

## **The end of the MFA -- globalisation giveth and globalisation taketh away**

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### ***Abstract***

*The liberalisation of clothing and textiles trade on the 1<sup>st</sup> January 2005 under the Agreement on Textiles and Clothing (ATC) gives us a very interesting real world example of the impact of liberalising quota restrictions on markets and, by implication, the impact on markets of quotas themselves. This paper will look at the impacts of liberalisation, particularly on the EU market, but also on the US. It finds that there have been significant impacts on the structure of trade in these markets. In particular, China and, to a lesser extent, India have increased their exports, while many other developing country suppliers have lost out, some considerably. Thus the quota system does seem to have encouraged exports from these smaller suppliers, by limiting competition on the large industrialised markets. They now face difficulties to compete in the new global context, although new quantitative restrictions on China have mitigated negative effects somewhat, at least in the short term.*

*Several efforts were made to forecast the outcome prior to liberalisation. The paper also looks at the results on the US and EU markets compared to forecasts. It finds that although models forecast some elements of the outcome reasonably accurately – specifically the large increases for China and India – other forecasts were less accurate. In particular, the heavy losses of the Asian tigers – especially Korea and Taiwan – were not anticipated. It seems likely that the manner in which quotas are represented within such CGE models does not reflect adequately the very complex interlinkages involved in quota limitations. The fact is that ATC quota restrictions, by limiting competition on protected markets, were to some extent, also protecting certain less competitive suppliers' market share.*

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<sup>1</sup> The opinions expressed in this paper are those of the author and should not be seen in any way to represent those of the European Commission

## **Introduction**

The 1<sup>st</sup> January 2005 was a key date for the world textiles sector. After decades of protection under various guises, trade to industrialised country markets was finally liberalised from any quantitative restrictions. The impact of this liberalisation tells us much about the effects of quota limitations on markets, but also about the high level of flexibility and dynamism of international business. The liberalisation of the sector was much anticipated. The phase out of quotas had taken 10 years, so there was plenty of time for industry to take steps to increase their competitiveness and for analysis of the potential outcomes to be undertaken.

Prior to liberalisation, textile and clothing imports to most developed country markets were regulated by a complex system of quotas under the Multi-Fibres Agreement (MFA) and its successor, the Agreement on Textiles and Clothing (ATC). These quotas not only placed an overall limit on the growth of imports from restricted suppliers, but also fixed the potential market for quota limited suppliers through country specific quota systems (Nordas, 2004, Khanna, 1990). This characteristic of quotas is very different from tariffs. Tariffs make imports more expensive, but once the tariff is paid exports can be as high or low as the market will bear. Quotas fix the absolute size of a country's bilateral exports and prevent excess exports at any price. In a situation where most large suppliers were quota limited, with fixed volume increases annually, there was an inbuilt inflexibility in the market which meant that wider changes in competitiveness over time were only partly reflected in changes in market share.

In this context, a major restructuring was inevitable once quota limitations ceased to restrain trade from the most competitive suppliers. The key question then was who would gain and lose, in what sectors and by how much? This is one of the main questions which this paper seeks to elucidate. Prior to liberalisation, fears were expressed of the potential for serious market disruption. Global trade in the sector was forecast to increase significantly and market shares to change substantially. There was a lot of concern that China, as a highly competitive producer with a huge potential supply capacity, would seize a large slice of the market displacing other, often much poorer, developing countries such as Bangladesh or India (Mc Donald et al, 2004, Ananthakrishnan and Jain-Chandra, 2005, Mlachila and Yang, 2004).

This paper will look at the impact of liberalisation on textiles and clothing imports, primarily in the EU market. The paper will also briefly address the US market, where broad trends are similar, although there are some interesting differences. The actual outcomes in the two markets will then be compared with the key predictions and any anomalies highlighted.

The textiles and clothing sectors will be considered separately as they have quite different industrial structures and characteristics. Most importantly for trade, textiles is a relatively capital intensive industry, where industrialised countries still have a comparative advantage in certain sectors. Clothing is a labour intensive industry, where industrialised countries generally only have a comparative advantage in very high quality or high fashion levels of the market (Nordas, 2004). The two sectors are often referred to together, but, as we will see, their inherent differences are reflected in quite different market structures and impacts from liberalisation. It is important to note in this context that the EU import market for clothing is far larger than that for textiles (€59bn compared to €14bn in 2005) so comparable percentage losses in exports in the former have much more significant economic and development impacts.

The paper will start with a brief description of the policy context. It will then consider the various forecasts made by research which sought to predict the impacts of liberalisation. The actual impact of liberalisation on textiles and clothing imports in the EU will then be considered, in terms of changes in import values and volumes and these results will be compared with trends in the US. Finally the results will be discussed and some conclusions drawn.

### **The policy context – the shifting sands of market access in the textiles sector**

The market for clothing and textiles in industrialised countries has been protected since the 1950s, although protection really became institutionalised with the Multi-Fibres Arrangement in 1974. The main objective of the MFA was to stabilise the growth in imports in certain textile products where industrialised countries' producers were considered vulnerable to competition from low cost sources (CEC, 1990). This was achieved through quota restrictions based on historical trade, which increased by a limited amount every year. The restrictiveness of the MFA varied across suppliers. Some countries only had a few quotas. The highest restrictions were generally reserved for the Asian 'tigers' – Hong Kong, Korea, Taiwan, Macau – which were historically the dominant suppliers. In more recent years, extensive restrictions have also been placed on the emerging Chinese industry.

The manner in which the MFA operated had the un-intended side effect of encouraging the internationalisation of the textile industry. When dominant suppliers began to reach ceilings in their quotas, production moved to other low cost countries, often as a result of investment from the tiger economies (so called 'quota hopping') (Davenport, 1990, Rivoli, 2005). In turn, as imports from new sources grew in restricted markets, new restrictions then began to be imposed and the agreement finally covered a large range of countries, products and markets, while the industry spread across the developing world (Khanna, 1990).

A key objective of the last round of trade negotiations – the Uruguay Round – was to eliminate textile quotas. Indeed, a large share of the expected gains from the round (between 42% and 27% depending on the study) were attributed to textiles and clothing (OECD, 2003). This liberalisation was seen as particularly vital to developing countries, as they are the biggest traders in this sector. The Agreement on Textiles and Clothing (ATC) which emerged from the round, foresaw the expiration of the quotas over ten years, with full liberalisation on 1<sup>st</sup> January 2005.

