

**EFFECTS OF THE MFA PHASE-OUT
ON THE U.S. COTTON & TEXTILE MARKETS**

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Abstract

Quantitative trade restrictions on textiles and apparel have channeled trade and investment for more than 30 years. Under the Uruguay Round Agreement on Textiles and Clothing, these restrictions--originally developed under the Multi-Fiber Arrangement (MFA) and earlier agreements--will end by the year 2005. As a result, a substantial portion of the protection enjoyed by the textile and apparel industries in "developed" countries--like the United States--will disappear. Thus, structural change in textile and apparel production and trade will be accelerated by the MFA phase-out. As apparel production and, to a lesser extent, textile production migrate from "developed" to "developing" countries, the MFA phase-out will affect not only the U.S. textile industry, but may also have an impact on the U.S. cotton sector.

Introduction

International trade in textiles and apparel has been governed by quantitative restrictions under the Multi-Fiber Arrangement (MFA) and earlier agreements for more than 30 years. One of the major "accomplishments" of the Uruguay Round was the conclusion of the Agreement on Textiles and Clothing (ATC), which provides for the dismantling of these restrictions. Under the Uruguay Round ATC, the MFA restrictions are to be phased out over a 10-year period and are scheduled to end by the year 2005.

The ATC provides the legal framework leading to a complete integration of this sector into the General Agreement on Tariffs and Trade (GATT) at the end of the transition period. The MFA phase-out comprises of two parts: a four-stage process eliminating export restraints contained in bilateral agreements previously negotiated on products covered under the MFA, and an increase in quota growth rates for products still under restriction during the transition period. The ATC also deals with other non-MFA restraint measures relating to textiles and clothing.

With the elimination of MFA quotas and other restrictions, tariffs will become the primary mechanism for border protection as the same rules will apply to trade in textiles and

clothing as in other goods. In the long run, the restraint reductions will effectively improve market access for "developing" countries' textile and clothing products in "developed" countries. And at the same time, this access will provide "developing" countries increased security and predictability of trade in these markets.

For the United States, cotton textile imports have played an increasing role in total domestic consumption (mill use plus net textile trade). In calendar 1999, the raw-fiber equivalent of cotton textile and apparel imports has exceeded the quantity used by domestic mills for the second consecutive year. Just ten years ago, imports totaled about 60 percent of this quantity. Although the returning imported textiles now contain a larger percentage of U.S. raw cotton in the product, the import trend has risen dramatically, indicating a structural shift in the related industries that will likely continue.

MFA Phase-out Process

MFA quotas and other restrictions on textiles and clothing are being phased out in four stages as provided by the ATC. The integration of this sector at each stage is expressed as a percentage of the total volume of imports in 1990 of "covered" products. The four stages are defined in the ATC as follows:

Stage 1 -- On January 1, 1995, members shall integrate products that account for at least 16 percent of their total 1990 import volume;

Stage 2 -- On January 1, 1998, they shall integrate products that account for at least an additional 17 percent of the total 1990 import volume;

Stage 3 -- On January 1, 2002, they shall integrate products that account for at least an additional 18 percent of the total 1990 import volume;

Stage 4 -- On January 1, 2005, all remaining ATC restrictions are eliminated and the textile and clothing sector is integrated into the GATT.

In addition to these minimum percentages, products from each of the four groups--tops and yarns, fabrics, made-up textiles, and clothing--must be included in each stage. However, the selection of products to integrate is determined

by the importing country. Also, products not liberalized but under quota or other restraint will have their quota growth rates increase during the first three stages of the phase-out period by 16 percent, 25 percent, and 27 percent, respectively.

While market access opportunities in textiles and clothing are expected to expand with the elimination of MFA quotas, trade liberalization will progress slowly as many of the "covered" products have never been specifically restricted. United Nations (UN) estimates in Thomas and Whalley (1998) suggest that the major restraining countries fulfilled their obligations under the ATC in the first two stages without significantly eliminating any MFA quotas in place. As a result, modest trade opportunities for "developing" countries may be available only after the third stage is in place in 2002. Even then, about half of the 1990 import volume will remain restricted until 2005 as specified in the ATC. And for the United States, products expected to be integrated in the final stage account for more than 70 percent of the import value, thus delaying the impact of access to the U.S. market until the final stage.

