INTERNATIONAL COTTON ADVISORY COMMITTEE

Structural Changes in the World Cotton Market Linked to the End of MFA Quotas[1]

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This article analyzes the effects of the elimination of the Multifiber Arrangement (MFA) quotas on the structure of the world cotton market as part of an array of factors that changed the dynamics of the market during the current decade. Although the phase-out of the MFA quotas under the Agreement on Textiles and Clothing (ATC) had a significant effect on the structure of the world cotton market, a combination of other factors has probably had greater structural effects.

World textile fiber consumption more than tripled between 1960 and 2007. While the average annual growth rate was 3.3% over the entire period consumption grew at different rates through different periods: the average annual growth rate between 1960 and 1974 (when the MFA was signed) was 3.8%, higher than the 2.4% observed over the 1975-1994 period (over which the MFA was fully effective); during the phase-out of the MFA quotas under the ATC (1995-2004), growth accelerated to an average annual rate of 3.7% to finally climb to 5.2% between 2005 and 2007. Nevertheless, world textile consumption has been growing at annual rates consistently higher than 3.8% since 2002, two years before the end of the phase-out of the MFA quotas.

The share of fiber mill use in industrial countries[3] declined continuously through time from an average of 51% in the pre-MFA period to an average of 42% after 2000. On the other hand, the share of developing Asian countries[4] in total world textile fiber consumption doubled from an average of 19% in the pre-MFA era to an average of 38% after the year 2000. The share of Eastern European countries and Ex-USSR countries in total world textile fiber consumption declined from 18% in the communist era to 6% after 1991. The shares of Africa, Latin America and the Caribbean and Middle East and developing countries of Europe remained relatively stable over the entire period.

Textile fiber consumption is influenced by population, income and the prices of textile fibers relative to other products. In particular, world textile fiber consumption per capita is more sensitive to changes in the size of the economy (as measured by the gross domestic product (GDP)) than to changes in the relative price of textiles (as measured by the ICAC Real Textile Fiber Price index, RTFPI); the elasticities being, respectively, 1.6 and 0.06.[5] World GDP grew at an average annual rate of 4.9% between 1961 and 1974,

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[3] For the purpose of the present analysis, industrial countries are considered to be Canada, the U.S., the E.U.-15, Iceland, Norway, Switzerland, Australia, Japan, and New Zealand.

[4] In the present study, the list of developing Asian countries include, among others, China (Mainland), China (Taiwan), China (Hong Kong), India, Pakistan, Bangladesh, the Republic of Korea, Singapore, Thailand, and Vietnam.

[5] See World Textile Demand 2007.

decelerated to 2.9% between 1975 and 1994, continued to grow at the same pace between 1995 and 2004, and finally accelerated again to a rate of 3.5% between 2005 and 2007. So, the end of the MFA quotas coincided with an expansion in the size of the global economy that generated a push in the demand for textiles. The RTFPI (a weighted average of deflated prices for cotton, rayon and polyester staple and greasy wool) followed a clear downward trend over the entire period, registering an average annual rate of decline of 6.8%, indicating that textile fibers are cheaper now relative to other products than in previous decades. However, the rate of decline decelerated over time from an average annual rate of 12% between 1975 and 1994, to 6% between 1995 and 2004, to 0% between 2005 and 2007.

Just as with total textile fiber consumption, consumption of cotton experienced a significant increase over the entire period (+160%), with dissimilar annual growth rates among different periods of time. As with total textile fiber consumption, prices, GDP growth and population significantly affect cotton consumption. Between 1960 and 1976, cotton consumption increased at an average annual rate of 1.6% while the relative price of cotton to other textiles increased at an average annual rate of 6.6%. From 1977 to 1990 cotton textile consumption increased at a faster pace (+2.5% annually) while the relative price for cotton followed a downward trend (-1.6% annually). During the 1990's, cotton consumption remained stagnant (+0.5% annually) while relative cotton prices fluctuated around an upward trend (+1.1% annually). Finally, in the 2000's, cotton consumption increased to record levels (growing by 3.8% annually) while relative cotton prices followed a downward trend (-2% annually). So, the end of the MFA quotas coincided with declining real relative prices of textile fibers in general, and relative prices of cotton in particular, and increasing cotton and non-cotton fiber consumption.