It is important to note that not all suppliers in the sector were restricted, at least on the EU market. Industrialised countries were generally not restricted by quotas. Furthermore, several important developing country suppliers had quota free access to the EU market and many had tariff free access as well. The Least Developed Countries (LDCs) (under the Everything But Arms Initiative), the African Caribbean Pacific (ACP) countries (under the Cotonou Agreement) and countries involved in the Euro-Med Agreements, all had quota-free and tariff-free access to the EU market. Partly as a result of this access, Bangladesh, Tunisia, Morocco and Mauritius were the 4<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup> and 18<sup>th</sup> suppliers to the EU in the clothing sector in 2004. In the textiles sector there are fewer developing countries within the EU's key suppliers, but Turkey and Egypt were, respectively the 2<sup>nd</sup> and 10<sup>th</sup> most important suppliers in 2004. Clearly these countries were at risk of losing market share once quotas on other EU suppliers ceased to restrain trade.

Although agreement on the ATC had been considered to be a major step forward for developing countries in the Uruguay Round, as liberalisation loomed, several of them became

concerned that the impacts would not be universally positive (Rivoli, 2005). Developing countries have a natural comparative advantage on the EU market, especially in clothing, due to their low labour costs, however within developing countries there are quite large differences in competitiveness. In particular, China was feared to be far more competitive than many others and there were concerns that they would seize a large share of the market once the quotas that had constrained their growth expired.

From a development point of view the risk was that advances which have been made by developing countries, several of which are very poor, as a result of investment in the textiles and clothing industry would be lost in a freer world market. There were particular concerns about Bangladesh, where 1.8 million people were employed in the industry in 2002, most of them women. The sector is practically the only significant export industry in Bangladesh, one of the poorest countries in the world, making up 77% of manufacturing exports and 5% of GDP (Mlachila and Yang, 2004).

Initial indications in the first months of 2005 were that China had indeed seen large gains in market share. In reaction to these increases, the EU negotiated a Memorandum of Understanding with the Chinese in 10<sup>th</sup> June which agreed quantitative limitations or 'voluntary export restraints' (VERs) on ten categories of textiles – 6 in clothing and 4 in textiles – up to the end of 2007 (CEC, 2005). This came into full effect in July and has slowed the sharp increase in Chinese growth, mitigating negative impacts on some other suppliers, as well as on EU industry. These restrictions need to be kept in mind in any discussions on the impacts of liberalisation.

### **Forecast impacts of quota removal – China takes all?**

Reflecting concerns about the potential impact of liberalisation, several studies were undertaken in the years coming up to the finalisation of liberalisation in 2005. These studies have generally concluded that there will be a few key winners, while several developing countries will lose, although there is not universal agreement on who these winners and losers will be. Different approaches gave slightly varied forecasts, although all agreed that China would be a big winner. All studies referred to below used general equilibrium models based on the Global Trade Analysis Project (GTAP) database. A summary of the forecasts is provided below in table 5.

As explained in some detail in, for example, the World Bank study (2004) on the impact on Pakistan, these models represent quotas as being equivalent to an export tax – export tax equivalents or ETEs. This is a reflection of the fact that quotas were often bought by exporting companies from their governments, who managed the quota system. If companies wanted to export their goods they had to buy the quota, so it was, indeed, similar to an export tax. The effect of quotas could, to some extent, be gauged by their price – very restrictive quotas were more expensive. ETEs were calculated based on the price of quota and the level of quota utilisation and varied considerably by supplier. Ananthakrishnan and Jain-Chandra (2005) provide averages by country which illustrate this variation. For example in clothing in the EU the ETEs varied from 25.3% for China to zero for Taiwan and Bangladesh. As we will see, however, this approach, although reflecting quite well the restrictive impacts of quotas on competitive suppliers, may not have captured all of the impacts of this form of import restriction.

Forecasts of the potential gains from liberalisation were large. In welfare terms, CEPPII forecast that China would gain by \$3.6bn from full quota liberalisation in the whole textiles

sector, while South and South East Asia would gain by \$1.3 and Asian NICs by \$2.1bn (Avisse and Fouquin, 2001). The EU would gain \$1.6bn and NAFTA, \$5.2bn. IMF researchers found that China would experience a welfare gain from quota elimination in the whole sector (\$2.9bn), but almost everyone else would lose (-\$449m for India, -\$486m for Bangladesh), except the large importing countries - the EU and the US - who gain from the major welfare effect for consumers (\$10.5bn and \$5.7bn, respectively) (Ananthakrishnan and Jain-Chandra, 2005). UNECA research resulted in similar results – gains for China (\$2.4bn), the EU (\$8.4bn) and US (\$5.4bn) and losses for all other regions (Ben Hammouda et al, 2005).

In trade terms, forecasts tended to differentiate between clothing and textiles. In clothing, under a full liberalisation scenario, CEPPI found that China would increase their exports by 87%, Asian NICs by 18% and South and South East Asia by 36%. All other regions were forecast to lose, the EU by 19%. At the IMF, Ananthakrishnan and Jain-Chandra (2005) had less optimistic forecasts for most Asian countries. India was forecast to increase exports very slightly (less than 1%), while Bangladesh would lose 22% of their exports. China was forecast to increase exports by 113% in clothing. UNECA forecast a 110% increase for China against a 28% fall for Tunisia, 22% for Turkey and 18% for Morocco (Ben Hammouda et al, 2005). Finally, Mac Donald et al, (2004) at US Department of Agriculture (USDA) forecast an increase of 7% in China's clothing exports in 2005, increasing to 16% by 2014 as a result of quota elimination. India was forecast to increase exports by 5% and 14% and Indonesia, Thailand and Malaysia by 10% and 19% by 2005 and 2014 respectively.

IMF researchers also considered the impact on Bangladesh, where they forecast losses of 18% of their clothing export values due to liberalisation, with GDP declining by 2.3% and employment by 4.5% (Mlachila and Yang, 2004). For Pakistan, a World Bank study found that clothing output could decline by 11% and exports by 17% as a result of quota elimination (World Bank, 2004).

In the textiles sector, CEPPI found the consequences of liberalisation to be less significant in textiles than in clothing, although the Asian NICs and Japan were forecast to gain from increased demand for Chinese textiles. Clearly this is a forecast which cannot be assessed within this present study, as it only covers the EU and US markets. Focusing only on developed country markets ignores the indirect effects on textiles demand within and between developing countries due to increased demand for clothing. However figures on global trade flows in 2005 will not be available for some time so, for the moment, more limited studies on developed country markets are all that is feasible.

