculations for the trade measures are based on single digit SITC commodities. However, further decomposition into double digit SITCs was required for the cosine index of trade similarity to estimate results for each single digit SITC. Additionally SITC68, SITC74 and SITC78 were identified as important double-digit categories and analysed separately in some sections.

A list of the full classification names for the SITC (revision 3) follows:

SITC 0	Food and live animals
SITC 1	Beverages and tobacco
SITC 2	Crude materials, inedible, except fuels
SITC 3	Mineral fuels, lubricants and related materials
SITC 4	Animal and vegetable oils, fats and waxes
SITC 5	Chemicals and related products, n.e.s.
SITC 6	Manufactured goods classified chiefly by material
SITC68	Non-ferrous metals
SITC 7	Machinery and transport equipment
SITC74	General industrial machinery and equipment, n.e.s., and machine parts, n.e.s.
SITC78	Road vehicles (including air-cushion vehicles)
SITC 8	Miscellaneous manufactured articles
SITC 9	Commodities and transactions not classified elsewhere in the SITC

Only the SITC codes and a simple descriptor are included in tables for simplicity and convenience.

V. Patterns of Bilateral Trade between Australia and Thailand

(i) Australia's Trade with Thailand and the World

Table 3 illustrates Australian trade with Thailand and the world. As of 2011, Australia's total trade with Thailand was valued at US$15.25 billion, compared to US$479.95 billion for the world. To give some perspective, trade with Thailand was just US$0.82B in 1990, so it has risen 19-fold to 2011, whereas Australia's trade with the world has risen only 6-fold during the same period. Australia's imports and exports with Thailand have both grown considerably during 1990-2011 (Table 3). Australia was a net exporter to Thailand from 1990 until 1997 but has been a net importer each year since 1998. Australia has been a net importer to the world for 16 out of the 22 years under consideration. Since 2000, Australia has mainly been a net importer. Therefore some of the Australian-Thai net import trends can be explained by Australia's general position as a net importer with the world.

Australia's share in Thailand's trade has increased from 1990 to 2011 (Table 4). The percentage of Australia's exports to Thailand's total exports has increased from 1.62% to 3.49% during this period. This peaked in 2009 when the proportion was 5.63%, but it has since decreased to 3.49% in 2011. Over the same time, the share of Australian imports to Thailand's total imports has increased from 1.68% to 3.48%. Interestingly, the year 2011 witnessed the largest increase in this ratio. Australia's share of Thailand's total trade increased considerably between 1990 and 2011 with some minor fluctuations (Table 4).
Thailand's share in Australia's exports and imports all began at close to 1.65% in 1990 (Table 5), but by 2011 they had grown to 2.66%, 3.72% and 3.18% (exports, imports and total trade respectively). Thailand's import share of Australia's total imports increased impressively from 2.68% in 2004 to 5.80% in 2009, highlighting a particularly strong period for Thailand, which was close to the introduction of the TAFTA. However, this growth trend didn't continue beyond 2009 possibly due to a series of floods that hit major areas in Thailand inhibiting exports to Australia.

Together, Tables 4 and 5 show that there has been growth across the board for Australian and Thai trade relative to the total trade in each country. Of particular note is the potential seen in the 2004 to 2009 period, for Thailand to become a major contributor of exportable goods to Australia. If it can increase these exports again, the importance of Thailand to Australia cannot be understated. The next section will examine the changes in composition of export trade between Australia and Thailand.

(ii) Changes in Composition of Trade

The composition of Australia-Thailand trade has evolved significantly over the period 1990 to 2011. However, it is evident that there is uncertainty as to what impact the TAFTA has had as a determinant of the recent changes in bilateral trade composition.

Table 6 shows that as of 2011, Australian exports to Thailand were surprisingly dominated by the commodity group SITC9 (otherwise not classified). Further breakdown reveals that this was mainly due to the exports of SITC97 (gold, nonmonetary, excluding gold ores and concentrates) which accounted for over 85% of SITC9 from 1990 to 2011 and was often much higher. Two decades ago this was not the case; during 1990, exports of manufactured goods (SITC7) made up 43.5% of exports to Thailand. Thus, there have been long term structural changes which contributed to this significant shift in trade composition between these two countries. As is evident from Table 6, by 2011, the proportion of Australian manufactured goods exported to Thailand dramatically fell to 14%. This decrease in the share of Australian exports of manufactured goods to Thailand has been

partially offset by an increase in exports of mineral fuels (SITC3) from 7.5% in 1990 to 22.4% in 2011 and nonmonetary gold (SITC97), as previously mentioned.

Mineral fuels (SITC3) reached 33.3% of Australian exports to Thailand in 2010 but dropped in 2011 to 22.4%. Crude materials (SITC2) consisted of 7% of Australian exports to Thailand in 2011 but reached 22.7% in 2000 prior to the introduction of the TAFTA.

The remaining categories; Food and live animals (SITC0), beverages and tobacco (SITC1), animal and vegetable oils and fats (SITC4), chemicals (SITC5) and miscellaneous manufactured articles (SITC8) have fluctuated over the 1990-2011 period but have remained small proportions of Australian exports to Thailand.

Table 6 also exhibits the growth rates in each commodity group between 1990 and 2011. It is apparent that the growth rates in exports of SITC1 (16.4%), SITC3 (19.4%) and SITC9 (31.5%) were well above the overall growth rate (13.3%) of all the commodity groups. Growth in SITC9 was almost solely driven by the growth in SITC97. Of the three groups, SITC3 and SITC9 held significant proportions of Australian exports to Thailand. It can be inferred that these were the most important commodity groups for Australia during that period as they contributed to over 60% of Australia's exports to Thailand in 2010 and 2011, and had the strongest growth from 1990 to 2011.

Table 7 shows that since 2000, close to half (often more than half) of Australia's imports from Thailand (i.e. Thailand's export to Australia) have been machinery and transport equipment (SITC7). The underlying reason for this has been the expansion of Thailand's automotive imports to Australia. In 2011 no SITC category, other than SITC7, accounted for more than 10% of Thailand's exports to Australia. Looking at the proportions of imports in 1990, however, it is evident that much has changed since then. In 1990 food and live animals (SITC0), manufactured goods (SITC6) and miscellaneous manufactured articles (SITC8) shared a combine total of 82.3% of Thailand's exports to Australia, while in 2011 their total had fallen to 28.6%.

The export ratio of machinery and transport equipment (SITC7) from Thailand to Australia has risen considerably since the signing of TAFTA in 2005 with some fluctuations. In 1990 the proportion of SIT7 imports was 10.2%, which increased to 62.1% by 2005. It did decrease to 54.9% in 2011, but this is still significantly higher than its 1990 level.

SITC7 represented 54.9% of imports to Australia in 2011 (Table 7), however it is a sub-commodity of SITC7 that is the major interest. Road vehicles (SITC78) represented 64.7% of SITC7 in 2011 which translates to a proportion of over 35% of total imports to Australia from Thailand for this year. SITC78 has also had impressive growth, with an average growth rate of 46.7%. The growth and change in the proportion of SITC78 over the period indicates that it has been a major driver of the change in trade composition between Australia and Thailand in SITC7 and overall.

