Post-crisis Export Performance in Thailand

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Abstract: This paper examines post-crisis export performance in Thailand against the backdrop of pre-crisis experience and ongoing changes in patterns of international production. Following a stage-setting survey of trends and patterns of export performance over the past four decades, it focuses on two key themes central to the current policy debate, namely the implications of China's emergence as a key player in world markets in labour intensive manufactured goods and the link between the crisis-propelled real exchange rate depreciation and export performance. There is strong evidence to suggest that the 'China fear' is vastly exaggerated. Real exchange rate depreciation has been a significant determinant of the post-crisis export recovery. However, the growing importance in the export composition of parts and components within vertically integrated cross-border production processes has tended to weaken the nexus of real exchange rate and export growth.

Post-crisis Export Performance in Thailand[*]

I   Introduction

The economic boom in Thailand prior to the financial crisis in 1997 was underpinned by rapid growth in exports, accompanied by a dramatic shift in the commodity composition of exports away from traditional agricultural products and towards manufactured exports. There are serious concerns in Thai policy circles that the export performance so far has failed to regain pre-crisis dynamism. In particular, concerns have been expressed about the intensity of world market competition following China's entry into the WTO and the implications for export competitiveness of tightening domestic labour market conditions as part of the recovery process. The purpose of this paper is to inform this debate by examining post-crisis export performance in Thailand against the backdrop of pre-crisis experience and on-going changes in patterns of international production. In addition to examining trends and patterns of export performance, particular attention will be placed on Thailand's relative performance in major markets compared to China and the impact of crisis-propelled changes in the incentive structure on export performance.

The organisation of the paper is as follows: Section II provides an overview of overall export trends, and changes in export composition and revealed comparative advantage, with emphasis on the experience during the post crisis era. Section III looks at

the possible implications of China's emergence as a major force in world trade for Thailand's export performance. Section IV examines changes in the incentive structure following the on-set of the crisis and their implications for export expansion. The key findings are summarised in the final section.

II   Trends and Patterns of Export Growth

The pre-crisis economic boom (1986-1995) in Thailand was a classic example of export-led growth. During this period, the dollar value of total merchandise exports grew at an average annual rate of over 23.3% compared to 13.4% during the preceding decade. Thailand's share in total world trade increased from 0.3 per cent in early 1970s to over 1.1 per cent by the mid-1990s. Exports as a ratio of GDP rose from 30 per cent to over 70%, and exports accounted for over a half of the increment in real GDP, between these time points (Table 1).

Table 1 about here

Figure 1 about here

This impressive growth record began to falter from about the third quarter of 1995, resulting in a 3.6 per cent contraction in the dollar value of exports in 1996. This unprecedented export downfall contributed to triggering the crisis in 1997 by damaging investor confidence in the capacity to maintain its fixed exchange rate and provoking a large capital outflows (Warr 2000).

For over a year following the on-set of the crisis, export patterns remained rather volatile, with year-to-year growth remaining in the negative territory in most months (Figure 1). This was followed by a sharp recovery, lifting year-on-year growth to the pre-crisis average (around 20%) in the first half of 2000. This nascent recovery shortly fell victim to the world economic recession, pushing growth rates again into the negative territory in the second half of 2001. The recent export recovery started in the second quarter of 2002 and has gathered momentum in recent months.

(a)   *Overall Patterns and Trends*

Until the late 1970s, Thailand was predominantly a primary commodity exporting country. In the late 1970s, export composition began to change rapidly, reflecting the expansion of processed food exports and traditional light manufactured goods, in particular garments and footwear (Table 2). From then, further diversification of the export mix has taken place, as Thailand became an increasingly attractive location for assembly activities within the broader category of machinery and transport equipment (SITC 7). During 1986-95 manufactured exports grew at an annual rate of 31.8% compared to 14% growth of primary products. By the mid-1990s, manufactured goods contributed to over 61.8 per cent of total merchandise exports.

Table 2 about here

During the post-crisis period, the relative importance of agricultural products has eroded further. Within manufacturing exports of machinery and transport equipment (SITC

7) have expanded rapidly dwarfing the traditional 'traditional manufacturing duo', clothing and footwear. In 2002, electrical machinery (SITC 72) alone accounted for more than one fifth of total exports (or about one-third of manufacturing exports) and the combined share of clothing and footwear had come down to a mere 7.5%. At a more disaggregated level, computers and parts, electronic circuits, automobile parts topped the export list in that order during 2001- 2002.[1]   The rapid growth of exports within the machinery and transport equipment category reflect the increasing importance of *international product fragmentation* —the cross-border dispersion of component production and assembly activities within vertically integrated production processes (Jones and Kierzkowski 2001, Athukorala 2003)

What are the products in which Thailand has performed better in world markets compared to its overall export performance? In other worlds, what are the products in which Thailand has comparative advantage? Has the list of products which meet this criterion expanded or shrunk over the years?   A useful measure that help answer these issues is the index of revealed comparative advantage (RCAI), which measures a country's relative export performance in individual product categories compared to its overall export performance in world trade (Balassa 1965).

The RCAI for Thailand ($RCAI^T$) in the export of product j is defined as:

$$RCAI_J^T = \frac{[X_J^T / X_J^W]}{[X_T^T / X_T^W]}$$

where,

[1] This observation is based on 3-digit SITC data from the UN COMTRADE database.

X_j^T Thailand's exports of commodity j,

X_j^W world export of commodity j,

X_T^T Thailand's total exports of all goods, and

X_T^W World exports of all goods.

If the value of *RCAI* exceeds unity for commodity j, Thailand is said to have 'revealed' comparative advantage in the production of that commodity. In contrast, if *RCAI* is below one, Thailand is at a comparative disadvantage in the production of the commodity.

This measure must be used with some caution because domestic policy measures such as production subsidies, or foreign trade barriers (such as voluntary export restraints, VERs) or trade preferences (such as preferential market access under generalised system of preference, GSP), that have nothing to do with comparative advantage, can influence its measured value. However, this limitation is not very important in its application to Thailand. Export production in Thailand during the period under study has taken place under virtual free trade conditions (Warr 2000). Thai exports have also not significantly benefited, or adversely affected by trade policies of importing countries. The only notable exception to this is exports of wearing apparel, which have been significantly influenced by VERs under the Multifibre Arrangement (MFA).