Ananthakrishnan and Jain-Chandra (2005) forecast increases in textiles exports of 66% for China, 25% for Hong Kong, 40% for Indonesia and 21% for the rest of South Asia. India was forecast to increase exports in textiles by 10%. It could be that the significant increases in South East Asian exports in this study are related to increased exports of textiles to China, as forecast in the CEPPI study. UNECA forecast a 61% increase for China against a fall of 21% for Tunisia, 14% for Turkey and 11% for Morocco (Ben Hammouda et al, 2005). For Pakistan, the World Bank study forecast an increase of 6.5% in textile output and 16% in exports, particularly due to growth in Chinese textile demand (World Bank, 2004).

As concerns about China were widespread before liberalisation, some researchers anticipated the fact that some restrictions would remain after 2005. Three studies sought to model to some extent differences in the integration of China. CEPPI modelled the outcomes with and without Chinese membership of WTO. They found that liberalisation that did not include

China would have resulted in increases in clothing exports for South and South east Asia (62%), Asian NICs (34%) and the Mediterranean basin (7%). Thus the involvement of China significantly reduces the export gains from liberalisation for the former two regions and turns a gain for the latter into a loss (-5%) (Avisse and Fouquin, 2001).

Both of the IMF studies referred to above modelled a full liberalisation scenario and one where China remains partially restricted. Ananthakrishnan and Jain-Chandra (2005) modelled a scenario where only half of China's quotas were eliminated. This is the closest modelling exercise to what actually occurred. They forecast gains in clothing for India (16%), Philippines (8%), Korea (9%) and Indonesia (5%), although Bangladesh was still forecast to lose 10% of their exports. Hong Kong is forecast to lose slightly less than in the full liberalisation scenario (-3%, rather than -16%). In textiles, South East Asian countries increase their exports still further (up 50% in Indonesia). This effect implies that their gains in this model are not, necessarily, led by China's clothing growth, but are more directly related to trade with previously restricted markets. India increases its export gains to 17%. Looking only at Bangladesh, Mlachila and Yang (2004) modelled the differential impact of Chinese exports being restricted such that they increased by only half what they would under full liberalisation. They forecast reductions in Bangladeshi exports of 13% in clothing and 3% in textiles under a restricted China scenario.

Beyond the effects on the large suppliers modelled in the above exercises, significant effects were also feared amongst more marginal suppliers. In particular, serious concerns were also expressed about the potential impact of liberalisation on sub-Saharan Africa, especially on relatively new entrants to the industry, like Lesotho (Stevens and Keenan, 2004). Several countries have developed nascent clothing industries in recent years in response to quota limitations and their preferential access to key markets (EU under the Cotonou Agreement, US under the African Growth and Opportunity Act (AGOA)). These industries were often the key industrial employers, of great importance to poverty reduction efforts (Salm et al, 2002).

Finally there were clearly also concerns within the EU about the potential impact of liberalisation. The elimination of quotas seemed destined to result in increased imports, with potential negative impacts on domestic employment. Francois et al (2000) found that the ATC only protected 42,808 jobs in the clothing industry and 336 in textiles in the EU15. A more recent ex-post calculation suggested that the overall increase in imports after liberalisation threatened about 30,000 jobs (Boulhol, 2006). Given that the industry employs 2 million people in the EU15 (2.7 million in EU25) (CEC, 2003), these effects are not very significant. However what is evident is that the industry has shrunk considerably over the years, in spite of the introduction of protection and steady falls continued under the ATC. Employment fell by 41,000 annually in clothing and 30,000 in textiles during the initial ATC liberalisation period of 1995-2001 and losses were found to be accelerating over time (IFM 2004). A key question for EU industry is, then, the extent to which total imports in the sector actually increased after the quotas were eliminated.

## **Methodology**

Import volumes in value and in volume for the EU were extracted from the Eurostat database COMEXT for the first six months of 2005 until new restrictions were agreed and for the full year and compared with the same periods in 2004. These snapshots of the situation enable us to gauge, both the elimination of quotas and the subsequent impact of renewed quantitative restrictions on China. Textiles exports were classified as those within HS sectors 50-60. Clothing between HS 61-63. For the US market, data is available from the US Office of

Textiles and Apparel (OTEXA)<sup>2</sup> website. Full year data was extracted for that market in Categories 1 and 2 - apparel and non-apparel respectively. Although not exactly comparable to the classifications within Eurostat they are close equivalents.

Recent research in UNCTAD has pointed out that business contacts and mutual investment within the Greater China region are so strong that trade from one actor can easily substitute trade from another. In reflection of this, their research looking at the impacts of the last textiles sector liberalisation (ATC3) found that the impact on exports of the greater China region (which was defined as China, Hong Kong, Macau and Taiwan) as a whole was significantly less than the impact on China alone (Meyer, 2005). In order to see the extent to which this was the case in the final liberalisation process the impacts on a grouping of 'Asian tigers' were also calculated. The grouping used here is China, Korea, Hong Kong, Taiwan, which is a reflection of the grouping used in OTEXA. This is a more significant grouping than that used by UNCTAD as Korea is a much larger supplier than Macau, which saw major impacts from quota elimination.

In order to provide a full picture of the impacts the results will be considered firstly from the point of view of the EU market, looking at clothing and textiles separately. The impacts on the US market will then be considered, before looking at the overall impacts on both markets for the key suppliers active on both, including, in particular, those modelled above.

## **Results**

### *Impacts on the EU market in clothing.*

The table below shows the impact of the liberalisation of the clothing sector on the EU market in the first six months of 2005 and in the full year. This and all subsequent tables are ranked by importance of the source to the market in 2005, beginning with the most important. Positive figures are marked in bold. What is immediately evident is that there are far more losers than winners.

The big winner from liberalisation was China, although India also gained significant market share. Turkey, the biggest preferential neighbouring supplier to the EU, managed to increase its exports slightly. All other developing country suppliers lost out, except Vietnam and Madagascar over the full year. Bangladesh was by no means the biggest loser, losing 'only' 5% over the full year, less than forecast. Rather than increasing exports, as forecast in some studies, the Asian NICs saw their exports reduced, at least in the EU market. Forecasts for gains in South Asia, are somewhat mitigated as, although India gained, Pakistan and, to a lesser extent, Sri Lanka, lost out.

Preferential access to the EU market does not seem to be a strong factor in maximising gains, or protecting countries from negative impacts. Bangladesh, Tunisia, Morocco, Cambodia and Mauritius had very generous access and their industries lost out, whereas Vietnam and India increased exports, although they have relatively less generous preferences under the GSP<sup>3</sup> and China, the biggest winner, had no preferential access at all in this sector<sup>4</sup>.