Cotton's share of fiber consumption declined from 68% in 1960 to about 40% in 2007, the main reason being that the demand for cotton has a lower elasticity to GDP than the demand for polyester at the world level, so when GDP increases, polyester consumption increases faster than cotton consumption.

Population is also a major determinant of fiber demand. The fact that total fiber consumption grew faster in developing countries than in developed countries is mainly due to differences in population growth: over the 1960's, population in developing countries amounted to 3.5 times the population in industrial countries; but that ratio climbed to 5.9 during the 2000's. World cotton consumption increased from 3.1 kilograms per capita in 1981 to 4.1 kilograms per capita in 2007, which represents an increase of one-third over 26 years. However, most of the increase occurred after 2000, when world cotton consumption per capita amounted to 3.3 kilograms per capita. The patterns of consumption have changed dramatically over the last 25 years: while cotton consumption in industrial countries more than doubled to reach 14.1 kilograms per capita in 2007, cotton consumption in Central and Eastern European countries and Ex-USSR (CEE&Ex-USSR) countries suffered a precipitous decline between 1988 and 1996, and then started growing again from very low levels after 1997. Nonetheless, cotton consumption per capita in CEE&Ex-USSR countries is still lower than in developing countries, where cotton consumption growth averaged 1% annually between 1981 and 2007.

World cotton lint production mirrored the upward trend of world cotton consumption since 1960. However, in 2004/05 cotton lint production increased by 28% to a record of 27.1 million tons and has remained above 25.5 million tons since. This increased availability of cotton contributed to lower relative prices of cotton textiles and increased cotton fiber consumption in 2005, 2006 and 2007. The remarkable increase in cotton production is mainly due to substantial increases in yields. The world yield rose by 16% to 756 kilograms per hectare in 2004/05, and has not significantly declined since. Many countries are benefiting from the use of existing techniques such as integrated pest management, better water management, minimum tillage, crop rotation and improved use of fertilizer, as well as new technologies. In particular, authorized biotech cotton, which is risk and cost reducing in some countries and yield increasing in others, is expected to account for half of world cotton production, representing 41% of world cotton area in 2007/08.

The share of Asia in world cotton production has increased from 42% in the 80's to 50% in the 2000's, but is expected to reach 58% in 2007/08. In particular, the share of China (Mainland), India and Pakistan in world cotton production increased from 41% in the 80's to 49% in the 2000's, driven by increases in cotton area and yields, and is expected to reach 57% in 2007/08. The share of the U.S. increased slightly from 17% in the 80's to 19% in the 2000's, driven mainly by substantial increases in yields, but is expected to fall to 16% in 2007/08, driven mainly by reductions in cotton area due to the increasing prices of competing crops used for biofuels. The share of the CFA zone[6] doubled from 2% of world production in the 80's to 4% in the 2000's due to substantial increases in area. However, production in the CFA zone has been declining over the last two seasons and is expected to continue its downward trend in 2007/08 due to decreasing yields and increasing costs of inputs, driven up by the weakening of the U.S. currency, as well as by unfavorable climatic conditions.

Another relevant factor in cotton production is the evolution of exchange rates. Since cotton is traded in US dollars, the weakening of the US dollar has a negative impact on cotton producers. In particular, its greatest negative impact has been on cotton producers of the CFA zone, who sell cotton in US dollars and buy inputs in francs, fixed to euros.

World cotton mill use stagnated between 1986/87 and 1998/99 at about 18.8 million tons per season. The pace increased to 4.2% annually after 1999/00, driven by a continuous increase in Asian mill use (averaging 7% annually) and moderated by the resulting decline in mill use in the rest of the world. Cotton mill use started declining in Japan, New Zealand, Australia and Western Europe by the mid-1980's, long before the phase-out of the MFA quotas, due to higher costs of production. However, mill use in North America increased until 1997/98, three years after the implementation of the ATC, only to fall to the 1980's level by 2007/08.

