B SELECTED TRADE DEVELOPMENTS AND ISSUES

1. TRADE IN TEXTILES AND CLOTHING

The Agreement on Textiles and Clothing (ATC) came to an end on 1 January 2005. Much interest, not to mention concern, was expressed about the likely impact on production and trade of the removal of quota restrictions. It was apparent to most observers that there would be winners and losers from the additional liberalization. It is too early to say how the market will look beyond the relatively short period upon which we can base our observations, but this note looks at what we know so far about the pattern of trade that has emerged since the quantitative restrictions were (largely) removed. A caveat is in order here: there can be little doubt that the termination of the ATC affected the patterns of trade observed in 2005, but we have not developed a rigorous analytical approach to the question of what other factors might also influence the pattern of trade flows.

International trade in textiles and clothing has played an important role in the development process of many countries and in their integration into the world economy. Today, the textiles and clothing sector accounts for a major part of merchandise exports of a large number of low- and middle-income countries. Developing countries as a group accounted for more than one-half of world exports of textiles and clothing in 2004. In no other category of manufactured goods do developing countries enjoy such a large net-exporting position. Exports of textiles and clothing continued to exceed agricultural exports in many developing countries and in the aggregate throughout the 2000-04 period. However, textiles and clothing is not a very dynamic product group, as its share in developing country merchandise exports has been declining rather steadily since 2000. The share was less than 10 per cent in 2004. Further liberalization of trade in textiles is of major interest for many developing countries as it improves market access in an area where many of them have comparative advantage. However, some developing country exporters who have benefited from preferential market access are concerned about increased competition resulting from further liberalization.

The quota restrictions that went with the ATC were in respect of imports of Canada, the European Union and the Unites States.[11] These three markets account for more than one-half of world textiles and clothing imports. The removal of quotas could therefore be expected to have a significant impact on global trade flows,[12] even though the end of the ATC quota regime did not represent the complete elimination of protection in these markets – relatively high tariff averages continue to be applied in the sector.[13] Nevertheless, the end of a special trade regime that had existed for more than 40 years for textiles and clothing marked an important step forward, both in terms of trade liberalization and the elimination of negotiated trade arrangements clearly in breach of key WTO rules.

At the beginning of 2005, China introduced an export tax on a number of textile products. The tax was increased in May and partly abolished in June after the United States and the EU sought new restrictions on exports of textiles and clothing from China, their most important single supplier. The legal basis for these new restrictions was Paragraph 242 of the Report of the Working Party for the Accession of China to the WTO. The new quotas apply until the end of 2007 for the EU and until the end of 2008 for the United States (see Box 1). Imports from all other (WTO) suppliers remained free of quantitative restrictions in the EU and US markets. Certain other countries also applied restrictions on Chinese textiles in 2005, using the special safeguard negotiated as part of China's terms of accession to the WTO. These actions have no doubt slowed down Chinese export expansion. In what follows, we shall examine what changes have occurred in the level and geographical composition of trade in textiles and clothing during 2005. We shall also review briefly what has happened to prices, production and employment in the EU and the United States in the post-ATC period.

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11 Norway previously restricted its imports under the ATC but had eliminated its last quotas by January 1, 2001.

12 The EU and the United States each account for about one-fourth of world imports if EU intra-trade is excluded. The three markets combined accounted for 54 per cent of global textiles and clothing imports in 2004.

13 Tariff averages in textiles and clothing (MFN simple applied rates) are significantly higher than for total non-agricultural products (e.g. Canada 11.3 per cent versus 4.0 per cent, EU 7.9 per cent versus 4.0 per cent and the United States 8.7 per cent versus 3.3 per cent). See WTO, World Trade Report 2005, Tariff Profiles.

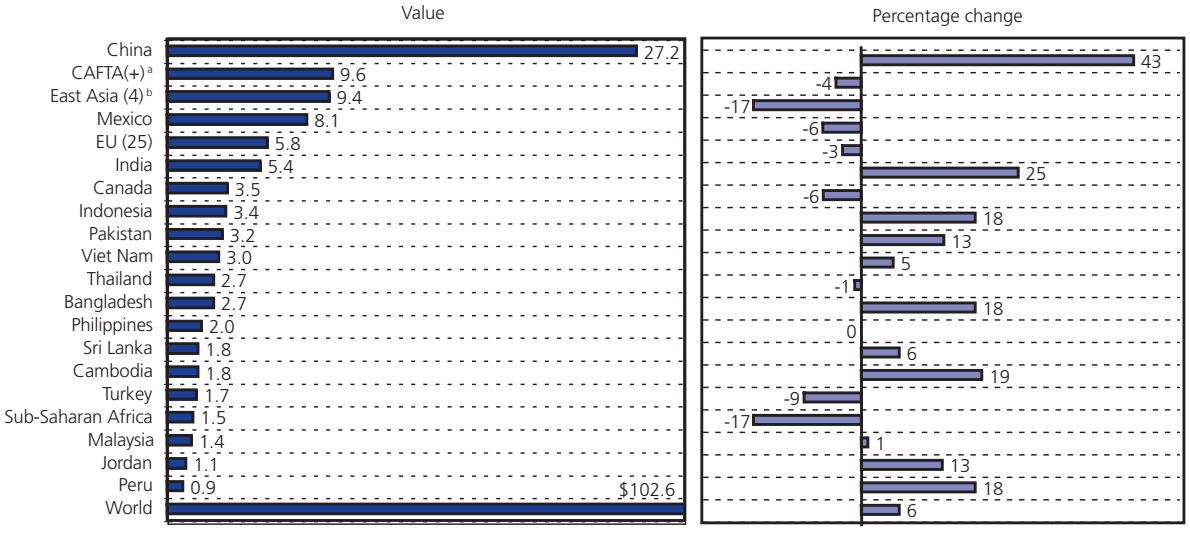
(a) Textiles and clothing trade developments in 2005

Although the lifting of the ATC quotas created more favourable conditions for the expansion of world trade in textiles and clothing, trade in these products is estimated to have expanded in value terms by 5 per cent in 2005, compared to 12 per cent in 2004. This slowdown in 2005 is linked to the deceleration of economic growth in the developed countries and partly due to lower dollar prices as a result of exchange rate developments.[14] China's exports of textiles and clothing expanded by 21 per cent in 2005, which is marginally faster than in 2004 but not as fast as in 2003. China's share in global textiles and clothing trade has increased, reaching a new peak level in 2005 of 24 per cent if EU(25) intra-trade is included and 31 per cent if EU(25) intra-trade is excluded.

A review of textiles and clothing import developments in 2005 in the United States and the EU(25) shows that there was no acceleration in overall import growth, but that major shifts occurred among the principal suppliers in each market.

Imports of textiles and clothing[15] into the United States rose by 6 per cent in 2005, at about the same rate as in 2004 (to US$103 billion). The growth rates of imports from different suppliers exhibited considerable variation, ranging from an increase of 43 per cent for China to a decrease of 24 per cent from the Republic of Korea. Data on US imports presented in Chart 1 show that – besides China – seven suppliers (five in Asia – India, Indonesia, Pakistan, Bangladesh and Cambodia – plus Jordan and Peru) expanded their shipments at double-digit growth rates, while high-income developing economies in East Asia[16] recorded a drop of 17 per cent in their exports to the United States. Imports from various preferential suppliers decreased by different degrees. While US imports from Sub-Saharan Africa shrank by 17 per cent, those from NAFTA member states decreased by 6 per cent and those from CAFTA member states plus the Dominican Republic declined by 4 per cent. According to the data provided in Chart 1, many suppliers gained market share but none expanded their share as strongly as China. On the other hand, many suppliers have seen their shares shrinking and some of them also experienced absolute reductions in their shipments.

Chart 1
United States imports of textiles and apparel by country and region, 2005



[a] Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras and Nicaragua.
[b] Hong Kong, China; Republic of Korea; Macao, China; and Chinese Taipei.
Source: US Department of Commerce, Bureau of the Census, International Trade Statistics.

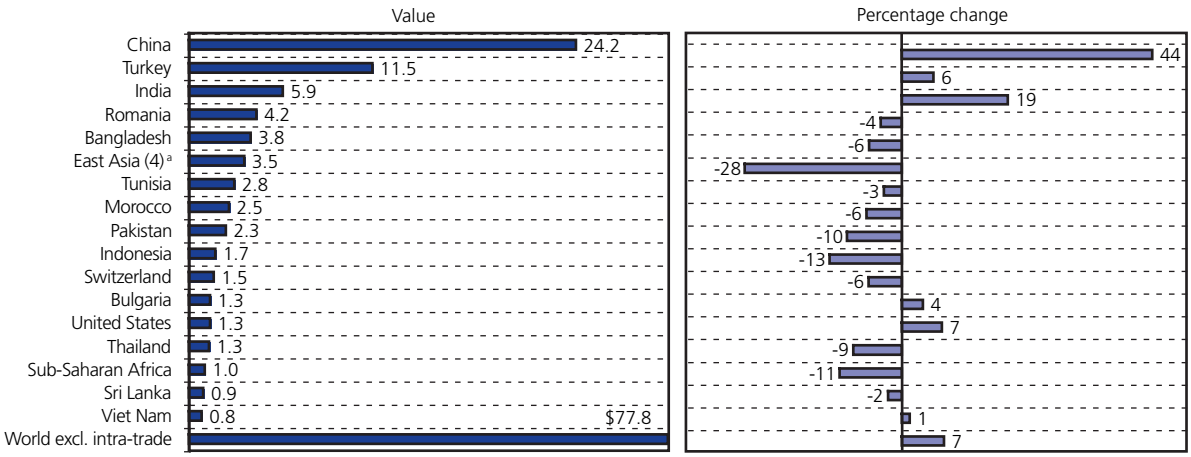
[14] The euro/dollar exchange rate decreased by 9 per cent in 2004 which inflated intra-European trade flows measured in dollar terms. In 2005, however, the euro/dollar rate remained on average unchanged from the preceding year.

[15] For the analysis of textiles trade various definitions are found. In this overview the textiles product categories are defined according to the Standard International Trade Classification, Revision 3 as is the practice in the regular WTO publications, International Trade Statistics and the World Trade Report. Textiles are defined as SITC Division 65 and clothing as SITC Division 84.

[16] Hong Kong, China; Republic of Korea; Macao, China and Chinese Taipei.

Looking at the EU(25) import market[17] for textiles and clothing in 2005, one finds some traits similar to those observed in the case of the United States. First, the overall increase in the first ten months was nearly 7 per cent. This growth rate was as strong as that of the United States but less than in 2004. Second, as in the case of the United States, the biggest import increases are reported for China and India. Third, large import decreases are observed for the four high-income developing East Asian economies and the Sub-Saharan economies.[18] EU(25) imports from geographically proximate major preferential trading partners recorded a mixed performance, with moderate import increases from Turkey and Bulgaria contrasting with lower supplies from Romania, Tunisia and Morocco. In contrast to the double digit increases in United States imports, EU(25) textiles and clothing imports from Bangladesh, Cambodia, Indonesia and Pakistan decreased in 2005 (see Chart 2).

Chart 2
European Union(25) imports of textiles and clothing by country and region, January-October 2005



[a] Hong Kong, China; Republic of Korea; Macao, China; and Chinese Taipei.
Source: Eurostat.

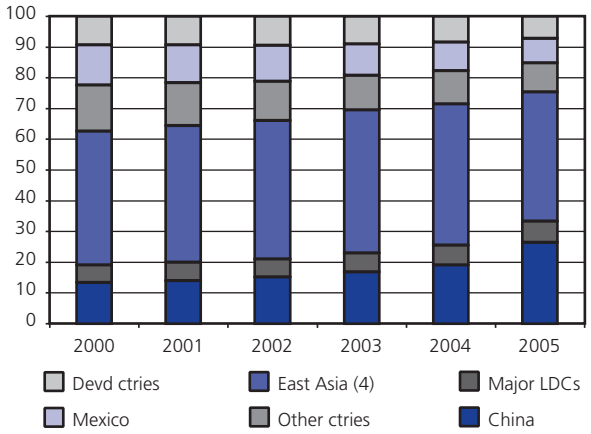
A rapid rise in the import share of previously restricted suppliers was widely expected. In the case of China, developments in 2005 only accentuated an existing trend towards a larger share of Chinese exports in world trade. This trend could already be observed during the last four years or more. Over the same period, the high-income developing economies in Asia as well as the developed countries recorded a decline in their trade share (see Chart 3 and Chart 4 on US imports). In other words, the sharp rise in US and EU imports of textiles and clothing products from China largely reflects a shift among suppliers.

