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U.S. Tobacco Production, Consumption, and Export Trends

Jasper Womach, Resources, Science, and Industry Division

June 3, 2003

Abstract. This report portrays the current supply and demand situation for U.S. tobacco in the context of historical trends. An examination of historical patterns combined with the knowledge of current forces shaping domestic and export demand for U.S. tobacco underscores the pessimism heard from farmers about prospects for the future. Graphical presentations of historical data show the time path that has brought the U.S. tobacco industry to its current situation.

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Summary

Examination of historical tobacco data reveals a declining long-term trend in the utilization of tobacco by U.S. manufacturers and leaf exporters. While world tobacco exports increased over the past two decades, U.S. leaf tobacco exports declined in relative and absolute terms. Cigarette manufacturers have been increasing the use of less expensive foreign tobacco and decreasing the use of more costly U.S.-grown tobacco. Now, actions taken as a result of the 1998 Master Settlement Agreement between cigarette manufacturers and states' attorneys general are further diminishing the consumption of tobacco products in the United States. Cigarette exports also have been declining recently in contrast to a history of growth.

- Total utilization of U.S.-grown tobacco has been declining since 1975, from 1.941 billion pounds to 1.121 billion pounds in 2001 (a 42% drop in the farm weight).
- Exports of tobacco leaf peaked in 1978 at 765 million pounds (farm weight), and then declined to an estimated 399 million pounds in 2002. This decline occurred during a time when world exports were growing. The U.S. share of world exports has declined from 27% in 1969 to 7% in 2002.
- Even when U.S. cigarette manufacturing output was growing, the use of domestic leaf was declining. Manufacturing use declined from 1.6 billion pounds in 1952 to 688 million pounds in 2001. Use of domestic leaf tobacco has declined because: the amount of tobacco in each cigarette is now about 40% less than what it was 45 years ago; the total number of cigarettes consumed in the United States has declined from 640 billion in 1981 to an estimated 420 billion in 2002; and cigarettes now contain only about 52% domestic tobacco while they once contained more than 90% (a reflection of the declining competitiveness of U.S.-grown tobacco).
- The only growth market for U.S. tobacco since 1984 has been through the export of cigarettes. Cigarette exports climbed from less than 60 billion in the early 1980s to 244 billion in 1996. This market has since declined to 127 billion in 2002. The drop in cigarette exports is the equivalent of about 119 million pounds of U.S.-grown tobacco.
- The federal tobacco price support program keeps U.S. tobacco prices higher than they would otherwise be and encourages the use of less expensive foreign tobacco. Foreign producers have been increasing the quantity and improving the quality of their tobacco. In 2002, imported cigarette tobacco was delivered to the United States for about 40% of the cost of U.S.-grown tobacco.
- The farm price of tobacco and the total value of production have trended upward when measured in current dollars. However, since 1980 reduced output and inflation have caused a decline in the inflation-adjusted value.

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U.S. Tobacco Production, Consumption, and Export Trends

Overview

This report portrays the current supply and demand situation for U.S. tobacco in the context of historical trends.¹ An examination of historical patterns combined with the knowledge of current forces shaping domestic and export demand for U.S. tobacco underscores the pessimism heard from farmers about prospects for the future. Farmers and rural communities in tobacco regions have received some and are seeking additional economic adjustment assistance, and the reasons why are made obvious by the data.

Graphical presentations of historical data show the time path that has brought the U.S. tobacco industry to its current situation. In addition, with the aid of linear regression techniques, trend lines are plotted that project through the year 2005. These trend lines are not intended as predictions of the future and they are not constructed from explanatory models of the tobacco economy. The trend line projections assume that the forces in place in the past will continue without change. Changes in consumer preferences, changes in regulations or laws that affect consumption or international trade, or large changes in purchasing power, if they occur, can be expected to substantially alter the projections from the trend lines.²

A number of forces already are in place and others could arise that likely will shift the utilization of U.S. tobacco below the historical trend. It is not the purpose of this report to analyze these forces, but some of the obvious ones are listed and should temper any evaluation of the time-series projections.

¹ Unless otherwise noted, basic data are from the U.S. Department of Agriculture's Economic Research Service (ERS) and Foreign Agriculture Service (FAS). Historical data are published in *U.S. Tobacco Statistics, 1935-92*, ERS Statistical Bulletin Number 869, April 1994. Current data are published in recent issues of ERS's *Tobacco Situation and Outlook* and FAS's *Tobacco: World Markets and Trade*.

² In many cases, the data plotted in the numerous graphs are interrelated. Several graphs simply offer different ways of viewing the same factor. It would be a mistake to see the data as additive. The trend lines are constructed using linear regression to create a "best fit" and the R-squared (R^2) value of the trend line (listed with each graph) measures how well the actual data fit the trend line. Sizable and important deviations from the trend line may have little impact on the R^2 because of the numerous observations in the time series. The closer R^2 is to 1.0, the closer the data and the trend line are to a perfect fit. However, even a perfect fit does not impart predictive value to a time series correlation. A trend line is visually helpful in identifying the directional momentum (i.e., increasing, decreasing, constant) of the data, not in making forecasts. The functional form of the linear equation used to construct the trend lines is: $y = a + b_1x + b_2x^2$.

Contributing to an outlook of substantially reduced U.S. demand for tobacco products is the November 1998 Master Settlement Agreement (MSA) between cigarette manufacturers and states' attorneys general. The MSA requires manufacturers to pay \$206 billion over 26 years to states. The manufacturers have raised wholesale prices 67¢ per pack primarily to help meet their MSA obligations. Furthermore, while states individually will determine how to spend the funds, some portion likely will be used to discourage smoking.

Tobacco farmers anticipated that the MSA would negatively impact production and therefore the economic welfare of themselves and their communities. In fact, the utilization of U.S.-grown tobacco has dropped more than expected from domestic cigarette price increases alone. In 1997, U.S. tobacco production was 1.787 billion pounds and by 2002 it was down to 890 million pounds – a 50% decline in five years.

Federal and state excise taxes also continue to increase. The federal excise tax increased to \$0.34 per pack on January 1, 2000, and to \$0.39 on January 1, 2002. State and local excise taxes vary widely but the weighted average was \$0.42 per pack over the 2001/02 period. The highest tax rate as of January 1, 2003, was \$1.51 per pack in Massachusetts and the lowest was 2.5¢ per pack in Virginia.

Health education and anti-smoking efforts are developing in many other countries, and these could negatively influence global consumption and trade. In May 2003, the World Health Organization adopted the Framework Convention on Tobacco Control (FCTC) aimed at curbing tobacco-related deaths and disease.

U.S. leaf tobacco has long been losing competitive strength in global export markets. The primary reason is the high price for U.S. tobacco, caused by the federal price support program. The quality characteristics that have long made U.S. tobacco more valuable than tobacco from other countries are becoming less important. The quality of foreign tobacco is improving. Also, cigarette manufacturers have learned how to utilize lower quality tobacco in cigarettes without adversely impacting on the final product.

Export markets long have been the growth opportunity for U.S.-manufactured cigarettes. Now it appears that world cigarette markets are likely to be supplied the light blend American style cigarette from overseas plants, many owned by U.S. companies.

Tobacco farmers and their communities want and have received some assistance to help offset the decline in sales revenues associated with reduced production. While not included in the MSA, the manufacturers did agree to give tobacco farmers \$5.15 billion over 12 years as compensation in order to help them adjust (called the Phase II Settlement). In addition, Congress provided \$328 million in compensation to tobacco farmers for the reductions in marketing quotas in 1999 (P.L. 106-78, Sec. 803(c)), \$340 million in 2000 (P.L. 106-224, Sec. 204(b)), \$129 million in 2001 (P.L. 107-25, Sec. 4), and \$53 million in 2003 (P.L. 108-7, Division N, Title II, Sec. 205). In other legislation (P.L. 106-387, Sec. 844), the large inventory of 1999 crop burley tobacco under price support loan was turned over to the federal government and likely will never be marketed. (See CRS Report RS20802, Tobacco Farmer Assistance.)