Objective

Changes in trade policy for one industry have the potential to affect its "upstream" and "downstream" industries as well. Resource reallocation can lead to changes in the industrial structure of both importing and exporting countries. One of the most dramatic illustrations of structural change within industries is likely to occur in textiles and apparel for "developed" and "developing" countries as the trade restrictions from the MFA are phased out.

The purpose of this paper is to capture the dynamics of growth and growth patterns that have occurred in U.S. trade over the last 30 years for cotton apparel products, cotton textile products, and for raw cotton. In addition, trends in apparel and textile products in "developed" and "developing" countries as a group are analyzed. Growth rates are determined for both imports and exports and a "smoothing" process is used to capture past trends and possible future trend implications for the various sectors of the cotton industry once the MFA phase-out is complete.

Most of the literature has tended to focus on trade volume or value and has neglected growth patterns and the factors affecting trade growth. While geographic proximity and cultural similarity may explain why neighboring countries trade disproportionately, they provide little insight into the growth in trade since most of these "variables" are not time varying. Geographic and cultural variables that are used to explain the level of trade disappear, in principle, since they fail to capture changes in trade levels over time.

Annual data utilized for this analysis were obtained from two unique sources. Agricultural trade flows from the UN bilateral trade database (in value) were utilized for cotton apparel and textile products and the USDA cotton database (in volume) was employed for raw cotton trade. The original UN database was deflated using the U.S. GDP price deflator. In addition, the "developed" and "developing" designation used in this analysis was based on the Organization for Economic Co-operation and Development (OECD) grouping. "Developed" countries included all OECD countries with the exception of Korea, which was included with all other countries as "developing" for this presentation.

Procedures and Methods

This analysis is based on the Trend and Cycles Decomposition (TCD) approach. To capture more clearly the dynamic features of the time series trade data, the annual growth rates of raw cotton and cotton products were calculated. Of course, the resulting series of growth rates exhibit relatively large annual variability due to any number of factors (see figure 1 as an example).

Almost surely, many of the causes for these fluctuations in the data are not factors that are critical for discerning agricultural trade. Instead, these deviations tend to obscure the underlying longer-term trend in growth rates. The longer-term trends in trade growth should better reveal the relationship, either ex-post or ex-ante. Thus, the TCD methodology was employed to remove or "filter" these fluctuations from the primary data.

Various methods exist for dealing with such a problem. Here, the chosen approach was developed by Hodrick and Prescott (1997) in the study of business cycles. This method has a long history of use, particularly in the actuarial sciences. Following Hodrick and Prescott, the observed time series (y_t) are viewed as the sum of growth (g_t) and cyclical components (c_t):

$$y_t = g_t + c_t \quad \text{for } t = 1, \dots, T.$$

Our prior knowledge, based upon growth theory, is that growth components vary "smoothly" over time following their secular evolution. The measure of the smoothness of the $\{g_t\}$ path is the sum of the squares of its second difference. By taking differences, the somewhat ill-behaved random walk nature of the data series becomes ultimately a well-behaved series of zero mean white noise and makes the series stationary. The variable c_t is the deviation from g_t . The notion is that, over long time periods, the cycles (c_t), where $c_t = y_t - g_t$, average near zero. This presumption leads to the determination of the underlying growth components in the observed time series y_t . For a more detailed explanation of the TCD methodology, see Hodrick and Prescott (1997).

Results

United States

U.S. trade growth rates in cotton apparel products, cotton textile products, and raw cotton were determined. Figure 1 illustrates real annual growth rates (in value) of U.S. cotton apparel trade from 1962-95. As expected, there is large variability from year to year with no discernible pattern or trend. Using the procedures outlined in this analysis, the real growth rates for apparel trade in figure 1 are “filtered” and then reillustrated.