A review of the overall level of imports conceals more disruptive changes at a disaggregated level. The surges in imports of certain textiles and clothing categories observed in the early months of 2005 were concentrated on a subset for which the ATC quota restrictions had severely limited Chinese exports until the end of 2004. In the seven product categories for which the United States invoked safeguard actions and implemented new quantitative restrictions, the share of China in US imports was less than 4 per cent on average (in value terms) in 2004. In some other categories which had been less restricted, such as infants' apparel and gloves, China's share in US imports exceeded 50 per cent in 2004. It is therefore no surprise that for the group of tightly restricted categories, US imports from China tripled in the first nine months of 2005. For all the other categories, US imports from China increased by 46 per cent over the same period. In the EU, a surge of 168 per cent in the dollar value of imports occurred in the first quarter of 2005 in respect of the nine categories for which safeguard actions were taken in May, compared with an increase of only 17 per cent for all the remaining categories. Again, the share of China in EU(25) extra-regional imports was less than 10 per cent for this group of products in 2004.

17 Excluding EU(25) intra-trade, which accounts for about one-half of EU(25) total imports decreased by 2 per cent in the first ten months of 2005.

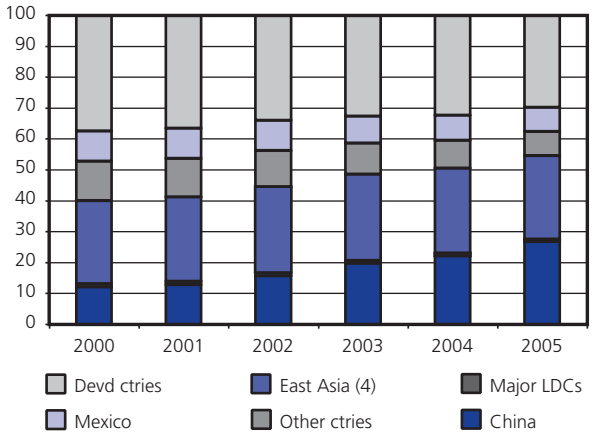
18 Large variations in import growth could be observed among the Sub-Saharan countries. EU(25) imports from Madagascar rose by 15 per cent to US$200 million, decreased by 15 per cent from Mauritius, the largest supplier in Sub-Saharan Africa, and by 18 per cent from all the other countries combined.

Chart 3
Regional structure of United States' textiles imports by region, 2000-05
(Percentage shares)



Major LDCs (6): Bangladesh, Cambodia, Lesotho, Madagascar, Haiti and Nepal.
East Asia (4): Hong Kong, China; Republic of Korea; Macao, China; and Chinese Taipei.
Developed Countries: Canada, Europe, Australia, Japan and New Zealand.
Source: UNSD Comtrade database and US Census Bureau, US International Trade Statistics.

Chart 4
Regional structure of United States' clothing imports by region, 2000-05
(Percentage shares)



Major LDCs (6): Bangladesh, Cambodia, Lesotho, Madagascar, Haiti and Nepal.
East Asia (4): Hong Kong, China; Republic of Korea; Macao, China; and Chinese Taipei.
Developed Countries: Canada, Europe, Australia, Japan and New Zealand.
Source: UNSD, Comtrade database and US Census Bureau, US International Trade Statistics.

The impact of restrictions on Chinese exports in the United States and the European Union was still limited in the third quarter. China's exports of textiles and clothing to the world increased by 26 per cent on a year-to-year basis in the third quarter, which was somewhat faster than in the first half of 2005. However, in the fourth quarter, the expansion of China's textiles and clothing exports slowed down markedly, to 12 per cent.

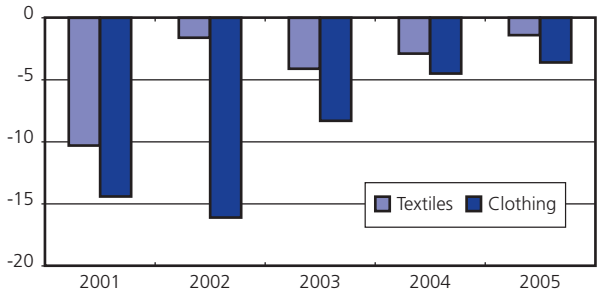
Textiles and clothing sales by China to the European Union expanded in the third quarter of 2005 by nearly 50 per cent, somewhat faster than in the first half, while in the United States a deceleration in the growth of imports from China could already be observed in the third quarter of 2005. The share of China in US textiles and clothing imports stabilized at 27 per cent in the third quarter of 2005 and decreased thereafter.

The reintroduction of quantitative limits on a single supplier has been justified by the importing countries in terms of the threat of market disruption. One element of market disruption concerns production and employment in the home market. Chart 5 shows the evolution of US textiles and apparel production since 2000. Between 2000 and 2004, US textiles and apparel production was shrinking in each year with one single exception (the stagnation of output in 2002). In the first six months of 2005, US apparel production was declining on a year-to-year basis by 6.5 per cent, slightly more than in 2004, but less than in each year since 1999. With respect to textiles output, the decrease was limited to 2.2 per cent, a lower rate than in the preceding year. In the second half of 2005 the output decline was reduced, leading to an average annual decline in 2005 smaller than in 2004. Employment in the United States textile and clothing industry has been steadily declining over the last ten years, with the decline more pronounced in clothing than in textiles. In clothing, employment decreased by more than two-thirds, from 820,000 in January 1995 to 280,000 in October 2005. Although US employment in apparel decreased further in the first half of 2005 – by nearly 10 per cent from the preceding year's level – this decline was still somewhat less dramatic than the average decline observed over the last 10 years. Both employment and production data point to a major long-term structural decline in the US textile and apparel industry, which selective restrictions on imports have been able to delay somewhat, but have not arrested.

Textiles and clothing production in the EU also recorded a marked downward trend in the 2000-2004 period (Chart 6). The cumulative decline in production for the four years was 15 per cent for textiles and 25 per cent for clothing. In the first half of 2005, the production decline was steeper than in the preceding year (with a decline of 5 per cent in textiles and 10 per cent in clothing). In the third quarter, following the introduction of new restrictions on imports, the rate of decline decreased somewhat (to 4 per cent and 8 per cent, respectively). As regards EU employment, the decline observed over the 2000 to 2004 period was more pronounced in textiles than in the clothing industry. These divergent trends continued in the first half of 2005, as the decrease in textiles employment slowed down while that in the clothing industry accelerated, reaching 7.6 per cent over the year in the second quarter.

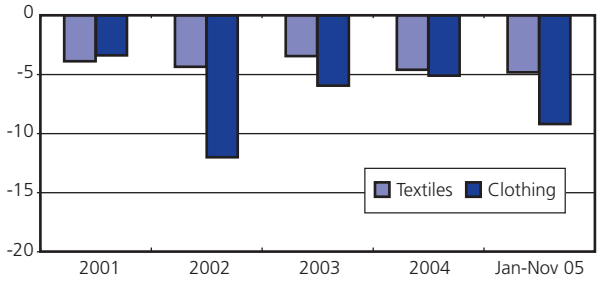
Both production and employment data indicate that the competitive situation of the textiles industry in Europe and the United States is more favourable than that of the clothing industry. Three factors might explain this. First, textiles production is far more capital-intensive than clothing, which reduces the advantage low-wage countries have *vis-à-vis* high-income countries. Second, some textiles production is destined to product markets (such as technical textiles) which exhibit stronger demand growth than is the case for clothing.[19] Third, preferential trading arrangements with specific rules of origin tend to support the textiles industry located in these two markets.

Chart 5
United States textiles and clothing production, 2001-05
(Percentage change)



Source: Board of Governors of the Federal Reserve System, Federal Reserve Statistical Release January 17, 2006 (available at www.federalreserve.gov/releases/G17).

Chart 6
European Union(25) textiles and clothing production, 2001-05
(Percentage change)



Source: Eurostat.

Price developments in international trade in textiles and clothing can be observed at different levels. Looking at overall import prices of textiles and clothing, one observes that the import prices of the United States (and Germany) in these two categories evolved slightly faster than those of all manufactured goods between 2000 and 2004. Prices of textiles increased somewhat faster than those of clothing (Table A28, ITS 2005). In the first nine months of 2005, US import prices for textile and clothing from all sources remained basically unchanged, while prices of other manufactured goods increased slightly over the preceding year's level. This price information does not support the view that the lifting of the quotas had a marked downside impact on prices at an industry level. However, investigations at the detailed product level (at which the safeguard actions were examined) revealed that the unit price of products originating from China decreased sharply in 2005. Despite their steep decline, unit values of Chinese goods did not necessarily fall below the prices of similar goods imported from all other sources in 2005 – in most cases the Chinese prices were higher in 2004. Despite their decline, Chinese unit values remained higher than those from all other sources in three out of seven textiles categories during the first nine months of 2005. The impact of China on average US import prices from all sources was moderate. In four out of seven categories, average unit values decreased between 1 per cent and 5 per cent and increased in one category by 3.5 per cent. For cotton yarn, however, the average unit value fell by 17 per cent. This decline is largely attributable to the fall in cotton prices over the same period. In general, increased imports of Chinese goods only exerted moderate downward pressure on the prices of textile goods in the US market.[20]

19 "It is estimated that technical textiles are growing at roughly twice the rate of textiles for the clothing industry, where growth rates have been about 2 per cent a year in recent years" (Audet, 2004).

20 US retail prices of apparel decreased by less than 1 per cent in 2005 or half the average annual decline recorded in the four preceding years.

The moderate impact of the sharp rise in imports of Chinese textiles on price levels is also confirmed for the EU market. According to the EU Commission, retail prices recorded small changes. Producer prices remained flat in the textiles industry and increased marginally for clothing. In the first nine months of 2005, producer prices increased slightly faster than in 2004. Overall price stability at the retail and producer level contrasts with the observed decrease in the import unit values of textiles and clothing goods from China, for which safeguard actions were initiated in May 2005. For the nine categories involved, price declines measured in euro terms ranged from -5 per cent to 36 per cent, and averaged 22 per cent (arithmetic average). One explanation for the limited impact of China on the overall price level might be found in the value of imports from China in these categories (€5.3 billion) compared to total EU(25) textiles and clothing imports (€54.5 billion). Prices of non-monitored textiles imports from China, which amounted to €11.1 billion, have probably been more stable than prices of monitored goods.

The expansion of global textiles trade in the years to come will be driven primarily by the rise of consumer expenditure in the United States and Europe. Consumer expenditure on clothing (and shoes) in the United States expanded much faster than overall consumption over the last three years, underpinning import growth. It is not certain that this dynamic growth can be maintained. The new quotas introduced in 2005 will cap the expansion of Chinese textiles sales to the US and EU markets in 2006 and 2007. However, the annual growth rates of these quotas are well above past import demand trends, so China's share of imports in these two markets can be expected to increase over the next few years. This implies that competitive pressures on the world's largest import markets for textiles and clothing will prevail.

Box 1: Selected Trade Policy Actions in the Textiles Sector in 2005

United States: [1]

April 27	The (US) Committee on the Implementation of the Textiles Agreement (CITA) agreed to consider the requests for safeguard actions on imports from China for seven categories of textiles and apparel products. The public is invited to comment on this request in the review process.[2]
May 23	CITA requests bilateral textile negotiations with the government of China and establishes limits on imports of (seven) textile categories originating from China. Quotas limiting imports start on May 23 and extend through December 31, 2005. The consultations and the implementation of quotas are based on paragraph 242 of China's Accession Agreement to the WTO. This paragraph allows WTO Members who believe that imports of Chinese origin textile and clothing products are causing market disruption and threatening to impede the orderly development of trade in these products to request consultations with the government of China with a view to ease or to avoid such market disruption. Upon receipt of the request, China agreed to hold its shipments to a level not greater than 7.5 per cent above the amount entered during the last 12 months.
November 8	Memorandum of Understanding (MOU) is signed by the United States Trade representative and the Minister of Commerce of the People's Republic of China. Its objective is to limit exports from China and imports into the United States of Chinese origin textile and apparel products in 2006, 2007 and 2008. For 21 categories, quantitative levels are fixed for each year. The 2006 quotas allow for an increase of between 173 per cent and 640 per cent between 2004 and 2006 (for the most restricted categories). For all the products covered, the quantitative increases range from 12.5 per cent to 16 per cent in 2007 and between 15 per cent and 17 per cent in 2008.

European Union: [3]

April 29	European Commission starts investigations for evidence on market disruption caused by imports from China in nine textiles categories.

May 25 European Commission engages in formal consultations with the government of China according to paragraph 242 of China's Accession Agreement to the WTO with a view to addressing market disruption.

June 10 Memorandum of Understanding (MOU) between the European Commission and the Ministry of Commerce of the People's Republic of China on the export of certain Chinese textiles and clothing products to the European Union is signed. This MOU limits China's textiles export growth to the European Union for ten categories for the years 2005, 2006 and 2007. Annual quantity growth rates range for most categories from 10 per cent to 12.5 per cent from the import level of a base year, April 2004 to March 2005.[4] The European Commission agrees to exercise restraint concerning the application of the EU rights under Paragraph 242 for the textile categories which are not restricted until 2007, and for all textile products in 2008. In contrast to the MOU between the US and China, no quantitative limits are set on China's textiles exports to the European Union for 2008.

China: [5]

January 1 China's Ministry of Finance unilaterally introduces a specific export duty on 148 (8-digit) textiles and clothing products.

May 20 Ministry of Finance announces that, effective 1 June 2005, export taxes would be increased for 74 textiles and clothing products (8-digit level), reduced for 3, removed for 2, and one more product was added.