We estimated RCAI for commodities identified at the three-digit level of the Standard International Trade Classification (SITC) over the period 1990-2001[2]. Based on these estimates, changes in revealed comparative advantage (competitiveness) of Thai exports between 1990-94 and 1998-2001 are summarised in Table 3. Through a comparison of average RCAIs between these two time periods, using the list of commodities, which, on average, had achieved 'RCA status' (that is RCA>1) during 1990-94 as the benchmark, four groups of commodities have been identified. 'Group A' contains commodities which exhibited increase in RCAI between 1990-94 and 1998-2001. Group B shows products whose RCAIs had declined during 1998-2001 compared to 1990-94 but still remained unity . Commodities that moved from RCA status to non-RCA status(from RCAI >1 to RCAI <1) between the two time periods are listed in 'Group C'. Finally, products which were not in the RCA list (that is those with RCA<1) in 1990-94 but had gained RCA status by 1998-2001 are contained in 'Group D'.

Table 3 about here

The first impression from our analysis is that, throughout the period under study, Thailand's comparative advantage in world trade remained broad-based, unlike many developing countries whose strength in international exchange lies in one or a few products. Thirty eight products, which are more or less evenly distributed across both primary and manufacturing sectors, continued to remain in the 'RCA status' during the period under study

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[2] Detailed estimates for the 3-digit SITC commodities are not reported here for want of space. They are available from the authors on request.

(Group A + Group B). Nine new produced had achieved RCA status by 1998-2001 (Group D).[3]

In general, relatively a larger number of agricultural products have exhibited decline in the measured degree of RCA over time compared to manufacturing products (see Groups B and C). However, Thailand's competitiveness in world agricultural trade has continued to remain strong. Only a few agricultural products (mostly traditional agricultural products) have shifted from RCA status to non-RCA status between 1990-94 and 1988-2001. Processed food products (fresh meet (SITC 011), fresh and canned fish (SITC 031 and 032), preserved fruits (SITC 053), fresh and preserved vegetable (SITC 054 and 055), as well as the main tradition export product, rice, have continued to maintain RCA status, despite decline in the absolute value of RCAI. Revealed comparative advantage in processed food is a notable strength of Thailand's export structure, because these products are characterised by high-income elasticity of demand and hence strong demand growth in world trade (Athukorala and Jayasuriya 2003).

Within manufacturing, there is a clear pattern of increase in RCA of a number of products belonging to the machinery and transport equipment category (SITC 7) (office machines (SITC 714), electrical distribution machinery (SITC 722), telecommunication equipment (SITC 724), and domestic electric equipment (SITC 725).and miscellaneous electrical machinery (729)), Electrical distribution machines (STC 723) and telecommunication equipment (SITC 724) have continued to maintain RCA status, despite decline in the absolute value of RCAI. A similar pattern is revealed by sound recorders

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[3] Products in Groups A, B and D together accounted for 85% of total exports during 1998-2001.

(SITC 891) and Watches and Clocks (SITC 864), which are included under miscellaneous manufacturing (SITC 8) but more or less comparable in terms of technology involved to the products belong to SITC 7).

For the traditional labour intensive manufacturing products (which are covered in SITC 6 and SITC 8), the overall trends in RCAI are rather mixed. RCAIs of wearing apparel (SITC 841), toys (SITC 894) not shown in Table 3! Added, travel goods (SITC 831), footwear (SITC 851) have declined over time but still remained above unity. In contrast, products such as leather goods (SITC 611), rubber goods (629), textile yarns and thread (SITC 651), cotton fabrics (652) and pottery (SITC 666) have exhibited further improvement in RCA status.. It seems that products which are basically labour intensive but relies significantly on Thailand's domestic resource base have performed better than the other labour intensive products which are generally more import dependent.

Thailand's broad-based revealed comparative advantage in world trade depicted in Tables 3 is consistent with her rich resource endowment, including the availability of labour at low cost by the regional standards. However, the international development experience over the past half-a-century has clearly demonstrated that resources alone cannot bring about export (and development) success (Lal and Myint 1996, pp. 279-87). In Thailand the trade and industry policy regime has generally remained conducive for exploiting the growth potential of its resource base. Despite some policy interventions (propelled by shifts in fashion in development thinking) from time to time, Thailand has by and large maintained an open trade and investment policy regime, which is conducive for resource allocation in line

with the country's comparative advantage.[4] In particular, Thailand never relied heavily on quantitative restrictions and other forms of non-tariff protection. This meant that the domestic price signals were not insulated from world market conditions and that there was no significant direct government involvement in private-sector performance through the allocation of import quotas. Moreover, Thailand foreign investment policy has become increasingly liberal over the past three decade. This has enabled Thailand to benefit from the on-going process of international product fragmentation within vertically integrated high-tech industries, which has become the dominate source of manufactured export expansion in recent years (Athukorala 2003).

III   The China Factor

Ever since China began to emerge as a major trading nation in the early 1990, there has been a growing concern in Thailand and countries in the region that competition from China is likely to crowd-out their export opportunities.. This pessimism has gained added impetus from China's recent accession to the WTO. The WTO not only provides China with most-favoured nation (MFN) status in major markets but is also likely to enhance China's attractiveness to export-oriented investment by reducing the country risk of investment. The purpose of this section is to piece together some relevant information on this debate. We first look at new export opportunities for Thailand in the expanding Chinese economy. This is followed by an enquiry into the implications of China competition for exports from Thailand in third country markets.

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[4] In a recent comprehensive study of the patterns and chronology of trade policy reforms during the post-war era, Sachs and Warner (1995, Table 1) identify Thailand as one of the eight developing countries whose trade regimes remained open throughout the post-Second World War period.

(a) China as a New Export Market

Total exports from Thailand to China increased from less than $500 million (about 3% of total Chinese imports) in the early 1990s to over $3000 million (5%) in 2002 (Figure 2 -). Thailand's imports from China have grown at a slower rate, from around $1000 million in the early 1990s to $4500 million in 2002. However, the trade balance is still in China's favour (a deficit of about 20% of export value, from the Thai point of view). During 1997-2002, China's imports from Thailand increased an annual average rate of 24%, compared to a 16% growth of total imports from developing countries (Table 4). The rate of import growth from Thailand is comparable or superior to the experiences of the other major trading nations in the region. Imports from Vietnam and the Philippine have grown faster, but from very low base levels.