From the last column of Table 7, the commodities which have had growth above Thailand's average export growth to Australia (i.e. 16.1%), were SITC3 (54.0%), SITC5 (18.5%), SITC7 (25.9%) and SITC9 (76.31%). Of these only SITC7 held a large proportion of total exports in 2011 as discussed above. SITC9 had such a high growth rate because it started at close to 0 in 1990. SITC3 had exceptional growth but in 2011 was still only 3.6% of total Thai exports. If SITC3 continues to grow at high rates, it may drive increases in exports from Thailand to Australia in the future.

Overall Australia's imports from Thailand have had a much sharper increase than Australia's exports to Thailand. Australian imports from Thailand almost tripled in value from 2005 to 2010,

whereas during the 5-year intervals before the introduction of the TAFTA it only doubled (1990-1995, 1995-2000 and 2000-2005). While a strong upward trend has continued in imports, the composition has not changed significantly since the introduction of the TAFTA. It can be seen in Table 7 that besides SITC9 and SITC7 no category has moved more than ±2% when comparing 2005 to 2011.

(iii) Intra-industry Trade

The Thai-Australia intra-industry trade index shows the changing trends of intra-industry competition between Australian exports and Thai's imports in Table 8. The trade classifications which have averaged a relatively higher intra-industry trade index between 1990 and 2011 include manufactured goods (SITC6: 75.21), chemicals (SITC5: 74.38), animal and vegetable oils and fats (SITC4: 67.33) and beverages and tobacco (SITC1: 65.81).

With Australia's strong competitiveness in resources and Thailand's impressive growth in exports to Australia it is interesting to see that intra-industry trade of mineral fuel (SITC3) has fluctuated widely between the two countries. In 2010 and 2011 it was 29.83 and 34.87 respectively. It peaked in 2000 at 95.59 but by 2005 had fallen to 66.03. These fluctuations will be examined more closely in Section V (ii) with regard to the cosine index of trade similarity.

The intra-industry trade index for manufactured goods (SITC6) rose from 60.65 in 1990 to 80.25 in 2000, but had fallen to 68.16 by 2005. Since the introduction of the TAFTA, the index has risen to very high levels reaching 99.20 in 2011. This indicates the high level of competition currently taking place within the manufacturing industries of Thailand and Australia. The change has been fueled by stronger import growth from Thailand relative to export growth to Thailand in SITC6. As shown in Tables 6 and 7, these growth rates were on average 7.34% and 11.25%, respectively, between 1990 and 2011.

The intra-industry trade indices of SITC5 and SITC1 have also risen but are less relevant since their composition of imports and exports have been less than 6% and 1% each in 2011 (Tables 6 and 7). Of the two commodity groups, SITC5 (chemicals) has shown very strong import growth averaging 18.51% (Table 7). If this trend continues, there is a strong potential for intra-industry trade and competition in this commodity group between Thailand and Australia in the coming years.

Data in Table 8 shows that Australia's intra-industry trade index for the SITC7 commodity group (machinery and transport equipment) was quite high in the early 1990s (83.73 in 1990 and 93.64 in 1995 respectively). By 2000, however, it fell to 21.33 and has not recovered since then. The reason for this significant drop is the stronger competitiveness of Thailand's automotive industry. On average, Thailand's SITC7 imports to Australia have grown at an impressive rate, 25.9% between 1990 and 2011 (Table 7). Conversely, exports of this commodity group from Australia to Thailand have decreased during the same period (Table 6). This trend is unlikely to change in the coming years as Australia is now very reliant on transport equipment from Thailand and the Australian automotive industry continues to struggle with cost-competitiveness.

The most important industries for both Australia and Thailand, which showed the potential for intra-industry trade were SITC1, SITC4, SITC5 and SITC6. They each had an average index value of more than 65 over the period (Table 8). This type of trade will benefit Australia and Thailand more than dominant exports from one country to the other since each industry can benefit from the other. SITC1 and SITC4 held very small proportions in 2011 (<0.5%) of total exports and imports (Table 6 and 7). SITC5 performed better but was still less than 6% in both categories. SITC6 held 14.0% of Australian exports to Thailand and 9.7% of Thailand's exports to Australia. Because of these facts, only the intra-industry trade index for SITC6 (Manufactured goods) is significant and

the high averages of the other commodity groups can be discounted. More importantly, the intra-industry trade indices which were quite low for the other categories are significant in identifying the nature of Thai-Australian bilateral trade. That is, the trade between Thailand and Australia is very one directional and the intra-industry trade index exhibits that there is little potential for trade collaboration between these countries.

(iv) Trade Intensity

The trade intensities for Australian exports and imports with Thailand in the period 1990-2011 indicate that the driver for most of the bilateral trade is an increase in import intensity, from 1.4 to 2.9 (Table 9). The import intensity index was above 4 from 2008 to 2011, which explains the high growth during this period. Export intensity with Thailand, however, has fallen from 8.5 in 1990 to 0.4 in 2011. This means that the importance of Thailand, as one of Australia's major exporting destinations, has diminished extensively although it has gained some ground as an importing partner.

Australia's import intensity from Thailand has risen steadily from 1995 and continued to rise after the introduction of the TAFTA. The index varied between 1.4 and 2.5 in the pre-TAFTA (1990-2004) period. It increased to 2.9 in 2005 and reached to a maximum of 4.7 in 2009, dropping back to 2.9 in 2011. Thus, it is hard to say whether the TAFTA has played any significant role in the increase in Australia's import intensity.

The trend in Australian export intensity to Thailand fell significantly between 1990 and 2011, falling dramatically from 8.5 in 1990 to 0.3 in 2004. In the post-TAFTA period (2005-2011) it remained more or less stagnant at a very low level ranging from 0.4 to 0.3. This clearly shows that the export intensity of Australia to Thailand was weak even before the introduction of the TAFTA. If the agreement was solely intended, from Australia's perspective, to increase export intensity to Thailand then the TAFTA has failed in this respect.

The trade intensity index shows clearly that Thai-Australian bilateral trade has been dominated by an improvement in Thailand's export to Australia and that the TAFTA has had few significant positive outcomes for Australian exports to Thailand. Overall the trend in bilateral trade has been influenced by a shift in the focus of Australia to the resources sector. The TAFTA has therefore contributed to enhanced economic growth in Thailand as Thailand has outperformed Australia in export trade.

VI. Trade Competitiveness

(i) Revealed Comparative Advantage Index

Australia's competitive RCAI categories (Table 10) are food and live animals (SITC0), crude materials (SITC2) and mineral fuels (SITC3), each with a RCAI well above unity; 1.55, 7.92 and 2.17 in 2011 respectively. Australia's export specialisation overwhelmingly lies in SITC2 which has been above 5 since 1990. As seen in Table 6, export composition from Australia to Thailand in SITC2 has been dropping. The reason for such a poor performance is that, despite being internationally competitive in this industry, Australia's exports have not aligned with Thailand's import needs. This point is revisited in Section V (ii) with regard to the cosine index of trade similarity.

Australia's RCAI for non-specialised commodity groups (SITC1 and SITC4-8) remained below unity in each of the selected years between 1990 and 2011 (Table 10). In fact, the RCAI for most of these commodities failed to increase during this period, the exception being beverages and tobacco

(SITC1) whose RCAI did increase. The RCAI for crude materials (SITC2) has increased significantly in each 5 year interval since 1995 possibly due to Australia's increased specialisation in mining over the past decade which has obviously impacted Australian competitiveness in other industries.