Figure 2 presents the results of the “filtered” data and clearly reveals a growth trend once the cycles are removed. As illustrated, U.S. cotton apparel trade has risen continuously over the 1962-95 period. Real growth rates for apparel exports flattened out somewhat in the early 1980s as U.S. cotton mill use hit 40-year lows and the U.S. dollar soared on foreign exchange markets. And, a subsequent rebound--stemming in part from the export enhancing Caribbean Basin Initiative (CBI) and other trade agreements--has provided a much steeper growth rate pattern than that observed in the early 1960s. Apparel imports, on the other hand, have seen its growth rise steadily since the early 1960s as imports have accounted for an increasing share of rising consumer demand. Only recently, a slight slowdown in the growth rates can be observed, perhaps due to the volume of apparel imports coming into the United States.

Likewise, the real growth rates were examined for U.S. cotton textile trade values for 1962-95 and are presented in figures 3 and 4. As in the case with apparel trade, the “unfiltered” data for cotton textiles (figure 3) can not clearly illustrate the growth pattern as large variations prevail in the data series. However, figure 4 shows the “filtered” growth rates for U.S. cotton textile trade and an interesting pattern emerges. While real growth rates in U.S. cotton textile trade values have been lower than those for apparel products, exports and imports have been moving in tandem since the mid-1980s, due in part to the liberalization of trade under agreements such as the CBI. This is in stark contrast to the 1960s when export growth was relatively flat and import growth rates climbed steadily. In the early 1970s, however, the depreciation of the U.S. dollar ushered in a pattern of export growth while the trend for imports declined for a number of years before rebounding in the early 1980s.

In addition to apparel and textile products, growth rates for U.S. raw cotton trade volumes were determined for marketing years 1962-97. Export growth rates (figure 5) vary little annually when compared with imports due to the relatively small volume of raw cotton normally imported by the United States. However, a spike is shown in the growth rate when low stock levels provided the incentive for imports. Figure 6 illustrates the “filtered” data for U.S. raw cotton trade.

Exports remain relatively flat as the United States continues to be a steady and reliable supplier of raw cotton to a growing world economy. During the 1962-97 period, annual growth rates of about 7 percent are indicated. The trend for imports, however, declined during the 1960s and 1970s as cotton lost share to manmade fibers and U.S. mill use of all cotton--including foreign cotton imported for blending--declined. Coupled with the effect of the U.S. dollar's depreciation and growing U.S. stocks which limited the need for some imports, the decline in the growth rate continued through the early 1980s. The downward trend was reversed, however, with the more market-oriented cotton programs of the mid-1980s as liberalization in the textile and apparel sectors were being realized.

Developing vs. Developed

In addition to the United States, interesting results were obtained for apparel and textile products by dividing the world into two groups: “developing” and “developed” countries. While only the “filtered” data are presented here in figures 7 through 10, the “unfiltered” data for these groups showed similar variations as for the United States.

Trends in “developing” countries’ apparel trade growth are illustrated in figure 7. Real growth in trade values probably reflects trends in global economic growth and development. Exports of apparel have been accelerating at slower rates as world GDP growth slowed during the 1970s and early 1980s. Growth rates began climbing again late in the 1980s and early 1990s as world GDP growth picked up. Increasing globalization may have also been a factor. Examples include, the increase in outward processing through regional trade arrangements like the CBI and NAFTA in the United States and similar arrangements by the EU and Japan in their regions.

At the same time, “developing” countries are pursuing the growth opportunities offered by globalization. Over the last 30 years, country after country has come to recognize the superior growth potential of an externally-oriented economy to the internally-oriented, import-substitution driven policies sometimes favored before the 1980s. Exports of apparel and other products have come to be the driving force in these economies, and export growth has outpaced import growth increasingly in recent years. Import growth has been strong but has slowed, possibly reflecting a combination of slower “developing” countries’ GDP growth and larger apparel industries within the countries of the “developing” world.