Figure 2 about here

Electrical machinery and electronics has accounted for the lion's share of recent increase in Thai exports to China (Table 5). It seems that, China is becoming increasingly involved in the intra-regional specialisation of assembly activities in these industries and Thailand has begun to benefit from this new form of intra-regional specialisation (Athukorala 2003).

Table 4 and 5 about here

Interestingly, tariff cuts under the 'early harvest products' China -Thailand Free Trade Agreement have so far is limited to agricultural products that come under HS- Chapter 01 to 08, and two manufacturing items which rarely traded between the two countries, namely anthracite, and coke and semi-coke. These products have not played a significant role in recent rapid growth of Thai exports to China.

(b)   China Competition in Third-Country Markets

Data on Thailand's relative performance in the US and Japanese markets in manufactured goods are summarised in Table 6. China's share in total US imports from developing countries increased from 20.4% in 2000 to 30.3 by mid-2003. This was accompanied by sharp decline in the combined market share of the newly industrialised economies (NIEs) in East Asia (Taiwan, Hong Kong, Singapore and South Korea). The combined share of the four NIEs in total US imports from developing countries in mid-2003 was 17.4, down from 21.6% in 2000. (no Singapore statistics in Table 5!!!.Sorry I have referred here to the original table where data for the four NIEs is given separately. In this table I have given only the total four the four countries to save space) The market share of Thailand remained virtually unchanged around 2.6% , while Malaysia, the Philippine and Vietnam recorded some mild market share gains. This comparative performance record is consistent with the view that most of the growth of Chinese exports to developed-country markets have so far stemmed from rapidly diminishing comparative advantage of the newly Industrialised Economies (NIEs) in conventional labour intensive product lines. These product lines have rapidly 'migrated' to China from these countries though investment links (Lardy 2002:, pp. 160-162).

Table 6 about here

China's share in total imports to Japan increased from 38.9% in 2000 to 50.7% in the third quarter of 2003 (Table 6). As in the US market share losses have been recorded by the Asian NIEs. Markets shares of Thailand, Indonesia, the Philippines and Vietnam have remained virtually unchanged Disaggregated data (not reported in the Table) suggest that Thailand's market share in processed food continued to increase, from 14% to 17%. Strong market links that have been developed over the years by Thai MNEs seems to have played a role in cushioning Thailand against import competition from China (Panamond 2004).

In sum, the China competition has obviously begun to have considerable impact on the trading environment faced by Thailand and other developing countries in the region. However, there is clear evidence that competition from China does not necessarily imply proportionate loss in market share for all developing countries. In general, the East Asian NIEs have begun to experience greater market share losses than Thailand and the other 'second-tier' exporting countries in the region. It is also important to note that, China's comparative advantage is not going to remain the same. Economic theory and historical experience tell us that China's economic dynamism will change its international comparative advantage. As the Chinese economy becomes more integrated into the global economy, domestic wages will start to increase, eroding comparative advantage in labour intensive products. In fact, a number of Thai firms in automotive and electronics industries which we interviewed as part of this study mentioned that they have become more competitive in recent

years because wages in the eastern provinces of China have already begun to increase at a much faster rate compared to Thailand.

IV   Incentive Structure and Export performance

In all 'crisis-affected' countries in East Asia, export expansion slowed down in the lead up to the crisis. However, Thailand was the only country among them to experience an export contraction in 1996. There is no unanimity among economists about the causes of this unique Thai experience, but two important factors figure prominently in various prognoses. First, there was a massive appreciation of the real exchange rate as a result of both sharp appreciation of the nominal exchange against the yen (under the de facto dollar-peg exchange rate system) and domestic demand pressure arising from large foreign capital inflows. Second, ten years of persistent economic expansion from 1986 had resulted in labour market tightening and real wage growth, eating into export profitability (Warr 2000).

To what extent has the massive exchange rate adjustment during the crisis and the subsequent adjustments served to restore international competitiveness of tradable production in the Thai economy? The real exchange rate indices plotted in Figure 3 help answering this question.   Of the two series, RER1 is the ratio of the trade-weighted producer price index of the major trading partner countries (expressed in Baht) to domestic consumer price index.   It is reasonable proxy measure of the textbook definition of the real exchange rate – the ratio of tradable to non-tradable prices. RER2 has the same denominator, but the nominal wage index (average monthly earning per employee) is used in place of CPI as its numerator. Thus, it is a more appropriate indicator of change in profitability of labour intensive export

production. While both RER series point to a significant deterioration in international competitiveness in the lead up to the crisis, the degree of deterioration is much sharper in terms of RER2. This pattern is consistent with the view that export collapse in 1996 was underpinned by a massive deterioration in the profitability of labour intensive export products.

Figure 3 about here

There has been a notable turnaround in both indices following the onset of the crisis. In the immediate aftermath of the crisis up to about late 1998, high domestic inflation partly counterbalanced the effect of nominal exchange depreciation on relative profitability of traded good production. Over the past four years, CPI inflation and nominal wage growth has remained low and the time pattern of the two RER series have by and large been determined by the behaviour of the nominal exchange rate.

To examine the impact of real exchange rate on export performance, we estimated the following 'reduced form' export equation for total manufactured exports (SITC 5 through 8 less SITC 68) and the four sub-categories therein: chemicals (SITC5), basic (resource-based) manufacturing (SITC 6), machinery and transport equipment (SITC7) and miscellaneous manufacturing (SITC8.

$$QX = F(RER, WT, CU, CRD)$$

Where,

QX	Export volume (export value deflated by the export price index)
RER	Real exchange rate (measured alternatively by RER1 and RER2)
CU	Capacity utilization in domestic manufacturing (to capture domestic demand pressure on export performance).
WT	World trade volume - world manufacturing export value deflated by market-share weighted producer price index of the ten major trading nations (to capture world market conditions on Thai export performance).
CRD	A dummy variable that takes value 1 for the crisis months (June 1997 to June 1988) and zero otherwise (to capture trade disruption in the aftermaths of the crisis)

The model was estimated using monthly data for the period from January 1995 to November 2002.[5] All data series (except *CRD*) were constructed as indices (1995 =100) and used in natural logarithms in regression estimation. Pre-testing of data for time series properties revealed that all data series but one (*CU* for SITC 5) were integrated process of degree zero (Table 6).[6] Therefore, the standard two-stage procedure for modelling with non-stationary data was employed for estimating the model. Among the various techniques available for estimating the first stage regression (co-integrating vector), the one used here is

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[5] All data series were compiled from the on-line data base of Bank of Thailand.
[6] The test results are available from the authors on request.

the Phillip-Hansen modified least-square method, which is considered an appropriate choice for working with small data samples (Inder 1993).