The Japan, New Zealand, and Australia aggregate turned from being a net importer of cotton until 1995/96 to being a net exporter afterwards, since mill use in the region declined faster than production. Western Europe countries remain net importers of cotton, but imports have declined significantly since the mid-1980's, while cotton exports have

[6] The CFA zone includes Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Cote d'Ivoire, Mali, Niger, Senegal, Togo and Guinea-Bissau.

increased substantially since 1998/99, resulting in declining net imports for the region over the period. North America's net exports increased substantially after 2000/01, due to the combined effects of increasing domestic production and decreasing domestic mill use. In 2006/07, net exports decreased but ending stocks rose to a relatively high level.

Quotas imposed first on Japan and Hong Kong helped shift production to the Republic of Korea and Taiwan. However, by the late-1980's, production costs had risen substantially in these countries, and cotton mill use started to shift to countries with lower costs of production, such as Bangladesh and Vietnam. In 2007/08, cotton mill use in Bangladesh is expected to more than double cotton mill use in the Republic of Korea and Taiwan (546,000 tons versus 449,000 tons), and mill use in Vietnam is expected to continue increasing at high rates (averaging 19% annually since 1998/99) to 209,000 tons. However, China (Mainland), India and Pakistan accounted for 73% of Asian mill use over the 1980's, 78% over the 1990's and 84% over the 2000's. Coinciding with its accession to the WTO, cotton mill use in China (Mainland) started growing at high rates in 1999/00, averaging 12% annually until 2006/07. Over the same period, cotton mill use rose by averages of 7% and 5% annually in Pakistan and India. However, the average annual growth of cotton mill use in China (Mainland), India and Pakistan accelerated to 14%, 10% and 10%, respectively, between 2004/05 and 2006/07 (i.e., after the MFA quotas had been completely removed). The increased demand for cotton in China (Mainland) and Pakistan resulted in these countries consolidating their positions as net importers after 2001/02, and India exported less than what would have otherwise be the case with the exceptional increase in cotton production.

Brazil switched from being a net exporter during the 1980's to being a net importer during the 1990's, to consolidate again as a net exporter during the 2000's, due to significant increases in production driven by increasing yields.

Turkey consolidated its position as a net importer in 1991/92 when mill use exceeded domestic cotton production for the first time. Between 1991/92 and 1999/00, Turkish imports increased at an average annual rate of 60%, which fell to 12% between 2000/01 and 2006/07.

Cotton mill use in Mexico experienced a substantial increase after the North American Free Trade Agreement was put into effect in 1994, and it reached a peak in 1999/00 but remained stagnant around 450,000 tons afterwards. However, Mexico has been a net importer of cotton since 1992/93. Net imports from Mexico have been declining since the end of the MFA quotas.

Cotton mill use declined for 5 consecutive seasons in the CFA zone after 1987/88, to grow for another 5 consecutive seasons to its peak of 47,300 tons, to finally decline to 20,100 tons in 2003/04. After the end of the MFA quotas, cotton mill use in the CFA zone followed a slight upward trend, but it is far from the 1980's levels. Cotton exports from the CFA zone increased from an average of 307,000 tons in the 1980's to 894,000 tons in the 2000's. However, due to the decline in production since 2004/05, exports stagnated at around 950,000 tons since then.

As advanced in the introduction, several factors have affected the structure of the world cotton market since the year 2000, namely:

- Lower relative cotton prices and higher GDP that resulted in higher cotton textile consumption per capita
- A decrease in cotton's share of fiber consumption due to increased consumption of polyester
- Increasing prices of competing crops that resulted in lower US cotton area
- Increasing adoption of improved technologies that resulted in higher world yields and greater availability of cotton
- Increased trade from the U.S. to China (Mainland) and India
- Elimination of MFA quotas that shifted mill use mainly to China (Mainland), India and Pakistan
- Depreciation of the US dollar, mainly affecting CFA producers.

Although it is not possible from this analysis to quantify the impact of each of the factors cited above in the dynamics of the world cotton market, it is fair to state that the elimination of the MFA quotas contributed to the re-shaping of the world cotton market, but it is far from being the only factor or the most relevant one.