Of the 2 digit commodities in Table 10, only non-ferrous metals (SITC68) had a value above unity, contrary to its parent group, SITC6. Australia's advantage in SITC68 was highest in 1990 and 2000 (RCAI > 4) but has fallen in 2005, 2010 and 2011 ending at 1.82. This has happened concurrently to SITC2, which has been increasing steadily. Perhaps production of non-ferrous metals has fallen due to the strong emphasis on the production of crude materials (SITC2) in Australia. In any case, as seen in Table 6, given the large proportion SITC68 holds in SITC6 (71.9%) and in turn SITC6 holds overall (14.0%) , the decrease in specialisation of SITC68 by Australia may explain the below average growth of SITC68 which was 7.09% (Table 6).

Thailand's specialisation according to the RCAI (Table 11) lies in food and live animals (SITC0), and crude materials (SITC2) with an RCAI of 2.18 and 1.67 respectively. Interestingly Thailand's biggest export to Australia, automobiles within SITC7, has only a slight advantage compared to other countries, with an RCAI of 1.21 in 2010 and 1.09 in 2011. Yet the composition of Thailand's exports (Table 7) to Australia shows clearly that machinery and transport equipment (SITC7) dominates these exports.

Transitions in Thailand's specialist exports have occurred over the period and include; the steady fall in food and live animals (SITC0) from 3.81 in 1990 to 2.18 in 2011, the rise in machinery and transport equipment (SITC7) from 0.55 in 1990 to 1.21 in 2010 and the fall in miscellaneous manufactured articles (SITC8) from 2.22 in 1990 to 0.94 in 2011. These movements in specialisation on a global level have in fact been reflected in the composition of Australian imports from Thailand (Table 7). Although each of the above categories has experienced growth, they have also gained or lost a proportion of total imports in line with the rise or fall of their RCAI.

Delving further into the most important commodities with respect to Thailand's exports to Australia, SITC74 and SITC78 have increased significantly from 0.54 and 0.1 in 1990 to 1.06 and 1.00 in 2011, respectively. The changes in the RCAI toward unity of these two categories are important in explaining the growth in SITC7. However, a value close to unity, does not explain the dominant growth in SITC7 well because it only implies that Thailand is about as good as the rest of the world in producing SITC7. This puts Thailand in a position to export these goods competitively but it is other economic factors that make Australia such a high importer of SITC78 (Road vehicles) and SITC7 as a whole. These factors may include the proximity of Australia and Thailand, for example. It is unlikely, however, to be due to the TAFTA because of the small change in proportion of SITC78 from 2005 to 2010 and the general trend predating the TAFTA (Table 7).

In the following section, the cosine index of trade similarity is employed to explain the discrepancies in the movement in composition of Thai-Australian exports and imports as compared to the changes in the RCAI.

(ii) Cosine Index of Trade Similarity

The overall Cosine Index of Trade Similarity (CITS) reveals that Thailand is in a strong position to export to Australia. From 1990 to 1995, Thailand's CITS rose from 0.72 to 0.89 (Table 13) and has hovered above 0.94 since then. Thailand's CITS with Australia was consistently at a relatively higher level; it is easy to see why Thailand gained in export trade with Australia in the post-TAFTA period. Compatibility and reduced export restrictions have obviously helped Thailand enhance its exports to Australia. In Table 14, Australian exports have been getting less compatible with Thai

imports since 2008, dropping from a high of 0.64 in 2008 to 0.48 in 2011, its lowest level in the past 22 years. Even though exports are rising from Australia to Thailand it is not due to a well aligned need for goods from Thailand or availability of goods in Australia.

The CITS for Thailand's exports and Australia's imports of individual commodities, specifically the ones in which Thailand specialises, as determined by the RCAI, are food and live animals (SITC0), crude materials (SITC2) and, machinery and transport equipment (SITC7). SITC0 averaged 0.79 since 1990 which is below the overall average CITS for Thailand's exports to Australia (Table 14) but still indicates that Thailand is well positioned to export food and live animals to Australia. Thailand does in fact export relatively more of SITC0 to Australia [see Section V (iii)]. Crude materials (SITC2) had an average CITS of 0.32 explaining the low volumes of exports in SITC2 exported by Thailand to Australia. SITC7, driven by exports from Thailand's automotive industry, has performed well in its CITS value. This can be seen in Table 14 with an average CITS of 0.77 from 1990 to a high of 0.90 recently in 2010. Coupled with Thailand's specialisation in SITC7 (RCAI was 1.21 in 2010), and Australia's fall in specialisation of SITC7 over that period, it follows that Australia is not as competitive in this industry as it once was.

The CITS for Australia's exports and Thailand's imports of individual commodities in which Australia specialises are crude materials (SITC2) and mineral fuels (SITC3). SITC2 had an average index of 0.61 with only small fluctuations to this occurring and SITC3 averaged lower at 0.44, reaching 0.74 in 2000 but dropping to 0.35 by 2011 (Table 13).

The relatively low compatibility of the commodity groups that Australia usually specialises in for its export destinations and the fall in its CITS to its lowest level over the past 22 years, explains why Australia's exports to Thailand have failed to grow at the same rate as Thailand's exports to Australia.

(iii) Net Exports Ratio

The net exports ratio is conducted from Australia's point of view and can be seen in Table 15. Figures in Table 15 show that whilst some items have remained relatively stable, including food and live animals (SITC0), crude materials (SITC2) and miscellaneous manufactured articles (SITC8), most other items have varied significantly. Each of these stable items has averaged a net export ratio of -31.6%, 77.9% and -64.5% since 1990 respectively, revealing a comparative advantage in crude material for Australia and a comparative advantage in food and live animals and miscellaneous manufactured articles for Thailand.

There has been a definite downward trend in Australia's net exports ratio for machinery and transport equipment (SITC7) to Thailand. The net export ratio for this commodity group decreased from 16.8% in 1990 to -78.6% in 2011. There was rapid decrease over ten years, from 1990 to 2000 when SITC7 saw a drop from 16.8% to -78.6%. Since 2000, this ratio for SITC7 continued to decrease but at a much slower rate, ending at -92.3% in 2011. It does not appear that the TAFTA has affected this industry at all, given that since its introduction in 2005 the net export ratio for this commodity group has remained more or less stable. The transport industry was already heavily weighted in Thailand's favour due to the factors that existed prior to the signing of the TAFTA in 2005. So the apparent comparative advantage Thailand has in SITC7 is not due to the TAFTA; in fact, it has been affected by it very little.

Net export ratios estimated by classifying the SITC7 group of commodities at the 2 digit level demonstrate that the large swing in SITC7 was replicated in both SITC74 and SITC78. SITC78 in particular swung from 74.5% in 1990 to a high of -99.2% in 2010. Given these hold a large proportion of SITC7, particularly in imports, these two commodities were the main driver of the

overall trend in SITC7. The net export ratio for SITC78 has been below-95% since 2002 which reveals the importance of Thailand's automotive industry to Australia, even if Thailand doesn't have the greatest specialisation advantage, as shown in the RCAI [see Section V (i)].

Other areas of interest include mineral fuels (SITC3), which dipped negatively in the period 1998 to 2003. At other times, SITC remained above 35% in Australia's favour, averaging 42.3% since 1990.