Ideally, we should have worked with a fully specified export model which captures demand- and supply-side influences separately, while appropriately allowing from the possible simultaneous integration involved in the determination of quantity and price. Unfortunately, high-frequency data (which are essential for examination export determinants surrounding the recent crisis episode) are not available for this purpose. At any rate, the simultaneity issue is not a binding constraint because, as noted, the non-stationarily of the data series permits us to use cointegrating technique for the estimation of our reduced form equation. If the particular vector of non-stationary variables is put together on the basis of sound economic reasoning, then a co-integration relationship among them can be interpreted as the equilibrium (long-run) relationship (Engle and Granger 1987).

The regression estimates are reported in Table 7. Only the estimates obtained by using RER2 are reported because the used of RER1 yielded virtually identical results. For total manufactured exports and each product category, the first equation is the co-integration vector that shows steady-state (long run) relationship and the second equation shows short-run dynamics. The standard diagnostic tests for the residual whiteness of the short-run equation are also reported. Since we have used all variables in natural logarithms, the regression coefficients can be directly interpreted as elasticities.

Table 7 about here

Looking first at the estimates for total manufactured goods, the short-run and equilibrium elasticity of exports with respect to change in the real exchange rate are 0.73 and 1.10 respectively. The results point to significant differences in the estimated degree of elasticity across the five categories. There is no evidence of significant impact of the real exchange rate on exports of chemicals (equation 2). For the other three categories both short run and long run elasticity estimates are statistically significant, but the magnitudes are different. The long-run elasticity of exports with respect to the real exchange for basic manufacturing is the highest (1.53), and for machinery and transport equipment is the lowest (0.65), with miscellaneous manufacturing coming in between (0.94). As one would anticipate *a priori*, short run elasticities are considerably lower in magnitude in all cases. The results on the impact of capacity utilisation on export performance rather mixed. Statistically significant long run effect is found only for chemicals,. (0.75)., machinery and transport equipment (0.20) and total manufactured goods (0.42). In all these cases the short run effect is much greater in magnitude, reflecting the fact that the effect of capacity utilisation on export performance is by and large a short-run phenomenon. For total manufactured exports, chemicals and transport equipment world demand conditions (as captured by *WT*) are a significant determinant export performance. In all these cases, both short- and long-run export elasticities with respect to change in world trade volume is much larger in magnitude compared to the elasticities with respect to the real exchange rate.

In the equation for miscellaneous export, *WT* had the perverse sign and its deletion did not have any impact on the magnitude and the statistical significant of the coefficient attached to the real exchange rate. This result is consistent with the hypothesis that the

standard 'small country' assumption holds for exports of standards labour intensive goods from developing countries (that is, countries can expand exports without been affected by world changes in total world demand, depending on the conduciveness of domestic supply factors). In the case of machinery and transport equipment (Equation 4), the high elasticity with respect to world demand and relatively low magnitude of the elasticity with respect to the real exchange rate is consistent with our earlier observation that the ongoing process of product fragmentation plays a key role in export expansion in this product category. This form of international specialisation is much more dependent on the world market conditions relative to relative incentives faced by exporters in individual countries. On the supply side, the key prerequisites for export success through product fragmentation are open trade and foreign investment regimes to facilitate the integration of domestic manufacturing with global production networks of Multi-National Enterprises (MNEs) (Jones and Kierzkowski 2001).

V   Conclusions

Historically, Thailand's export structure has remained highly diversified by the typical developing-country standards, with an increasing number of product lines enjoying revealed comparative advantage in international trade. While the rich domestic resource endowment has provided the setting, the key to export success was rooted in a long-standing of the Thai government to maintaining open trade and investment regimes.

The pre-crisis export contraction in Thailand was largely an outcome of sharp erosion in international competitiveness rooted in macroeconomic excesses during the boom years.

The incentives for export production, measured by the real exchange rate, have improved significantly following the onset of the recent financial crisis. This has been the combined outcome of significant nominal exchange rate depreciation propelled by the crisis and the easing of the labour market pressure, reversing persistent real wage growth experienced in the lead up to the crisis.

The results of our econometric analysis of the determinants of export growth suggest that real exchange rate depreciation is a a significant determinant of the post-crisis export recovery. However, the results also suggest that rapid diversification of exports away from traditional product products (wearing apparel, footwear etc) and toward assembly/component specialisation within global industries have tended to weaken the link between the real exchange rate and export growth. Export success in these new product lines depends on the long-term commitment of a country to maintain open trade and foreign investment regimes, which facilitates the integration of domestic manufacturing with global production networks of MNEs, rather than on short-term changes in relative incentives faced by domestic firms.

The emergence of China as a major exporter of labour intensive products has obviously begun to have considerable impact on the trading environment faced by Thailand and other exporting countries in the region. However, the gloomy predictions of the implications of increased Chinese competition for Thailand may be overstated. There is clear evidence that competition from China does not necessarily imply proportionate loss in market share for all developing countries. So far, China's rapid world market penetration in labour intensive manufactured goods has occurred largely at the expense of the East

AsianNIEs. Moreover, rapid expansion in imports by China has opened up new market opportunities for countries like Thailand. Of particular importance in this connection is China's rapid integration in regional production networks in parts and component production in vertically integrated global industries.

