

# **COTTON VERSUS SYNTHETICS – THE CONSUMER PERSPECTIVE**

**A. Terhaar**

*Cotton Council International, Washington, D.C., USA*

## **ABSTRACT**

This article purports to further the argument presented by the author at the 2010 Bremen Conference explaining how consumers' perception of natural fibers, including cotton, affects global cotton consumption and prospects for cotton demand comeback. Relying heavily on original data collection and research conducted by Cotton Council International (CCI) and Cotton Incorporated, along with economic analysis and forecasting, the author presents economic factors, consumer demand statistics, and research into consumer preferences for fiber to indicate that long-term cotton demand growth may be significantly underestimated in current forecasts. The article concludes that rapid growth in consumer demand for apparel products containing cotton in emerging markets like China and India will more than offset relative stagnation in developed markets. He underscores the importance of consumer demand enhancement efforts globally, and emphasizes the potential for quality cotton product development that appeals to consumer aspirations and highly positive consumer preferences for/perceptions of natural fiber to generate significant new demand for cotton apparel products in both developing and developed consumer markets.

## **INTRODUCTION**

When I spoke to this conference in 2010, I presented evidence as to why some of the well-accepted forecasts of reduced market share for cotton use globally might be wrong. The evidence I provided was based mainly on stated consumer preference gathered through Cotton Council International (CCI) and Cotton Incorporated (CI) ongoing global consumer research. I also presented some evidence of what I described as a "natural cycle" in fiber consumption whereby consumers shift to synthetics at early stages of economic development, to be followed by a shift back to natural fibers as a rapidly growing middle class expresses its preferences through product purchases.

In 2010 we also had hopes and forecasts of a more rapid global economic recovery than now appears to be the case, and this has a negative impact on effective consumer demand, particularly in developed economies such as Europe. And, of course, we had no clue in early 2010 that we would face the great cotton price volatility of 2010/11 – an occurrence that probably did more to set back cotton consumption than anything since the invention of polyester.

## **BACKGROUND ON FIBER DEMAND**

So, I will start my presentation with a few of the same graphs as I used last time to show the underlying issues:

- Total global fiber demand for all uses is still expected to rise dramatically over the long term, and there is really no change in this outlook
- Cotton demand had been rising at least at the pace of overall fiber demand for a decade, but suffered a strong shock from the economic crisis, and again from the price volatility of this past year
- Current forecasts indicate a further slowing of cotton mill demand compared with the previous forecasts, but the longer term trend could still be considered positive, depending on how you plot it

## **CONSUMER PERCEPTIONS OF COTTON VERSUS SYNTHETICS**

My topic is about the cotton versus synthetics from the consumer perspective. Let's look at what we know:

- CCI and Cotton Incorporated carry out a variety of consumer related research in major developed and developing markets around the globe. Here is a partial listing of that research:
- For over a decade, CCI & Cotton Incorporated have been conducting the Global Lifestyle Monitor Survey to better understand consumers' apparel shopping habits and their fiber preferences. Over time we have seen that consumers around the world say factors like quality, color, price, style, durability, and finishing are the most important factors influencing their apparel purchases. We also know that fiber content plays an important role in consumers' apparel purchase decisions. Fiber content is most important to consumers in Italy (95%), India (86%), Brazil (85%), and China (83%) – interestingly, fiber content is most important to consumers in some of the most rapidly developing markets in the world.
- Our research shows that natural fiber content preference has remained strong over time. We have found that most global consumers prefer their clothing to be made of cotton and cotton blends. In fact, our most recent survey finds that 85% of global consumers prefer their clothing to be made of cotton and cotton blends. While the majority of consumers in all countries surveyed prefer cotton clothing, preferences for cotton clothing were highest among consumers in India (93%), Italy (92%), and the UK (88%).
- Consistently over time we have found that most global consumers say cotton and cotton blends are best suited for today's fashions. In fact, our most recent survey finds that 81% of global consumers say cotton and cotton blends are best suited for today's fashions.

- We also know that consumers are paying attention to the environmental footprint of textiles, and clearly view cotton as the fiber of choice for environmental friendliness.
- When you sum it up, consumers have very favorable impressions of cotton's attributes and its environmental friendliness based on our ongoing research – and these favorable impressions have stood the test of time.
- You can look at preferences another way, which fibers do consumers say they avoid. From this perspective, cotton has an excellent standing as well – cotton is the least avoided fiber, whereas most synthetics are high on the list of fibers consumers avoid.
- In a response that has gained importance in today's world of fiber price volatility, consumers around the globe state that they would pay more for natural fibers such as cotton. This is an important and consistent finding – when it comes to fiber preference, the cost of cotton products do not appear to be a determining factor for the consumer.