References:

International Cotton Advisory Committee. *World Textile Demand*, Washington, DC, October, 2007.

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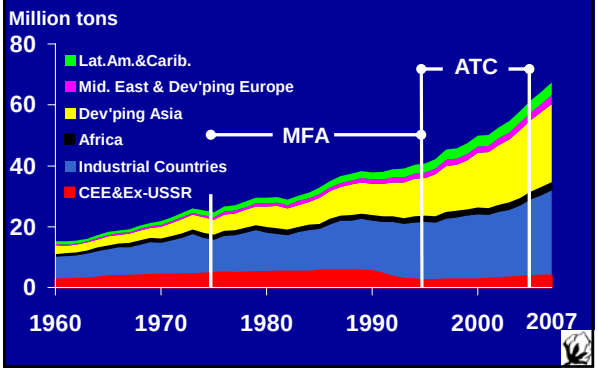
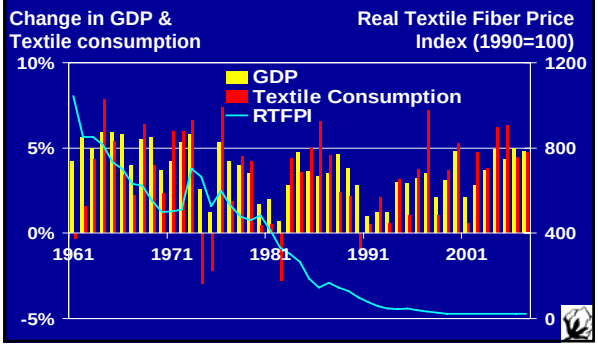
International Cotton Advisory Committee
January 31, 2008

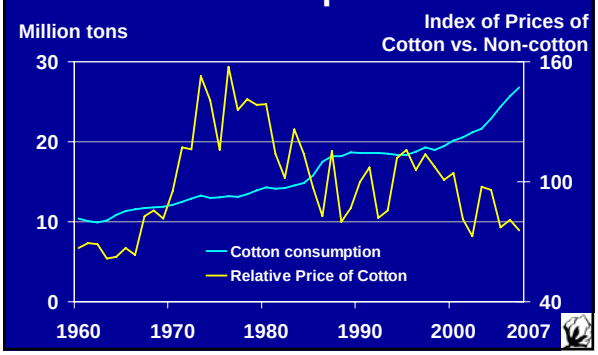
World Textile Consumption



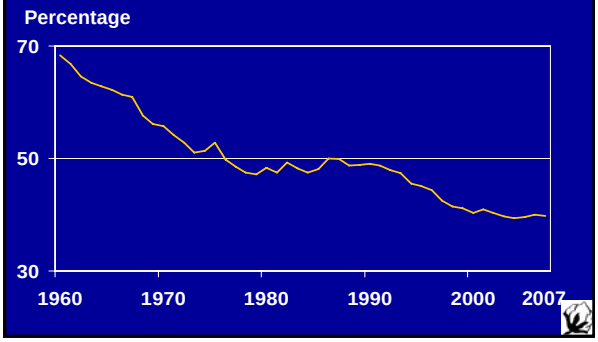
Prices, GDP and Textile Fiber Consumption