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Table 1: Thailand: Key Indicators of Export Performance

	Exports, $Million	Annual growth (%)	Manufacturing share (%)	Export to GDP ratio (%)	Share in world exports (%)
1976-1985	5623	13.4	25.7	21.9	0.36
1986-1995	27855	23.3	61.8	34.8	0.77
1986	8786	24.5	43.7	25.6	0.43
1987	11629	32.4	51.6	28.9	0.48
1988	15902	36.7	54.1	33.0	0.58
1989	19976	25.6	56.3	34.9	0.67
1990	23002	15.2	63.1	34.1	0.68
1991	28324	23.1	65.5	36.0	0.81
1992	32452	14.6	66.8	37.0	0.87
1993	37080	14.3	71.1	38.0	1.00
1994	45118	21.7	72.3	38.9	1.06
1995	56282	24.7	73.1	41.8	1.11
1996	54284	-3.6	71.4	39.3	1.02
1997	57567	6.0	71.5	48.0	1.04
1998	53118	-7.7	74.2	58.9	0.98
1999	58233	9.6	74.2	58.3	1.03
2000	68746	18.1	75.6	66.9	1.08
2001	65103	-5.3	74.5	66.1	1.06
2002	68653	5.5		64.8	
2003	44733	18.7			

Source : World Development Indicator, *World Bank*, (CDROM), and International Monetary Fund, *Direction of Trade Statistics*, (CDROM).

Table 2: Export Performance by Commodity Category

	1970-75	1976-85	1986-95	1996-2000	2001	2002
(A) Composition (%)						
Primary products	77.6	66.1	36.7	25.9	23.6	23.2
Food (SITC 0+1+4)	53.4	52.7	29.4	17.4	17.7	16.8
of which, Food-Processed food	14.7	19.6	18.3	13.1	15	14.1
Agricultural raw materials (SITC2-27-28)	20.3	11.4	5.9	3.8	3.4	4
Non-agricultural primary products (SITC 3+27+28)	3.9	2.0	1.4	2.5	2.4	2.4
Manufacturing Products (SITC 5+6+7+8-68)	11	25.7	61.8	73.6	73.6	75.6
Clothing (SITC 84)	1.4	5	11.3	6.0	4.9	4.4
Machinery and transport equipment (7)	0.4	4.2	11.7	21.2	22.1	23.7
Electrical Machinery (SITC 72)	0.3	4.0	11.3	18.8	20.4	22.1
Automotive+ parts (SITC 73)	0	0.1	0.5	0.8	2.2	2.1
Footwear (SITC 85)	0	0.6	2.7	1.5	2.8	3.1
Jewellery (SITC 8971 and 8972)	0.2	0.6	2.3	1.6	1.3	1.1
Total Export ($ million)	1436	5622	27855	58389	65103	68653
(B) Growth rate (%)						
Primary products	27.6	10.2	14	0.7	4.1	3.6
Food (SITC 0+1+4)	35	10.4	13.3	-1.7	16.3	-0.1
of which, Food-Processed food	53.9	12.6	19.3	-0.6	24.4	-0.7
Agricultural raw materials (SITC2-27-28)	15.5	10.3	17.7	-4.0	-1.8	22
Non-agricultural primary products (SITC 3+27+28)	26.1	16.5	17.8	42.0	-37.9	4.3
Manufacturing Products (SITC 5+6+7+8-68)	65.1	25.1	31.8	5.2	-20.2	7.7
Clothing (SITC 84)	157.1	28	25.6	-2.6	-16.4	-5.4
Machinery and transport equipment	18.2	39.5	38.7	12.4	-8.2	13.8
Electrical Machinery (SITC 72)	18.1	39.3	35.9	11.8	-11.3	14.5
Automotive+ parts (SITC 73)	13.1	41.2	65.2	29.6	67.7	1.7

Footwear (SITC 85)	141.6	86	39.9	-12.9	133.9	18.5
Jewellery (SITC 8971 and 8972)	42.7	38.5	31.7	-0.2	-7.1	-8.1
Total Exports ($ million)	28.2	13.4	23.3	4.5	-5.3	5.5

Source: Compiled from the UN COMTRADE database.

Table 3: Manufacturing Exports from Thailand: Change in the Index of Resealed Comparative Advantage (RCAI) between 1990-94 and 1998-2001

(A) Increase		(B) Decline but > 1 (continued)			(C) Decline and < 1	
SITC		055	Preserved vegetable	SITC		
081	Animal feeding stuff	061	Sugar and honey	121	Tobacco, un-manufactured	
099	Food preparations	075	Spices	241	Fuel wood and charcoal	
264	Jute	231	Rubber crude	532	Dyes	
266	Other fibre	261	Silk	691	Structures and parts	
611	Leather	273	Stone	893	Articles of plastic	
629	Rubber articles	612	Leather etc manufactures	899	Other manufactured goods	
651	Textile yarn and thread	632	Wood manufactures	025	Eggs	
652	Cotton fabrics	653	Woven textiles, non-cotton	044	Maize unmilled	
666	Pottery	654	Lace	075	Spices	
697	Base metal household equipment	656	Textile etc products			
714	Office machines	667	Pearl	(D) New products, > 1		
722	Electrical power machinery	687	Tin	SITC		
724	Telecommunication equipment	723	Electrical distributing machines	052	Dried fruit	
725	Domestic electric equip	729	Electrical machinery	275	Natural abrasives	
729	Electrical machinery, n.e.c.	821	Furniture	111	Non-alcoholic beverages	
(B) Decline but > 1		831	Travel good	581	Plastic material, n.e.c.	
011	Meat fresh	841	Clothing, not of fur	621	Materials of rubber	
031	Fish fresh	851	Footwear	693	Wire products non-electrical	
032	Fish etc tinned	864	Watches and clocks	663	Non-metallic mineral manufactures	
042	Rice	891	Sound recorders	692	Metal tanks	
047	Meal and flour non wheat	894	Toys	733	Road vehicles (non motor)	
053	Fruit preserved	893	Articles of plastic. N.e.c.			
054	Fresh vegetable					

Note:

n.e.c.   Not elsewhere classified (as part of another SITC category).

Source : Compiled from UN EMOTRADE database.