“Developed” countries’ imports of apparel are presented in figure 8 and are largely the corollary of “developing” countries’ exports, albeit slightly more stable in its growth rate trend. This may reflect the more highly differentiated products “developed” countries import from one another. According to the World Trade Organization (WTO), slightly

more than one-third of “developed” countries’ apparel imports (all fibers) are from other “developed” countries. These products are higher-value and less responsive to price and income levels.

The real growth rate of apparel trade between “developed” countries--while stable--is on a decelerating trend. “Developed” countries’ apparel exports are primarily to other “developed” countries, while on the other hand, most of the growth in “developed” countries’ imports have come from “developing” countries. Thus, “developed” countries’ value of apparel exports have shown a steady decline in their growth rate gains during much of the 1962-95 period. The recent rise in outward-processing may account for the increasingly rapid deceleration during the last half of the period examined.

For textile products, “developing” countries have shown growth in both import and export values, but the trends have shown divergence--reflecting the growing industrialization of the “developing” countries (figure 9). In the early period analyzed, “developing” countries imported a large majority of their textiles from “developed” countries. Today, the reverse is true--higher income “developing” countries and a greater level of industrialization means a large majority of textile imports are now from other “developing” countries. Many “developing” countries that once imported textiles as an input to their apparel production no longer do so, and the value of “developing” countries’ textile imports as a share of their apparel exports has been declining. This rate of decline has slowed over time, perhaps reflecting the decreasing importance of self-sufficiency policies in a globalizing economy.

Figure 10 illustrates growth rates for “developed” countries’ textile trade values. Since the early 1960s, “developed” countries have shown a similar pattern of growth in their textile exports and imports, with exports tending to be slightly more robust as shrinking apparel industries in the “developed” world have been depressing the need for both domestic and imported textiles.

Implications

Based on the growth rates and patterns observed in this analysis, several generalizations can be made for the textile and apparel and cotton industries in the United States and for “developed” and “developing” countries as a group.

Given the nature of the apparel industry as such a labor-intensive sector, expectations are for this industry to continue moving to the “developing” countries as relatively cheap wage rates prevail there. In addition, the phase-out of the quotas will provide these countries a further incentive to increase apparel production destined for “developed”

countries. And as additional countries are more fully integrated into the global economy, the trends illustrated here could reasonably be expected to continue.

For textiles, the structural changes are likely to be less dramatic due to this sector’s capital intensiveness as opposed the labor-intensive apparel sector. “Developed” countries like the United States have invested heavily in the textile industry over the last decade or so. And as a result, these industries continue to efficiently produce textile products to compete in an increasingly global market. However, given the likely incentives associated with globalization of the textile and apparel industries, some investment is likely to also shift to some “developing” countries.

No matter where these processing sectors develop, raw cotton inputs will be necessary for the “upstream” industries to flourish. “Developed” cotton-producing countries--like the United States--are likely to export a larger share of raw cotton in the future, but perhaps at the expense of “processed” products.

In conclusion, this analysis provided a method to capture the growth patterns in cotton apparel trade, cotton textile trade, and raw cotton trade for the United States and “developed” and “developing” countries as a group since the early 1960s. With the phase-out of the MFA scheduled to be complete by the year 2005, structural change--which is currently taking place--in the textile and apparel industry will likely accelerate as production in these sectors shift mainly from “developed” to “developing” countries.

The analysis presented here is a first step in a larger study by USDA/ERS which will attempt to measure the effects of changes in textile and apparel investment around the world as a result of quota restrictions being lifted by the MFA phase-out. A dynamic CGE model will be developed to capture the effects of changes in trade policies on the dynamics of relevant industries’ production and trade, on consumers’ and producers’ welfare, and on reallocation of resources in a global framework.