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<sup>2</sup> [www.otexa.ita.doc.gov](http://www.otexa.ita.doc.gov)

<sup>3</sup> The EU's Generalised System of Preferences only provides for 20% reduction on the applicable tariff in the textiles and clothing sector.

<sup>4</sup> Although a developing country and therefore theoretically eligible for GSP, China is judged to be a very competitive producer in this sector and has therefore been 'graduated' out of the GSP regime.

From a development point of view, losses by LDCs like Bangladesh and Cambodia and small and vulnerable developing countries like Mauritius, are concerning. Losses over the first six months were significant, especially in Mauritius, where exports fell by 20%. From the point of view of the EU's political aim to support development in the Euro-Med region, the losses by several countries in this region are also worrying. These countries, which have built up clothing industries in a context where key suppliers were severely restricted, now face a difficult task to compete in a free market. This is a clear example of liberalisation benefiting developing countries as a whole, while impacting very differently on individual countries.

**Table 1 – Changes in EU clothing imports from key suppliers 2004-2005, Value and Volume. Ranked by importance.**

Origin	Value (€)		Volume (tons)	
	Six months	Full year	Six months	Full year
<b>World</b>	<b>2</b>	<b>7</b>	<b>8</b>	<b>10</b>
<b>Asian tigers</b>	<b>25</b>	<b>32</b>	<b>32</b>	<b>33</b>
<b>China</b>	<b>43</b>	<b>44</b>	<b>42</b>	<b>41</b>
<b>Turkey</b>	<b>3</b>	<b>5</b>	<b>4</b>	<b>3</b>
<b>India</b>	<b>18</b>	<b>25</b>	<b>16</b>	<b>14</b>
Romania	-10	-6	-12	-10
Bangladesh	-9	-5	4	0
Tunisia	-5	-6	-8	-10
Morocco	-12	-7	-13	-8
Hong Kong	-56	-12	-39	-14
Pakistan	-19	-17	-10	-6
Indonesia	-22	-10	-23	-6
Bulgaria	0	1	-2	-3
Thailand	-19	-12	-14	-10
Sri Lanka	-12	-2	-16	-11
<b>Vietnam</b>	<b>-12</b>	<b>5</b>	<b>-18</b>	<b>4</b>
Switzerland	-5	-7	-7	-12
Cambodia	-7	-8	6	-8
Mauritius	-20	-14	-24	-17
Ukraine	-7	-7	-5	-2
Egypt	-5	-2	-2	1
<b>USA</b>	<b>3</b>	<b>14</b>	<b>-4</b>	<b>-5</b>
Croatia	-9	-10	-3	-8
Korea	-49	-45	-50	-49
Macao	-51	-26	-41	<b>48</b>
<b>FYROM</b>	<b>-4,4</b>	<b>7</b>	<b>-6</b>	<b>2</b>
Malaysia	-12	-3	-21	-1
Taiwan	-45	-32	-35	-28
Philippines	-36	-34	-31	-35
Myanmar	-48	-48	-49	-54
<b>Madagascar</b>	<b>-2</b>	<b>14</b>	<b>0</b>	<b>10</b>
Israel	-25	-19	-11	-6

The Asian tigers (China, Hong Kong, Korea and Taiwan), which were the most restricted under quotas, saw big increases overall (32%). However there were large differences in

performance within the group. We see that the non-Chinese (mainland) tigers were actually amongst the biggest losers from the phase out, with Hong Kong losing over half of its exports in the first six months. Thus, over the first six months, large gains for China were partly balanced by falls in the other tiger suppliers, such that a 43% increase for China was reflected in only a 25% increase for the whole group. Once new restrictions came into effect the reverse effect occurred with Chinese exports staying stable while those from the other countries in the group increased. Over the whole year clothing exports from all ‘tigers’ increased by 32%, compared to 43% for China alone. There seems therefore to be significant substitution effects, especially between China and Hong Kong.

These substitution effects were not confined to the Asian tigers. It is evident from the figures that the losses of all non-Chinese developing country suppliers shown (except Tunisia, Myanmar and Cambodia) were higher in the first six months than the full year. In other words, the agreement on new quantitative restrictions on certain categories of clothing from China seems to have led to a resurgence of exports from most other developing countries. This is in line with the forecasts made by the IMF and is as would be expected from theory. The renewal of quantitative restrictions on certain goods would naturally tend to divert supply to other low cost sources. More surprisingly, perhaps, another impact of the new restrictions seems to be an increase in total imports for the EU from all sources (in value, much less so in volume). This seems to be partly due to higher unit prices, as non-Chinese sources tended to be more expensive.

Overall, however, EU clothing imports did not increase excessively in 2005. A 7% increase in value terms over the full year is exactly in line with the average annual increase over the previous five years. Although volume figures are slightly higher (10%), they are also consistent with recent trends. Overall this cannot be seen to constitute a flood of imports. It seems that the EU clothing industry may, after ten years of restructuring, have succeeded in reducing its vulnerability to competition from low cost imports. The real losers from the liberalisation, therefore, are more likely to be found in the developing country suppliers, than in previously protected EU industry.

Looking at the value figures compared to volume, for most suppliers, figures are fairly comparable. However, for India, value increased more than volume, which is surprising, as you would expect, on the contrary, that liberalisation would reduce unit prices. This latter effect is evident in Bangladesh, where volumes were little affected by liberalisation, but lower unit prices led to lower overall receipts<sup>5</sup>. The results for Macau are very surprising. They see a large increase in volume over the full year, although they had a significant fall in value. This must to some extent reflect a different product mix, as such major price cuts seem unlikely.

#### *Impact on the EU textiles market*

The impact of liberalisation on the EU textile market is shown in Table 2. The results are in some ways similar to those in clothing. Certainly China gained significantly on the market – an increase of 23%, which seems to have been relatively unaffected by the new quantitative restrictions (increases in the first six months were ‘only’ 18%). However, although there are

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<sup>5</sup> One needs to be cautious in interpreting volume and value data. Eurostat does not provide volume data in units at HS2 level of disaggregation and volumes in tons mix all kinds of differing products. Provided the product mix stays the same, figures are comparable from one year to the next, but in a situation of great flux, such as this period, we could expect major changes in the structure of exports, so tons is not, necessarily a good indicator. Flows at much lower levels of disaggregation – 6 or 8 digit – would need to be analysed to look at real impacts on unit prices.

many losers, unlike in clothing, many of them are industrialised countries, which had been unaffected by quotas (Switzerland, Japan, Australia, New Zealand). This reflects the differing industrial structures of the two industries, with textiles being a capital intensive industry in which several industrialised countries still have an important stake. To some extent, quota limitations on China may have been ‘protecting’ these suppliers, as well as other quota holders like Korea and Hong Kong, by limiting competition in the EU market. In this way quota protection in textiles has had slightly different global effects than in clothing, in terms of countries affected.