Policy makers are now examining a range of alternatives to provide assistance in the future. Farmer assistance options range from compensatory payments for quota reductions (as was done for the 1999 and 2000 crops) to quota buyouts (an option debated by Congress in 1998, 2002, and 2003 (see CRS Report RL31790, *Tobacco Quota Buyout Proposals in the 108th Congress*). Other suggestions include helping farmers to shift to alternative agricultural enterprises, non-farm business development, training for non-farm occupations, household income support, and possibly even support for the economic infrastructure and social services that will suffer with a shrinking tobacco economy.

In general, future prospects for U.S. tobacco growers do not look good. The states feeling the greatest impact of the declining tobacco production and sales are North Carolina and Kentucky. These two states have 64% of the farms and 69% of U.S. tobacco acreage (see **Table 1**). Tobacco is a much smaller part of the agricultural economy of the other tobacco growing states. **Table 2** presents a summary of tobacco data, but only for the most recent years. The remainder of this report discusses the current situation and provides a historical context, as well as an explanation and graphic demonstration of trends.

Table 1. Farms, Acres, and Average Acres of Tobacco, by State, 1997

State	Farms With Tobacco	Tobacco Acres	Average Tobacco Acres Per Farm
NC	12,095	320,599	26.5
KY	44,967	255,053	5.7
TN	14,995	59,427	4.0
SC	1,275	54,660	42.9
VA	5,870	54,035	9.2
GA	1,180	41,083	34.8
OH	2,811	11,457	4.1
IN	2,017	8,507	4.2
PA	1,357	7,953	5.9
MD	711	7,939	11.2
FL	186	6,881	37.0
MO	481	2,667	5.5
WV	839	2,553	3.0
CT	74	2,529	34.2
WI	744	1,630	2.2
MA	68	1,176	17.3
AL	17	290	17.1
KS	13	29	2.2
Others	6	62	10.3
U.S.	89,706	838,530	9.3

Source: Primary data are from the U.S. Census of Agriculture, 1997.

Table 2. Selected U.S. and World Tobacco Statistics, 1998-2002

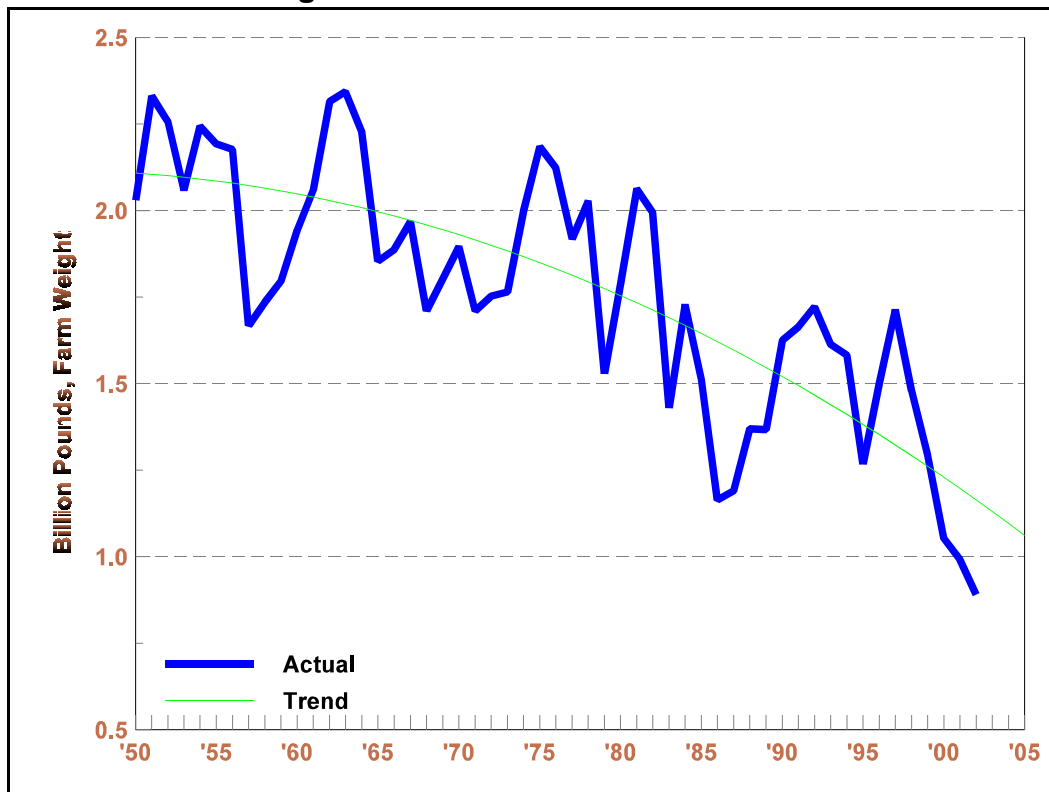
	1998	1999	2000	2001	2002
Tobacco acreage (thou. acres harvested)	718	647	472	432	430
Tobacco yield (lbs./acre)	2,062	1,997	2,229	2,293	2,068
Tobacco production (mil. lbs., farm weight)	1,480	1,293	1,053	992	890
World tobacco production (mil. lbs., farm weight)	14,390	14,503	14,535	13,553	13,809
Farm price for tobacco (\$ per lb.)	\$1.83	\$1.87	\$1.91	\$1.92	\$1.91
Farm value of tobacco production (bil. \$)	\$2.701	\$2.356	\$2.002	\$1.952	\$1.726
Total tobacco utilization, manufacture & export (mil. lbs., farm weight)	1,442	1,195	1,465	1,121	na
Leaf exports (mil. lbs., farm weight)	537	433	414	432	399
Leaf exports (mil. lbs., dry weight)	467	423	397	359	338
World leaf exports (mil. lbs., dry weight)	4,253	4,565	4,339	4,646	4,622
Manufacturing use of leaf (mil. lbs., farm weight)	905	762	1,050	688	na
Cigarette production (bil. pieces)	679.7	606.6	594.6	562.4	565.0
World cigarette production (bil. pieces)	5,372	5,407	5,469	5,471	5,464
Cigarette consumption (bil. pieces)	465	435	430	425	420
Tobacco in cigarettes (lbs./thou. pieces)	1.575	1.653	1.638	1.757	na
Consumption of U.S. tobacco by U.S. smokers (mil. lbs., farm weight)	405	455	438	419	na
Per capita cigarette consumption (cigarettes per adult per year)	2,320	2,136	2,056	2,026	1,979
Adult smokers (% of adult population)	24.1%	23.5%	23.3	23.4%	na
Consumer expenditures for tobacco (bil. \$)	\$56.0	\$70.6	\$77.7	\$82.8	na
Wholesale premium cigarette price (\$ per pack, excluding federal excise tax)	\$1.19	\$1.88	\$1.97	\$2.25	\$2.37
Cigarette exports (bil. pieces)	201.3	151.4	147.9	133.9	127.2
World cigarette exports (bil. pieces)	1,301.3	886.4	906.7	897.7	928.6
U.S. share of world cigarette exports	20%	17%	16%	15%	14%
U.S. cigarette exports as share of U.S. production	30%	25%	25%	24%	22%

Sources: Primary data are from Economic Research Service, Tobacco Situation and Outlook Report, recent issues; Foreign Agriculture Service, Tobacco: World Markets and Trade, recent issues; Center for Disease Control and Prevention, Office on Smoking and Health. All data for 2002 are preliminary and subject to revision. Unless otherwise noted, data are for the United States. Na, not available.