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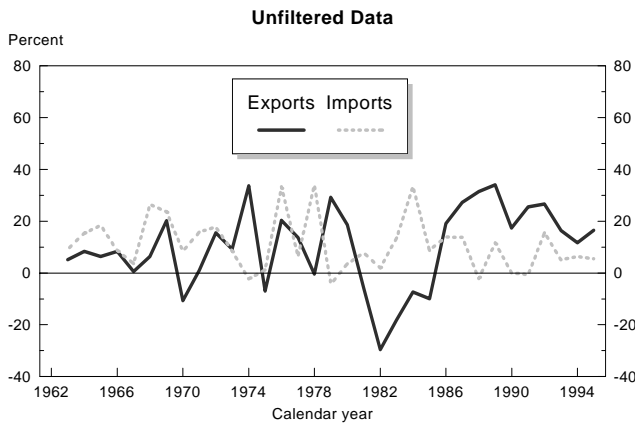


Figure 1. U.S. Growth rates in cotton apparel trade values, 1962-95.

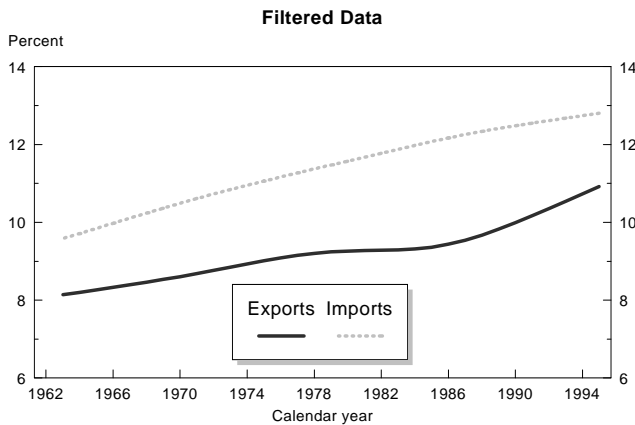


Figure 2. U.S. Growth rates in cotton apparel trade values, 1962-95.

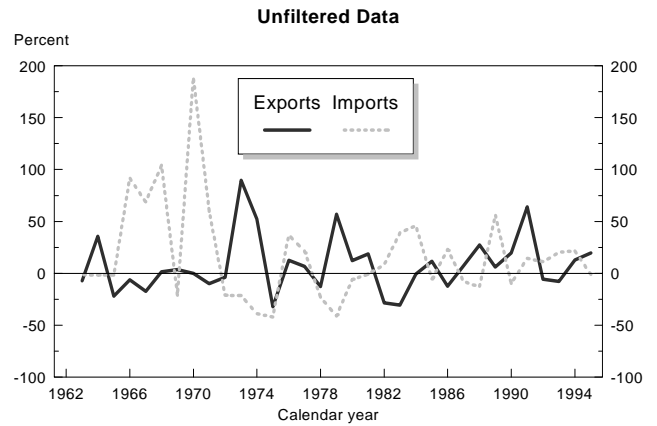


Figure 3. U.S. Growth rate in cotton textile trade values, 1962-95.

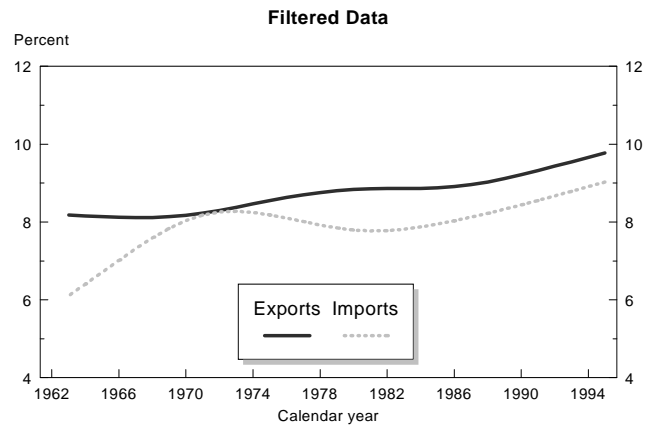


Figure 4. U.S. Growth rates in cotton textile trade values, 1962-95.