## **FORECASTING DEMAND GROWTH IN EMERGING MARKETS**

Keeping those research findings on consumer preferences in mind, what are the prospects that we are going to see stronger global consumer demand for cotton as compared with synthetics? Are we likely to see a downward trend in cotton as we did the past three years, or are we going to see a renewed upward path? If a renewed growth, how strong is that demand growth likely to be? Let's look more closely at some of the factors affecting future demand.

- Most generally, demand for any good can be defined as a function of two primary factors 1) the number of customers and 2) the amount each customer spends. In the context of global commodity markets, the number of potential customers is essentially the world's population. Quantifying how much each person on the planet might be spending on specific commodities is challenging.
- We can take a look at global GDP growth, a proxy for income growth. The values that we are using are for GDP on a PPP basis, reflecting GDP in terms of relative purchasing power. When we look at these data, we can see that prior to the global recession in 2008 world economic activity has been increasing at an increasing rate since World War II.
- Just since 1995, during the same time period that the world's population grew by 20%, the world's economy/spending power grew by 60%. With economic growth occurring at a faster rate than population growth, the world's GDP per capita has been increasing, implying that, on average, each person on the planet represents more economic activity. With the strength of world economic growth, there has been nearly a 50% increase in per capita GDP/spending power incomes over the last 15 years. What this means for global commodity markets is not only are there more potential consumers, given population growth, but that each person represents a greater ability to purchase

commodities. In other words, there are more people with more money, meaning more demand.

- Economic growth is expected to continue at a pace faster than population growth. This implies that per capita GDP/income will also rise. Meaning yet more people with each person representing more buying power.
- 90% of the growth in the world's middle class between now and 2030 is expected to take place in Asia. Most of that will take place in China and India. A point to emphasize with all of this discussion is that this growth does not take place in a vacuum. Strong growth in both China and India have already led to economic growth in a range of other countries, notably resource-rich ones like those in South America and Australia
- Over the past decade, we have seen developed countries' share of global consumer expenditures on clothing decline. Euromonitor International projects that this trend will continue over the next decade. Over the past decade, we have seen an increase in China and India's share of global consumer expenditures on clothing. Euromonitor International projects that this trend will continue over the next decade. Not only are CCI & Cotton Incorporated continuing their research in developed countries like the U.S., EU, and Japan, we are expanding research in China and India to understand cotton's presence at retail and in consumers' apparel purchases.

At the same time, clothing has to compete with other needs and desires – food, shelter, transportation and entertainment as important ones – so the relative prices of clothing versus other goods plays a role in the volume of demand for clothing and the fiber contained in that clothing.

- It interesting to note that (at least officially) apparel prices in China have tended to follow the same general pattern as in major apparel importing countries like the U.S. Some of the reasons apparel prices might have been falling in China is because of economies of scale as China became increasingly available as they increased capacity, as China opened itself to increasing amounts of foreign trade competition became more fierce and increased efficiency in manufacturing, and since China has allowed for more competition in retail. Over the past several months, retail apparel prices have been increasing, much as they have in virtually all countries around the world. Food price have been rising since 2002-03. Year-to-date 2011, food prices are nearly 80% higher than they were prior to the increases. Food represents nearly 40% of spending China, so this will have a significant impact on budgets, even with increases in income. In India, food represents nearly 50% of spending, so food prices are likely having an ever greater effect there.
- China is facing some challenges in terms of consumption growth. However, it is also important to remember that even though China faces some obstacles, Chinese consumers are also experiencing significant income growth and that should eventually lead to strong consumption growth. If we look to precedents within the Asian region, we can find relatively recent examples of countries that have undergone significant transformations with industrialization and the emergence of developed consumer classes. Examples of other Asian

countries that have already experienced strong growth in GDP include Taiwan and South Korea. Both of these countries developed from extreme poverty, much like China and India, before becoming industrialized. They can provide some guidance for understanding how demand for textile goods might develop in China and India. In the 40 years between 1970 and 2010, the Taiwanese economy grew an amazing 1300% (13 fold in real terms). GDP per capita, a proxy for per capita incomes, grew more than 8 fold. With economic growth so strong, per capita consumer spending on apparel grew 1300% (13 fold in real terms), from \$35 per year to \$500 per year.