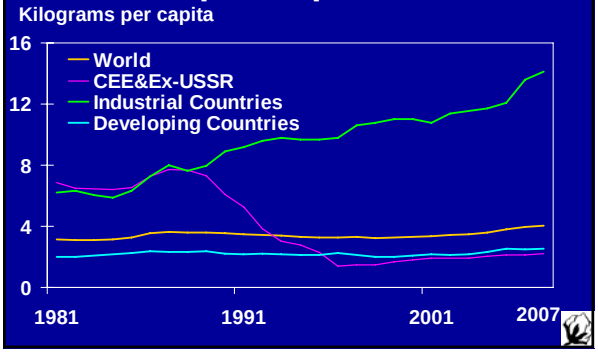
World Cotton Textile Consumption

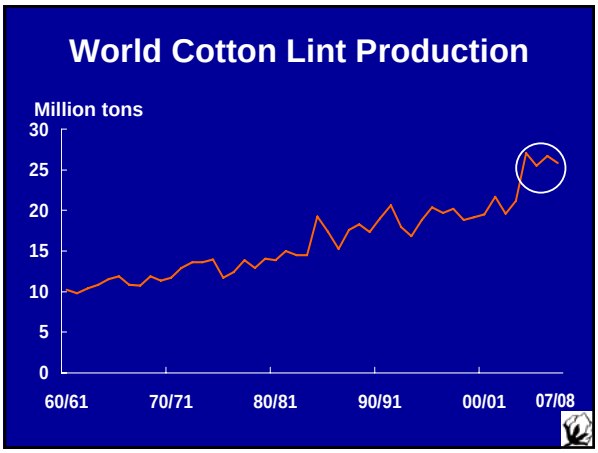


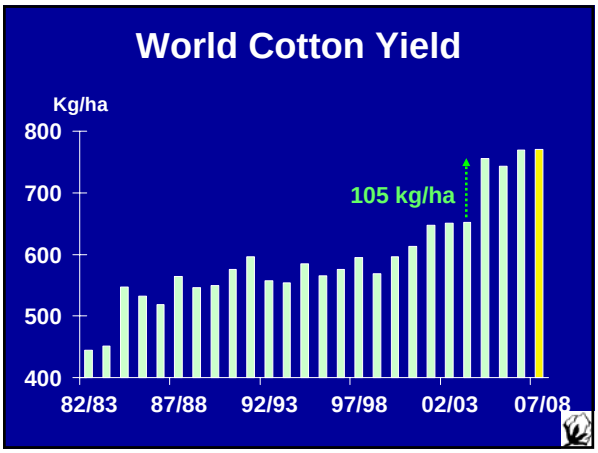
Market Share of Cotton Textiles

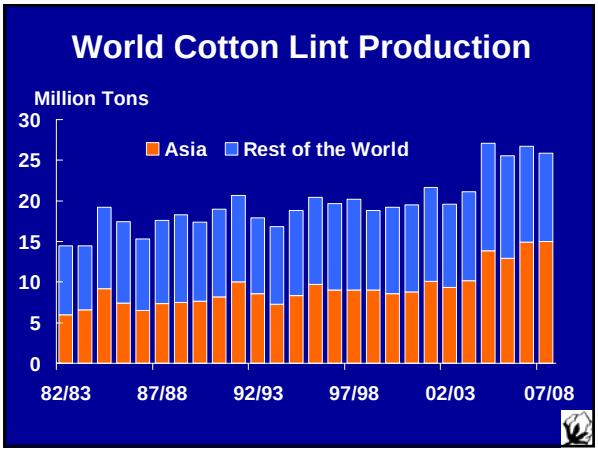


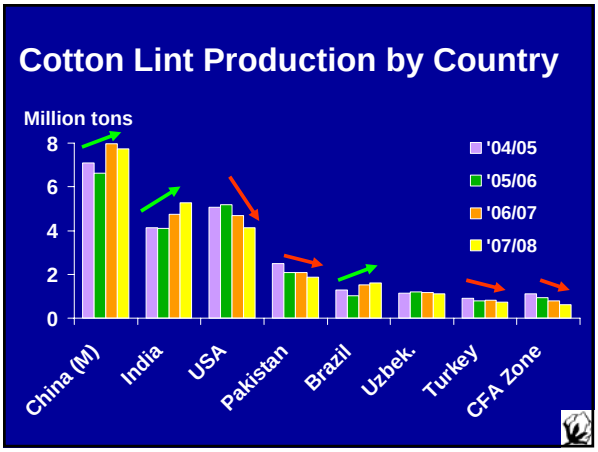
Cotton Textile Consumption per Capita

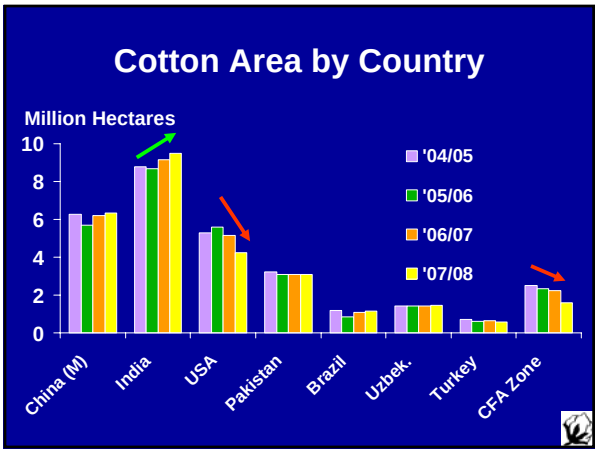


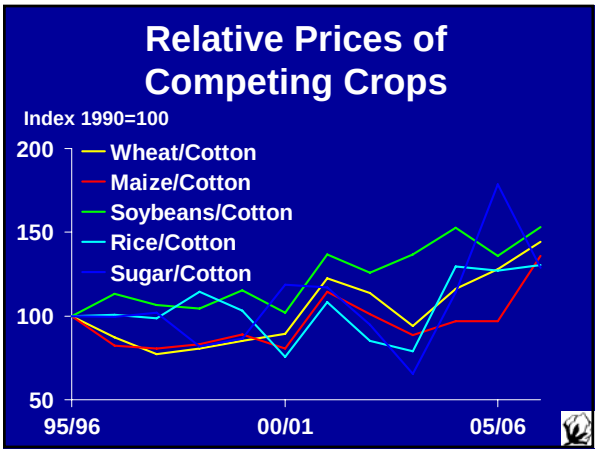

World Cotton Lint Production
Million tons
30
25
20
15
10
5
0
60/61
70/71
80/81
90/91
00/01
07/08


World Cotton Yield
Kg/ha
800
700
600
500