May 30 Effective 1 June 2005, China revoked the export duties on 79 textiles and clothing products.

June 10 China's Ministry of Commerce signs a MOU with the EU Commission.

July 21 The peg of the Chinese currency to the United States dollar is replaced by a peg to a currency basket which leads to a moderate appreciation of the Renminbi.

July 25 China announces the removal of export taxes on 17 textiles and clothing products, which are subject to quantitative restrictions based on the MOU with the EU Commission.

November 8 China's Ministry of Commerce signs a MOU with the United States Trade Representative.

December 13 Ministry of Finance announces that it will suspend all export taxes on textiles products by January 1, 2006.

Other developments:

In the first half of 2005, 14 anti-dumping investigations were initiated and notified to the WTO in the textiles sector (HS Section XI), two less than in the first half of 2004. No initiations of countervailing measures are reported in this sector in the first six months of 2005

September Colombia notifies the WTO of provisional safeguard measures on the imports of textile products originating in China. (Measures taken are based on the transitional product-specific safeguards provided in China's WTO Accession Protocol).

December Brazil discusses restrictions on China's textiles exports to Brazil, according to press reports. (February14, 2006 an export restraint agreement was signed, covering eight categories (comprising 70 products), which will be in effect until the end of 2008.)

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1 Information on US trade policy actions is taken from the website of the United States Office of Textiles (http://otexa.ita.doc.gov/msrpoint.htm) and that of the United States Trade Representative http://www.ustr.gov/Trade_Sectors/Textiles_Apparel/Section_Index.html.

2 In the second half of 2004 several similar requests had not been accepted for consideration by CITA.

3 Information on EU trade policy actions is taken from European Commission website http://europa.eu.int/comm/trade/issues/sectoral/industry/textile/index_en.htm

4 For two categories (4 and 115) the base year is March 2004 through April 2005, and for three other categories (5,6 and 7) the annual growth is limited to 8 per cent in 2005.

5 China Ministry of Commerce (http://english.mofcom.gov.cn/), China Ministry of Finance (http://www.mof.gov.cn/index.htm) and other sources.

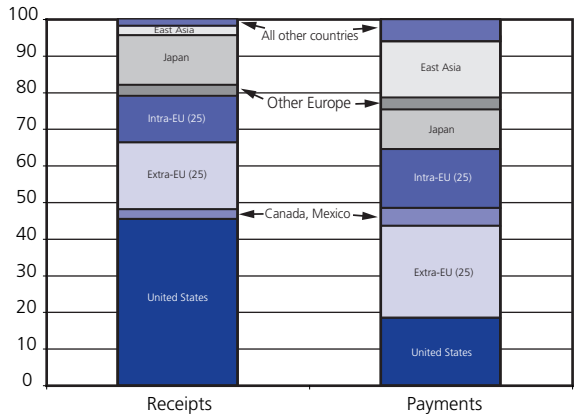
2. INTERNATIONAL PAYMENTS AND RECEIPTS OF ROYALTIES AND LICENCE FEES, 1995-2004

Limited quantitative information is available on international payments relating to intellectual property rights. This Section examines available information on international transactions involving royalties and licence fees (R&LF). Some developing countries have expressed concern at various times about the increase in these kinds of payments that would arise as a result of the WTO Agreement on Trade-Related Intellectual Property Rights. It appears, however, that developing countries outside East Asia account for a very small part of global R&LF payments, which are largely made among developed countries.

Balance of payments statistics (BOP) provide information on the international flows of R&LF, defining them as "the exchange of payments and receipts between residents and non-residents for the authorized use of intangible, non-produced, non-financial assets and proprietary rights (such as patents, copyrights, trademarks, industrial processes, franchises, etc.) and with the use, through licensing agreements, of produced originals or prototypes (such as manuscripts and films)".[21] Payments and receipts for the purchase or sale of the assets and rights are excluded and recorded as capital account transactions. Despite numerous statistical difficulties in recording the above transactions, the available data nevertheless allow one to sketch some broad developments over recent years.

On the basis of the available information provided in national BOP, it has been estimated that the global payments of R&LF amounted to about US$130 billion in 2004[22]. The share of R&LF in world commercial services trade was 6 per cent in 2004. Between 2000 and 2004, the growth rate of global R&LF payments is estimated to have been 11 per cent – an annual rate roughly similar to the expansion of commercial services trade (about 9 per cent).[23] R&LF are largely paid among the industrially more advanced countries of North America, Europe and East Asia.[24] These regions account for more than 90 per cent of the global credit and debit payments in this services category.

Chart 7
Receipts and payments of royalties and licence fees by country and region, 2004
(Percentage share)



Note: East Asia comprises Singapore; China; the Republic of Korea; Chinese Taipei; Thailand; Hong Kong, China and Malaysia.
Source: IMF, Balance of Payments Statistics; Eurostat, national statistics and WTO estimates.

An important feature of current global flows of R&LF payments is that they occur largely among affiliated companies. In the case of the United States, three-quarters of the receipts of R&LF originated from affiliated transactions of multinational enterprises located in the United States (i.e. receipts by US parents from their foreign affiliates and those by US affiliates of foreign companies). On the payment side, the corresponding ratio was nearly 80 per cent in 2004.[25] Almost all of Singapore's payments of R&LF are accounted for by Singapore subsidiaries of foreign multinational corporations.[26] The high level of intra-firm transactions adds to

21 IMF Balance of Payments Manual, 5th edition, 1993.

22 Estimated global payments (debits) exceeded global receipts (credits) by more than 10 per cent in 2004. An excess of debit over credit flows could be observed in varying degrees over the last eight years. A large part of this discrepancy at the global level can be attributed to intra-EU flows. Theoretically, intra–EU payments should be balanced by corresponding receipts but the statistical records show a deficit of US$8 billion in 2003.

23 During the 1995-2000 period, reported global R&LF payments and receipts increased on average by 9 per cent, or two times faster than global commercial services trade. However, it is uncertain to what extent an improvement in the coverage of reported R&LF payments affects the comparison.

24 Comprising Japan; China; Hong Kong, China; the Republic of Korea; Malaysia; Singapore; Thailand and Chinese Taipei.

25 US Department of Commerce, Survey of Current Business, July 2005, US International Transactions.

26 Singapore Department of Statistics, Occasional Paper 49, Singapore's International Trade in Services: New estimates and analysis, p. 7, March 2000.

concerns about the accuracy of the data. Reported transaction values in balance of payments statistics might be affected by tax considerations and not always reflect the market value accurately.

A detailed breakdown of R&LF payments by type is not available. Therefore, it is difficult to assess at the global level the relative importance of revenues from trade marks, franchise fees, patent fees for industrial products and processes, copyrights from books, films and sound, earnings from broadcasting and recording of live events, and general use computer software.

A review of R&LF transactions by country reveals that the United States is the largest recipient of R&LF payments and, after the EU(25), the second largest source of payments (see Chart 7 and Table 1). In 2004, United States' receipts of R&LF reached US$52.6 billion, exceeding its payments by nearly US$29 billion. Over the 2000-2004 period, the surplus of the United States eroded as its R&LF payments rose two times faster than its receipts (45 per cent and 22 per cent respectively). The share of the United States in worldwide receipts of R&LF has decreased since 2000, when it still accounted for more than one-half of global receipts. The EU(25) payments of R&LF of about US$53 billion in 2004 are the largest in the world, accounting for about 42 per cent of the global payments (including intra-EU trade). The expansion of the receipts of R&LF of the EU(25) has been on average inferior to that of payments throughout the 2000-2004 period, thereby preserving the deficit in these transactions. The EU(25) recorded a deficit of US$10.4 billion with third countries in 2003.

Amongst EU member countries in 2004, the United Kingdom had the largest credits and Ireland the largest debits in R&LF. France and Sweden reported an excess of receipts over debits while Germany, the Netherlands, Italy and Austria reported a deficit in these transactions. In the case of Germany, a marked reduction of this deficit can be observed between 2000 and 2004, as debit payments stagnated while credits recorded a steep increase. The steepest increase in R&LF payments could be observed in the ten new EU members, which have benefited from a marked increase in FDI inflows since 1995. Japan was the world's third largest source and receiver of R&LF payments throughout the 2000-2004 period. Japan's deficit in R&LF transactions during 2000-2002 turned into a moderate surplus from 2003 onwards. In 2004, its total receipts of R&LF increased by 28 per cent to US$15.7 billion. Asian economies accounted for the largest part of developing countries' R&LF payments (in particular Singapore; China; Republic of Korea; Chinese Taipei; Thailand; Hong Kong, China and Malaysia). A strong multinational corporation presence exists in these economies. Among this group, only the Republic of Korea recorded a substantial increase in its receipts of R&LF between 2000 and 2004 (which is most likely related to its FDI outflows in the electronic sector). In 2004, the Republic of Korea recorded R&LF receipts of US$1.8 billion – by far the largest receipts of any developing country – and three times more than in 2000. Throughout the 2000-2004 period, Singapore reported the second largest payments of R&LF in Asia.[27] Its payments of US$5.6 billion in 2004 exceeded those of Canada for the first time, and nearly matched those of Germany. As Singapore's receipts of R&LF are much smaller than its debit payments, its deficit in these transactions is second globally only to that of Ireland. Having more than tripled since 2000, China's R&LF payments reached US$4.5 billion in 2004. India's payments of R&LF increased markedly between 2000 and 2003, but at only US$0.42 billion, remained relatively small compared to the size of its economy, and with those of Singapore and China.

[27] Singapore has revised its BOP statistics recently. Singapore R&LF data above are taken from Singapore Department of Statistics, Economic Survey of Singapore, Second Quarter 2005.

Table 1
Receipts and payments of royalties and licence fees of selected countries, 1995-2004
(Billion dollars)

	1995	2000	2001	2002	2003	2004
A Payments						
World	52.8	85.7	86.5	94.5	109.3	130.0
EU (25)	24.2	33.4	34.3	36.8	46.3	52.9
United States	6.9	16.5	16.5	19.3	19.4	23.9
Japan	9.4	11.0	11.1	11.0	11.0	13.6
Canada	1.9	3.8	3.8	4.1	5.1	5.5
Singapore	1.7	4.2	3.4	3.6	4.8	5.6
Korea, Rep. of	2.4	3.2	3.1	3.0	3.6	4.5
China	...	1.3	1.9	3.1	3.5	4.5
Chinese Taipei	0.9	1.8	1.5	1.7	1.7	1.7
Australia	0.9	1.0	0.9	1.0	1.3	1.4
Thailand	0.6	0.7	0.8	1.1	1.3	1.6
Memorandum item:						
EU (15)	23.9	32.3	33.3	35.5	44.7	50.6
B Receipts						
World	55.5	81.7	79.4	86.2	97.8	116.0
EU (25)	15.7	21.2	20.8	23.2	27.8	35.8
United States	30.3	43.2	40.7	44.5	48.1	52.6
Japan	6.0	10.2	10.5	10.4	12.3	15.7
Canada	0.4	2.3	2.4	2.4	2.9	3.0
Singapore	0.1	0.1	0.1	0.2	0.2	0.2
Korea, Rep. of	0.3	0.7	0.9	0.8	1.3	1.8
China	...	0.1	0.1	0.1	0.1	0.2
Chinese Taipei	0.2	0.4	0.3	0.3	0.2	0.3
Australia	0.2	0.4	0.3	0.3	0.4	0.5
Thailand	0.0	0.0	0.0	0.0	0.0	0.0
Memorandum item:						
EU (15)	15.6	21.0	20.6	22.7	27.3	35.1

Note: Ranked according to the largest sum of receipts and payments. Switzerland does not report its receipts and payments of R&LF but it is estimated that its receipts and payments would place it among the top ten.
Source: IMF, Balance of Payments Statistics (CDROM January 2006); Eurostat, national statistics and WTO estimates.

It is estimated that R&LF payments of South and Central America decreased from their peak level of nearly US$3.5 billion in 2000, to about US$3 billion in 2003, before recovering in 2004. The evolution of R&LF payments largely mirrors the economic woes of the region at the beginning of the present decade. R&LF payments of Brazil declined somewhat between 2000 and 2004 and amounted to US$1.2 billion at the end of the period. In marked contrast to Brazil, Mexico's R&LF payments doubled between 2000 and 2004, but at US$0.8 billion, still remained well below those of Brazil.[28] The outstanding development of Russia's R&LF payments, which reportedly increased more than tenfold between 2000 and 2004, to US$1.1 billion in 2004, is most likely due both to the recovery in the economy and to improved statistical recording.

Information on R&LF payments and receipts of countries in Africa and the Middle East is scattered. Based on partner statistics and selected national data, it appears that these regions' transactions are highly concentrated on two countries – Israel and South Africa. While Israel is the only developing country which reports a modest surplus in its R&LF transactions, South Africa recorded a deficit of US$330 million in 2004. Partner statistics suggest that R&LF payments of Africa and the Middle East combined accounted for less than 1.5 per cent of global payments in 2003. The corresponding share in receipts was less than one per cent (about 0.7 per cent).