**Table 2 – Changes in EU textile imports from key suppliers 2004-2005, Value and Volume. Ranked by importance**

Origin	Value		Volume		
	Six months	Year	Six months	Year	
World	-7		-2	-2	-2
<b>China</b>	<b>18</b>		<b>23</b>	<b>33</b>	<b>23</b>
Turkey	-5		0	-5	-1
India	-7		0	-3	-1
USA	-3		0	<b>25</b>	<b>2</b>
Switzerland	-10		-9	-18	-18
Korea	-9		-7	-14	-12
Pakistan	-15		-5	-6	1
Japan	-6		-6	<b>3</b>	0
<b>Taiwan</b>	<b>1</b>		<b>11</b>	<b>34</b>	<b>35</b>
Australia	-25		-30	-19	-32
Indonesia	-13		-10	-10	-8
<b>Thailand</b>	<b>1</b>		<b>7</b>	<b>28</b>	<b>20</b>
<b>Romania</b>	<b>8</b>		<b>10</b>	<b>4</b>	<b>2</b>
<b>Egypt</b>	-13		<b>2</b>	-1	<b>10</b>
South Africa	-8		-14	-9	-16
<b>Israel</b>	<b>2</b>		<b>4</b>	<b>2</b>	<b>4</b>
Iran	-18		-12	-4	-4
<b>Bulgaria</b>	<b>10</b>		<b>9</b>	<b>16</b>	<b>20</b>
New Zealand	-13		-7	-6	-1
<b>Malaysia</b>	<b>2</b>		<b>5</b>	<b>3</b>	<b>6</b>
Tunisia	-5		-7	0	-2
Brazil	-17		-18	-22	-15
Uzbekistan	-13		-36	-14	-20
Russia	-43		-35	-35	-30
Morocco	-5		-13	-4	-15
<b>Norway</b>	<b>11</b>		<b>3</b>	<b>0</b>	<b>-1</b>
Syria	-46		-37	-28	-19
Belarus	-18		-8	-31	-23
Argentina	-12		-17	-5	-3
Uruguay	-14		-5	-10	-1
Hong Kong	-44		-36	-63	-55
<b>Bangladesh</b>	-6		<b>2</b>	-8	<b>-9</b>
Philippines	-48		-22	-37	-24

Other developing countries certainly lost out in the liberalisation but India and Turkey, two key suppliers, retained their market share over the full year (although not in the first six

months). Indeed, we see relative stability in the more important producers in the full year, with greater variations further down the list, in more marginal suppliers. Within the important ASEAN suppliers, the experience was mixed, with Malaysia and Thailand gaining, while Indonesia and the Philippines lost out.

We see the same tendency as in clothing for losses over the full year to be lower than over the first six months, in spite of the fact that quantitative restrictions on China did not prevent further growth in its textile exports. Again, as in clothing, the positive side effect of these renewed quantitative restrictions is particularly evident in Hong Kong and Taiwan, but, interestingly it is even more so in the Philippines. Some suppliers saw no gains from restrictions on China and even did worse over the full year. The most striking example is Uzbekistan.

Overall, EU imports fell after liberalisation, in contrast to fears. This fall probably reflects reduced activity in the domestic clothing industry, which is a key consumer of textiles. The fall over the full year was less than over the first six months (2%, compared to 7%). As volume fell by the same percentage in both periods (2%), this change must be due to an increase in unit prices.

If we look at the figures on changes in volume, it becomes clear that there has been a change in pricing, or in product mix (or both), from China over the course of the year. Whereas volumes increased significantly more than values in the first six months (33% compared to 18%) reflecting lower unit prices, over the full year both increased by the same amount - 23%. The comparability between volume and value increases in China over the full year is unusual in the table. There are often significant differences between the two figures, reflecting changes in unit prices and product mix. We see particularly large increases in volume, compared to value, in Taiwan and Thailand, indicating lower unit prices. Certainly, while overall imports have reduced, the EU textile market has seen significant restructuring in 2005.

#### *Impact on the US market*

Finally, in order to see whether the same countries hit by quota elimination in the EU are also suffering similar impact on the US market and to more effectively represent global trends, information was obtained on US imports. This was extracted from the US Office of Textiles and Apparel (OTEXA) website in June 2006. Figures were extracted on US imports in 2004 and 2005 in categories 1 and 2 (apparel and non-apparel), which are roughly equivalent to the clothing and textiles classifications used for the EU above and trends calculated. The results are shown in Table 3.

In clothing, impacts on the US market are to some extent broadly similar to those on the EU, in that several preferential suppliers lost ground on the market while China and India increased their exports (by 70% and 34% respectively). However, a wider range of developing countries saw increases on this market. It is clear from the table that more countries show positive impacts than in Table 1 above.

China's increase on the US market was even larger than that in the EU, in spite of the fact that restrictions on Chinese imports were renewed earlier in the year there than in the EU. However, like in the EU, the increase for the Asian tigers as a group was far lower than for China alone (30%), reflecting significant substitution effects. Apart from the non-Chinese tigers, losers have primarily been amongst those who benefit from preferential access to the US market – CBI (Caribbean Basin initiative), CAFTA (Central American FTA), Mexico and

Sub Saharan Africa (SSA). However several other DCs have seen gains – principally India, Indonesia, Bangladesh, Cambodia and Pakistan. Thus overall, countries like Indonesia, Pakistan and Bangladesh which lost out on the EU market following quota elimination will have been partly compensated by increased sales on the US market. It would be interesting to explore the extent to which this was due to a conscious strategy by companies to re-orient themselves to the, previously more restricted, US market. However this question is beyond the scope of this research.