400
105 kg/ha
82/83
87/88
92/93
97/98
02/03
07/08

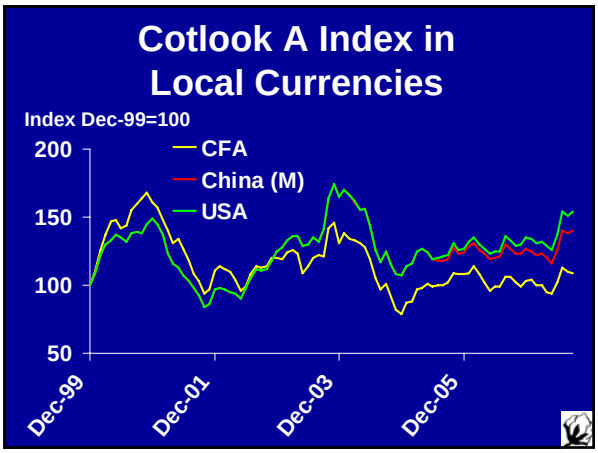

World Cotton Lint Production
Million Tons
Asia
Rest of the World
30
25
20
15
10
5
0
82/83
87/88
92/93
97/98
02/03
07/08


Cotton Lint Production by Country
Million tons
8
6
4
2
0
'04/05
'05/06
'06/07
'07/08
China (M)
India
USA
Pakistan
Brazil
Uzbek.
Turkey
CFA Zone

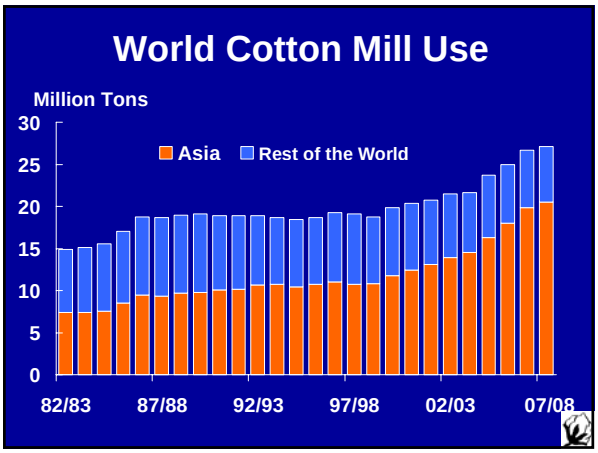

Cotton Area by Country
Million Hectares
10
8
6
4
2
0
'04/05
'05/06
'06/07
'07/08
China (M)
India
USA
Pakistan
Brazil
Uzbek.
Turkey
CFA Zone