U.S. Tobacco Production and Farm Revenue

Tobacco production is the supply side of the economic supply-demand equation. In spite of the tobacco price support program, which has attempted to stabilize supplies by limiting production through acreage allotments and marketing quotas, tobacco production has shown substantial fluctuations from year to year (**Figure 1**). These wide annual fluctuations reflect weather impacts on yield as well as administered marketing quota changes intended to bring longer-term supply into balance with demand. Over time, production has necessarily followed a downward trend that nearly matches the utilization trend line (shown in **Figure 6**). Tobacco production in 1950 totaled 2.030 billion pounds, and in 2002 it was 881 million (a 46% decline). Wide fluctuations in production from year to year give the trend line little or no short-term predictive value.

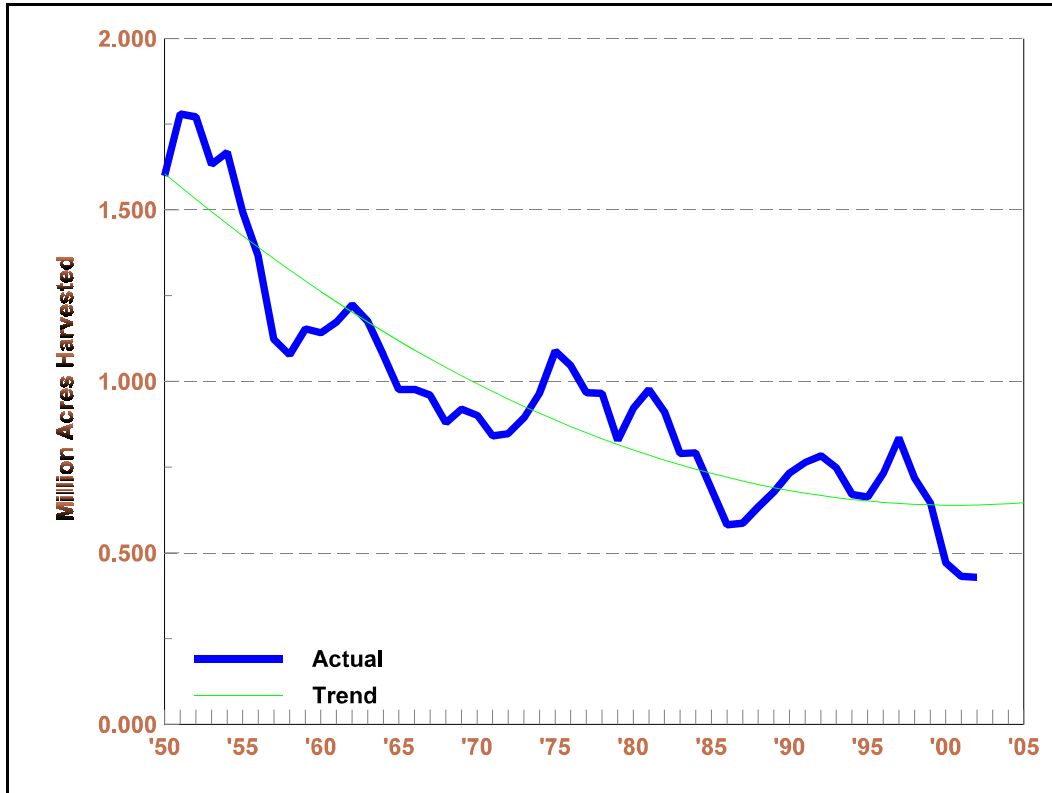
Figure 1. U.S. Tobacco Production



Primary data source, USDA, ERS. Trend, $R^2 = .63$.

The decline in production is reflected in the decline in acreage. Tobacco harvest declined from 1,599,000 acres in 1950 to 428,660 acres in 2002, a 73% decline (**Figure 2**). Tobacco yields have gradually increased over time and for that reason the decline in acreage is greater than the decline in production in percentage terms.

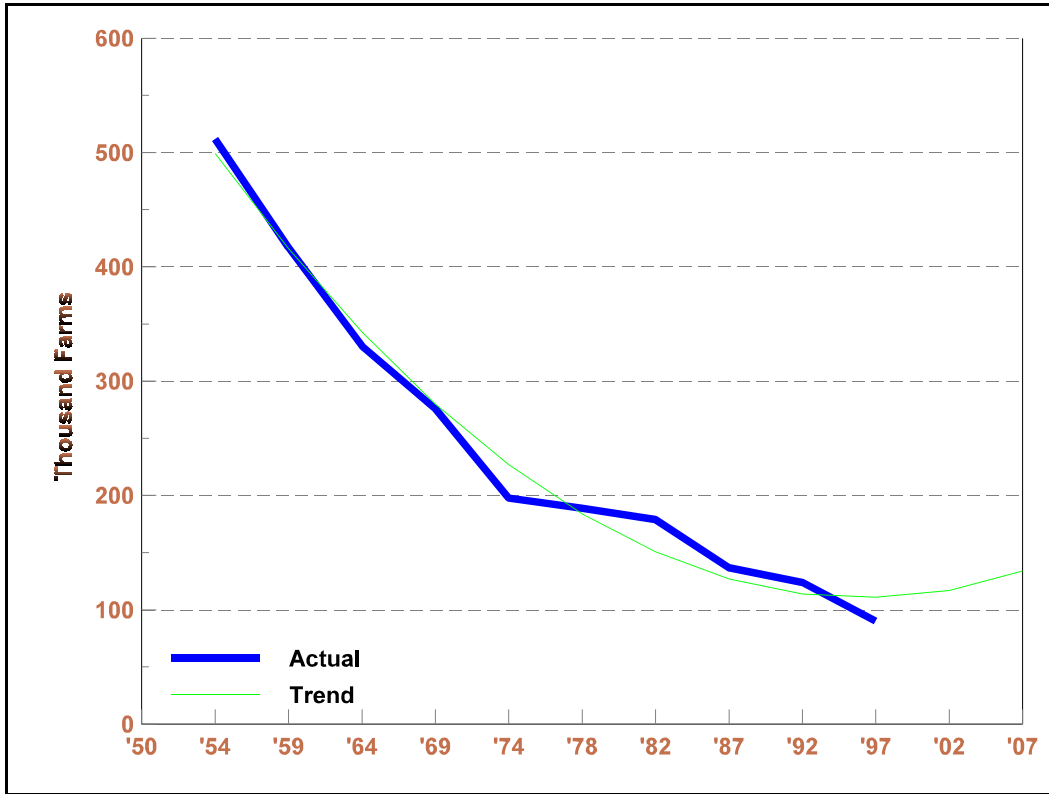
Figure 2. U.S. Tobacco Acreage



Primary data source, USDA, ERS. Trend $R^2 = .84$.

Tobacco farming long has been consolidating into fewer but larger farms, but the scale of production remains small compared to other crops. The number of farms growing tobacco decreased from about 512,000 in 1954 to about 90,000 in 1997 (shown in **Figure 3**). The average tobacco acreage of 9.3 in 1997 shown in **Table 1** is a 210% increase over the 3-acre average in 1954.