**Table 3 – Changes in US clothing and non-clothing imports from key suppliers, value and volume. Ranked by importance**

	Clothing			Non clothing	
	Value (\$)	Volume (m2)		Value (\$)	Volume (m2)
<b>World</b>	<b>6</b>	<b>10</b>	<b>World</b>	<b>11</b>	<b>7</b>
<b>Asian tigers</b>	<b>30</b>	<b>47</b>	<b>Asian tigers</b>	<b>22</b>	<b>19</b>
<b>China</b>	<b>70</b>	<b>98</b>	<b>China</b>	<b>29</b>	<b>25</b>
<b>ASEAN</b>	<b>7</b>	<b>6</b>	EU15	-1	-7
CBI	-4	<b>1</b>	<b>Pakistan</b>	<b>17</b>	<b>11</b>
CAFTA	-4	<b>0</b>	<b>India</b>	<b>16</b>	<b>18</b>
Mexico	-9	-10	Canada	-1	-7
Hong Kong	-9	-19	Mexico	<b>5</b>	-1
<b>India</b>	<b>34</b>	<b>30</b>	ASEAN	-16	-12
<b>Indonesia</b>	<b>20</b>	<b>17</b>	Korea	-2	-1
<b>Vietnam</b>	<b>6</b>	<b>3</b>	Turkey	<b>12</b>	-10
Honduras	-2	<b>4</b>	Taiwan	-9	-5
<b>Bangladesh</b>	<b>20</b>	<b>19</b>	Japan	-2	-7
<b>Philippines</b>	<b>3</b>	<b>1</b>	Thailand	-21	-11
EU15	-7	-15	<b>Brazil</b>	<b>10</b>	-13
<b>Cambodia</b>	<b>20</b>	<b>12</b>	<b>Israel</b>	<b>1</b>	-6
Thailand	<b>0</b>	<b>1</b>	Indonesia	-5	-7
Dominican Rep	-10	-6	<b>Egypt</b>	<b>20</b>	<b>-3</b>
Guatemala	-7	-7	Vietnam	-1	<b>16</b>
<b>Sri Lanka</b>	<b>7</b>	<b>9</b>	<b>Iran</b>	<b>7</b>	<b>-7</b>
El Salvador	-6	<b>2</b>	Philippines	-41	-37
<b>ANDEAN</b>	<b>8</b>	-6	Hong Kong	-13	<b>1</b>
SUB-SAHARA	-17	-14	Bangladesh	-3	<b>13</b>
Macau	-17	-35	ANDEAN	<b>3</b>	<b>0</b>
<b>Pakistan</b>	<b>11</b>	<b>11</b>	Switzerland	-6	-21
Canada	-15	-22	CBI	-6	-15
<b>Jordan</b>	<b>13</b>	<b>15</b>	CAFTA	-7	-14
Korea	-36	-42	Malaysia	-9	-19
Taiwan	-27	-32	Colombia	-7	<b>5</b>
Turkey	-19	-22	<b>Australia</b>	<b>4</b>	<b>13</b>
<b>Peru</b>	<b>18</b>	<b>7</b>	<b>Nepal</b>	<b>6</b>	-48
<b>Nicaragua</b>	<b>20</b>	<b>16</b>	Bahrain	-18	-4

In textiles, we see lower growth rates, with China, Pakistan and India the biggest winners. Turkey also saw significant increases, which may partly offset losses in clothing, while Egypt saw gains of 20%. ASEAN countries generally lost out, in contrast to the situation in the clothing sector. In reflection of the more capital intensive nature of the industry and, as we saw in the EU, more advanced countries are represented in the key suppliers – Canada, Korea, Taiwan and Japan. None have seen major losses in exports from liberalisation, the highest being Taiwan, at 9%.

#### *US-EU market developments*

Developments in the US and EU markets differed in some important details. In particular, certain key developing countries which lost out on one market gained on the other and may, therefore have seen overall gains from the simultaneous liberalisation of both. To see more precisely to what extent gains in one market compensate for losses in the other and better gauge overall global impacts, the total consolidated exports were calculated for the key developing country suppliers which service both the EU and the US, including especially those countries for which forecasts were made in the studies considered above. Table 4 below shows the development of clothing exports from these suppliers to both markets over the 2004-2005 period. The calculations were made using a constant exchange rate of €1.244 to the dollar over the year.

**Table 4 - EU and US markets, changes in value 2004-5. Ranked by importance**

Clothing		Textiles	
<b>World</b>	<b>7</b>	<b>World</b>	<b>4</b>
<b>Asian tigers</b>	<b>31</b>	<b>Asian tigers</b>	<b>19</b>
<b>China</b>	<b>53</b>	<b>China</b>	<b>27</b>
<b>Turkey</b>	<b>2</b>	<b>India</b>	<b>7</b>
<b>India</b>	<b>29</b>	<b>Turkey</b>	<b>2</b>
<b>Bangladesh</b>	<b>2</b>	<b>Pakistan</b>	<b>9</b>
Hong Kong	-10	Korea	-5
<b>Indonesia</b>	<b>8</b>	<b>Mexico</b>	<b>6</b>
<b>Vietnam</b>	<b>6</b>	Taiwan	0
Pakistan	-7	Japan	-4
Thailand	-4	Thailand	-9
<b>Sri Lanka</b>	<b>3</b>	Indonesia	-9
<b>Cambodia</b>	<b>11</b>	<b>Israel</b>	<b>2</b>
Philippines	-4	Australia	-28
Macau	-19	Brazil	-2
Korea	-39	<b>Egypt</b>	<b>8</b>
Taiwan	-28	Iran	-6
Malaysia	-4	<b>Malaysia</b>	<b>2</b>
<b>Egypt</b>	<b>1</b>	Bangladesh	-1
Madagascar	-3	Hong Kong	-21
Israel	-16	Philippines	-36
Mauritius	-18	Morocco	-10
Morocco	-8	Tunisia	-8
Tunisia	-6	<i>Turkey</i>	<b>2</b>

In clothing, we see that quite a few developing countries gained overall. For Bangladesh, Indonesia, Sri Lanka, Cambodia and Egypt, gains on the US market more than compensated for losses in the EU, leading to overall increases in exports as a result of liberalisation. For Turkey, the opposite was the case – EU increases in exports made up for substantial losses in the US. For the Philippines and Pakistan an increase in the US market cancelled out some of the losses in the EU, but not enough to gain from liberalisation. Mauritius, the EU's most important ACP suppliers, lost out on both markets, although Madagascar increased its exports to the EU, while they fell in the US. The small size of the US market for Morocco and Tunisia mean that losses on the EU overwhelmingly dictated their overall position. We see that, in general, there are wider positive impacts on developing countries from the aggregated US-EU market than seen in the EU market alone, particularly in clothing.

In textiles, we see quite some positive impacts overall, with industrialised suppliers often amongst those losing market share – Korea, Japan, Australia. For Pakistan increases in the US market cancelled out losses in the EU, while for Malaysia and Taiwan the inverse is the case. However, others lost on both markets – Indonesia, Philippines and Hong Kong. For Thailand and Morocco an increase in one was not enough to cancel out a loss on the other and so their exports reduced in the aggregate.