(iv) Constant Market Share Analysis

Australia's exports to Thailand

Over the study period, 1990 – 2011, Australia's exports to Thailand grew at an average[5] of 13.16% per year (see Table 16). Meanwhile, Thailand's standard import growth from the world averaged less than this - increasing by only 10.43% per year. By CMS analysis, this disparity between Australia's export growth and standard growth is accounted for by a commodity composition effect and competitiveness residual. The years of significant negative growth in Australia's exports to Thailand (1996-98 and 2009) have been accompanied by negative standard Thailand import growth, but with no clear connection with commodity composition (demand of Australian exports from Thailand) or competitiveness.

The commodity composition effect increased on average by 1.40% per year, and has fluctuated from a low of -9.42% in 2000 to a high of 26.50% in 2011. This fluctuation means that in some years, commodity composition can play a significant role and that Thailand's demand for Australia's exports is quite volatile.

The competitiveness residual has increased on average by 0.84% per year, and has fluctuated from a low of -28.64% in 2011 to a high of 28.32% in 2004. Similar to commodity composition, it is clear there is a large volatility in competitiveness that can play a significant role in Australia's exports to Thailand. For example, the competitiveness level of -13.64% in 2003 explains the fall in export growth from 2002 to 2003.

Thailand's exports to Australia

Over the sample period 1990-2011, Thailand's exports to Australia grew on average by 17.0% per year (see Table 17). This far surpassed Australia's total import growth average of 9.3% per year. This discrepancy is significant because it indicates Thailand's continual rise as an important exporting partner to Australia.

The commodity composition effect has fallen on average by 0.8% per year, and has fluctuated from a low of -2.4% in 2000 to a high of 4.1% in 2009. This fluctuation is of small magnitude relative to the competitiveness residual, which has risen on average by 7.9% per year. The positive rate suggests Thailand's exports to Australia are growing at a rate higher than world exports for the majority of commodities. In aggregate terms, the competitiveness effect matches the standard growth component, and is important in explaining large swings in export growth in 2000-2001, 2003-2004 and 2010-2011.

Shortly after the introduction of the TAFTA, Thailand's competitiveness was strong with Australia; above 15% except in 2008 (8.2%). More recently, however, it has worsened. In 2010 it was 5.4% and in 2011 it fell to its lowest level of the period, -34.0%. Such a significant drop, considering the

[5] The average quoted in the CMS analysis is a geometric average.

strength of Thailand's competiveness before 2010, may be related to an exogenous event such as the Thailand flooding which coincided with the first fall in Thailand's competitiveness in 2010.

VII. Conclusions and Policy Implications

Since the 1990s, trade relations between Australia and Thailand have significantly changed. These changes are reflected in the bilateral trade patterns and trade performance of each nation in the other's market. Australia's share in Thailand's trade and Thailand's share in Australia's trade have improved between 1990 and 2011. The composition of bilateral trade has also changed over the years. In the case of Australia, the importance of manufactured goods (SITC6) as one of the key export commodity groups significantly decreased. Its ratio of total exports to Thailand decreased from 43.5% in 1990 to 14.0% in 2011. On the contrary, the share commodity group SITC9 (otherwise not classified) increased dramatically from 1.7% in 1990 to 39.6% in 2011. Interestingly, gold and non-monetary goods (SITC97) constituted between 97.4% and 99.6% of the goods under the SITC9 commodity group during 1990-2011. For Thailand, it lost ground in terms exporting food and live animals (SITC0). The contribution of this group of commodities to Thailand's total exports to Australia decreased from 32.5% in 1990 to 9.6% in 2011. Another commodity which lost market share in Australia was manufactured goods (SITC6). Its relative share decreased from 23.9% in 1990 to 9.7%. Surprisingly, the increase in the ratio of Thailand's export of machinery and transport equipment to Australia has been quite impressive, increasing from 10.2% in 1990 to 54.9% in 2011. Most of the goods in this commodity group came from Thailand's automobile sector (mainly vehicles) whose contribution, to SITC6, increased from a mere 2.6% in 1990 to 64.7% in 2011.

In terms of trade performance, Australia has lost some of its competitiveness in food and live animals, and mineral fuels and lubricants perhaps due to its shift in export focus to crude materials. Whereas Thailand has automotive vehicles driving exports to Australia, Australia has no equivalent export industry for Thailand. This is surprising given the high RCAI in crude materials; Australia's speciality. The CITS analysis exhibits that Thailand has very little need for Australia's crude materials, regardless of how good Australia is at producing them.

There has been a remarkable shift in Australia's trade policy since the 1980s. Australia has gradually deregulated its industrial sector by withdrawing government protection for domestic industries. Unfortunately, this sector has remained globally uncompetitive. On the contrary, the growth in demand for Australian mineral resources specifically in India and China, has contributed to significant expansion of the mining sectors. Side by side, Thailand's demand for this group of commodities has also increased. The increase in share of SITC3 (mineral fuels, lubricants and related) to Australia's exports to Thailand demonstrates this. The high value of the Australian dollar has also made Australian manufacturers less competitive in international markets when exporting their products. Thus, Australia is currently experiencing what is usually described as a 'two speed economy'.

The change in Australia's composition of trade has been driven by a rise in the RCAI index for mineral fuels since 2005 and a fall in this for manufactured goods since 2000. CMS analysis also indicates volatility in the commodity composition effect and competitiveness residual.

It is apparent that the composition of Thailand's exports to Australia has changed even more dramatically. The share of manufactured goods, food and live animals fell considerably, and has been replaced by a rise in the export of machinery and transport equipment in the period 1990-2011. In general, there has been a strong upward trend in Thailand's export sector, with export commodities aligning with Australia's import needs. This has not been the case for the reverse trade flow. The categories of food and live animals, and crude materials for which Thailand has

maintained a specialisation in and has been aligned with Australian import needs have not performed well relative to the domination of automotive exports to Australia. Considering the low specialisation (still above unity) of machinery and transport equipment which Thailand has exhibited, it is profound that since 2000 this commodity group constituted more than 50% of Thailand's exports to Australia. This is reflective of Australia's huge need for relatively inexpensive imported cars.

In a more general sense, the evidence from CMS suggests the changes in Thailand's exports to Australia have been driven mainly by Thailand's competitiveness as an exporter. CMS analysis finds that the competitiveness residual explains most of the difference between export and standard growth for Thailand.

The TAFTA, as a determinate of trade between Thailand and Australia has, in recent years, reinforced the trends of exports from Thailand but had no revealed effect on Australia's exports. Post-TAFTA exports from Thailand have shown strong competiveness in the Australian market [see Section V (iv)] but Australia has not enjoyed similar competitiveness in Thailand.

Experience from the TAFTA could be used by Australian policy makers to design and establish future FTAs with Southeast nations which have similar economic characteristics to Thailand. Australia should be aware that the distribution of gains from establishing a free trade agreement may be distributed unevenly if the trading partners do not have the same level of development, similar tariff structures or similar socio-economic characteristics as in the case of the TAFTA. Policy makers in Thailand however, should be encouraged to reduce trade barriers in the coming years in order to establish more FTAs for the enhancement of this newly industrialising country's export opportunities and to promote economic growth. In this sense, it is part of Australia's global responsibility to engage in FTAs with developing nations to encourage and participate in their development.