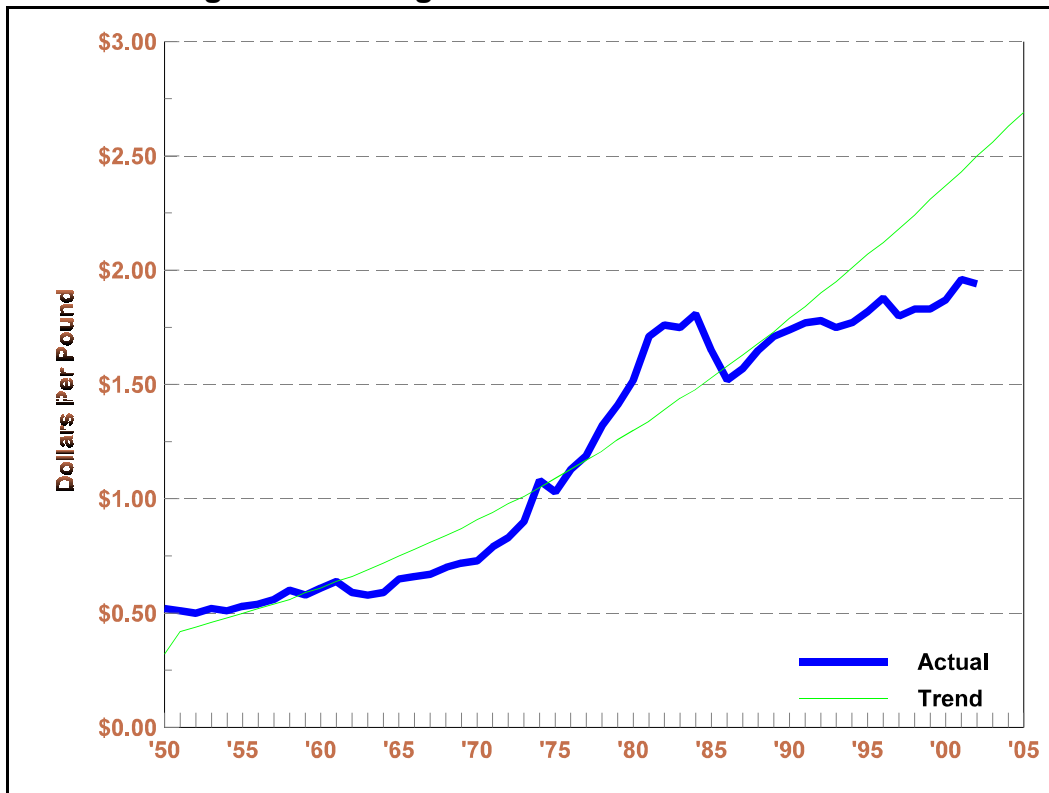
Figure 3. Farms Growing Tobacco in the U.S.



Primary data source, U.S. Census of Agriculture, various issues. Trend $R^2 = .98$.

The average annual price received by farmers for all tobacco has increased over time and at a relatively steady rate (**Figure 4**). This is predictable because the federal price support program has created a floor under market prices since the 1930s (see CRS Report 95-129 for a more detailed explanation of the program). Manufacturers and exporters of U.S.-grown tobacco must outbid the support price at the auction sale or farmers' tobacco is placed in storage and held off the market until market prices increase. Tobacco does not deteriorate in storage, but rather must be aged (cured) before it is suitable for manufacturing. Farmers receive the federal support price with funds borrowed from the USDA's Commodity Credit Corporation (CCC). The stored tobacco serves as loan collateral. This is called putting tobacco under loan. The 2003 crop support price is \$1.656 per pound for flue-cured tobacco and \$1.835 for burley tobacco.

Figure 4. Average Farm Price for Leaf Tobacco



Primary data source, USDA, ERS. Trend $R^2 = .92$.

By law, the tobacco price support program must operate at no net cost to taxpayers. The CCC is assured of recovering the loan principal, plus interest, because a no-net-cost assessment is levied on all domestic tobacco as well as imported tobacco. The assessment proceeds are held in reserve to offset any future losses should the loan tobacco fail to bring a sufficiently high price in the future.

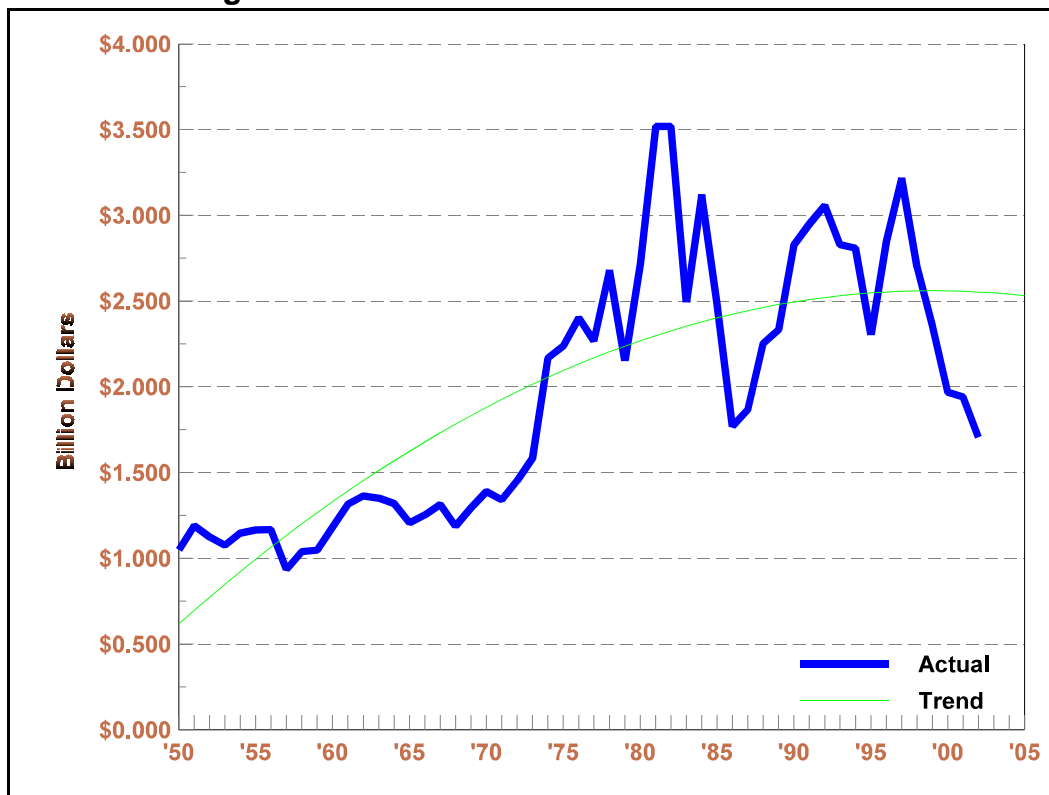
The support price for tobacco is calculated according to a formula written into law. The formula includes the support price of the preceding year, adjusted by

changes in the 5-year moving average of market prices (excluding the highest and lowest), and changes in the cost-of-production index. The element of the formula that continuously pushes the support price up (with occasional interruptions) is an index of tobacco growers' cost of production (the prices paid index). On occasion, Congress has acted to retard the rate of increase in the tobacco support price. This has happened when inventories of loan tobacco have reached such high levels that large loan losses appear inevitable. Congress most recently enacted a relatively sharp cut in the support price in the mid-1980s.

Because the market price for tobacco is heavily influenced by the federal support price, and because the support price can be altered by legislative fiat, the trend line projection of average prices received by farmers has little value as a forecast. Short of a legislative change, the tobacco support program loan operations keep the average market price from falling below the mandated loan price.

The farm value of a tobacco crop is equal to production times the average price received by farmers. This calculation does not exactly equal farm cash receipts, but it does serve as an approximation. In spite of the downward trend in production, the trend in crop value has been upward (**Figure 5**). This has happened because the increasing support price has more than offset declining production. The farm value of the 2002 tobacco crop is estimated to be about \$1.726 billion. This is about half the \$3.5 billion peak of 1981 and 1982.