Table 4: China's Imports from developing Countries
Percentage shares of selected countries (%) and total ($ million), 1997-2002

	Composition (%)						Growth (%)
	1997	1998	1999	2000	2001	2002	1997-2002
Hong Kong	10.2	10.1	8.9	8.5	7.8	6.9	10.0
Taiwan	24.0	25.3	25.3	22.9	22.8	24.4	19.1
Korea, South	21.7	22.8	22.3	20.8	19.5	18.3	14.7
Indonesia	3.9	3.7	4.0	3.9	3.2	2.9	12.9
Malaysia	3.6	4.1	4.7	4.9	5.2	6.0	31.5
Philippines	0.5	0.8	1.2	1.5	1.6	2.1	60.0
Singapore	6.4	6.4	5.3	4.5	4.3	4.5	11.2
Thailand	2.9	3.7	3.6	3.9	3.9	3.6	23.9
Vietnam	0.5	0.3	0.5	0.8	0.8	0.7	41.0
Other	26.2	22.9	24.2	28.2	30.8	30.6	
All Developing countries (US$ million)	68453	65989	77103	111561	120050	156007	19.1

Source: Compiled from UN COMTRADE database

Table 5: Commodity Composition of Thai Exports to China, 1998-2002 (%)

HS no.		1998	2000	2002
84	Machinery	32.46	20.04	19.02
85	Electrical Machinery	8.30	14.49	14.00
27	Mineral Fuel, Oil Etc	7.30	15.36	11.74
40	Rubber	9.79	11.59	11.00
39	Plastic	5.67	7.46	8.69
29	Organic Chemicals	2.58	2.90	5.00
10	Cereals	6.86	4.22	2.93
7	Vegetables	0.89	0.15	2.90
44	Wood	0.78	0.91	2.62
72	Iron And Steel	1.11	2.10	2.39
48	Paper and Paper board	2.31	2.44	2.11
41	Hides And Skins	0.21	0.40	1.38
55	Manmade Staple Fibres	1.92	1.93	1.22
70	Glass And Glassware	0.25	0.43	1.15
8	Edible Fruit And Nuts	0.11	0.79	0.97
3	Fish And Seafood	12.31	2.87	0.97
99	Special Import Provision	1.20	0.67	0.93
90	Optical and Medal equipment	0.91	1.09	0.86
35	Albumins and starch glue	0.11	0.67	0.80
17	Sugars	1.23	0.51	0.78
	Other	36.16	29.02	27.56
	Total ($ million)	1766	2795	3544

Note: (1) Commodities are ranked by export performance in 2002.

Source: Compiled from UN COMTRADE database.

Table 6: Imports of Manufactured Goods[1] to USA and Japan from Developing Countries[2], 1996-2003July (Percentage shares of selected countries and total imports from developing countries in $ million)

	China	NIEs	Indonesia	Malaysia	Philippines	Thailand	Vietnam	Total ($ million)
(a) USA								
1996	17.5	27.7	2	5.9	2.6	3.2	0	296038
1997	18.6	25.2	2.1	5.2	2.9	3.2	0	336246
1998	19.4	22.8	2	5	3	3.1	0	370903
1999	19.9	22.1	1.9	4.9	2.8	2.9	0.1	422227
2000	20.4	21.6	1.8	4.9	2.7	2.8	0.0	504758
2001	22.1	19.0	1.8	4.6	2.3	2.7	0.1	475894
2002Q1	21.9	18.4	1.7	4.8	2.2	2.6	0.1	111053
2002Q2	24.3	17.7	1.7	4.7	2	2.5	0.2	125759
2002Q3	27.3	17.2	1.7	4.7	2.2	2.7	0.4	136231
2002Q4	27.7	17.9	1.5	4.4	1.9	2.6	0.5	132768
2003Q1	26.3	17.3	1.6	4.4	2	2.5	0.7	121385
2003Q2	28.1	17.0	1.5	4.6	1.7	2.4	0.7	130467
2003July	30.3	17.4	1.6	4.8	1.8	2.5	1	45745
(b) Japan								
2000	39.8	33.2	4.6	8.2	4.3	6.5	1.5	12612
2001	44.3	27.9	4.4	7.7	4.8	6.5	1.5	13066
2002q1	45.8	26.1	4	6.9	5.4	6.5	1.5	3235
2002q2	46.3	27.3	4.2	6.6	5	6.6	1.4	3330
2002q3	49	25.3	4.3	6	4.7	6.6	1.5	3318
2002q3	50.3	24.4	4.2	6.2	4.6	6.5	1.4	3615
2003q1	49.7	24.2	4	6.1	4.6	6.9	1.6	3387
2003q2	50.3	24.5	4.1	5.9	4.5	6.6	1.5	3524
2003Q3	50.7	24.7	4	5.9	4.3	6.4	1.5	1257

Notes:

1   Manufactured goods are defined to include all products belonging to Sections 5 through 8 of the Standard International Trade Classification (SITC) net of SITC 67 and 68 (ferrous and non-ferrous metal).

2. Non-OECD countries + South Korea

Source: Compiled from online databases of the United States International Trade Commissions (http://dataweb.usitc.gov/scripts/user_set.asp) and Japan Custom, Ministry of Finance (http://www.customs.go.jp/toukei/srch/indexe.htm).

Table 7: Determinants of manufactured Exports: Regression Results[1]

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(1)   Total Exports

QX	=	-3.33	+1.10RER	-0.42CU	+0.78WT	+0.34CRD
		(2.62)*	(6.40)*	(3.73)*	(4.15)*	(7.69)*

ΔQX =	-0.002	- 0.73 ΔDER	+ 0.77ΔWT	+ 0.02CRD	-0.34ECM(-1)
	(0.25)	(2.20)**	(6.51)*	(1.07)	(4.82)*

$\overline{R}^2 = 0.55$ $F(5,87)= 23.38$ $SE= 0.07$

_LM_ test for serial correlation _F_ (12,75)	0.89
RESET test for functional form _F_ (1,86)	0.43
_J-B_ test for normality χ^2	0.87
ARCH test for heteroscedasticiy _F_ (1,91)	1.73

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(2)   Chemical (SITC5)

QX	=	-21.41	+0.23RER	-0.75CU	+4.65WT	+0.38CRD
		(5.50)*	(0.51)	(1.92)**	(10.04)*	(4.45)*

ΔQX =	-0.08	+ 0.30ΔRER	- 0.09$\Delta CU(-1)$	+ 1.25ΔWT	+ 0.02CRD	-0.23ECM(-1)
	(0.08))	(0.739)	(1.40)	(8.37)	(0.83))	(3.83)*