Tables

Table 1: Basic Economic Indicators of Australian and Thailand: 1990 and 2011

Indicator	Australia			Thailand		
	1990	2011	1990-2011 Growth*	1990	2011	1990-2011 Growth*
GDP (constant 2000 US$ billions)	299.55	572.46	3.13%	79.36	187.64	4.18%
GDP per Capita (constant 2000 US$)	17,553	25,307	1.77%	1,391	2,699	3.49%
Exports of goods and services (constant 2000 US$ billion)	37.79	107.83	5.12%	29.87	146.11	7.85%
Imports of goods and services (constant 2000 US$ billion)	46.29	193.66	7.05%	38.45	130.90	6.01%
Total trade of goods and services (constant 2000 US$ billion)	84.08	301.49	6.27%	68.32	277.01	6.89%
Population (millions)	17.06	22.62	1.35%	57.07	69.52	0.94%
Life Expectancy at Birth (years)	77	82 (2010)	0.30%	72	74	0.13%

	Australia	Thailand
Area (sq. km)	7,682,300	510,890

* Geometric average for years 1990 to 2011 inclusive used.

Source: Estimated from World Bank (2012)

Table 2: Australia and Thailand GDP Growth Per Capita (2000 constant $US): 1990-2011

Year	Australia	Thailand
1990	2.06%	9.63%
1991	-1.61%	7.36%
1992	-0.77%	7.13%
1993	3.10%	7.43%
1994	2.95%	8.15%
1995	2.74%	8.28%
1996	2.64%	4.83%
1997	2.74%	-2.46%
1998	3.44%	-11.56%
1999	3.76%	3.20%
2000	2.62%	3.51%
2001	0.53%	0.98%
2002	2.65%	4.11%
2003	1.89%	5.95%
2004	2.95%	5.23%
2005	1.83%	3.60%
2006	1.53%	4.19%
2007	1.94%	4.24%
2008	1.72%	1.78%
2009	-0.73%	-2.95%
2010	0.73%	7.16%
2011	0.46%	-0.49%

Source: Estimated from World Bank (2012)

Table 3: Australian Trade with Thailand and the World: 1990-2011 ($US billions)

Year	Exports		Imports		Total Trade	
	Thailand	World	Thailand	World	Thailand	World
1990	0.46	38.78	0.36	38.63	0.82	77.41
1991	0.50	40.78	0.44	38.46	0.94	79.24
1992	0.74	42.08	0.50	40.60	1.24	82.68
1993	0.81	41.88	0.50	42.37	1.31	84.25
1994	0.97	47.25	0.62	49.92	1.59	97.17
1995	1.22	53.00	0.72	57.42	1.94	110.42
1996	1.22	60.21	0.82	61.40	2.04	121.61
1997	1.13	62.82	0.94	61.83	2.07	124.65
1998	0.73	55.81	0.99	60.77	1.72	116.58
1999	0.86	54.53	1.38	65.20	2.24	119.73
2000	1.13	63.77	1.63	67.76	2.76	131.53
2001	1.18	63.33	1.38	60.91	2.57	124.24
2002	1.37	64.98	1.71	69.55	3.08	134.54
2003	1.47	70.25	2.36	84.82	3.83	155.07
2004	2.25	86.44	2.78	103.76	5.03	190.20
2005	3.15	105.75	3.68	118.92	6.82	224.67
2006	3.22	123.32	4.72	132.65	7.94	255.97
2007	3.66	139.12	6.54	155.66	10.20	294.78
2008	4.49	186.85	8.61	191.58	13.10	378.44
2009	3.32	153.77	9.21	158.94	12.54	312.71
2010	5.25	206.71	9.89	188.74	15.14	395.45
2011	6.52	245.63	8.71	234.32	15.24	479.95

Source: Estimated from UN Comtrade (2012)

Table 4: Australia's Share in Thailand's Trade: 1990-2011

Year	Exports	Imports	Total
1990	1.62%	1.68%	1.65%
1991	1.63%	1.75%	1.70%
1992	1.62%	2.24%	1.96%
1993	1.38%	2.06%	1.75%
1994	1.42%	1.97%	1.72%
1995	1.38%	1.87%	1.65%
1996	1.51%	1.94%	1.75%
1997	1.64%	2.05%	1.85%
1998	1.82%	2.11%	1.95%
1999	2.25%	1.94%	2.11%
2000	2.35%	1.88%	2.13%
2001	2.09%	2.19%	2.14%
2002	2.41%	2.32%	2.37%
2003	2.70%	2.09%	2.40%
2004	2.56%	2.34%	2.45%
2005	2.87%	2.75%	2.81%
2006	3.35%	2.67%	3.01%
2007	3.74%	2.74%	3.26%
2008	4.50%	2.89%	3.69%
2009	5.63%	2.83%	4.32%
2010	4.80%	3.23%	4.04%
2011	3.49%	3.48%	3.49%

Source: Estimated from UN Comtrade (2012)

Table 5: Thailand's Share in Australia's Trade: 1990-2011

Year	Exports	Imports	Total
1990	1.19%	0.94%	1.06%
1991	1.22%	1.13%	1.18%
1992	1.76%	1.24%	1.51%
1993	1.94%	1.18%	1.56%
1994	2.05%	1.25%	1.64%
1995	2.31%	1.26%	1.76%
1996	2.03%	1.33%	1.67%
1997	1.79%	1.53%	1.66%
1998	1.30%	1.63%	1.47%
1999	1.58%	2.11%	1.87%
2000	1.78%	2.41%	2.10%
2001	1.87%	2.27%	2.06%
2002	2.10%	2.46%	2.29%
2003	2.09%	2.78%	2.47%
2004	2.61%	2.68%	2.64%
2005	2.97%	3.09%	3.04%
2006	2.61%	3.56%	3.10%
2007	2.63%	4.20%	3.46%
2008	2.40%	4.49%	3.46%
2009	2.16%	5.80%	4.01%
2010	2.54%	5.24%	3.83%
2011	2.66%	3.72%	3.18%

Source: Estimated from UN Comtrade (2012)

Table 6: Australian Export Composition to Thailand: Selected Years, 1990-2011 ($US Million)