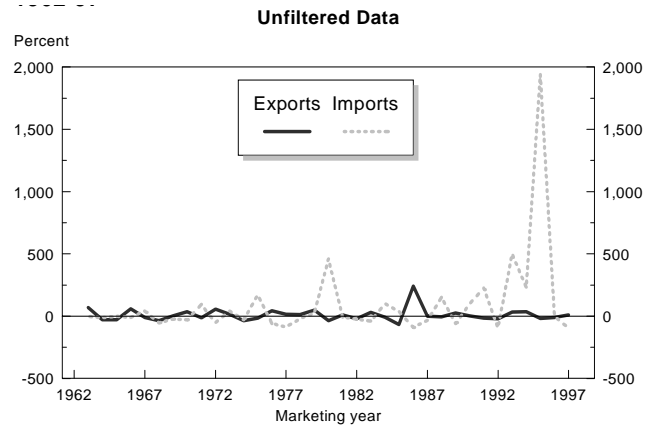


Figure 5. U.S. Growth rates in raw cotton trade volumes, 1962-97.

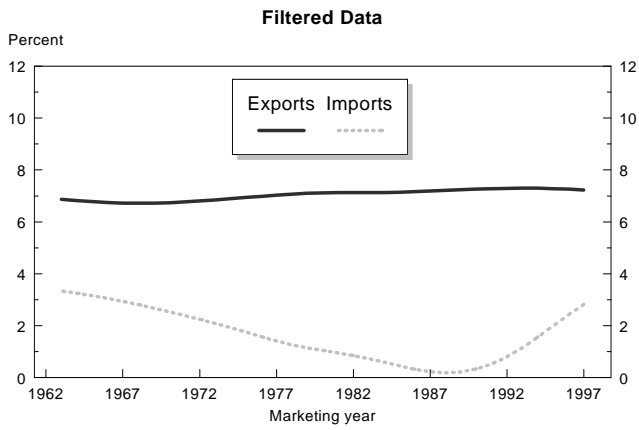


Figure 6. U.S. Growth rates in raw cotton trade volumes, 1962-97.

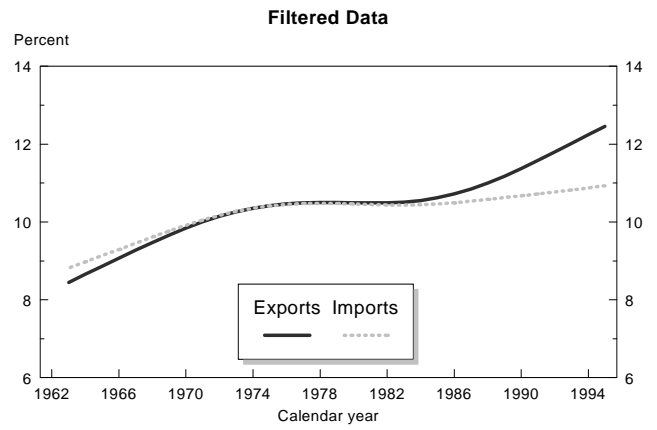


Figure 9. Developing countries' growth rates in cotton textile trade values, 1962-95.

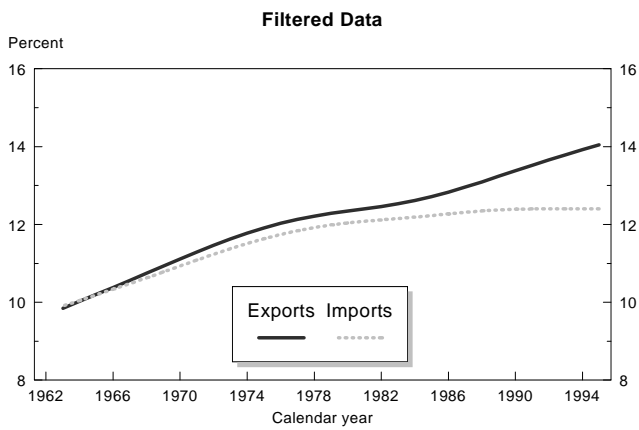


Figure 7. Developing countries' growth rates in cotton apparel trade values, 1962-95.