[28] The United States reports R&LF receipts from Mexico in the order of US$1.222 billion in 2003, which was 50 per cent more than Mexico's reported payments to the world. It is assumed that Mexican BOP statistics are underreporting the actual flows.

The EU(15), Japan and the United States provide a regional breakdown of their BOP data which allows reporting of receipts (and debits) of R&LF from African countries. These three traders combined received annual R&LF payments from Africa of between US$600 million and US$800 million throughout the 2000-2003 period, while their payments ranged between US$60 million and US$180 million. The dollar value of R&LF receipts (and payments) of the three traders from (to) African countries in 2003 was roughly the same as in 2000.

In summing up, the findings above confirm that the United States maintains a leading position in the receipts of R&LF, although it is less dominant than a few years ago. Its payments of R&LF exceed those of the EU(25) to third countries, indicating that the United States is at the same time an important source of receipts of R&LF for other countries. Japan, the United Kingdom, France and Sweden each report an excess of credits over debits of between US$1 billion and US$2.2 billion, while almost all other traders record a deficit.[29] East Asian economies have markedly increased their share in debit payments during the 2000 to 2004 period, while the share of the other regions (i.e. CIS, South and Central America, Africa, Middle East and South East Asia) remained very small. The marked rise of R&LF payments by certain East Asian developing economies largely reflects their enhanced integration into global production networks.

[29] Switzerland's BOP statistics do not report credit and debit flows of R&LF. It is estimated that Switzerland is among the top ten traders in respect to credit and debit payments of R&LF.

3. DEVELOPMENTS IN LDC TRADE

A number of studies have highlighted the crucial importance of international trade to the development prospects of Least-Developed Countries (LDCs).[30] While most of these studies emphasize the role played by exports and market access, some also highlight the benefits of trade liberalization and the importance of import competition. The overall trade performance of LDCs has been quite poor, although prospects for improvement are getting brighter. The purpose of this Section is to review two recent developments related to LDCs exports – the growth of developing countries as markets for LDC products and prospects for achieving duty-free and quota-free market access for products originating from LDCs. The latter was an important issue at the Sixth WTO Ministerial Conference held in Hong Kong, China, in December 2005.[31] The Section starts with an overview of developments in LDC exports.

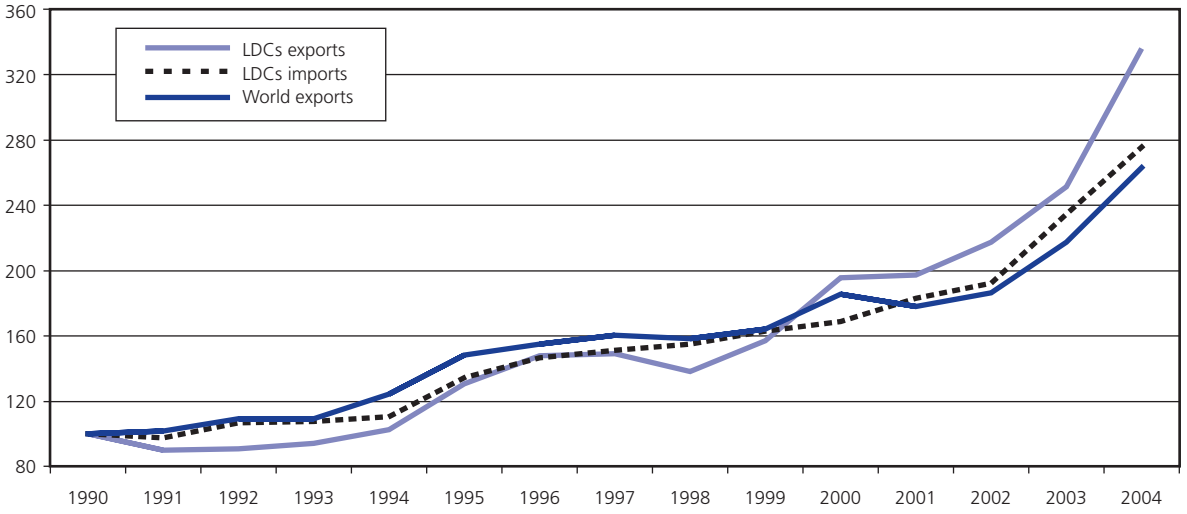
(a) Trade performance

Much has been made of the low share of LDCs in world trade. In 2004, LDCs as a group accounted for only 0.6 per cent of world exports and 0.8 per cent of world imports. In growth terms, their performance over the past 15 years has been mixed (see Chart 8). Between 1990 and 1998, LDC export growth was less than that of world exports, but since then this has been reversed, with LDC export growth exceeding world export growth.

Export growth for LDCs as a group in 2004 was significant, amounting to 34 per cent, compared to 21 per cent for world exports. This figure, however, masks considerable variance in the performance of individual LDCs in relative and absolute terms. The reality is that only a small number of LDCs have contributed to the expansion. These are the countries that can be classified as oil exporters, which accounted for 47 per cent of total LDCs exports. They experienced a growth rate of 52 per cent, whereas the values for manufacturing exporters and commodity exporters were 19 per cent and 22 per cent respectively. Eight LDCs experienced negative growth rates.

The diversity in export performance across countries is also significant. Two LDCs accounted for 36 per cent of all LDC exports in 2004 – Angola, which is a fuel exporter, and Bangladesh, which is predominantly a clothing exporter. To a significant degree, the performance of these two countries determines the overall

Chart 8
LDC merchandise exports and imports, 1990-2004
(Indices 1990 = 100)



Source: WTO.

30 The United Nations Conference on Trade and Development Least-Developed Countries Report series is a useful source for general material on LDC trade issues. The series can be accessed at www.unctad.org.

31 It should be noted that duty-free and quota-free market access is one of many trade issues confronting LDCs. Preference erosion arising from reductions in most-favoured-nation tariff rates is an important issue for some LDCs. Other important issues include the role of non-tariff barriers in frustrating market access opportunities for LDCs, and the challenge of developing supply capacity.

export performance of the LDCs as a group. In contrast, the 13 bottom-ranked LDCs in terms of export value account for less than 1 per cent of total LDC exports. Many of the latter posted negative growth rates and given their lack of size, the countries with positive growth rates did not have much of an impact on the aggregate figure. Such diversity in the export profiles of LDCs calls for extreme caution in generalizing policy prescriptions about LDCs as a group.

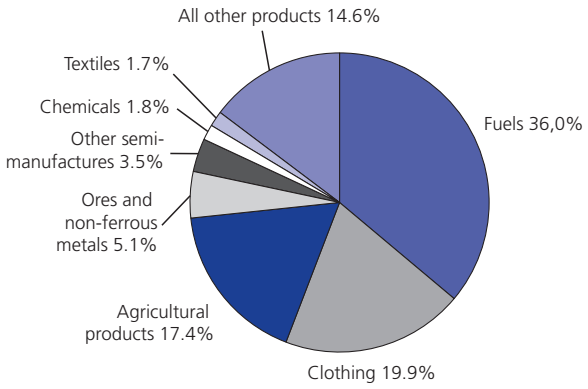
(b) LDC export profile

LDC merchandise exports have three distinct characteristics – a narrow range of products, a lack of diversification of export markets and low technology content.[32]

Over the last decade fuels have sharply increased their share in LDC merchandise exports. In 2003 they accounted for 37 per cent of the total value of all LDC exports (Chart 9). The second and third largest categories in that year were clothing and agricultural products. The latter category was the most prominent category in LDC exports in 1995.

In terms of market concentration, the EU(15) and the United States absorb the majority of LDC exports (Table 2). In 1995 their share was almost 60 per cent. By 2004 this figure had dropped to 52 per cent, but the dramatic increase in LDC exports to China has resulted in the top three markets (China, EU and the United States) accounting for 69 per cent of total exports. Table 2 also shows the importance of developing countries as markets for LDC exports. Six of the top ten markets are developing countries and developing countries accounted for 41 per cent of total LDC exports in 2004. In 1995 this figure was only 32 per cent.

Chart 9
LDC merchandise exports by product group, 2003
(Percentage share)



Source: WTO.

Table 2
Share of major markets in LDCs merchandise exports, 1995-2004

Rank		1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
1	EU (15)	39.6	36.9	34.9	37.3	34.6	31.1	33.4	32.8	30.6	29.2
2	United States	20.5	21.5	22.8	23.5	24.7	26.4	25.6	23.8	24.8	22.7
3	China	3.5	4.2	6.1	3.5	4.9	10.7	7.7	8.7	13.5	17.8
4	Thailand	3.9	3.5	3.8	3.1	3.8	3.7	4.9	4.9	5.1	5.0
5	Japan	6.5	6.4	4.7	4.0	3.6	3.3	2.9	4.0	3.4	4.2
6	India	2.7	2.6	2.7	3.0	4.1	2.5	3.4	3.3	3.1	2.9
7	Chinese Taipei	1.7	2.4	1.5	2.2	2.0	1.8	1.9	2.2	2.2	2.9
8	Korea, Rep. of	2.8	2.5	3.8	2.0	4.8	4.9	2.6	2.5	1.9	1.8
9	Canada	0.9	1.2	1.0	1.0	0.8	0.8	0.9	1.0	1.7	1.5
10	Singapore	2.8	2.2	1.5	2.7	2.0	1.6	1.9	1.4	1.1	1.2

Note: India's trade returns do not provide a full breakdown of oil imports by origin which leads to an under-reporting of its imports from LDCs.
Source: UNSD, Comtrade data base and WTO.

China is not the only developing country market to increase in importance. Thailand and Chinese Taipei have also done so, while India and the Republic of Korea have roughly maintained their shares. The importance of developing countries as markets is also underlined by the fact that they account for more than 50 per cent of the exports of 17 LDCs.

[32] This picture is somewhat modified if one includes services trade.

The poor quality of trade data for LDCs prevents a thorough analysis of the composition of LDC exports to developing country markets. In general, however, as is the case for LDC trade overall, export values are dominated by oil. It is the principal import for China, Thailand and India, the three largest developing country markets.

(c) Market access issues

The growing importance of developing countries as markets is an important development in terms of trade policy conditions. LDCs have historically been dependent on preferential market access to developed country markets. Developing countries, in contrast, do not have extensive non-reciprocal preferential programmes for LDCs. Some LDCs, however, obtain reciprocal market access through trade agreements with developing countries. An example of such a scheme is the Association of South East Asian Nations and their preferential trading agreement, which includes Cambodia and Laos.

According to 2003 data, 27.6 per cent of total LDC exports remain dutiable. Developed countries account for 61 per cent of this total and accordingly developing countries account for the remaining 39 per cent. The figure for duty-free access into developed countries is 72 per cent, which is almost identical to the figure for duty-free access into developing countries.

Achieving duty-free and quota-free market access in developed country markets for all products originating from LDCs has been an aspiration of the international community for some time.[33] To date, however, this objective has yet to be reached, despite the increased impetus arising from the Millennium Development Goals. The status quo in terms of duty-free imports in major developed country markets is reported in Table 3.

In contrast to other developed countries, Japan and the United States maintain positive duties on a significant share of LDC exports (Table 3). For Japan, however, 90 per cent of the dutiable figure is imports of oil, which attract an ad valorem equivalent duty of less than one per cent. Further analysis of the US situation shows that six LDCs (Bangladesh, Cambodia, Lao, Maldives, Myanmar and Nepal) accounting for 37 per cent of the total imports, also account for 92 per cent of total dutiable imports.

Table 3
Duty free imports originating from LDCs in developed markets, 2003

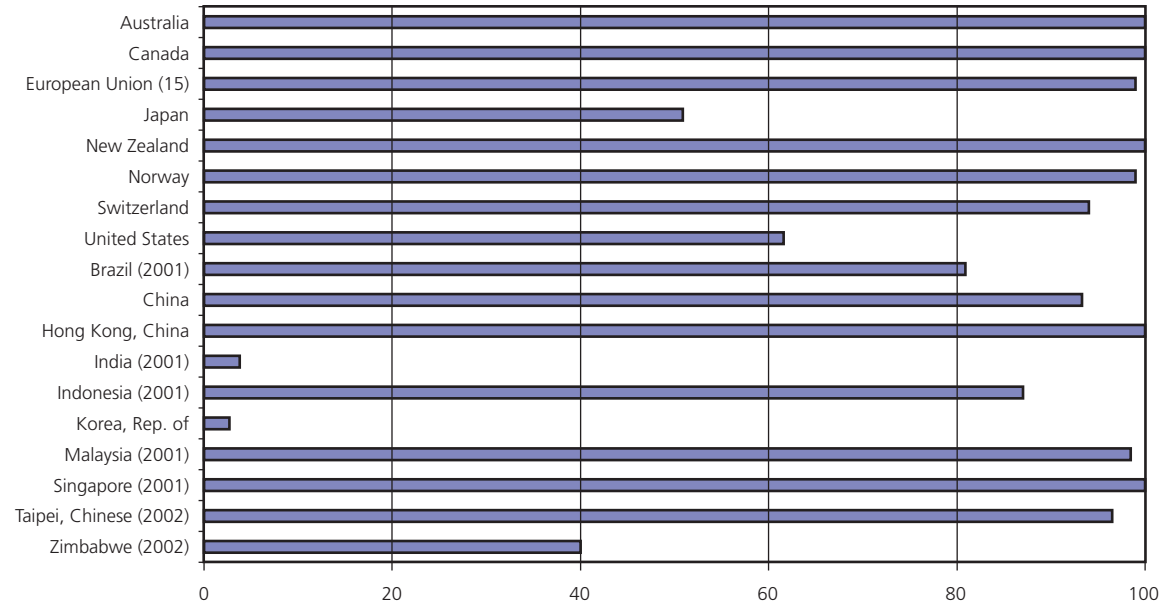
Market	Number of tariff lines					Imports (million dollars)		
	MFN		LDCs			World	LDCs	
	Total	With imports	Dutiable	With imports	Dutiable imports		Total	Per cent duty-free
Australia	6102	5686	0	655	0	84366	123	100.0
Canada	8497	8292	97	1569	1	234984	739	100.0
EU (15)	10404	10115	67	3517	19	992010	13705	99.2
Japan	9296	8204	1350	776	89	376941	1563	50.9
New Zealand	7414	6559	59	521	3	18439	31	99.9
Norway	7165	6517	0	509	0	39765	81	100.0
Switzerland	8477	7809	1167	818	47	96177	121	96.7
United States	10496	10123	1911	1421	581	1196833	10489	61.6

Source: WTO.