Classification	Description	1990	1995	2000	2005	2010	2011	Average Growth*: 1990-2011
SITC0	Food and live animals	52.08 (11.3%)	112.85 (9.2%)	130.35 (12.5%)	178.07 (6.2%)	378.25 (7.3%)	486.31 (7.6%)	11.2%
SITC1	Beverages and tobacco	0.71 (0.2%)	2.30 (0.2%)	5.59 (0.5%)	6.27 (0.2%)	12.89 (0.2%)	17.15 (0.3%)	16.4%
SITC2	Crude materials, inedible, except fuels	56.11 (12.2%)	142.65 (11.7%)	237.44 (22.7%)	216.00 (7.5%)	333.04 (6.4%)	442.66 (7.0%)	10.3%
SITC3	Mineral fuels, lubricants and related	34.65 (7.5%)	29.84 (2.4%)	98.38 (9.4%)	442.81 (15.3%)	1717.78 (33.3%)	1425.26 (22.4%)	19.4%
SITC4	Animal and vegetable oils and fats	1.39 (0.3%)	1.62 (0.1%)	0.78 (0.1%)	1.07 (0.0%)	3.57 (0.1%)	4.34 (0.1%)	5.6%
SITC5	Chemicals	35.84 (7.8%)	77.69 (6.4%)	96.16 (9.2%)	207.38 (7.2%)	307.28 (5.9%)	343.28 (5.4%)	11.4%
SITC6	Manufactured goods	200.46 (43.5%)	403.80 (33.0%)	270.93 (26.0%)	753.40 (26.1%)	718.25 (13.9%)	887.46 (14.0%)	7.3%
SITC68[a]	Non-ferrous metals	151.50 (75.6%)	293.89 (72.8%)	197.65 (73.0%)	675.69 (89.7%)	530.29 (73.8%)	638.49 (71.9%)	7.1%
SITC7	Machinery and transport equipment	51.82 (11.2%)	217.34 (17.8%)	93.60 (9.0%)	144.82 (5.0%)	182.86 (3.5%)	184.46 (2.9%)	6.2%
SITC74[a]	Industrial machinery, equipment, parts	10.11 (19.5%)	29.31 (13.5%)	11.29 (12.1%)	33.26 (23.0%)	53.26 (29.1%)	46.70 (25.3%)	7.6%
SITC78[a]	Road vehicles	6.60 (12.9%)	38.87 (18.1%)	24.82 (26.6%)	16.78 (11.6%)	14.49 (8.0%)	19.18 (10.4%)	5.2%
SITC8	Miscellaneous manufactured articles	19.96 (4.3%)	41.14 (3.4%)	26.15 (2.5%)	28.54 (1.0%)	49.01 (0.9%)	52.85 (0.8%)	4.8%
SITC9	Otherwise not classified	8.05 (1.7%)	193.24 (15.8%)	84.55 (8.1%)	907.30 (31.4%)	1462.88 (28.3%)	2517.22 (39.6%)	31.5%
SITC97[a]	Gold, non-monetary	7.85 (97.4%)	184.57 (95.5%)	73.45 (86.9%)	774.23 (85.3%)	1453.44 (99.4%)	2506.38 (99.6%)	31.6%
Total		461.07 (100%)	1222.47 (100%)	1043.93 (100%)	2885.67 (100%)	5165.80 (100%)	6360.98 (100%)	13.3%

Source: Estimated from UN Comtrade (2012)
*Geometric Average Growth Rate, [a]Commodity percentages (for 2 digit commodities) are shown as a percentage of their relevant 1 digit commodity.

Table 7: Australian Import Composition from Thailand: Selected Years, 1990-2011 ($US Million)

Classification	Description	1990	1995	2000	2005	2010	2011	Average Growth*: 1990-2011
SITC0	Food and live animals	117.96 (32.5%)	215.10 (29.8%)	227.50 (14.4%)	350.84 (9.7%)	653.95 (6.6%)	810.91 (9.6%)	9.6%
SITC1	Beverages and tobacco	1.91 (0.5%)	1.83 (0.3%)	2.88 (0.2%)	3.31 (0.1%)	6.04 (0.1%)	8.99 (0.1%)	7.7%
SITC2	Crude materials, inedible, except fuels	11.49 (3.2%)	17.33 (2.4%)	28.52 (1.8%)	33.54 (0.9%)	19.36 (0.2%)	23.12 (0.3%)	3.4%
SITC3	Mineral fuels, lubricants and related	0.33 (0.1%)	3.59 (0.5%)	123.30 (7.8%)	100.79 (2.8%)	137.41 (1.4%)	300.22 (3.6%)	54.0%
SITC4	Animal and vegetable oils and fats	1.07 (0.3%)	0.98 (0.1%)	1.11 (0.1%)	1.62 (0.0%)	11.94 (0.1%)	16.59 (0.2%)	14.0%
SITC5	Chemicals	12.81 (3.5%)	31.06 (4.3%)	64.66 (4.1%)	127.11 (3.5%)	391.26 (4.0%)	453.16 (5.4%)	18.5%
SITC6	Manufactured goods	86.73 (23.9%)	145.77 (20.2%)	195.41 (12.4%)	388.99 (10.8%)	759.27 (7.7%)	813.40 (9.7%)	11.3%
SITC68[a]	Non-ferrous metals	0.15 (0.2%)	0.52 (0.3%)	7.09 (3.6%)	8.78 (2.3%)	32.10 (4.1%)	42.24 (4.7%)	30.6%
SITC7	Machinery and transport equipment	36.91 (10.2%)	189.13 (26.2%)	783.16 (49.6%)	2242.57 (62.1%)	5569.53 (56.3%)	4619.36 (54.9%)	25.9%
SITC74[a]	Industrial machinery, equipment, parts	5.31 (14.4%)	44.23 (23.4%)	113.85 (14.5%)	333.04 (14.9%)	921.38 (16.5%)	554.76 (12.0%)	24.8%
SITC78[a]	Road vehicles	0.96 (2.6%)	1.21 (0.6%)	447.90 (57.2%)	1429.06 (63.7%)	3639.75 (65.4%)	2988.93 (64.7%)	46.6%
SITC8	Miscellaneous manufactured articles	94.09 (25.9%)	114.85 (15.9%)	151.19 (9.6%)	268.18 (7.4%)	617.17 (6.2%)	780.47 (9.3%)	10.6%
SITC9	Otherwise not classified	0.00 (0.0%)	1.81 (0.3%)	0.02 (0.0%)	95.88 (2.7%)	1720.94 (17.4%)	590.40 (7.0%)	76.3%
Total		363.30 (100%)	721.45 (100%)	1577.75 (100%)	3612.84 (100%)	9886.86 (100%)	8416.63 (100%)	16.1%

Source: Estimated from UN Comtrade (2012)
*Geometric Average Growth Rate, [a]Percentages shown as percentage of the relevant level 1 commodity.

Table 8: Australia-Thai Intra-Industry Trade Indices: Selected Years, 1990-2011

Classification	Description	1990	1995	2000	2005	2010	2011	Average
SITC0	Food and live animals	6.10	2.80	0.16	0.38	0.64	0.23	1.92
SITC1	Beverages and tobacco	54.04	88.59	67.94	69.16	63.80	68.76	65.81
SITC2	Crude materials, inedible, except fuels	34.90	21.88	21.53	26.89	10.91	9.87	22.15
SITC3	Mineral fuels, lubricants and related	1.87	79.28	95.59	66.03	29.83	34.87	50.33
SITC4	Animal and vegetable oils and fats	86.90	75.05	82.58	79.84	45.75	41.43	67.33
SITC5	Chemicals	51.93	57.04	80.24	75.75	88.18	86.76	74.38
SITC6	Manufactured goods	60.65	53.99	83.67	68.16	95.17	99.20	75.21
SITC68	Non-ferrous metals	0.20	0.35	6.93	2.57	11.42	12.41	5.32
SITC7	Machinery and transport equipment	83.73	93.64	21.33	12.10	6.31	7.67	37.86
SITC74	Industrial machinery, equipment, parts	68.89	79.71	18.04	18.16	10.93	15.53	37.21
SITC78	Road vehicles	25.49	6.05	10.50	2.32	0.79	1.28	12.55
SITC8	Miscellaneous manufactured articles	34.80	56.01	29.28	19.47	16.33	14.20	38.11
SITC9	Otherwise not classified	0.23	1.86	0.10	19.12	91.90	38.01	28.38

Source: Estimated from UN Comtrade (2012)

Table 9: Australia-Thai Import and Export Intensity: 1990-2011

Year	Imports	Exports
1990	1.4	8.5
1991	1.4	11.2
1992	1.4	13.1
1993	1.2	2.4
1994	1.2	2.1
1995	1.1	2.7
1996	1.3	3.4
1997	1.4	4.1
1998	1.7	2.5
1999	2.0	2.1
2000	2.2	1.2
2001	2.1	1.3
2002	2.3	1.6
2003	2.6	1.5
2004	2.5	0.3
2005	2.9	0.3
2006	3.3	0.3
2007	3.8	0.3
2008	4.1	0.3
2009	4.7	0.4
2010	4.0	0.3
2011	2.9	0.4