#### *Comparison with forecasts*

The composite EU/US figures are clearly more comparable to the forecast global impacts discussed above than those for each individual market. Although these two markets are only part of the story, they were by far the two biggest restricted markets under the ATC (the only other significant restrictions were in Canada, a far smaller market). Nevertheless, to look at full impacts we would also need to look at the latter market as well as the secondary impacts of increased demand outside these two markets – particularly that for textiles due to increased clothing production in key 'winners' like China and India. As pointed out above, this paper does not cover these impacts and therefore underestimates the likely stimulation of demand for textiles between developing countries further to quota elimination as a result of increased clothing production.

Table 5 below summarises the main forecasts and compares them with actual outcomes on the EU and US markets. It is important to remember that these 'real world' results are closer to the scenarios modelling incomplete liberalisation of China than full liberalisation, as quantitative restrictions limited China's growth in both the US and EU markets during the year. Where studies modelled lesser integration of China, this is the figure used in the table.

In clothing, the most significant anomalies in the table are probably the forecast impacts on the Asian tigers. Korea had been forecast to gain by both Mac Donald et al, 2004 (referred to hereafter, as in the table as USDA) and Ananthakrishnan and Jain-Chandra, 2005 (referred to as IMF (1)). In fact it exports fell by 39% in the aggregate. Less striking are the differences for Taiwan (forecast to lose 14% by IMF (1) and to gain 5% by USDA) whose exports fell by 28% and Hong Kong (forecast to lose 3% by IMF(1), but in fact losing 10% and considerable more before the agreement of new restrictions with China, at least in the EU market).

**Table 5 – Forecast changes in exports in clothing and textiles, various studies.**  
 Where possible the scenario closest to reality - restrictions on Chinese exports - is used and indicated with \*.

	CEPII	IMF(1) *	WB	IMF(2) *	USDA	UNECA	EU	US	US+ EU
<b>Clothing</b>									
China	<b>87</b>	<b>46</b>			<b>7</b>	<b>110</b>	<b>44</b>	<b>70</b>	<b>53</b>
India		<b>16</b>			<b>5</b>		<b>25</b>	<b>34</b>	<b>29</b>
Hong Kong		-3					-12	-9	-10
Taiwan		-14			5		-32	-27	-28
Bangladesh		-10		-13			-5	<b>20</b>	<b>2</b>
Other South Asia		-6							
Philippines		<b>8</b>					-34	<b>3</b>	-4
Korea		<b>9</b>			<b>5</b>		-45	-36	-39
Indonesia		<b>5</b>			<b>10</b>		-10	<b>20</b>	<b>8</b>
South and SE Asia	<b>36</b>								
Pakistan			-17				-17	<b>11</b>	-7
Sri Lanka							-2	7	<b>3</b>
Asian NICS	<b>18</b>								
Thailand					<b>10</b>		-12	0	-4
Malaysia					<b>10</b>		-3	-5	-4
Cambodia							-8	20	<b>11</b>
Vietnam							<b>5</b>	<b>6</b>	<b>6</b>
Med and CEECs	-5								
Morocco						-18	-7	-25	-8
Tunisia						-28	-6	<b>20</b>	-6
Turkey						-22	<b>5</b>	-19	<b>2</b>
<b>Textiles</b>									
China		<b>25</b>			<b>5</b>	<b>61</b>	<b>23</b>	<b>29</b>	<b>27</b>
India		<b>17</b>			<b>4</b>		<b>0</b>	<b>16</b>	<b>7</b>
Hong Kong		<b>30</b>					-36	-13	-21
Taiwan		0			<b>6</b>		<b>11</b>	-9	0
Bangladesh		-9		-3			<b>2</b>	-3	-1
Other South Asia		<b>24</b>							
Pakistan			<b>17</b>				-5	<b>17</b>	<b>9</b>
Philippines		<b>27</b>					-22	-41	-36
Korea		<b>13</b>			<b>6</b>		-7	-2	-5
Indonesia		<b>50</b>			<b>7</b>		-10	-5	-9
Thailand					<b>7</b>		<b>7</b>	-21	-9
Malaysia					<b>7</b>		<b>5</b>	-9	<b>2</b>
Morocco						-11	-13	<b>264</b>	-10
Tunisia						-21	-7	-65	-8
Turkey						-14	0	<b>12</b>	<b>2</b>

CEPII - Avisse and Fouquin, 2001; IMF (1) – Ananthkrishnan and Jain-Chandra, 2005; WB – World Bank 2004; IMF (2) – Mlachila and Yang, 2004; USDA – Mac Donald et al, 2004; UNECA – Ben Hammouda et al, 2005.

For other sources, forecasts were closer to actual impacts. The increase in Chinese exports of over 50% is less than Avisse and Fouquin, 2001 (referred to as CEPPI) and Ben Hammouda et al, 2005 (referred to as UNECA) studies had indicated, but more than USDA. IMF (1), which in fact has the scenario nearest to reality, was the closest to the real figure for China (they forecast 46%).

India comes out as a significant winner, in line with IMF (1) forecasts, although with higher actual growth rates, while Pakistan loses, as the World Bank study predicted, although less significantly. Bangladesh increased exports slightly overall, compared to forecast losses of 10-13%, by IMF studies even in 'China limited' scenarios. Sri Lanka also gained slightly, making the picture for South Asia rather positive overall. Morocco and Tunisia lose, but by considerably less than UNECA predicted, particularly for Tunisia (-6%, compared to a -28% forecast).

The picture for ASEAN countries, which some studies had forecast to gain (CEPII forecast a 36% gain for South and SE Asia and IMF (1) forecast gains for Philippines and Indonesia), is mixed. Indonesia, Vietnam and Cambodia increased their exports, while the Philippines, Malaysia and Thailand lost out. Specifically, IMF(1) forecasts were optimistic for the Philippines and slightly under-optimistic for Indonesia (forecast to gain, but by 5%, compared to a real gain of 8%).

In textiles, the Chinese increases in exports are in line with predictions by the IMF (1), although India's gains are lower – 7% compared to a 17% forecast. The big anomaly in the table is the losses suffered by all other suppliers modelled in the latter study, compared to predicted gains. This could be to some extent related to the fact that indirect effects on textiles demand caused by increased clothing demand are not taken into account here. However the differences are large. A forecast gain for Hong Kong of 30% compared to an actual loss of 21%, forecast increases of 27% for the Philippines which in fact lost out by 36%. The most striking result is for Indonesia, which was forecast to gain by 50%, but in fact lost out by 9%.