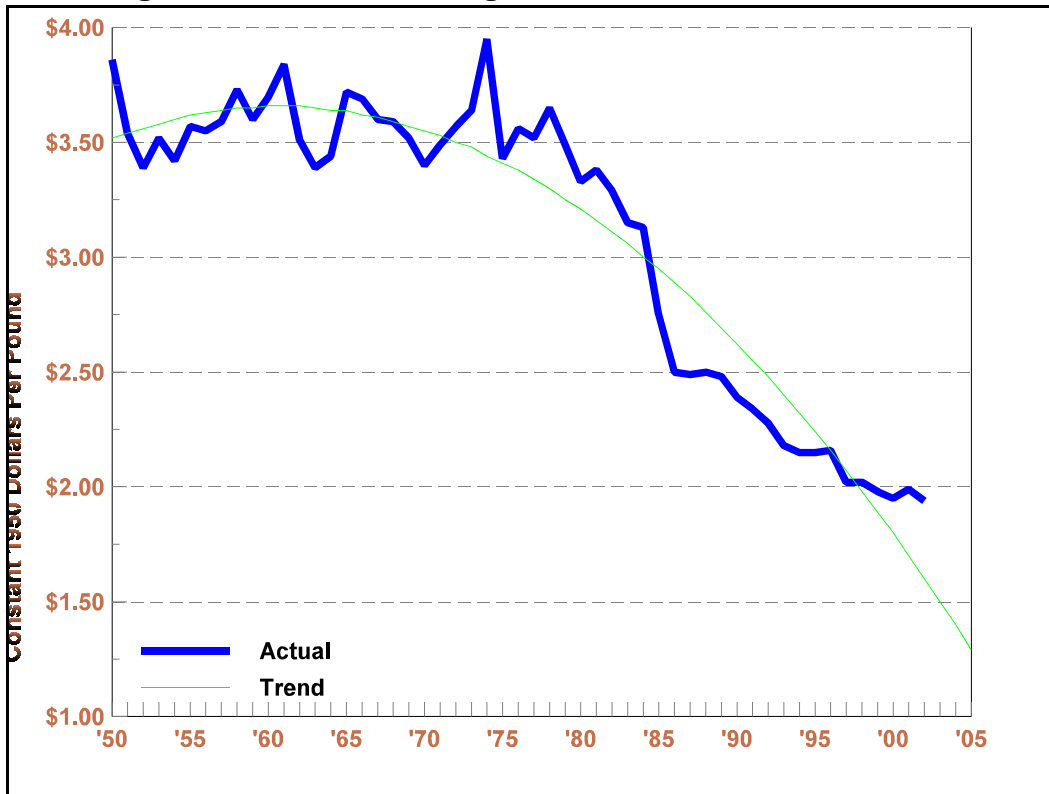
Figure 5. Farm Value of Tobacco Production



Primary data source, USDA, ERS. Trend $R^2 = .63$.

Even with the tobacco price support program, farmers claim they have trouble paying their expenses and making a profit. This concern has some merit despite the data showing crop values trending upward. In fact, the average market price has gone up very little over the past 15 years while inflation has eroded its purchasing power (**Figure 6**). From 1950 through the 1970s, the inflation adjusted price of tobacco did not drop very much below the 1950s equivalent of about \$3.50 per pound in 2002 dollars. However, by 2002, the purchasing power was down to \$1.92.

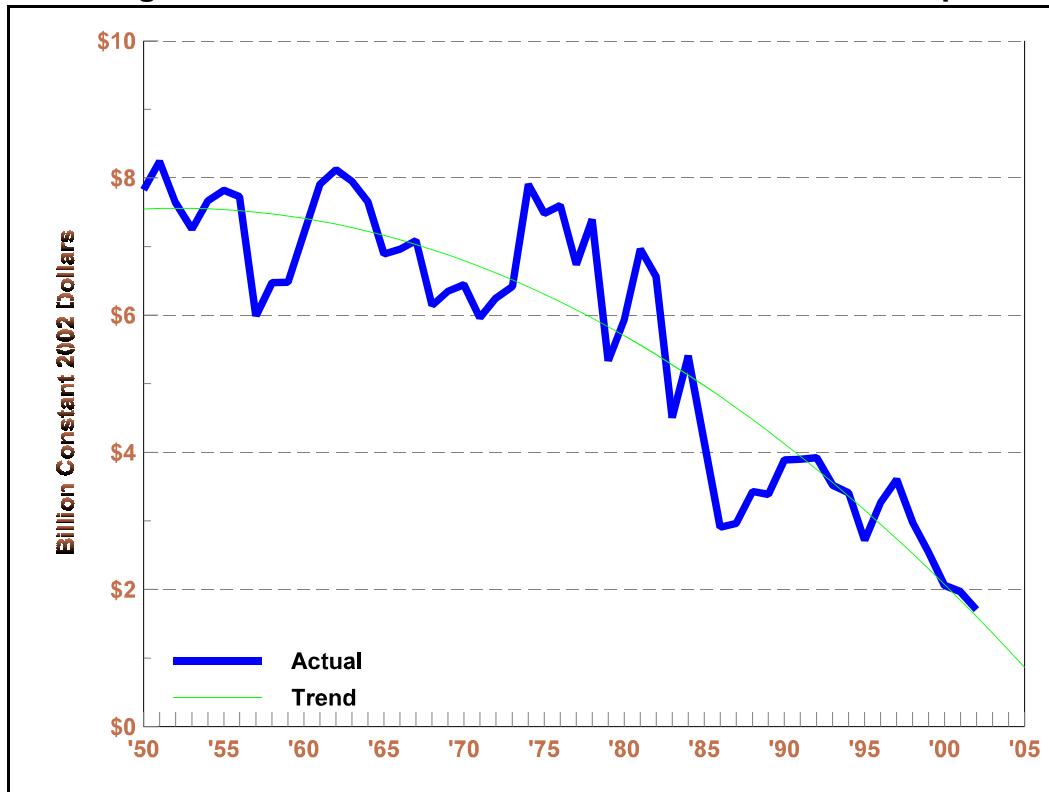
Figure 6. Deflated Average Farm Price for Leaf Tobacco



Trend $R^2 = .91$.

Corresponding to the decline in the deflated tobacco price, the deflated value of tobacco production also shows a comparatively sharp drop after 1980 (**Figure 7**). Certainly, an assessment of farmers' economic condition requires an examination of costs and net revenues, but these are beyond the scope of this report.

Figure 7. Deflated Farm Value of the U.S. Tobacco Crop



Trend $R^2 = .85$.