- In the 40 years between 1970 and 2010, the Korean economy grew by more than an amazing 1500% (15 fold in real terms). GDP per capita, a proxy for income, grew more than 10 fold. With economic growth so strong, per capita consumer spending on apparel grew 340% (3+ fold in real terms), from \$100 per year to \$500 per year. Interestingly, if we take a look at the Taiwanese and Korean examples, we see that they both began to experience the largest increases in apparel spending once GDP per capita approached \$5000.
- When we take a look at China, we see that Chinese GDP per capita remains well below \$5,000 per capita. According to the World Bank, Chinese GDP per capita in 2010 was still only about \$2200. This suggests that there is still considerable room for further growth in Chinese apparel spending.
- Nevertheless, in China there has already been strong growth. As China's economy grew nearly 500% (5 fold) between 1990 and 2010, per capita apparel spending among urban consumers increased over 650%.
- Over the past decade, real consumer expenditures on clothing in China increased 139% from \$54.3 billion in 2000 to \$129.7 billion in 2010. Over the next decade, Euromonitor International projects that real consumer expenditures on clothing in China will increase 61% to \$208.5 billion in 2020.

The next few slides are from CCI and Cotton Incorporated consumer research and retail audits in China. I have put some slides on methodology into the paper submitted to the Bremen conference, so you can read them if you wish. I will not repeat them in this presentation. Here are some highlights of what we found on cotton versus synthetics availability at retail in China.

- This slide shows the fiber allocation of total apparel offered at retail in China based on the 2011 results of CCI & Cotton Incorporated's Chinese Retail Audits. Results presented in the slide combine audit data from Xi'an and Shanghai. Overall, nearly 8 out of 10 apparel items offered at retail in China contain cotton. Cotton's presence is higher at retail stores in Shanghai (82%) than at retail stores in Xi'an (75%). Compared to the same period last year, cotton's presence at retail stores in Shanghai is flat. Cotton's presence is higher in men's clothing than in women's clothing (91% versus 68%). Cotton's presence is highest at brand specialty stores in China (92%), followed by hypermarkets (83%) and department stores (69%).
- This slide shows the percentage of apparel products that contains cotton at Chinese retail stores based on the 2011 results of CCI & Cotton Incorporated's Chinese Retail Audit. Results presented in the slide combine audit data from

Xi'an and Shanghai. Of the nearly 8 out of 10 (78%) apparel items offered at retail in China that contain cotton, cotton's presence is highest in jeans (99%), shorts (88%), and knit shirts (87%) and lowest in skirts (57%), outerwear (51%), and dresses (36%).

- This is a summary of the information available on Chinese consumers and cotton from CCI & Cotton Incorporated's Chinese Consumer Survey. Overall, our research shows that cotton is the most recognized, preferred, and purchased fiber among Chinese consumers. Not only are almost all Chinese consumers aware of cotton (99%), it is the most recognized fiber among Chinese consumers. When asked what fiber Chinese consumers prefer their clothing to be made of, cotton consistently rises to the top. More than 8 out of 10 Chinese consumers (82%) prefer their clothing to be made of cotton and cotton blends. When asked about their opinion of cotton, the majority of Chinese consumers have positive associations with cotton such as comfortable (96%), soft (96%), natural (92%), and breathable (91%). Cotton is present in the majority of clothing purchases. 82% of children's clothing purchases contain cotton, 71% of men's clothing purchases contain cotton, and 66% of women's clothing purchases contain cotton.
- This slide shows the percentage of TOTAL apparel purchases made by Chinese consumers that contain cotton from winter 2010 to fall 2011 according to data from CCI & Cotton Incorporated's Chinese Consumer Survey. While there is some seasonality in cotton apparel purchases, nearly 7 out of 10 (69%) of total apparel purchases made by Chinese consumers contained cotton in 2011, flat from 2010. Cotton's presence in men's, women's, and children's apparel purchases is also flat from last year. It will be particularly interesting to see whether there are changes in cotton's presence in 2012 following the extreme fiber price volatility of last year. If cotton's presence in the fiber mix is unchanged or has grown, then we can be suspicious as to the accuracy of consumption figures in that country and current industry forecasts of demand.
- This graph shows the inherent inconsistency between what seems to be happening at retail in China with its strong growth in apparel sales and high cotton content versus figures supplied by USDA since 2005. Here we can take a look at USDA ERS estimates for domestic Chinese net apparent consumption (end-use) relative to government data for apparel spending in China. There was a strong correlation between these two data series until 2005. After 2005, clothing growth followed overall economic (GDP) growth, while the net apparent consumption figures declined. It does not make sense that Chinese would consume less apparel while their economy was growing at more than 10% per year.
- Part of the explanation might be in what has happened with synthetic production capacity in China during the past two decades, but our research at the consumer and retail levels so far does not bear out a decline in cotton off take in apparel. It is something we will be monitoring closely through our consumer and retail research in China to see whether we can figure out the direction and magnitude of fiber purchase changes in that country as a driver of future demand for cotton versus synthetics.