$\overline{R}^2 = 0.24$ $F(4,88)= 8.29$ $SE= 0.12$

Diagnostic Tests

_LM_ test for serial correlation _F_ (12,76)	0.45
RESET test for functional form _F_ (1,87)	0.04
_J-B_ test for normality χ^2	0.39
ARCH test for heteroscedasticiy _F_ (1,91)	0.14

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(3)   Basic manufacturing (SITC6)

QX	=	-12.52	+1.53RER	-0.08CU	+1.73WT	+0.29CRD
		(8.63)*	(5.34)**	(0.44)	(7.00)*	(4.60)*

ΔQX =	-0.08	+ 0.30ΔRER	- 0.09$\Delta CU(-1)$	+ 1.25ΔWT	+ 0.02CRD	-0.23ECM(-1)
	(0.08))	(0.739)	(3.39)	(8.37)	(0.83))	(3.83)*

$\overline{R}^2 = 0.48$ $F(5,87)= 18.03$ $SE= 0.08$

LM test for serial correlation *F* (12,75)   0.69
RESET test for functional form *F* (1,86)   2.26
J-B test for normality χ^2 1.24
ARCH test for heteroscedasticiy *F* (1,91)   4.22

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(4)   Machinery and Transport Equipment (SITC7)

$$QX = \underset{(8.63)^*}{-11.94} \quad \underset{(2.64)^*}{+0.65RER} \quad \underset{(1.69)^{***}}{-0.20CU} \quad \underset{(10.74)^*}{+2.38WT} \quad \underset{(6.75)^*}{+0.40CRD}$$

$$\Delta QX = \underset{(0.32))}{-0.003} \quad \underset{(1.17)}{+0.45\Delta RER} \quad \underset{(3.12)^*}{-0.22\Delta CU(-1)} \quad \underset{(7.26)^*}{+1.04\Delta WT} \quad \underset{(1.02))}{+0.02CRD} \quad \underset{(4.14)^*}{-0.25ECM(-1)}$$

$\overline{R}^2 = 0.41$ *F*(5,87)= 13.53   *SE*= 0.08

LM test for serial correlation *F* (12,75)   1.10
RESET test for functional form *F* (1,86)   0.57
J-B test for normality χ^2 0.83
ARCH test for heteroscedasticiy *F* (1,91)   0.59

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(5)   Miscellaneous Manufactured Goods (SITC8)

$$QX = \underset{(0.46)^*}{-0.05} \quad \underset{(3.66)^*}{+0.94RER} \quad \underset{(5.21)^*}{+0.39CRD}$$

$$\Delta QX = \underset{(0.32))}{-0.003} \quad \underset{(2.00)^{**}}{+0.72\Delta RER} \quad \underset{(3.98)^*}{-0.62\Delta CU(-1)} \quad \underset{(2.41)^{**}}{+0.40\Delta WT} \quad \underset{(1.02))}{+0.03CRD} \quad \underset{(3.93)^*}{-0.22ECM(-1)}$$

$\overline{R}^2 = 0.34$ *F*(5,87)= 10.74   *SE*= 0.10

LM test for serial correlation *F* (12,75) = 1.81
RESET test for functional form *F* (1,86) = 0.07
J-B test for normality χ^2 = 2.21
*ARCH* test for heteroscedasticiy *F* (1,91) = 4.45

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Notes: (1)   Under each commodity category, the first equation shows the long-run (steady state) relationship (co-integrating vector), and the second equation the short-run dynamics   ECM is Error correction term (residual from the estimated cointegrating vector).   T-ratios are given in brackets: * Significant

at the one-percent level, ** Significant at the five-percent level, and *** significant at the ten-percent level

Sources: Estimated using data series complied from the Bank of Thailand online database.

Figure 1: Growth of Merchandise Exports in Thailand, January 1994 – July 2003 (%)