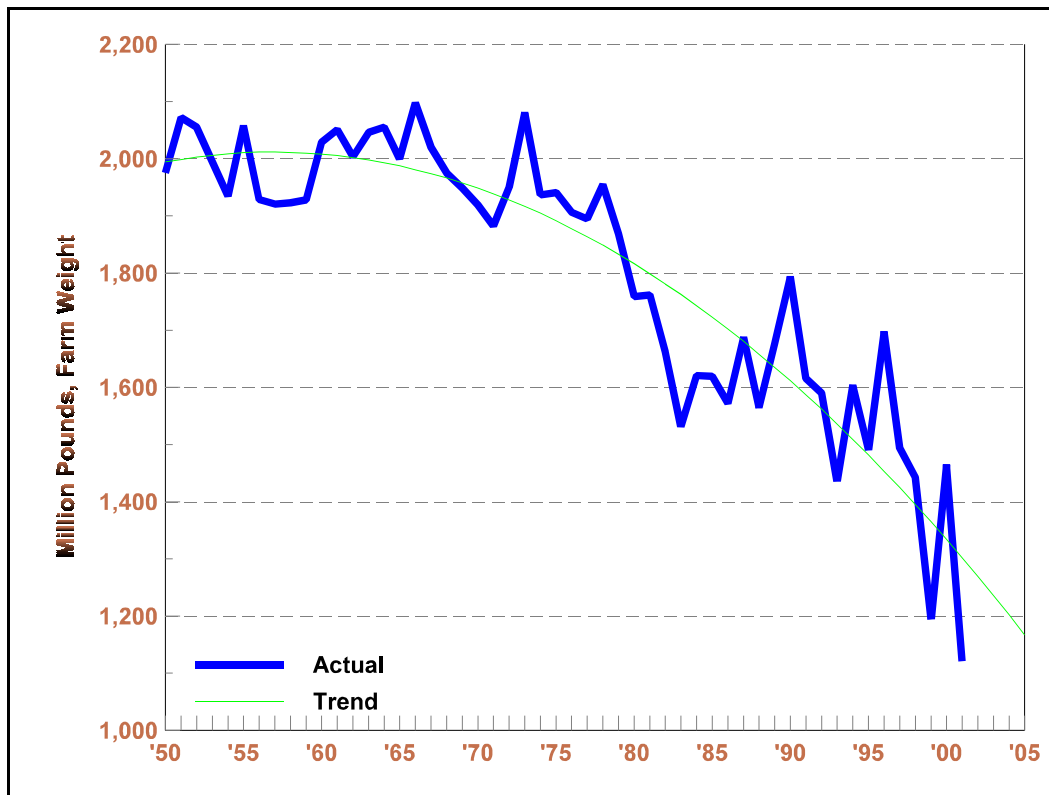
The historical data on tobacco production, prices, and crop value show a tobacco farm sector struggling to maintain itself since 1980, but sometimes not able to keep up with inflation. Even prior to the 1998 Master Settlement Agreement, there was little reason to expect future growth. The long-term trend in production of U.S. tobacco has been downward, which matches the declining utilization of U.S.-grown tobacco by manufacturers—as necessary to balance supply with demand. The 1998 MSA envisions a drop in U.S. cigarette consumption, particularly among teenagers and children. Financial terms of the Settlement imply higher cigarette prices, reduced consumption in response to the higher prices, and reduced use of leaf tobacco by the manufacturers.

Utilization of U.S.-Grown Tobacco

More than 94% of the tobacco grown in the United States is used in the manufacture of cigarettes (either domestically or overseas). The remainder is processed for chewing, snuff, cigars, and pipes. For the most part, data in this report include all tobacco unless the focus is limited to cigarette tobacco. But even when the data apply to all tobacco, cigarette tobacco overwhelmingly dominates.

The manufacture and export of U.S.-grown tobacco fluctuated around 2.0 billion pounds until around 1975. Since then, utilization has followed a declining long-term trend, dropping to an estimated low of 688 million pounds in 2001. As shown in **Figure 8**, there have been substantial departures from the trend line. To better appraise the likelihood of future utilization prospects, it is helpful to separately examine the leaf export and domestic manufacturing markets.

Figure 8. Utilization (Manufacture and Export) of U.S.-Grown Tobacco

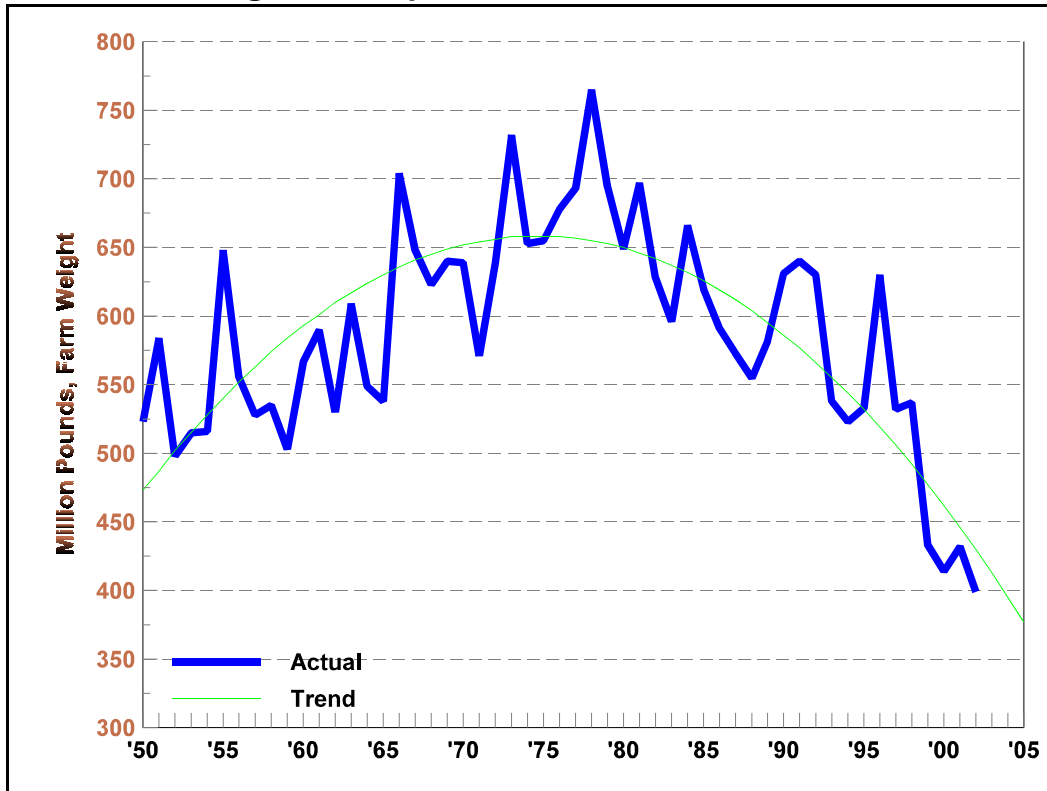


Primary data source, USDA, ERS. Trend $R^2 = .85$.

U.S. Tobacco Leaf Exports

Exports of unmanufactured tobacco have shown a large amount of annual variation, with fluctuations of 10% to 15% being quite common. This annual variation eliminates any predictive value of a statistical trend line. However, it does appear that tobacco leaf exports were increasing through 1978 (when they reached a peak of 765 million pounds) and then began to decline (**Figure 9**). Estimated exports, of 399 million pounds in 2002, are 48% below the 1978 peak.