India is somewhat of a contrast to China. India's net apparent consumption tracks clothing expenditures much closer than what we just saw was the case in China.

- Like China, consumer expenditures on clothing in India are projected to rise strongly through 2020 (based in real U.S. dollars). Over the past decade, real consumer expenditures on clothing in India increased 83% from \$30.4 billion in 2000 to \$55.5 billion in 2010. Over the next decade, Euromonitor International projects that real consumer expenditures on clothing in India will increase 176% to \$153.4 billion in 2020.
- This slide provides a snapshot of the fiber allocation of total apparel offered at retail in India based on the 2010 results of CCI & Cotton Incorporated's Indian Retail Audit. Overall, 85% of apparel items offered at retail in India contain cotton. Cotton's presence is higher in men's clothing than in women's clothing (87% versus 83%). Cotton's presence is highest at department stores in India (87%), followed by brand specialty stores (85%) and hypermarkets (81%).
- Here you see the percentage of apparel products that contain cotton at Indian retail stores based on the results of CCI & Cotton Incorporated's Indian Retail Audit. 85% of apparel items offered at retail in India contain cotton. Cotton's presence is highest in jeans (99%), shorts (97%), and knit shirts (93%) and lowest in dresses (69%), outerwear (67%), and sweaters (25%). Among sweaters that do not contain cotton, 75% had acrylic as the dominant fiber.
- Similar to the summary picture in China, our research shows that cotton is the most recognized, preferred, and purchased fiber among Indian consumers. Not only are almost all Indian consumers aware of cotton (97%), it is the most recognized fiber among Indian consumers. When asked what fiber Indian consumers prefer their clothing to be made of, cotton and cotton blends are preferred for most clothing items like undergarments, jeans, pants, shirts, sleepwear, etc. When asked about their opinion of cotton, the majority of Indian consumers have positive associations with cotton such as comfortable (86%), durable (80%), and good quality (79%). Cotton is present in the majority of clothing purchases. 87% of men's apparel purchases contain cotton, 86% of children's apparel purchases contain cotton, and 81% of women's apparel purchases contain cotton.

How do we make use of these data on consumer preference for cotton versus synthetics, and retail audits of what is being offered to consumers in rapidly developing markets like China and India? One thing that economists at Cotton Incorporated, the National Cotton Council and USDA are doing is taking these consumer and retail audit data, and coupling them with macro-economic data in order to try to forecast what the future off take might be for cotton. Here are some early conclusions to ponder.

- One of the basic elements of forecasting demand is to pin down elasticities. The USDA ERS and Texas Tech developed a range of equations to look at the effects of possible increases in incomes in China over the next five years to

estimate the potential impact on cotton consumption, and compared those to what is known about elasticities in more developed economies in Asia.

- The USDA ERS and Texas Tech similarly developed equations to look at the effects of possible increases in incomes over the next five years to estimate the potential impact on cotton consumption in China, with varying results.
- In this slide one sees Cotton Incorporated and NCC economists' forecasted increases in cotton end-use consumption in bale terms using the different elasticity estimates. The high estimate comes from CI and NCC single equation models. The middle estimate is from the USDA. The lower estimate was simply inserted as a lower bound for illustrative purposes. The GDP figures are from the IMF. The IMF issues five-year forecasts. Average GDP forecasts were used beyond five years. For China, estimated growth is around 9.0% per year. Cotton Incorporated combined these GDP forecasts with the calculated apparel consumption elasticities to come up with potential end-use growth trajectories. All figures start from a common consumption baseline derived from USDA ERS research of 21.4 million bales of cotton end-use equivalence. The assumptions regarding elasticity leads to different end-use projections. Starting at the high end, an elasticity of 0.7 combined with the anticipated GDP growth predicts an increase in end-use consumption of 94%, equivalent to about a 20 million bale increase. The USDA ERS/Texas Tech estimate of 0.6 predicts an increase of about 70% or 15 million bales. The lowest estimate provides a figure of about 56% or 12 million bales. All of these models point to some pretty significant growth in end-use demand from just one country. Even the lower bound estimate forecasts consumption growth representing nearly 10% of the current 2011/12 global consumption forecast.
- Using the same approach, India also indicates the potential for significant growth, particularly at the higher end elasticity estimate.

## **THE VIEW FROM A DEVELOPED MARKET**

Just a very quick contrast to China and India in what we see happening in a developed market, in this case the USA.