[33] Paragraph 42 of the Ministerial Declaration of the 4th WTO Ministerial Conference states "We commit ourselves to the objective of duty-free, quota-free market access for products originating from LDCs".
Paragraph 68(h) of the Programme of Action for LDCs, which was endorsed at the Third UN Conference on Least Developed Countries states that "Improving preferential market access for LDCs by working towards the objective of duty-free and quota-free market access for all LDCs' products. This will apply in the markets of developed countries."
Paragraph 34 of the International Conference on Financing for Development (Monterrey Consensus) states that "We call on developed countries that have not already done so to work towards the objective of duty-free and quota-free access for all least developed countries' exports, as envisaged in the Programme of Action for the Least Developed Countries adopted in Brussels".

Chart 10 charts the percentage of imports duty free into developed country and major developing country markets. India and the Republic of Korea stand out as two countries with large imports from LDCs, but very low duty-free figures. Unfortunately, India's data is for only 2001, hence may underestimate any initiatives that they have undertaken after that year, including MFN liberalization. Unfortunately, data for Thailand later than 1999 is not available.

Chart 10
Share of imports originating from LDCs entering duty free in selected markets, 2003
(Percentage)



Source: WTO.

In order to correct for the lack of recent data, a weighted average tariff rate for key developing country markets was calculated using average LDC exports from 2001-2003 as the weight. This procedure measures the bias in the tariff structure of a market towards LDC exports. Results from this procedure show that in general, despite the high MFN tariffs in developing country markets, only India's tariff structure shows some bias against LDCs. India's weighted average tariff rate using all imports as the weight is 24.5 per cent, but this rises to 27.3 per cent if LDC trade figures are used as the weight. In contrast, the similar value with LDC exports as the weight for Brazil, China, Chinese Taipei and the Republic of Korea are respectively, 2.0 per cent, 6.6 per cent, 2.3 per cent and 4.9 per cent, which are all lower than the average if imports from all trading partners is used as the weight.

The situation in developing country markets is dominated by China (Table 2). Based on 2003 data, 93.3 per cent of LDC exports to China enter duty free. If oil imports are deducted, the duty free figure becomes 48.4 per cent. In September 2005, China announced new measures in favour of LDCs. The estimated impact of these measures is to increase the total duty-free figure from 93.3 per cent to 95.2 per cent, and the non-oil figure rises from 48.4 per cent to 62.3 per cent.

LDC issues were a core part of the agenda at the Sixth WTO Ministerial Conference held in Hong Kong, China in December 2005. Annex F of the Ministerial Declaration commits developed WTO Members to achieving duty-free and quota-free market access for all products originating from all LDCs by 2008. Members facing difficulty in achieving this objective must meet a target of a minimum of 97 per cent of all products, defined at the tariff line level. Ministers did not accept proposals to bind existing and new unilateral market opening measures within the WTO legal system. WTO Members are currently assessing the extent to which Annex F can be translated into substantial improvements in market access

(d) Summary

Market and product concentration have traditionally characterised the export structure of LDCs. The EU and the United States continue to be the most important markets for their products and oil continues to dominate LDC exports in value terms. An interesting trend is the growing importance of developing countries, led by China, as markets for LDC products. This development is expected to have some impact on the issue whether only developed countries should be required to concede non-reciprocal market access to products from LDCs.

The data presented above suggest that there are still gains to be reaped from efforts by developed countries to achieve complete duty-free and quota-free market access for LDC exports on a non-reciprocal basis. This is particularly so in the case of the United States, whose current treatment of LDC exports offers limited benefits to Asian LDCs. Similarly, Japan also retains a relatively high proportion of duties on non-oil imports from LDCs.

At the same time, MFN negotiations are important, since the level of preferential (reciprocal and non-reciprocal) imports from LDCs into developing country markets is negligible. Reductions in MFN duties from which LDCs would benefit could be addressed within the agriculture and non-agriculture negotiations. However, some developing countries have argued in favour of expanding trade preferences among developing countries through the Global System of Trade Preferences (GSTP). A new round of GSTP negotiations was launched at UNCTAD XI in Brazil in 2004. Prospects for achieving improved market access within the context of this process would appear to be limited. Despite the press coverage and confidence shown by many developing countries in the GSTP negotiations, the reality is that the process has yet to start. Unilateral initiatives such as that announced by China in September 2005 could provide a more expeditious mechanism for enhancing market access for LDC exports in developing countries.

4. THE IMPACT OF NATURAL DISASTERS AND TERRORIST ACTS ON INTERNATIONAL TRADE FLOWS

This Section deals with the repercussions of natural disasters and terrorism on international trade flows. Two large natural disasters struck recently, one in December 2004 and the other in August 2005, causing devastation on opposite sides of the globe. The Indian Ocean tsunami devastated countries in Southeast Asia, South Asia and Africa, leaving hundreds of thousands dead. Although, it caused less fatalities than the tsunami, Hurricane Katrina was perhaps the most expensive natural disaster to ever to hit the United States, and sufficiently huge to cause tremors in global energy markets. Last year also saw several major international terrorist actions – the London tube and bus bombings of 7 and 21 July 2005 and the Bali bombing on 1 October 2005. While they claimed fewer human lives and caused less direct economic damage than the tsunami or the hurricane, these acts of terrorism illustrate the persistent menace that confronts the international community.

(a) Impact of recent natural disasters

The Indian Ocean tsunami, spawned by a huge earthquake that shook the north western coast of Sumatra on 26 December 2004, is estimated to have caused the deaths of about 170,000 to 250,000 people.[34] It left over a million people displaced. The tsunami created a huge swathe of destruction stretching across the expanse of the Indian Ocean affecting 12 countries – Bangladesh, India, Indonesia, Kenya, Malaysia, Maldives, Myanmar, Seychelles, Somalia, Sri Lanka, Tanzania and Thailand. The estimates place the value of the physical damage at about US$8 billion. During the middle of the hurricane season in North America, the United States was hit by one of the most destructive tropical cyclones in its history. Hurricane Katrina caused breaches in the levees protecting New Orleans, flooding most of the city and causing the evacuation of its entire populace. The hurricane also brought extensive damage to the coastal regions of Louisiana, Mississippi, and Alabama. Damage is expected to be in the vicinity of US$130 billion with the death toll estimated at about 1,300.

Not many systematic analyses exist of the economic effects of disasters. What is available has attempted to distil lessons or patterns based on evidence from past disasters (Hirschleifer, 1991; OECD, 2003). This literature suggests that the economic rebound from even a large disaster can be very rapid if social institutions, human capital and productivity are kept intact. Communities at the centre of the disaster can adapt.[35] Demand shifts away from less essential wants to more basic needs, freeing up resources for search, rescue and rehabilitation. Existing resources (labour and capital) can be worked longer and deployed to meet essential requirements. Outside assistance, from the wider domestic society or from the international community, may be counted on to provide additional resources for emergency relief and for recovery. The existence of insurance markets can spread the costs of the disaster more widely across society so that the local community, which may have been at the epicentre of the devastation, does not bear the full brunt of the disaster.

The role of government in disasters is important. Governments must be prepared to mitigate the economic and social impact of disasters; maintaining the public's trust and confidence are key ingredients of recovery. The government's role includes taking precautionary measures, which in the long run is cheaper than providing emergency aid. These measures include safeguarding basic infrastructure, emergency planning, informing the public about the potential risks, and taking these risks into account in property development projects. However, public action also needs to be circumscribed so that it does not displace private initiative. Public response in certain emergencies may also raise issues regarding moral hazard. That is, if governments can be counted on to be the relief provider of last resort, then people may be more willing than otherwise to take long-term risks, for example, building their communities on a flood plain.

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34 United Nations Office for the Coordination of Humanitarian Affairs, accessed on 11 November 2005. http://ochaonline.un.org/webpage.asp?ParentID=10156&MenuID=10161&Page=2041

35 But see Skidmore and Toya (2002) who argue that there are long-run effects on macroeconomic growth from the occurrence of natural disasters. Paradoxically, they conclude that countries that are the subject of frequent climatic disasters experience higher rates of human capital accumulation, total factor productivity and economic growth. The reason for this is a substitution towards investment in human capital as physical capital faces increased risk of damage or destruction.

Overall, the literature suggests that while aggregate economic activity may fall somewhat in the short term, reconstruction activity which boosts expenditures can mitigate or even reverse the initial fall. Sectors of activity are affected differently by large-scale disasters. The construction sector may benefit even as other sectors, such as the insurance industry, suffer from the disaster. Finally, while the local impacts of a disaster are often very large, its effects are fairly small if viewed at the national level.

The impact on international trade flows depends on how large the tradable sector is in the devastated area and how integrated it is with the global economy. At the national level, there could be additional indirect effects if macroeconomic activity weakens as a consequence of the disaster. Exports may fall because the physical damage caused by the disaster severely disrupts production in some major export sectors. Production facilities may be shut down, important inputs may be in short supply, major utilities may be disrupted or there could be transportation bottlenecks. However, imports may rise to make up for the shortage in local production. And reconstruction efforts may also require a significant amount of foreign goods or services which would tend to increase imports. These would tend to dampen the contractionary effect of a disaster on international trade. Overall, the impact of a disaster on international trade will tend to be localized and temporary. Certainly, based on recently observed natural disasters, there are unlikely to be permanent impacts that affect comparative advantage or change the pattern of trade.

(i) The Indian Ocean tsunami

Table 4
Estimated impact of tsunami on economic growth, 2005
(Percentage)

Country	Forecast of GDP growth	
	Pre-tsunami	Post-tsunami
India	6.8	7.1
Indonesia	5.5	5.8
Maldives	6.5	1.0
Sri Lanka	6.0	5.3
Thailand	5.9	3.5

Source: IMF (2005) and World Economic Outlook Database.

The Indian Ocean tsunami badly affected five countries: India, Indonesia, Maldives, Sri Lanka and Thailand. Comparing the pre-tsunami and post-tsunami macroeconomic forecasts made by the IMF (Table 4), the expected impact on macroeconomic growth will be modest.[36] Only in the case of the Maldives, the smallest of the affected countries, is growth expected to decline significantly in 2005 as a result of the tsunami (from the pre-tsunami forecast of 6.5 per cent to 1 per cent). However, both India and Indonesia are foreseen to experience higher growth in 2005 even after the disaster. Although, the post-tsunami forecasts of economic growth in Sri Lanka and Thailand are lower, this is largely because of other economic factors that are weighing on growth (e.g. higher oil prices).

The damage from the tsunami was largely confined to coastal and rural areas rather than urban commercial centres and industrial hubs. So the direct economic impact in this case is concentrated in tourism and fishing. But there are likely to be secondary effects because of inter-industry links and because government expenditure has to be diverted from other uses. The size of these secondary effects greatly depends on the structure of economies and on their resilience.

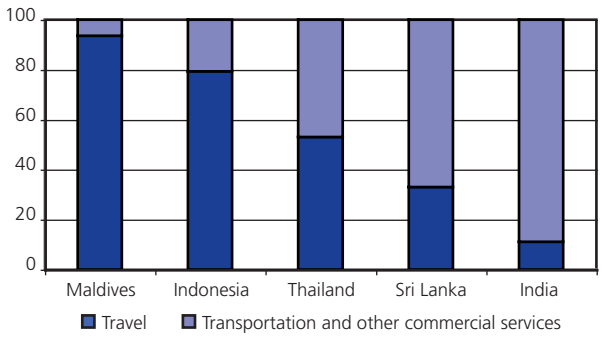
The tsunami has not had a discernible impact on global or regional trade given that many of the coastal communities devastated by the tsunami were not significantly integrated into the global economy. Merchandise trade has continued to grow in 2005 in four of the most affected countries. India's nominal imports are forecast to expand by more than 20 per cent and its exports to grow by 14 per cent in 2005.[37] Thailand's merchandise exports grew by 12.5 per cent during the first half of 2005, faster than projected, while imports surged by 32.5 per cent, mainly because of higher prices for imported oil. The major exception to this is the Maldives, where as a result of a sharp reduction in tourism earnings (see below) the current account deficit is expected to reach nearly a quarter of GDP in 2005.