Figure 9. Exports of U.S.-Grown Tobacco

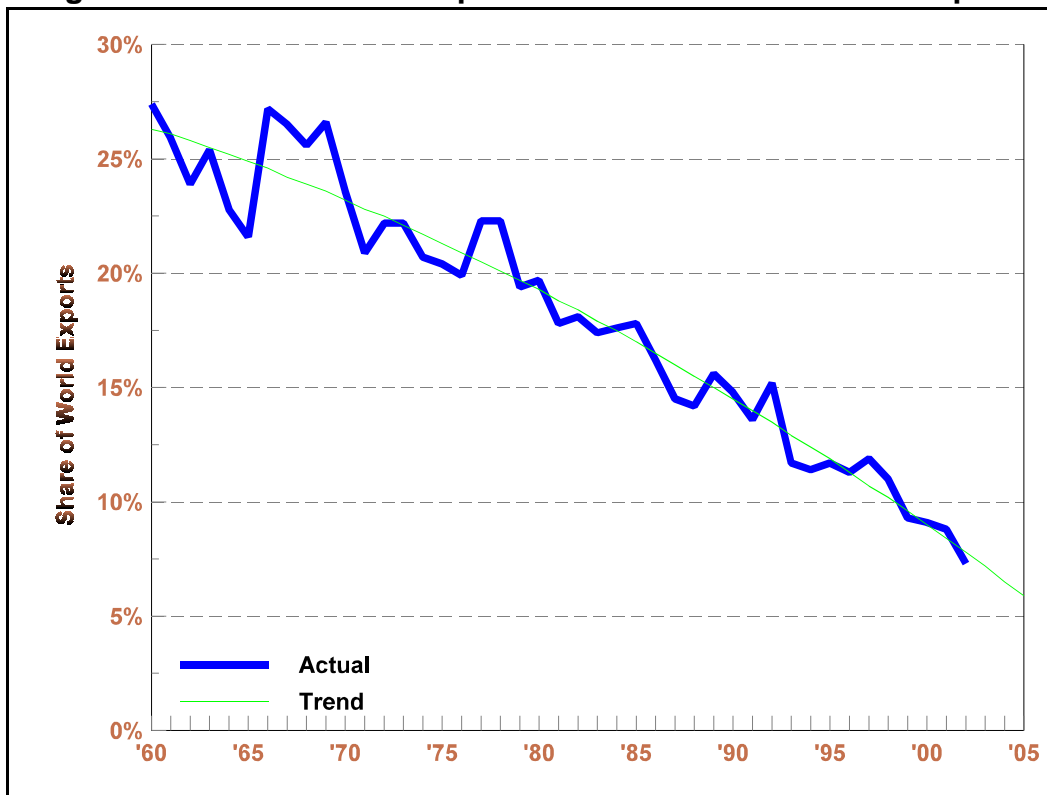


Primary data source, USDA, ERS. Trend $R^2 = .62$.

How does the United States look as a competitor in global leaf export markets? Until recently, this nation was the world's leading exporter of unmanufactured tobacco. It held the leading position until 1993, when Brazil moved ahead. The United States is now a distant second, exporting 36% as much as Brazil. However, the historically dominant export position of the United States belies the long-term loss of export share (**Figure 10**).

In 1960, the United States accounted for 27% of world exports of unmanufactured tobacco. By 2002, the U.S. share had fallen to 7.3%. The drop in export share is the result of two compounding forces. First, the volume of U.S. tobacco exports has been on a downward trend since 1978. Second, and in contrast to declining U.S. exports, exports by other countries have been increasing. The biggest export gains have been made by Brazil, Argentina, Malawi, and Thailand. The tobacco produced and exported by these countries is directly competitive with U.S. flue-cured and burley tobacco. In fact, the United States itself has become a major destination for shipments from these competing countries.

Figure 10. U.S. Tobacco Exports as Share of World Total Exports



Primary data source, USDA, ERS. Trend $R^2 = .95$.

Historically, the United States' dominant export position was due to its ability to deliver large supplies of high quality cigarette tobacco. This tobacco has proven quite desirable in the milder American-style cigarettes that have gained in worldwide popularity over the traditional stronger cigarettes so common outside the United States. Until as recently as 20 years ago, only small quantities of foreign tobacco could be blended successfully with U.S.-grown tobacco in the American-style cigarettes. To a large degree U.S. tobacco growers had a monopoly in the production of high quality mild tobaccos used to manufacture American-style cigarettes.

The near monopoly situation for U.S. tobacco made it possible to create a domestic price support program with high and continuously increasing prices. In fact, the profits created by the price support program have become capitalized into annual quota rental rates that have averaged 43¢ per pound over the past 10 years, increasing to 53¢ over the past 3 years (about \$1,000 per acre). Similarly, the sale of farmland with tobacco quota has brought a premium of about \$1.85 per pound over the past 10 years, and \$2.14 over the past 3 years (about \$4,200 per acre).³

Ultimately, the federal support program created an umbrella of price protection for foreign producers. With assistance from cigarette manufacturers, tobacco growers in especially Brazil, Zimbabwe, Malawi, and Argentina have improved the quality of their tobacco and expanded production. At the same time, cigarette manufacturers have developed methods for utilizing larger proportions of lower quality tobacco while still maintaining acceptable smoking quality. Finally, consumers have shown a willingness to accept the so-called lower quality "generic" cigarettes in return for lower prices. Together, these factors have enabled foreign tobacco to displace U.S.-grown tobacco in American-style cigarettes.

The obvious motivation for cigarette manufacturers to use non-U.S. tobacco is to lower their input costs. Currently, foreign-grown tobacco is being delivered to U.S. buyers at about 40% of the cost of domestic tobacco. Data from invoices examined at ports of entry in 2002 show the landed value of imported tobacco averaged \$1.25 per pound. In contrast, sales invoices report the export price of U.S. tobacco averaged \$3.10 per pound.⁴

There are two reasons that the price of U.S. tobacco is currently 2.3 times as high as imported tobacco. First, and most important, the federal tobacco price support program establishes a floor under market prices. If commercial buyers do not offer bids higher than the support price, farmers are paid the support price with

³ While these data apply directly to Kentucky, they are probably not far from lease and sale prices in North Carolina, according to experts in North Carolina and the U.S. Department of Agriculture. Data are not available on North Carolina. These data are compiled and published by Dr. William Snell, University of Kentucky, in an annual report titled *The Kentucky Quota Sales and Leasing Market*.

⁴ Import and export quantity and value data are collected by the Department of Commerce. These calculations are from data published in USDA, FAS, *Tobacco: World Markets and Trade*, April 2003. All tobacco undergoes certain processing, packing and storage before it is ready for manufacturing. These processing and handling costs account for the price being higher at the export terminal than at farm auction.

money lent by the Commodity Credit Corporation. This tobacco goes into storage and is held off the market until prices improve. Second, much U.S.-grown tobacco has a quality advantage that manufacturers are willing to pay extra for, as demonstrated by its continued use in domestic cigarettes and its export to foreign cigarette manufacturers.

In the absence of a federal support program, the price of U.S.-grown tobacco would decline, but probably not as low as the price of foreign tobacco. Some economists predict that prices would decline by 25% or more, which translates into a decline of about \$0.50 from the 2002 average of \$1.91 per pound.⁵

In 1993, the congressional reaction to the competitive price advantage achieved by foreign tobacco was to impose high penalties on cigarette manufacturers who used less than 75% U.S.-grown tobacco in their cigarettes. Contained in the Omnibus Budget Reconciliation Act of 1993 (P.L. 103-66) was a provision that effectively established a 75% domestic content requirement on U.S.-manufactured cigarettes.

The domestic content requirement soon was determined to be in violation of international trading rules. As part of the implementing legislation for the Uruguay Round Trade Agreement, the domestic content rule was replaced with tariff rate quota provisions.⁶ However, this tariff rate quota does not effectively limit imports. First, the quota quantity is sufficiently large that it has not been reached. Second, duty drawback rules allow the recovery of duty on all imported tobacco that is exported in cigarettes. The policy of duty drawback, which applies to all imports, not just tobacco, encourages manufacturing jobs in the United States yet the end products do not compete in the domestic market because they are exported.