- This slide shows consumer expenditures on clothing in the U.S. from 2000 projected to 2020 (based in real U.S. dollars). Over the past decade, real consumer expenditures on clothing in the U.S. decreased 7% from \$327.4 billion in 2000 to \$305.1 billion in 2010. Over the next decade, Euromonitor International projects that real consumer expenditures on clothing in the U.S. will decrease 3% to \$296.3 billion in 2020.
- By comparing the data in this slide to the retail audit data from China and India, you can compare the cotton offerings in U.S. stores with those two emerging markets. This slide shows the fiber allocation of total apparel offered at retail in the U.S. based on the 2011 results of Cotton Incorporated's Retail Monitor™ Survey. Overall, three-fourths of apparel offered in the U.S. contains cotton. Cotton's presence is higher in men's clothing than in women's clothing (85% versus 68%). Cotton's presence is highest at mass merchants in the

U.S. (83%), followed by chain stores (79%), department stores (76%), and specialty stores (73%).

- Three-fourths of apparel items offered at retail in the U.S. contain cotton. Cotton's presence is highest in jeans (99%), shorts (92%), and knit shirts (82%) and lowest in outerwear (46%), skirts (46%), athletic apparel (37%), and dresses (34%).
- In an interesting perspective on consumer reaction to recent attempts by brands and retailers to adjust the fiber content of products, this slide shows: (1) the percentage of consumers who are bothered that retailers and brands may be substituting synthetic fibers for cotton in their jeans, T-shirts, and sweatshirts; and (2) the percentage of consumers who prefer to pay a slightly higher price to keep cotton from being substituted with synthetic fibers in their jeans, T-shirts, and sweatshirts. These data come from Cotton Incorporated's Lifestyle Monitor™ Survey. More than half of consumers are bothered that retailers and brands may be substituting synthetic fibers for cotton in their jeans (58%), T-shirts (56%), and sweatshirts (53%) and more than half of consumers would prefer to pay a slightly higher price to keep cotton from being substituted for synthetic fibers in their jeans (58%), T-shirts (57%), and sweatshirts (50%). Consumers are willing to pay a premium for what they believe is good quality. More than 6 out of 10 (62%) consumers say cotton clothing tends to be higher quality than synthetic clothing.
- In fact, there are market opportunities for cotton where synthetics dominant, but consumers would prefer cotton. Based on consumer research conducted a few years ago, Cotton Incorporated found that consumers preferred and would pay a premium for cotton moisture management athletic apparel. Nine out of 10 consumers are likely to purchase cotton athletic apparel that wicks moisture like synthetics. More than 6 out of 10 consumers (61%) were willing to pay a premium for cotton athletic apparel that wicks moisture like synthetics. However, retail audits found that there was very little cotton moisture management athletic apparel at retail, highlighting a market opportunity for Cotton Incorporated. While 35% of athletic apparel contains moisture management properties, only 12% of cotton athletic apparel contains moisture management properties.
- Which leads to a case study of the brand/retailer Under Armour, which built its brand on synthetics and with a slogan that "cotton is the enemy". Cotton Incorporated worked with Under Armour to introduce moisture management in several lines of its athletic apparel, which have now become that brand's best-selling lines and have added tens of thousands of bales to cotton demand from just one brand.

## CONCLUSIONS

- Steve Jobs, founder of Apple, famously said:  
"Some people say 'give the customers what they want!'. But that's not my approach. Our job is to figure out what they are going to want before they do..... People don't know what they want until you show it to them."

That brings me to the conclusion of this presentation. We need to continually work to convince the consumers of their future textile product aspirations. From all the data presented above, it is clear that the consumer has a strong and persistent bias toward natural fibers, particularly cotton, and consumers globally even say that they will pay more for quality products made from cotton. Consumers globally not only look upon cotton as comfortable, breathable and the best fiber for today's fashions, but they believe it is the most environmentally benign fiber as well. Under Armour is but one example of what can be done if we couple that underlying preference for cotton with consumer aspirations and garment performance.

- That is why CCI and Cotton Incorporated continue to invest in cotton product research and consumer promotion
- Given the importance of cotton to our industry and livelihoods, and the livelihoods of literally hundreds of millions of people worldwide, I encourage all of you to be active in organizations and companies that promote the future of cotton – organizations like the International Forum for Cotton Promotion or the Discover Natural Fibers Initiative. Even more importantly, get your companies, national cotton organizations and governments behind promoting this wonderful natural fiber that is so economically important and which consumers clearly prefer to alternatives.

Thank you!