The World Bank's forecast for an increase in exports for Pakistan was correct, though underestimated, while UNECA's forecast for Morocco was also correct<sup>6</sup>, although for Tunisia and, especially Turkey, forecasts were too pessimistic (Turkey increased exports by 2% compared to a forecast loss of 14%). USDA significantly underestimated China's gains, much less so those of India, while forecasts for increased exports from Taiwan, Korea and Indonesia turned out to be optimistic.

## **Discussion**

We have seen that the experience in the EU and US textiles and clothing market in 2005 reflects to some extent what was forecast in various studies. However the studies were too pessimistic about impacts on certain developing countries, like Bangladesh, while generally over-optimistic on the impact on the Asian NICs and, to some extent on South East Asia. The differences between forecast and outcomes are particularly striking in textiles, although some of the disparity is likely to be due to the fact that this present study cannot take account of likely increased textile demand within the Asian region due to increases in clothing production. This is likely to be a real phenomenon, but it is questionable the extent to which it

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<sup>6</sup> The very large increase in Moroccan textiles exports to the US in 2005 may be related to the US-Moroccan FTA agreed in 2004, although in clothing, their exports fell.

could account for the very large disparities we see in Table 5. Only when full global figures for trade flows in 2005 become available can we gauge the true aggregate impacts.

In terms of the impacts of liberalisation, if we take a global view, we see that several countries hit in the EU have gained on the US market (and the inverse), so overall their industries have seen increased exports, even in the new context. This is consistent with recent research by both the OECD and the WTO on potential for 'preference erosion' due to broader multilateral liberalisation. They found that losses by preference holders on certain key markets will be broadly compensated by gains on other markets ensuring that the majority of actors in the multilateral negotiations will gain from liberalisation (OECD, 2005, WTO, 2005). By the end of its life the quota system, by limiting competition from the lowest cost sources on key markets, amounted to a kind of preference for certain producers, which is now significantly eroded. However the differential effects of this erosion on the two key markets mean that they often cancel each other out.

However, as predicted in the various studies quoted above there are certainly countries which have suffered real reductions in their exports and this can be expected to lead to restructuring of their clothing sector and job losses. This is a particularly worrying development for Sub-Saharan Africa. Several countries in this region has lost out substantially, often in both markets and risk seeing one of their few emerging manufacturing industries retract considerably.

SSA countries are generally very small suppliers, so, besides Mauritius and Madagascar for the EU, they do not often figure in the tables. In the EU the most important losses have been suffered by Mauritius (-14%), but in the US, Lesotho, the most important AGOA clothing exporter, lost out substantially, with exports also reduced by 14% and several less important suppliers saw significant falls. There are reports that factories have been closed, almost overnight, following quota elimination in Lesotho and 10,000 jobs lost, around a fifth of the workforce (Brenton and Hoppe, 2006). Kaplinsky and Morris (2006) found evidence of significant employment losses due to liberalisation in Lesotho, Swaziland, Kenya and, especially, South Africa. Clearly these smaller suppliers, who had a window of opportunity to develop markets under the quota system, are finding it difficult to compete in this new, more competitive context.

Finally, in terms of impact on the EU domestic industry, the fears of floods of imports seem to have been exaggerated. Overall in 2005, textiles imports actually fell by 2%. Clothing imports increased by 7% in value (although nearly 10% in volume), which is in line with the trend in the last five years. Although these increased imports will certainly have an impact, often one felt very strongly at regional level, it will not, in the aggregate, be significantly different to that seen in recent years. The domestic industry, at least, does not seem to have suffered from sudden surges in competition. It seems that the ten years of restructuring and significant job losses under ATC means that the EU industry is no longer highly vulnerable to low cost imports.

## **Conclusion**

The removal of quotas in the clothing and textiles sectors has provided an interesting illustration of the global and footloose nature of this industry. In the EU market we have seen almost instantaneous major changes emerging in sourcing strategies, with China the overwhelming winner and several developing countries losing extensive market share. Some larger Asian suppliers have balanced losses on the EU market with gains on the US. This is

what we would expect in a context of multilateral liberalisation. However others, particularly the smaller more marginal suppliers and EU neighbourhood suppliers have lost out in the aggregate.

The exercise in liberalisation in the textiles sector gives us an interesting real world example of what happens when trade is quota limited and when these quotas are liberalised. It is clear from the reaction of the market to liberalisation that ATC quotas were, at least to some extent, artificially maintaining market share for several uncompetitive dominant suppliers in Asia. At the same time, the limitations on key competitive suppliers forced EU and US retailers to look to other low cost sources, whose industries have been built, to some extent, on the opportunities which quotas provided. Once these limitations expired, smaller suppliers such as these saw losses which were often significant.

There had been some scepticism prior to trade liberalisation about whether effects would really be significant because there are so many other issues involved in industrial decision making (Nordas, 2004). It is clear from the trade figures that industry reacted immediately to the new situation. In the same way, once new restrictions were negotiated with China in the EU, the industry immediately shifted sourcing to other countries, both in the region and closer to home. The flexibility and reactivity of international business to changes in trade policy should not be underestimated. Industrialists do, indeed, react as economic theory tells us they will. This is comforting for economists, if not for the developing countries hit by sudden changes in sourcing.

Finally, what this exercise confirms is the age-old truism that forecasting the future is very difficult. It is hoped that such ex-post comparisons can help to shed further light on this issue to improve forecasting in the future. Although the models got several key elements right – particularly the rise of China – other elements were less accurate. In particular, the losses of the other Asian tigers and some ASEAN countries were not generally anticipated by the modelled outcomes.

It seems likely that the contradictory effects of quotas are difficult to model accurately. In reality, the same quota system has differentiated effects across countries. Some ATC quotas limited market expansion of competitive producers and had a clear constraining effect on their exports – so could be modelled as export tax equivalents, as indeed was the case. However, others actually had a positive effect on exports. By restricting market access for the most competitive suppliers they artificially maintained market share for certain countries which were not truly competitive. Although several countries which did not fill quotas were often modelled with an export tax equivalent of zero, this does not reflect the potential positive effects which the allocation of historical quota conferred on them in a restricted market context. This in effect worked more like a subsidy and certainly doesn't seem to have had the neutral effects on trade that an ETE of zero would imply. To forecast the effects of liberalisation of quotas accurately, these differentiated effects would somehow need to be integrated into the model.

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