[36] IMF (2005) *World Economic Outlook*, March.

[37] Asian Development Bank (2005) *Asian Development Outlook 2005 Update* (Manila: ADB).

But tourism has been affected because of the damage to tourism facilities. Travel and tourism make up a substantial part of the commercial services exports of Indonesia, the Maldives, Sri Lanka and Thailand.[38] In 2004, it accounted for 31 per cent of Sri Lanka's commercial services exports; 52 per cent of Thailand's; 78 per cent of Indonesia's; and 94 per cent of Maldives' services exports (Chart 11).

Chart 11
Commercial services exports of tsunami affected countries by sector, 2004
(Percentage share)



Source: IMF, Balance of Payments Statistics and WTO, International Trade Statistics, 2005.

The initial forecast from the World Travel and Tourism Council was a reduction of between 20 per cent to 30 per cent in tourism receipts for Maldives, Sri Lanka and Thailand.[39] But the latest assessment from the World Tourism Organization paints a less gloomy picture.[40] For the first nine months of 2005, international tourism arrivals actually increased by 8 per cent in Sri Lanka compared to the same period in 2004. In the case of Thailand, for the first six months of 2005, international tourism arrivals were only down by 6 per cent although the major resorts in the Andaman Sea like Phuket, which suffered the brunt of the disaster, were down by over 60 per cent. Only in the case of the Maldives has the impact been severe. International tourist arrivals are 41 per cent lower than during the first ten months of 2004. In all these destinations, the main constraint does not appear to be a reluctance of foreign tourists to return to the region; rather the pace of reconstruction has lagged the resurgence in demand. There are 6,000 fewer rooms available this season in Thailand's Andaman Sea resorts, the Maldives is still down by more than 3,000 beds and several of Sri Lanka's large beach resorts remain closed for extensive renovations. Recovery of international tourism arrivals to pre-tsunami levels is not expected until the next winter season (2006/2007).

(ii) Hurricanes Katrina and Rita

The combined losses from Hurricanes Katrina and Rita are likely to even be larger than the damage wrought by Hurricane Andrew and the 11 September 2001 terrorist attacks (Box 2). Based on estimates by the US Congressional Budget Office (CBO, 2005), the value of capital stock destroyed by Katrina and Rita will total between US$70 billion and US$130 billion. The CBO also expects a loss of between 293,000 and 480,000 jobs in the affected areas.

Box 2: Hurricanes in the United States

Hurricanes or tropical storms are a major cause of weather-related disasters in the United States. The National Climactic Data Center of the US Department of Commerce has identified 62 weather-related disasters since 1980 in which overall damages and costs reached or exceeded US$1 billion at the time of the event ('billion-dollar disasters'). The total damages from these disasters exceeded US$390 billion in 2002 dollars. Nearly a third of these billion-dollar disasters have been wrought by hurricanes. Hurricane Andrew, which devastated Florida in 1992, was, before Hurricane Katrina, the worst storm in US history causing damages estimated at US$35.6 billion in 2002 dollars.

38 Trade in commercial services is an important part of the economies of the five most affected countries. In the case of Maldives for example, commercial services exports in 2004 were more than four times the size of its merchandise exports that year. For the other four countries, the value of commercial services trade is between one-fourth and one-half of the value of their merchandise trade.

39 World Travel and Tourism Council (2005) *Global Travel & Tourism Poised for Continued Growth in 2005 and Tsunami Impact on Travel & Tourism is Significant but Limited,* 8 April.

40 World Tourism Organization (2005) *Post Tsunami Re-Assessment: Growing Demand, Limited Supply* http://www.world-tourism.org/tsunami/eng.html.

Some recent studies (Emanuel, 2005; Faust, 2005) document what appears to be the increasing destructiveness of hurricanes in the United States. There are two main explanations for this trend – more destructive hurricanes and economic, social and demographic changes. Emanuel constructed an index of the potential destructiveness of hurricanes, known as total power dissipation, and showed that this index has increased markedly since the mid-1970s. The economic and social factors which have contributed to the increasing likelihood of billion dollar losses include the growth of wealth which puts more valuable property at risk, increasing density of property, and demographic shifts to coastal areas and storm-prone areas that are experiencing increasing urbanization (Kunkel et al., 1999).

Although the economic effects of major natural disasters tend to be transient, this does not diminish the human tragedy that attends them. How well authorities respond to natural disasters has an important bearing on the extent and severity of the suffering and the costs. Some disasters leave social and political impacts that reverberate years after the event. The great Mississippi flood of 1927 brought not only disaster to the peoples of Mississippi and Louisiana, but in spreading the costs so inequitably, uncovered deep social and racial divides. The events surrounding the flood were said to have brought about the populism of Huey Long, the election of Herbert Hoover to the White House in 1928 and the acceleration of the migration of American blacks to the industrial cities of the north (Barry, 1997).

Given the damage caused by the hurricanes, the CBO had initially estimated that US economic growth in the third quarter of 2005 could be shaved by between 1 and 1.5 percentage points. The CBO estimates may have been too pessimistic. United States GDP growth was 4.1 per cent in the third quarter of 2005, nearly a full percentage point higher than in the second quarter.[41]

One of the immediate concerns was the impact on the energy sector, as nearly 2 per cent of global crude oil supply comes from the Gulf of Mexico. In the immediate aftermath of Hurricane Katrina, about 90 per cent of crude oil production and roughly 70 per cent of natural gas production from the Gulf of Mexico were shut down because of damage to platforms and pipelines. Damage from the hurricanes resulted in the loss of 3 million barrels a day of refining capacity (or nearly 20 per cent of the total US capacity). Crude oil prices jumped to over US$70 a barrel while gasoline prices in some parts of the United States surged past US$3 dollars a gallon. However, this peak was not sustained and oil prices have drifted downward from their levels in late August and early September.

But the temporary loss of petroleum production and refining capacity and other disruptions have had an impact on the volume and value of petroleum imports. Initial estimates of US trade in goods during the month of September 2005, for example, showed a surge in imports of natural gas, fuel oil and other petroleum products. On a seasonally adjusted basis, imports for these products in the month of September rose by 25 per cent (or by US$2.1 billion) over import figures in August. Crude oil imports, however, fell by US$350 million, reflecting the shutdown of refineries in the Gulf Coast because of damage from Katrina and later from Hurricane Rita.[42] Since the annual value of US imports exceeds US$1.4 trillion, the impact of Hurricanes Katrina and Rita would only be a temporary shock to US merchandise trade flows, and is unlikely to have an appreciable impact.

The hurricanes will also increase insurance and reinsurance claims received from foreign insurance companies.[43] This reflects that portion of the insured claims that is borne by the rest of the world. Based on data from the third quarter of 2005, the impact of Hurricane Katrina on international insurance claims was about US$9.7 billion.[44]

41 Bureau of Economic Analysis 'News Release: Gross Domestic Product and Corporate Profits: Third Quarter 2005 "final" estimates', 21 December 2005, BEA 05-57.

42 US Census Bureau and Bureau of Economic Analysis 'News Release: US International Trade in Goods and Services: September 2005, 10 November 2005, CB05-164, BEA 05-49, FT-900 (05-09).

43 These are reflected not in "other private services payments and receipts" but in the account on net unilateral current transfers. This is because of recent changes adopted by the US Bureau of Economic Analysis in its definition of insurance services. Insurance services are now measured as premiums less normal or expected (instead of actual) losses. Normal losses include the losses that occur regularly and a share of catastrophic losses that occur at infrequent intervals. See Bach (2004). As a consequence, claims received by US companies from foreign insurance companies that are in excess of normal or expected claims are reflected in the net unilateral current transfers account.

44 Bureau of Economic Analysis 'News Release: US International Transactions: Third Quarter 2005, BEA 05-54.

(b) Impact of recent terrorist events[45]

The terrorist attacks of 11 September 2001 (henceforth, "9/11") changed the way in which the global community perceives terror as a threat to national security. It has been realized that a terrorist incident can result in large-scale damage to both human and physical capital and can have permanent implications for economies across the globe. The commuter train bombings in Madrid of 11 March 2004 ("3/11"), the recent London tube and bus bombings of 7 and 21 July 2005 ("7/7" and "7/21") and the second Bali bombing on 1 October 2005 ("10/1") following the devastating attacks three years earlier underscore the vulnerability of all countries to terrorist attacks. International terrorism[46] appears to be one of the greatest concerns of the international community at present. Both the acts of terror themselves as well as the counter-terrorist measures taken in response to them have imposed costs on national economies and international trade. Besides the immediate losses, consumer and investment behaviour may change if insecurity persists due to repeated attacks. Resources may also be allocated differently across sectors, for instance out of tourism and travel and into defence, construction and security services. Finally, enhanced security measures entail higher transaction costs which may lead to changes in business relationships and trade patterns. Hence, the size of the impact on trading costs will vary across countries as a function of terrorist risks and the nature of security measures. A country's position in international trade may be permanently weakened if terrorist activities persist and security measures pose a burden on business travel, transport and investment. Conversely, isolated, "random" acts of terror that are quickly and effectively addressed may not result in any long-lasting economic consequences.

The most immediate costs of terror comprise the loss of human lives as well as injuries. The 9/11 attacks resulted in 2,982 fatalities and 2,337 injuries. In Madrid, 191 lives were lost with more than 1,500 people wounded; the London attacks counted 52 casualties (plus the 4 suicide bombers of 7/7) and 700 wounded; and the bombing in Bali in October 2005 resulted in 20 casualties (plus 3 suicide bombers) and 129 wounded. In addition to the immeasurable human tragedy, various business activities were brought to a temporary halt. In the immediate aftermath of 9/11, according to a study by Navarro and Spencer (2001), US$47 billion of economic output was lost. Insurance companies needed to pay US$11 billion for business interruptions (OECD, 2005). Companies incurred additional human capital costs for the rehiring and retraining of employees as well as for compensation payments related to the disaster. Finally, the restitution of destroyed infrastructure has taxed local authorities and insurance companies. In the three most recent events, these amounts were not anywhere close to the estimated US$25 to US$30 billion in physical assets that were lost on 9/11 (Lenain et al., 2002; Becker and Murphy, 2001).[47] With losses on 9/11 being equivalent to barely 0.2 per cent of total physical assets of the United States, it may be assumed that a large part of the economic consequences of the Madrid, London and Bali terrorist events, where physical damage was considerably smaller, may also stem from their indirect impacts. Certain industries, such as tourism, have been particularly affected.

Chart 12 shows the development of travel services exports for the United States and Indonesia. Both graphs show a marked downturn as of 2001 ("9/11") for the United States and 2002 for Indonesia (first Bali bombing). In both countries, travel services exports began to recover only in 2004. In 2003, Indonesia experienced a 23 per cent nominal decline in tourist arrivals (more than 25 per cent in real terms). However, tourism has quickly recovered from the plunge of 2003, when the number of foreign visitors fell to 3.3 million, the lowest level since 1995. In 2004, arrivals climbed to a record 5.1 million, bringing in US$4.8 billion in export revenues,

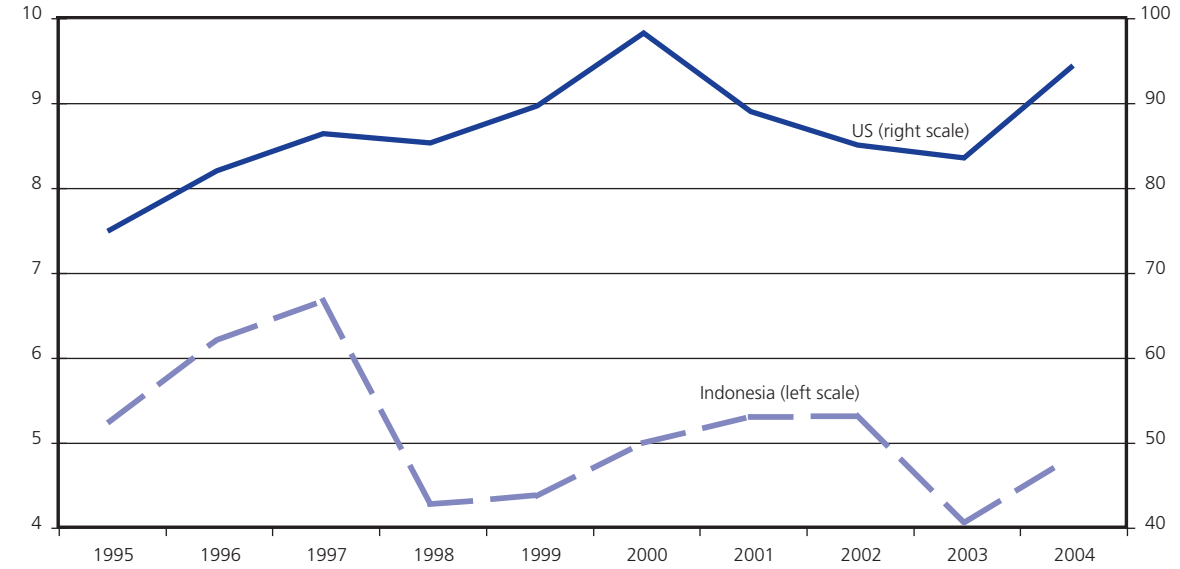
45 Data on the incidence of terrorism made available by RAND Corporation (in cooperation with the National Memorial Institute for the Prevention of Terrorism, MIPT) from the RAND Terrorism Chronology and RAND-MIPT Terrorism Incident Database provided invaluable background information for this Report. The full data set made available by RAND Corporation is further used to estimate the impact of terrorism on trade in Gassebner et al. (2006).