Relative Prices of Competing Crops
Index 1990=100
200
150
100
50
Wheat/Cotton
Maize/Cotton
Soybeans/Cotton
Rice/Cotton
Sugar/Cotton
95/96
00/01
05/06

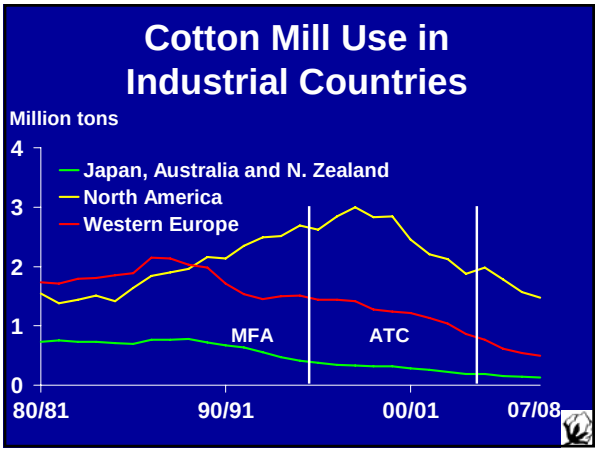
Cotlook A Index in Local Currencies



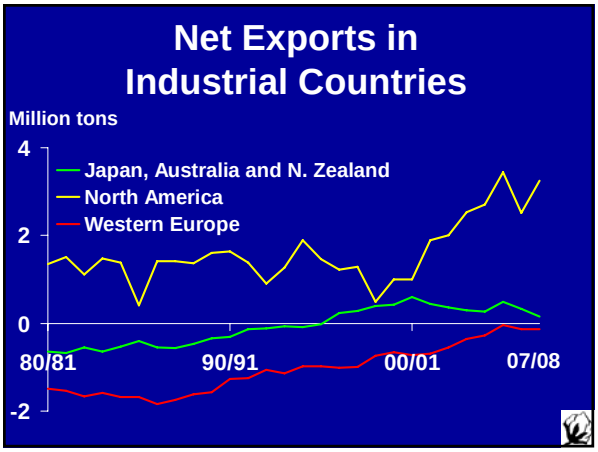
World Cotton Mill Use



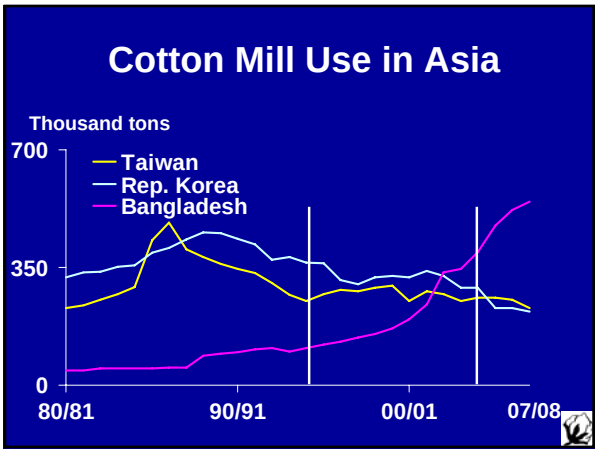
Cotton Mill Use in Industrial Countries



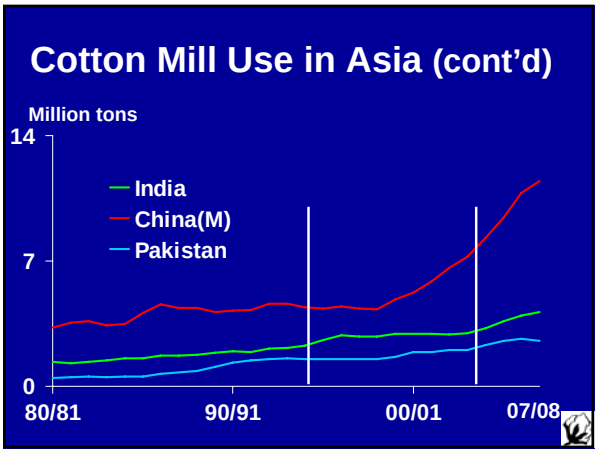
Net Exports in Industrial Countries



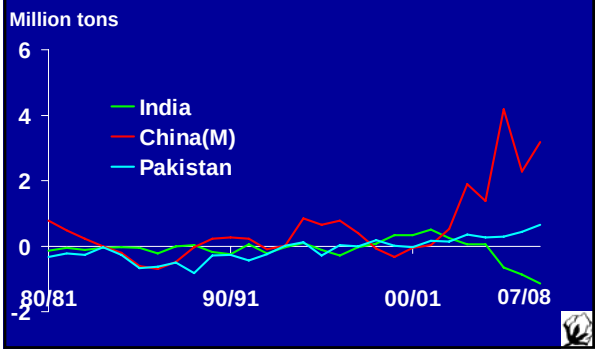
Cotton Mill Use in Asia



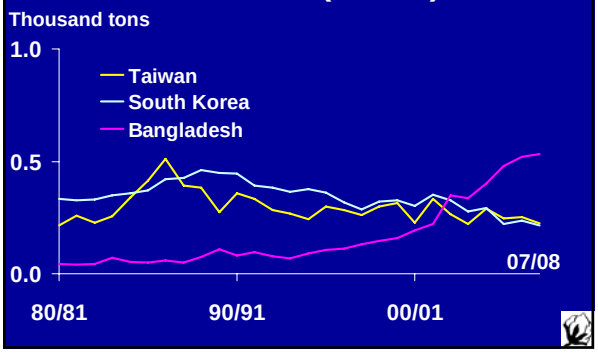
Cotton Mill Use in Asia (cont'd)



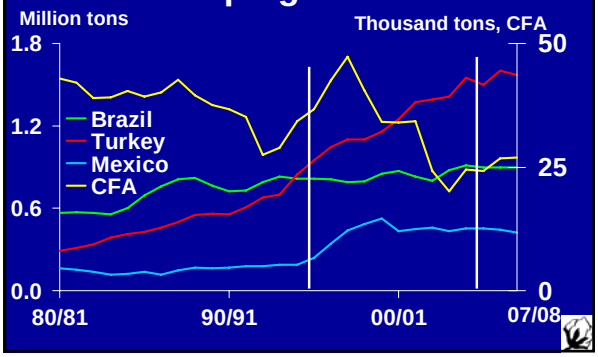
Net Imports in Asian Countries