(Year-on-year growth rates of current $ values)
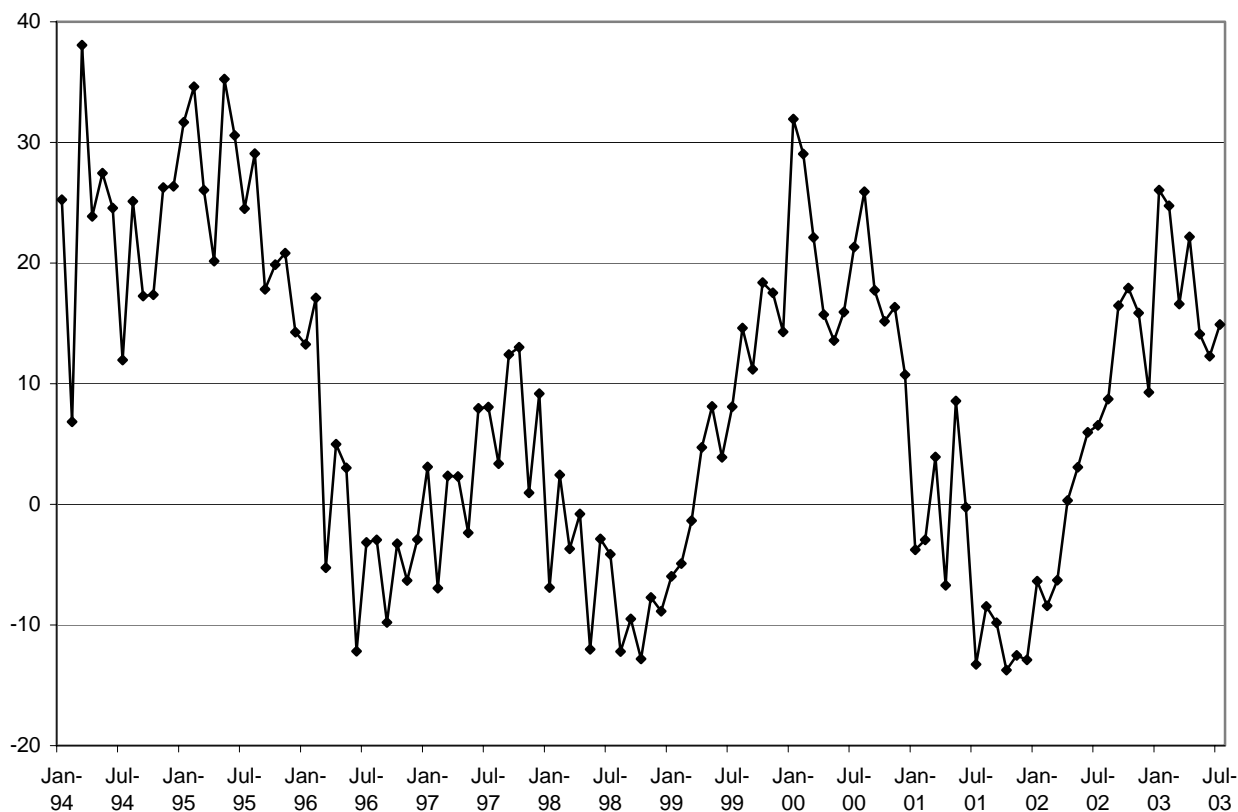
Source: Compiled from Bank of Thailand on-line database. (to be cited in references)
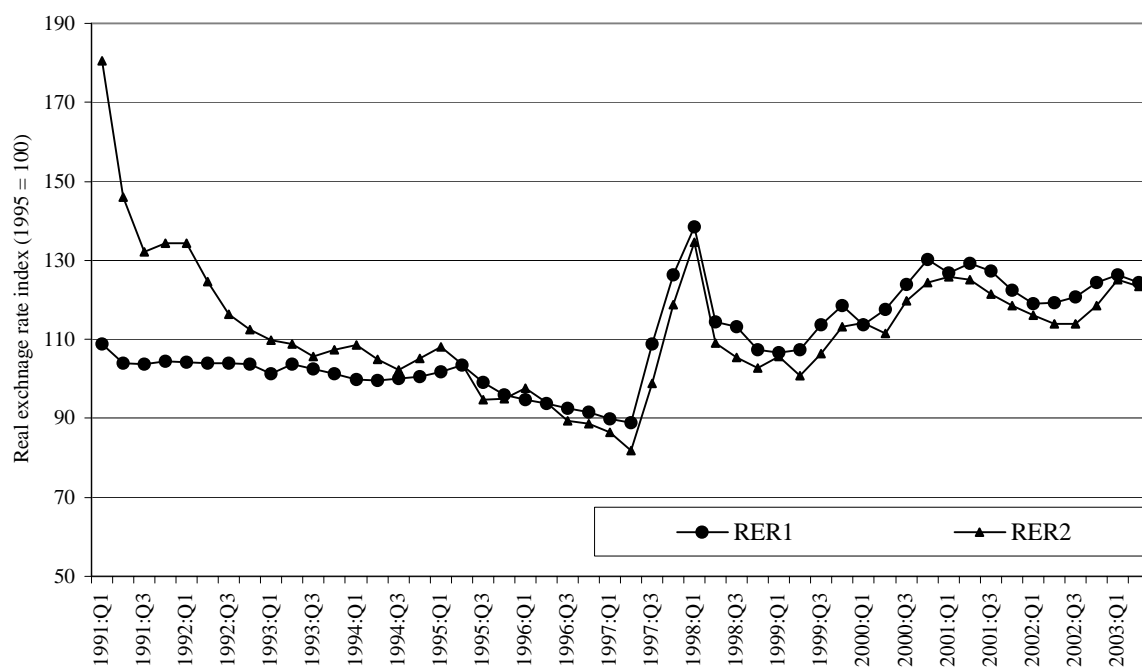{put   percentage   on   the   Y-axis}

Figure 2: Thailand-China Trade, 1990-2002
(Exports and Imports in US$ million)
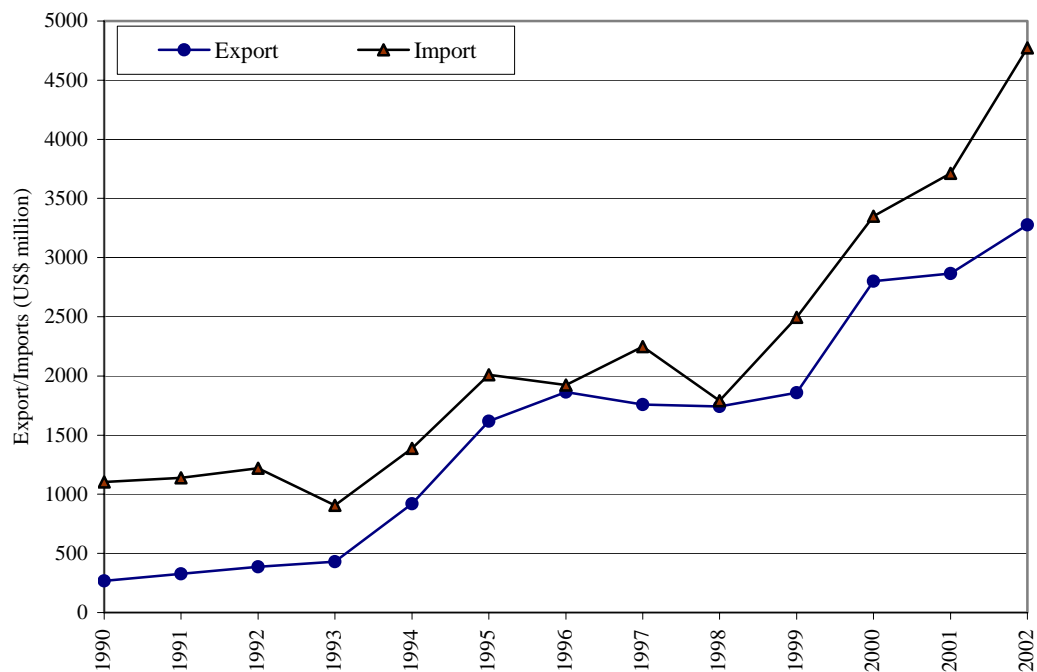
Source: UN COMTRADE Database

Figure 3: Thailand: Real Exchange Rate, 1991Q1—2003Q2
(1995 = 100)

RER1 Producer (wholesale) price in Thailand's ten major export trading
partners in baht relative to consumer price in Thailand.

RER2 Producer (wholesale) price in Thailand's ten major export trading
partners in baht relative to nominal manufacturing wages in Thailand.

Source: Compiled using data extracted from Bank of Thailand on-line data
base and IMF, *Direction of Trade CD-Rom* (for export shares in 1995).