46 Simply put, international terrorism involves citizens or property of more than one country. For a comprehensive definition see Blomberg et al. (2004). Hence, in this essay, quasi-permanent domestic terror, for instance in Colombia, or outright civil wars in countries like Somalia are not the main focus.

47 Ward (2004) in adding economic cost estimations from a variety of sources of the 9/11 attacks on the World Trade Center, New York City, arrives at a total of US$146.8 billion to US$166.8 billion. This number includes estimated costs borne by individuals and families, wage-earner losses in New York City, insurance costs, travel-related losses, especially in the airline sector, losses to tourism, increased security costs, facilities and equipment, infrastructure costs, tax revenue losses in the fiscal year following the event and government bailout spending on airlines. For a review of studies on the economic impact of 9/11 see also US GAO (2002). On the US GAO website, detailed assessments can also be found, e.g. of the losses by the airline industry (GAO-02-133R) or the impact on tax revenues of New York City (GAO-02-882R).

an amount only US$400 million short of the post-Asian financial crisis peak in 2001. A similar downturn has not occurred after the 10/1 Bali incident (which also resulted in a lesser direct damage).[48] There is anecdotal evidence that, especially since London and Madrid, travellers have come to recognize that terrorists may strike in a variety of places and therefore are less prone to cancel their travel plans on an ad hoc basis. In the case of the Madrid train bombings, no major implications for international tourism have been detected. The decline in tourism revenue in Spain of about 2 per cent in 2004 was in line with the ongoing trend of lower visitor arrivals from principal countries of origin, such as the UK, which had experienced a depreciation of the pound versus the euro.[49]

Chart 12
Exports of travel services of the United States and Indonesia, 1995-2004
(Billion dollars)



Source: IMF, Balance of Payments Statistics.

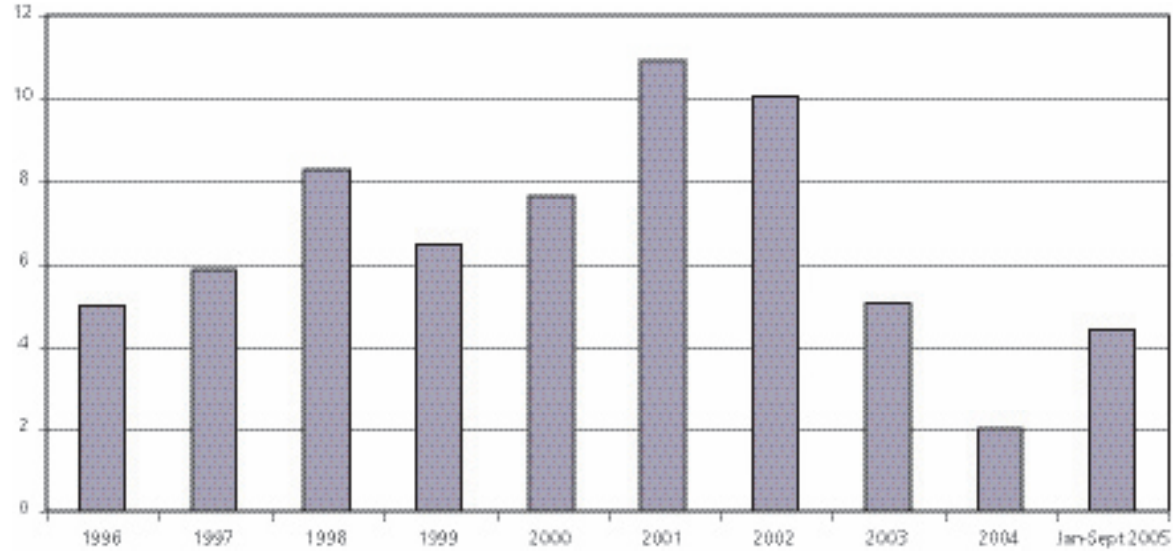
In the United States, the 9/11 events also led to sharply reduced enrolments by foreign students. Among the reasons for this is the real or perceived difficulties in obtaining student visas, which is a problem that has persisted. Chart 13 shows that revenue growth from education services exports by the United States decelerated after 2001, levelling out at only 2 per cent in 2004 after a 5 per cent increase in 2003. In 2004, the number of foreign students enrolled in higher education institutions in the United States dropped by 2.4 per cent, which largely offset increases in tuition rates. While the number of Indian students has continued to rise, this increase has been able only in part to compensate for lower student numbers from other countries, including China, other Asian countries, Europe and the Middle East. Especially in the latter region, the number of students from countries with majority Muslim populations, such as Saudi Arabia, Kuwait and Jordan, decreased at an average annual rate of 10 per cent beginning 2002 (Nephew et al., 2005). Owing to these developments, United States education services receipts from the Middle East, unlike from other regions, fell after 2001, from US$530 million in 2002 to US$481 million and US$445 million in 2003 and 2004 respectively.

Despite the multitude of influential factors, real growth developments following an event, as shown in Table 5, may give some crude support to the hypothesis that recent terrorist attacks have had temporary and less severe impacts than other political disruptions and supply-side shocks in the past, such as the oil crisis of the early 1970s. The 9/11 attacks and the first Bali bombing presumably had an immediate negative impact on quarterly performance. However, the economy had already recovered in the next quarter and both countries returned to healthy real growth rates during the 12 months following the attacks. No significant effects can be identified in the case of the Madrid and London attacks. In Spain, both consumer and business confidence remained fairly stable in March 2004 and increased thereafter. The situation is similar for the UK, where

48 See http://www.world-tourism.org/newsroom/Releases/2005/october/bali_tourism.htm, visited on 28 October 2005.

49 See http://www.euromonitor.com/Travel_and_Tourism_in_Spain, visited on 1 November 2005.

Chart 13
Exports of education services of the United States, 1996-2005
(Annual percentage change)



Note: Education services consist of expenditures for tuition and living expenses by students studying in foreign countries. Transactions are between unaffiliated parties.
Source: US Department of Commerce, Bureau of Economic Analysis website: http://www.bea.gov/bea/ARTICLES/2005/10October/1005_xborder.pdf

consumer spending has been weak for a variety of other reasons (Williams, 2005). In both countries, real exports showed no signs of a major decline either, with export volumes in the UK growing by 5.6 per cent in the year of the attack (2005, up from 3.9 per cent in 2004) and by 3.3 per cent in Spain (2004, slightly down from 3.6 per cent in 2003). These developments contrast with the 1973 oil crisis or the consequences of the failed assassination of US President Reagan in 1981, where a previously growing US economy registered negative real growth for a more extensive period of time.

Table 5
Real GDP growth following selected supply-side shocks
(Per cent)

Event	Reporting country	Date	Quarter of event[a]	Quarter after event[a]	One year after event[b]
London subway bombings	United Kingdom	7-Jul-05	3.8[c]	2.9[c]	n.a.
Madrid train bombings	Spain	11-Mar-04	3.2	3.1	3.3
First Bali bombing	Indonesia	12-Oct-02	-14.1	14.2	4.7
9/11 attacks	United States	11-Sep-01	-1.4	1.6	2.2
Iraq's invasion of Kuwait	United States	2-Aug-90	0.0	-3.0	0.0
Reagan assassination attempt	United States	30-Mar-81	8.0	-3.1	-2.5
OPEC oil embargo	United States	17-Oct-73	3.8	-3.5	-1.9

[a] Annualized rates.
[b] Average of annualized rates in the four quarters following the event.
[c] Expected values. See http://www.businessweek.com/investor/content/jul2005/pi20050711_5798_pi077.htm
Source: IMF, International Financial Statistics and authors' calculations.

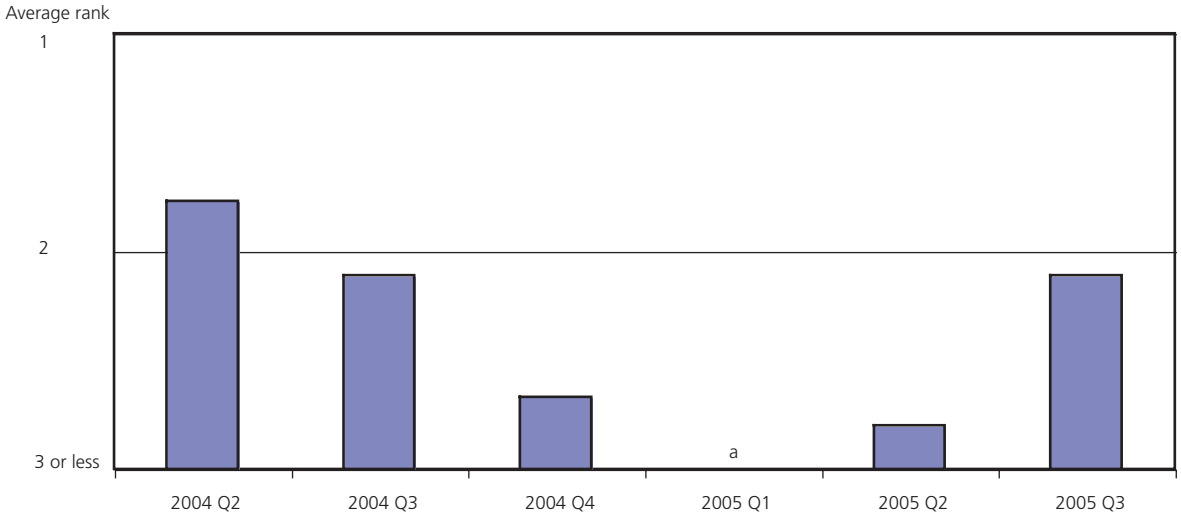
Whether the impact on an industry and the economy is a temporary or more permanent phenomenon mainly depends on the perception of continued terrorist risk and the nature of response measures. After the 7/7 London attack, the FTSE 200 Index fell approximately 200 points within the first two hours. By the end of the day it rebounded to a loss of about 70 points and regained its pre-bombing level on the following trading day. In contrast, following 9/11 stock market wealth was reduced by about US$1.7 trillion (Navarro and Spencer, 2001). Similarly, after the failed second London attack, the reaction was stronger. According to

the Association of British Travel Agents, following the 7/7 incidents, there has been no noticeable reduction in visitors to London or in forward bookings. However, the second event, albeit without major damage, created the feeling that a terrorist attack could be an ongoing threat rather than a one-time incident, leading to a reduction in visitor numbers in the future.[50] The Washington Post reports that retailers in central London have lost an estimated US$1.4 billion in sales as a result of the terror.[51]

If terrorism persists, output may be permanently affected. Abadie and Gardeazabal (2003) found for the Spanish Basque region that the long-lasting violent domestic conflict has been responsible for a 10 per cent reduction of per capita GDP and that changes in this measure are directly associated with the intensity of violent incidents. A large part of this permanent drop in output is due to the displacement of industries to safer regions. Such effects may not show at the national level and may not be relevant if terrorist activities remain relatively isolated events. A survey conducted by UNCTAD in November 2001 showed that only few major transnational corporations intended to delay or cancel investment projects for the next three to five years as a result of the 9/11 attacks (UNCTAD, 2001; Lenain et al., 2002). According to the Summer 2005 Duke University / CFO Magazine Business Outlook Survey for Europe,[52] only 10 per cent of the companies ranked terrorism among their top three concerns. Interestingly, the attacks of Madrid 2004 and London seem to have brought terrorism back on companies' radar screens. Chart 14 shows strong concern (i.e. an average rank closer to one) over terrorism in the second quarter of 2004 post-Madrid, fading away in the subsequent quarters only to reappear in the third quarter of 2005 in response to the London bombings. Overall, however, companies did not expect any impact of terrorism on their profitability in 2005, and three-quarters of the firms questioned had not taken any specific actions in response to the threat of terror.

At the country level a different picture emerges, with companies headquartered in certain countries, notably Greece, the Netherlands, Belgium, Spain and the United Kingdom, expecting some negative impact on profits. Similarly, a cross-sectoral breakdown shows that the threat of terrorism is considered a potential factor affecting a company's bottom line especially in the construction sector (probably positively) as well as in the insurance and transportation sectors (negatively). Less than half of the companies surveyed in the latter two sectors had not taken any special countermeasures in response to the perceived terrorist risk.