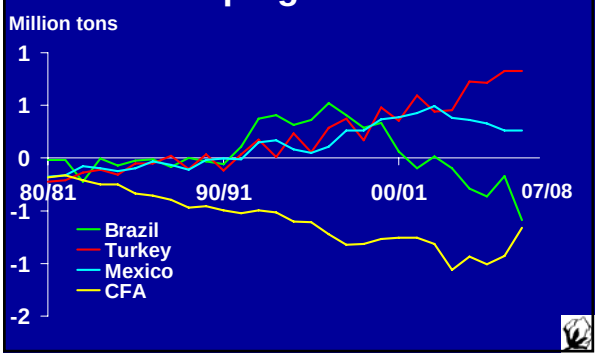
Net Imports in Asian Countries (cont'd)



Cotton Mill Use in Other Developing Countries



Net Imports in Other Developing Countries



Conclusions

Factors affecting the structure of the World Cotton Market since 2000:

- Lower relative cotton prices and higher GDP: higher cotton textile consumption per capita
- Decreasing cotton's share of textile market
- Prices of competing crops: less cotton area-US
- Improved technology: higher yields-World
- Increased trade: from US to China and India
- Elimination of MFA Quotas: shift in mill use to China, India and Pakistan
- Depreciation of the dollar: CFA hardest hit

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