Source: Estimated from ABS (2012)

Table 10: Australia's Revealed Comparative Advantage Index (RCAI): Selected Years, 1990-2011

Classification	Description	1990	1995	2000	2005	2010	2011
SITC0	Food and live animals	2.64	2.55	3.22	2.59	1.56	1.55
SITC1	Beverages and tobacco	0.45	0.70	1.78	2.62	1.34	1.07
SITC2	Crude materials, inedible, except fuels	5.76	5.05	5.98	6.49	7.77	7.92
SITC3	Mineral fuels, lubricants and related	3.09	2.98	2.06	2.06	2.14	2.17
SITC4	Animal and vegetable oils and fats	0.69	0.65	0.89	0.60	0.42	0.39
SITC5	Chemicals	0.27	0.42	0.47	0.44	0.31	0.27
SITC6	Manufactured goods	0.75	0.85	0.91	0.67	0.50	0.46
SITC68	Non-ferrous metals	4.12	3.64	4.35	3.21	2.03	1.82
SITC7	Machinery and transport equipment	0.21	0.32	0.28	0.25	0.15	0.14
SITC74	Industrial machinery, equipment, parts	0.22	0.35	0.29	0.29	0.22	0.18
SITC78	Road vehicles	0.16	0.17	0.33	0.35	0.17	0.12
SITC8	Miscellaneous manufactured articles	0.22	0.27	0.31	0.28	0.19	0.18
SITC9	Otherwise not classified	3.48	3.01	2.38	2.92	2.17	2.07

Source: Estimated from UN Comtrade (2012)

Table 11: Thailand's Revealed Comparative Advantage Index (RCAI): Selected Years, 1990-2011

Classification	Description	1990	1995	2000	2005	2010	2011
SITC0	Food and live animals	3.81	2.64	2.63	2.16	2.11	2.18
SITC1	Beverages and tobacco	0.31	0.22	0.28	0.28	0.44	0.49
SITC2	Crude materials, inedible, except fuels	1.22	1.43	1.28	1.59	1.38	1.67
SITC3	Mineral fuels, lubricants and related	0.13	0.13	0.32	0.35	0.37	0.44
SITC4	Animal and vegetable oils and fats	0.08	0.08	0.36	0.41	0.35	0.52
SITC5	Chemicals	0.21	0.45	0.66	0.76	0.77	0.88
SITC6	Manufactured goods	0.80	0.72	0.86	0.89	0.93	0.92
SITC68	Non-ferrous metals	0.27	0.10	0.31	0.36	0.34	0.33
SITC7	Machinery and transport equipment	0.55	0.85	1.06	1.17	1.21	1.09
SITC74	Industrial machinery, equipment, parts	0.54	0.76	0.89	1.07	1.20	1.06
SITC78	Road vehicles	0.10	0.14	0.41	0.83	1.29	1.00
SITC8	Miscellaneous manufactured articles	2.22	1.84	1.18	1.05	0.92	0.94
SITC9	Otherwise not classified	0.57	0.31	0.68	0.44	0.65	0.56

Source: Estimated from UN Comtrade (2012)

Table 12: Cosine Index of Trade Similarity for Australia and Thailand: 1990-2011 (SITC 0-8)

Year	Australian Exports with Thai Imports	Thai Exports with Australian Imports
1990	0.53	0.72
1991	0.56	0.76
1992	0.57	0.79
1993	0.57	0.85
1994	0.58	0.88
1995	0.60	0.89
1996	0.60	0.92
1997	0.60	0.94
1998	0.62	0.95
1999	0.64	0.95
2000	0.61	0.97
2001	0.61	0.96
2002	0.63	0.97
2003	0.64	0.97
2004	0.62	0.97
2005	0.64	0.97
2006	0.63	0.97
2007	0.63	0.97
2008	0.64	0.96
2009	0.55	0.96
2010	0.49	0.96
2011	0.48	0.94
Average	0.59	0.92

Source: Estimated from UN Comtrade (2012)

Table 13: Australia Exports - Thailand Imports Cosine Index of Trade Similarity: Selected Years, 1990-2011

Classification	Description	1990	1995	2000	2005	2010	2011	Average
	Total	0.53	0.60	0.61	0.64	0.49	0.48	0.59
SITC0	Food and live animals	0.28	0.48	0.49	0.37	0.40	0.41	0.40
SITC1	Beverages and tobacco	0.94	0.89	0.68	0.82	0.90	0.93	0.84
SITC2	Crude materials, inedible, except fuels	0.67	0.50	0.57	0.67	0.55	0.57	0.61
SITC3	Mineral fuels, lubricants and related	0.44	0.39	0.74	0.41	0.35	0.35	0.44
SITC4	Animal and vegetable oils and fats	0.52	0.29	0.40	0.47	0.47	0.43	0.42
SITC5	Chemicals	0.69	0.51	0.48	0.39	0.48	0.47	0.52
SITC6	Manufactured goods	0.47	0.63	0.52	0.47	0.61	0.59	0.56
SITC7	Machinery and transport equipment	0.90	0.87	0.62	0.65	0.75	0.81	0.74
SITC8	Miscellaneous manufactured articles	0.99	0.96	0.93	0.98	0.96	0.97	0.96

Source: Estimated from UN Comtrade (2012)

Table 14: Thailand Exports - Australia Imports Cosine Index of Trade Similarity: Selected Years, 1990-2011

Classification	Description	1990	1995	2000	2005	2010	2011	Average
	Total	0.72	0.89	0.97	0.97	0.96	0.94	0.92
SITC0	Food and live animals	0.82	0.77	0.78	0.81	0.77	0.75	0.79
SITC1	Beverages and tobacco	0.54	0.99	0.95	0.99	1.00	1.00	0.90
SITC2	Crude materials, inedible, except fuels	0.27	0.34	0.35	0.34	0.26	0.23	0.32
SITC3	Mineral fuels, lubricants and related	0.65	0.86	0.99	1.00	1.00	1.00	0.94
SITC4	Animal and vegetable oils and fats	1.00	0.76	0.88	0.92	0.96	1.00	0.93
SITC5	Chemicals	0.80	0.69	0.53	0.39	0.40	0.36	0.58
SITC6	Manufactured goods	0.79	0.82	0.92	0.92	0.90	0.89	0.88
SITC7	Machinery and transport equipment	0.68	0.75	0.73	0.80	0.89	0.90	0.77
SITC8	Miscellaneous manufactured articles	0.68	0.79	0.85	0.94	0.96	0.95	0.85

Source: Estimated from UN Comtrade (2012)