Chart 14
Terrorism as a major business concern, 2004-05[a]



[a] Terrorism not featuring as a major concern in the first quarter of 2005.
Source: Quarterly Duke University / CFO Magazine Business Outlook Surveys.

50 See http://news.bbc.co.uk/1/hi/uk/4706615.stm, visited on 10 November 2005.

51 See http://www.washingtonpost.com/wp-dyn/content/article/2005/08/15/ AR2005081500818.html. However, some of these sales are merely postponed.

52 See http://www.cfosurvey.org, visited on 9 November 2005.

The impact of the recent terrorist attacks on merchandise trade is mostly related to changes in transaction costs, mainly via higher insurance premiums and tightened security measures at borders, ports and airports. The overall impact of a given increase in transactions costs on a country's trade depends on its trade openness (i.e. its trade to GDP ratio), its principal trading partners, the composition of traded commodities and their respective modes of transport.

9/11 caused a damage of nearly US$80 billion, about US$32.5 billion of which was covered by insurance (OECD, 2005). As a consequence, insurance and reinsurance carriers imposed widespread terrorism exclusion clauses. The sudden tightening in the provision of terrorism insurance led to immediate adverse economic effects that were especially disruptive in economic activities most dependent on terrorism insurance, such as aviation, tourism, construction and commercial lending (OECD, 2005). Despite a subsequent increase in supply through private-public programmes, especially in the US following the Terrorism Risk Insurance Act (TRIA) of November 2002 (a three-year programme guaranteeing that certain terrorist-related claims will be paid), companies paid substantial premiums to replace the cover that had been withdrawn. However, by the end of 2004, rates had declined again with the median quarterly terrorism pricing running at slightly over 3.5 per cent of the property premium, down from the peak of almost 5 per cent half a year earlier. In 2004, the transportation sector, which has a key role in facilitating trade, faced lower than average terrorism pricing at 3 per cent of property premiums, about half the rate of, for instance, financial institutions and the real estate industry at 6.1 per cent (AON, 2004). Triggered by the 9/11 events and reinforced by the Madrid and London bombings, a range of private-public terrorism (re-)insurance schemes have been created by European and other OECD countries offering additional coverage layers in the hundred millions and billion dollars range.[53]

Recent terrorist events have led to a lasting step-up of security measures, resulting in longer delivery times, for instance owing to tighter inspections at border crossings.[54] Transaction costs have also increased due to additional security measures, such as the hiring of air marshals or investment in new computer systems for cargo ships in order to obtain fast-track clearance (Crist, 2003).[55] After 9/11, air transport has been most affected by the tightening of security and longer delays. However, goods that are typically transported by air tend to be high-value products, such as electronic equipment and apparel, for which transaction costs generally represent only a small fraction of value (Walkenhorst and Dihel, 2002).[56] However, for perishable products, such as vegetables or fish, trade may have shifted to destinations that can be served by truck or train. But also in maritime transport, the prime mode of transport for bulk commodities, a range of precautionary measures were introduced as a consequence of 9/11.[57] For example, in the United States, 96-hour advance arrival notices were made mandatory and more frequent onboard Coast Guard inspections of crews and cargo have been taking place. Most of the additional security costs are charged to shipping companies (Crist, 2003).

Clark et al. (2004) find that port efficiency, which is affected by increased security measures, has an important impact on maritime transport costs compared to a multitude of other factors, such as competition,

53 A comparative table of terrorism insurance schemes across OECD countries is contained in OECD (2005) chapter II.5.

54 Blalock et al. (2005) find that baggage screening measures taken after 9/11 reduced passenger volume by about 5 per cent on average on all flights. However, strict border controls may not necessarily lead to higher transaction costs, for instance in terms of waiting times, and consequent reductions in transport demand. At the border between the United States and Canada, for example, more security personnel were hired following 9/11 and the flow of trucks was gradually brought back close to normal (Lenain et al., 2002).

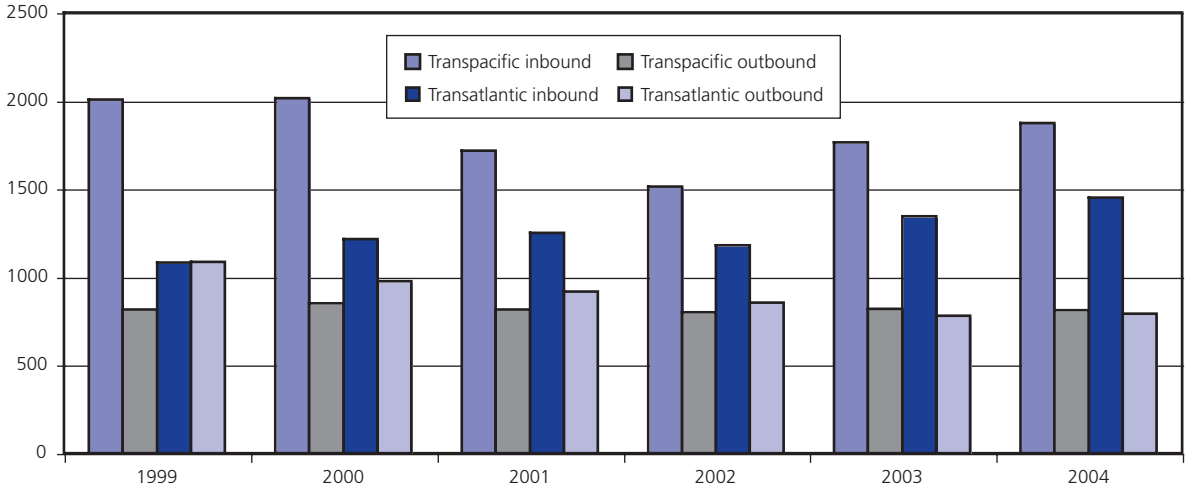
55 In December 2002, the United States launched the Container Security Initiative (CSI) which is aimed at identifying high risk containers already at the port of departure. Ports that do not have certain measures in place may be unable to export goods to the United States (Crist, 2003). A range of other border security measures have been developed, such as the Secure Trade in the APEC Region (STAR) initiative, the International Ship and Port Facility Security (ISPS) Code by the International Maritime Organization or the EU's "known shipper" programme.

56 For the United States it was estimated that, on average, transport and insurance costs amounted to 3.4 per cent of customs value in 2000. Yet, cost shares ranged from about 1 per cent for pharmaceuticals to more than 23 per cent for crude fertilisers (Lenain et al., 2002).

57 According to Lenain et al. (2002), container ships account for some 60 per cent of the volume of world trade. Crist (2003) quoting UNCTAD even speaks of 80 per cent.

technological developments and scale economies at both the vessel and seaport levels.[58] From Chart 15, it appears that inbound freight rates per unit of container volume for the United States have indeed increased after 2001 (the turnaround is particularly noteworthy for the transpacific route), while outbound rates have continued to decline.[59] Similarly, after 2001, freight costs relative to imports (i.e. c.i.f. relative to f.o.b. values) have risen again for the United States from 3.2 per cent to 3.8 per cent after several years of decline. While, after 2002, these increases may have been dominated by developments in the oil price (see Chart 16), the two curves do not move in parallel, suggesting that other factors, including the insurance component of transport costs, have also played a role. Ultimately, the c.i.f.-f.o.b. spread is a very crude measure, as the insurance component itself depends on the product composition and price changes of imports. However, even when looking at trade with larger partners, where product composition and prices are reasonably stable, as in the case of US machinery imports from Japan, the c.i.f. share of imports bottoms out in 2001 (at 2.3 per cent) and increases steadily thereafter to reach over 2.6 per cent in 2004. This trend is similar for machinery imports from Germany or, at a more disaggregated level, for imports of road vehicles from Japan. Conversely, the c.i.f. share of imports of machinery from Canada has consistently gone down (apart from a small rise in 2003). This may reflect the fact that machinery imports from Canada are carried by truck, where cost increases have been less significant, rather than by ship. After the 3/11 attacks in Madrid, the Secretary-General of the International Maritime Organization (IMO) used the opportunity to urge members to accelerate implementation of the International Ship and Port Facility Security (ISPS) Code, a set of measures to enhance maritime security while minimizing trade impacts.[60] The Madrid and London attacks themselves bore little relevance for the issue of transport security and trade facilitation since, bearing in mind the nature of the targets, both the Spanish and British governments mainly focused on enhancing security measures affecting domestic commuter transport rather than international trade transactions.

Chart 15
Containership freight rates by United States mainstream trades, 1999-2004
(Dollars/TEU)[a]



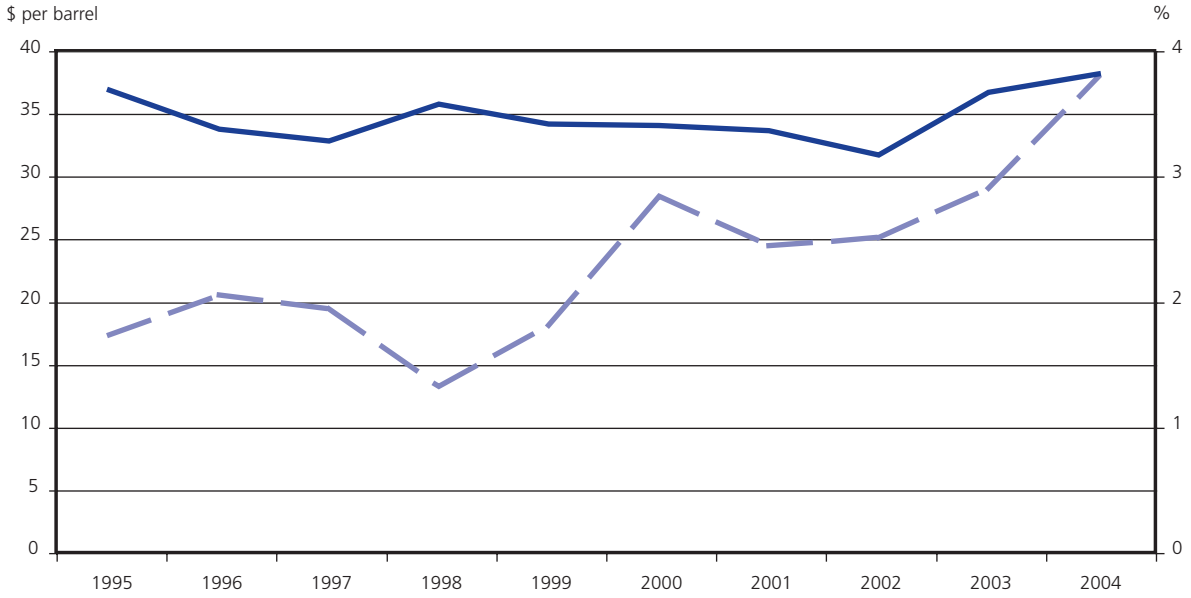
Note: [a] TEU refers to Twenty Feet Equivalent Unit, i.e. it is a nominal unit of measure equivalent to a 20' x 8' x 8' shipping container.
Source: US MARAD (2005).

58 In addition, charges are a function of product-specific characteristics, e.g. regarding certain handling requirements, and of the country of origin, which may only operate smaller vessels or require the hauling back of empty containers. Of course, total transport costs then also depend on the distance travelled with the oil price being the decisive cost component.

59 Of course, an important factor for lower outbound and higher inbound rates has also been the increase in the US trade deficit, which results in an oversupply of containers in US ports available for return shipping at cheaper rates.

60 See http://www.imo.org/Newsroom/mainframe.asp?topic_id=848&doc_id=3509, visited on 20 December 2005.

Chart 16
Oil prices and freight costs relative to imports in the United States, 1995-2004
(Dollars per barrel and percentage)



Source: IMF, International Financial Statistics.

(c) Conclusions

This review of how recent natural disasters and acts of terrorism have affected international trade flows suggests a number of conclusions, which seem to be consistent with current research work.

Natural disasters and acts of terror are similar in that they represent shocks to the economic system. But there are important differences too in the nature of these shocks and in their economic and trade effects.

Governments can only prepare for natural disasters and mitigate their effects; governments cannot prevent tsunamis or hurricanes from occurring. However, government action can reduce the likelihood of terrorist events as well as mitigate their effects. Unfortunately, government action to reduce the risk of terrorism through enhanced security measures may itself make international trade more difficult.

The effect of terrorism may be more pronounced for trade in services than for merchandise trade. Many forms of international services transactions (e.g. travel and tourism) require close contact between buyer and seller. Thus a heightened sense of terrorism risk may disproportionately affect services trade.

Since most large disasters are one-off events, their macroeconomic and trade effects tend to be localized and transitory. Communities at the centre of the disaster can adapt and the economic rebound even from a large disaster can be very rapid if social institutions, human capital and productivity are kept intact. The trade effects of individual acts of terrorism is likely to be small and transitory too. However, where terrorism persists, the economic effects are likely to be more permanent, perhaps even affecting the pattern of trade.

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