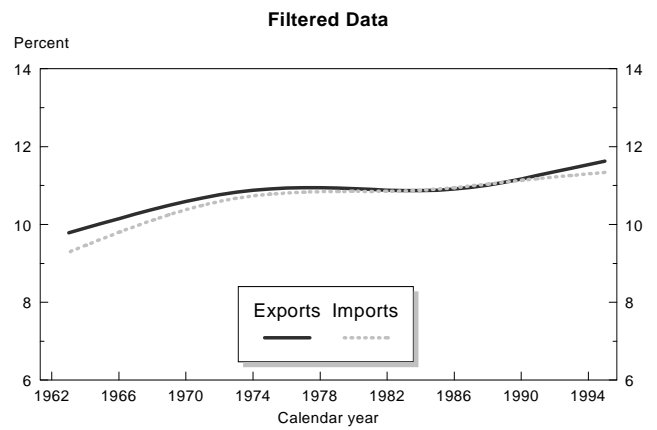


Figure 10. Developed countries' growth rates in cotton textile trade value, 1962-95.

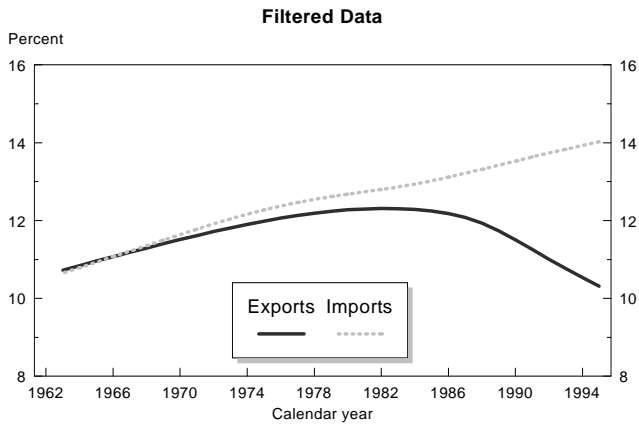


Figure 8. Developed countries' growth rates in cotton apparel trade values, 1962-95.

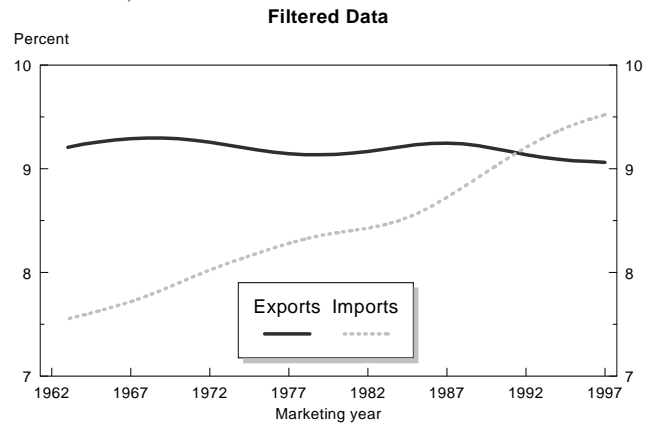


Figure 11. Developing countries' growth rates in raw cotton trade volumes, 1962-97.

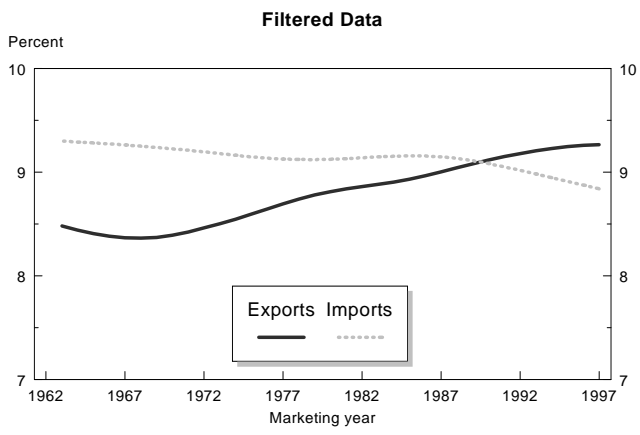


Figure 12. Developed countries' growth rates in raw cotton trade volumes, 1962-97.