Table 15: Australia's Net Exports Ratio with Thailand: 1990-2011

	Commodity Classification								
Year	SITC0	SITC1	SITC2	SITC3	SITC4	SITC5	SITC6	SITC7	SITC8
1990	-38.7%	-46.0%	66.0%	98.1%	13.1%	47.4%	39.6%	16.8%	-65.0%
1991	-34.2%	-74.6%	62.6%	38.6%	-25.2%	35.9%	23.9%	39.7%	-53.9%
1992	-34.8%	-73.1%	67.3%	45.1%	61.0%	43.9%	27.7%	15.0%	-49.9%
1993	-39.7%	-60.7%	63.4%	64.0%	50.8%	46.9%	34.6%	25.0%	-52.6%
1994	-39.7%	-47.6%	74.2%	100.0%	53.4%	48.6%	32.7%	4.4%	-45.1%
1995	-31.2%	11.4%	78.3%	78.5%	25.0%	42.9%	47.0%	6.9%	-47.3%
1996	-20.9%	56.4%	80.5%	37.7%	33.5%	46.9%	44.8%	-15.5%	-42.3%
1997	-29.6%	-23.2%	80.3%	64.8%	-11.3%	37.4%	35.7%	-41.7%	-37.1%
1998	-32.9%	-21.2%	85.1%	-4.9%	-0.3%	6.1%	7.7%	-77.4%	-57.8%
1999	-34.8%	38.3%	80.0%	-2.7%	22.2%	18.1%	5.7%	-80.5%	-56.4%
2000	-27.1%	32.1%	78.6%	-11.2%	-17.4%	19.6%	16.2%	-78.6%	-70.5%
2001	-24.3%	38.2%	79.7%	-4.8%	16.5%	30.3%	29.2%	-72.1%	-63.7%
2002	-25.2%	34.0%	80.4%	-32.6%	14.4%	22.4%	18.6%	-82.1%	-68.6%
2003	-43.9%	-10.0%	73.9%	-25.4%	22.9%	10.8%	17.1%	-85.3%	-53.4%
2004	-37.0%	21.7%	80.8%	54.4%	-10.7%	21.7%	19.2%	-82.9%	-71.5%
2005	-32.7%	30.8%	73.1%	62.9%	-20.2%	24.0%	31.9%	-87.9%	-80.8%
2006	-30.6%	2.5%	83.9%	36.7%	-57.0%	20.4%	39.3%	-89.3%	-81.3%
2007	-31.6%	24.4%	86.6%	72.2%	-38.6%	5.5%	37.6%	-91.5%	-80.4%
2008	-24.0%	7.6%	79.9%	45.3%	-51.9%	-8.2%	34.3%	-92.0%	-83.7%
2009	-29.5%	31.0%	81.4%	64.2%	-60.8%	0.2%	2.3%	-94.6%	-84.8%
2010	-26.7%	36.2%	89.0%	85.2%	-54.0%	-12.0%	-2.8%	-93.6%	-85.3%
2011	-25.0%	31.2%	90.1%	65.2%	-58.6%	-13.8%	4.4%	-92.3%	-87.3%
Average	-31.6%	1.8%	77.9%	42.3%	-4.2%	22.5%	24.8%	-52.3%	-64.5%

Source: Estimated from UN Comtrade (2012)

Table 15A: Australia's Net Exports Ratio with Thailand: Selected 2 Digit Commodities, 1990-2011

	Commodity Classification		
Year	SITC68	SITC74	SITC78
1990	99.8%	31.1%	74.5%
1991	99.8%	45.7%	74.1%
1992	99.7%	42.3%	76.6%
1993	99.8%	36.6%	94.3%
1994	99.6%	6.3%	95.6%
1995	99.7%	-20.3%	94.0%
1996	99.3%	-16.2%	21.0%
1997	99.6%	-33.9%	-62.3%
1998	87.4%	-79.3%	-88.8%
1999	84.6%	-75.9%	-88.3%
2000	93.1%	-82.0%	-89.5%
2001	94.6%	-80.1%	-88.1%
2002	96.0%	-76.4%	-95.0%
2003	95.0%	-76.6%	-96.5%
2004	90.7%	-85.1%	-96.0%
2005	97.4%	-81.8%	-97.7%
2006	96.0%	-85.3%	-97.0%
2007	91.9%	-81.1%	-98.7%
2008	92.5%	-77.5%	-98.9%
2009	90.3%	-94.4%	-99.2%
2010	88.6%	-89.1%	-99.2%
2011	88.5%	-82.7%	-98.6%
Average	94.7%	-48.0%	-39.3%

Source: Estimated from UN Comtrade (2012)

Table 16: Constant Market Share Analysis for Australia's Exports to Thailand

Year	Australia – Thailand Export Growth	Standard Growth (in world exports to Thailand)	Commodity composition	Competitiveness
1990	10.09%	29.53%	-5.98%	-13.46%
1991	8.23%	12.64%	4.52%	-8.93%
1992	48.70%	8.24%	-2.94%	43.39%
1993	9.36%	13.65%	-4.10%	-0.19%
1994	19.16%	17.73%	-8.85%	10.28%
1995	26.42%	30.02%	-3.83%	0.24%
1996	-0.25%	2.17%	2.96%	-5.38%
1997	-7.66%	-13.63%	-0.94%	6.91%
1998	-35.57%	-32.17%	3.30%	-6.70%
1999	18.65%	18.74%	-3.87%	3.79%
2000	21.29%	23.08%	-9.42%	7.62%
2001	3.42%	0.06%	2.69%	0.66%
2002	13.48%	4.33%	1.33%	7.81%
2003	4.12%	17.29%	0.47%	-13.64%
2004	56.29%	24.50%	3.48%	28.32%
2005	44.74%	25.17%	7.43%	12.14%
2006	4.70%	8.82%	-3.79%	-0.32%
2007	17.04%	11.80%	0.30%	4.94%
2008	24.97%	24.24%	16.99%	-16.26%
2009	-26.11%	-25.11%	-6.72%	5.72%
2010	58.19%	36.35%	19.31%	2.53%
2011	23.14%	25.27%	26.50%	-28.64%
Average	13.16%	10.43%	1.40%	0.84%

Source: Estimated from UN Comtrade (2012)

Table 17: Constant Market Share Analysis for Thailand's Exports to Australia

Year	Australia – Thailand Export Growth	Standard Growth (in exports to Thailand)	Commodity composition	Competitiveness
1990	-0.6%	-3.0%	0.1%	2.3%
1991	20.0%	-0.5%	2.1%	18.3%
1992	15.3%	5.6%	-0.4%	10.1%
1993	-0.8%	4.4%	-0.8%	-4.3%
1994	24.9%	17.8%	-0.5%	7.7%
1995	15.7%	15.0%	-1.0%	1.7%
1996	13.1%	6.9%	-2.4%	8.6%
1997	15.6%	0.7%	1.2%	13.8%
1998	5.0%	-1.7%	-1.7%	8.4%
1999	39.1%	7.3%	0.0%	31.9%
2000	14.5%	3.9%	-2.4%	13.0%
2001	-15.5%	-10.1%	-0.5%	-4.9%
2002	24.5%	14.2%	0.2%	10.2%
2003	40.3%	22.0%	1.1%	17.3%
2004	18.1%	22.3%	-1.6%	-2.6%
2005	31.2%	14.6%	-1.6%	18.2%
2006	26.8%	11.5%	-1.5%	16.7%
2007	38.5%	17.3%	0.3%	20.8%
2008	30.4%	23.1%	-1.0%	8.2%
2009	8.7%	-17.0%	4.1%	21.6%
2010	10.0%	18.7%	-3.4%	-5.4%
2011	-14.9%	24.1%	-5.0%	-34.0%
Average	17.0%	9.3%	-0.8%	7.9%

Source: Estimated from UN Comtrade (2012)

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