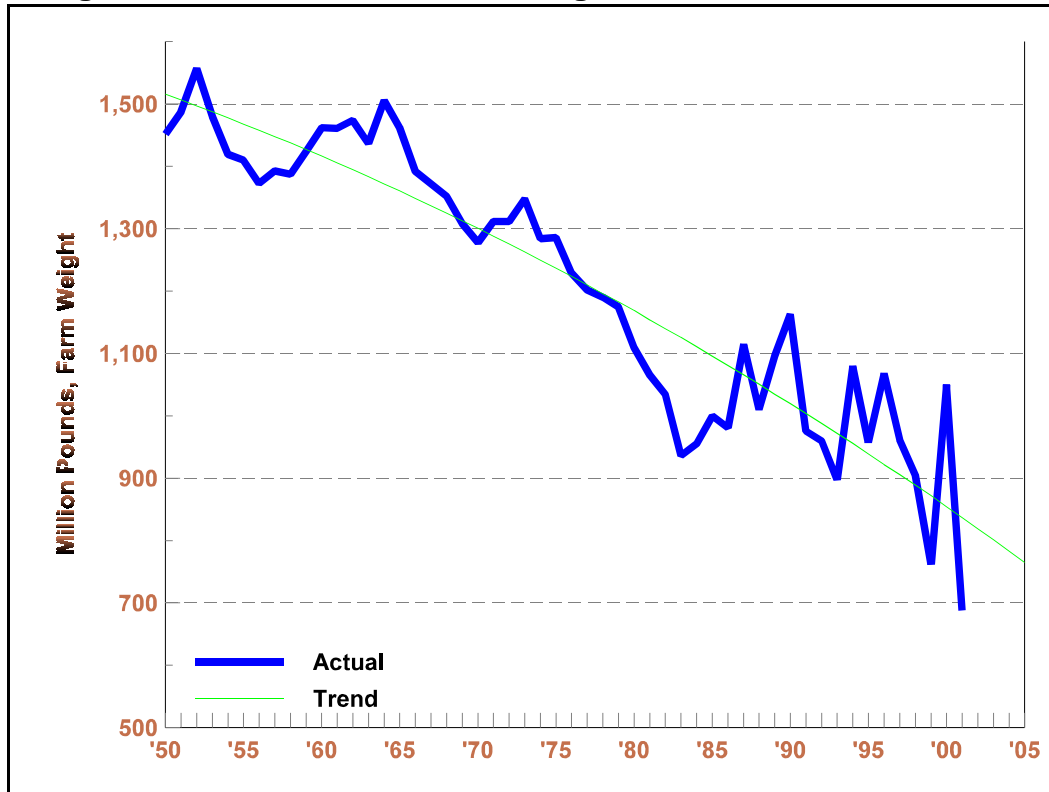
⁵ This estimate is based upon the separate analyses of Dr. Blake Brown of North Carolina State University and Dr. William Snell of the University of Kentucky, as they reported in testimony before the Senate Committee on Agriculture, Nutrition, and Forestry on September 18, 1997.

⁶ The dispute settlement panel of GATT issued its report July 15, 1994. In addition to determining that the domestic content requirement violated the Agreement, the panel found that a Budget Deficit Assessment on imported tobacco was also in violation, but the no-net-cost assessment on imported tobacco did not violate GATT. A tariff rate quota allows imports of a specified quantity (quota) with a minimal tariff and above that quantity imposes a prohibitively high tariff. Imposition of a tariff rate quota obligates the United States to negotiate compensation with exporting countries who lose access to the U.S. market. Failure to negotiate acceptable compensation entitles the injured countries to retaliate. However, to date the tariff rate quota on tobacco has been sufficiently large compared to imports that it has not been restrictive.

Manufacturing Use of Leaf Tobacco

At the peak in 1952, U.S. manufacturers utilized nearly 1.6 billion pounds of domestically produced tobacco in the manufacture of tobacco products. Following 45 years of decline, estimated 2001 utilization of 688 billion pounds is already down to the trend level projected for the year 2005.

Figure 11. Domestic Manufacturing Use of U.S.-Grown Tobacco



Primary data source, USDA, ERS. Trend $R^2 = .86$.

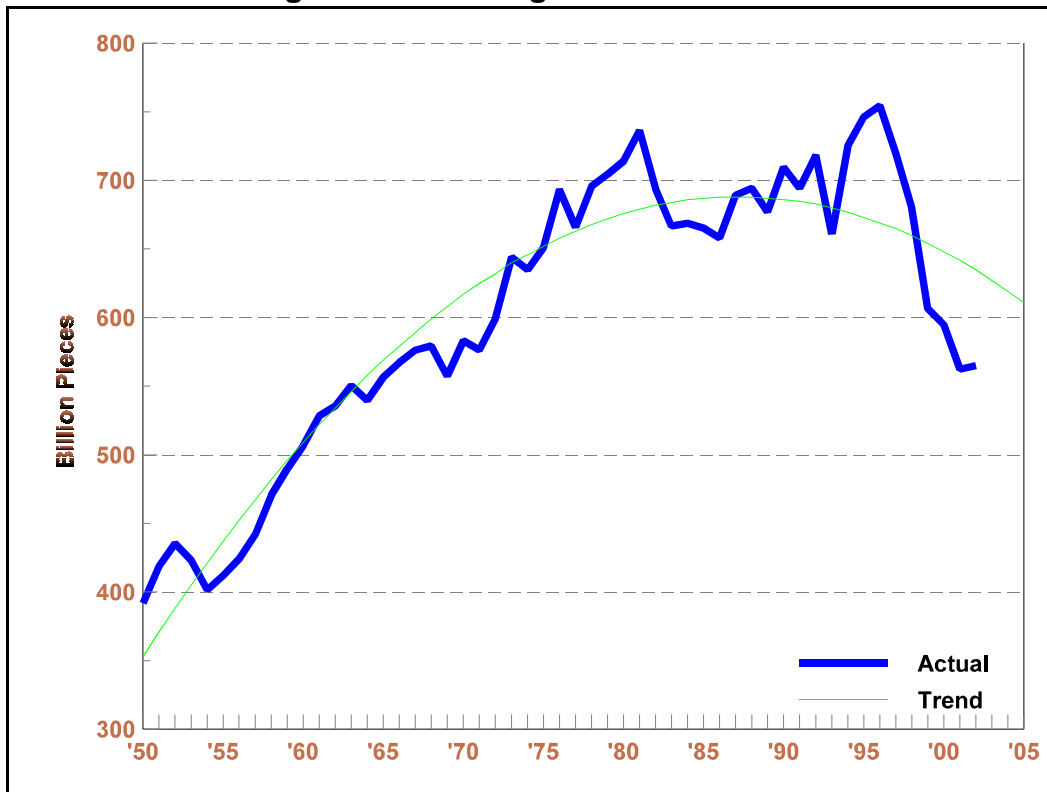
Much of the decline in domestic manufacturing utilization of U.S.-grown tobacco can be attributed to reduced cigarette consumption by Americans. Nevertheless, cigarette output has actually followed an upward trend over the same period that domestic tobacco utilization has been declining. This seeming contradiction can be explained by the changing character of U.S.-manufactured cigarettes. The amount of tobacco in each cigarette has declined, and the proportion of foreign-grown tobacco in U.S. cigarettes has been increasing.

Cigarette Production

More than 94% of the tobacco produced in the United States is used in the manufacture of cigarettes. Consequently, U.S. cigarette manufacturers are the primary domestic users of U.S.-grown tobacco. The major cigarette tobaccos are flue-cured (grown primarily in North Carolina and neighboring regions) and burley (grown primarily in Kentucky and neighboring regions). Maryland-type tobacco (grown in Maryland and Pennsylvania) also is used in cigarettes, but in relatively small amounts. Some imported tobaccos also are used by U.S. cigarette manufacturers. Oriental tobaccos, added for purposes of flavor and aroma, are a traditional component of mild American-style cigarettes. Oriental tobaccos are not grown in the United States but are imported primarily from Turkey. In addition, cigarette manufactures have increasingly used less expensive imported flue-cured and burley tobacco from South America, Africa, and Asia.

U.S. cigarette production increased at a nearly steady rate from 1950 through the peak year of 1996, when output reached 754.5 billion cigarettes (**Figure 12**). Year 2002 production of 565 billion cigarettes is up slightly from the previous year's dramatic low and is substantially below the long-term trend. Will cigarette production increase in future years? Or, will it decline even further? Examination of data on domestic cigarette consumption and cigarette exports may suggest answers to these questions.

Figure 12. U.S. Cigarette Production

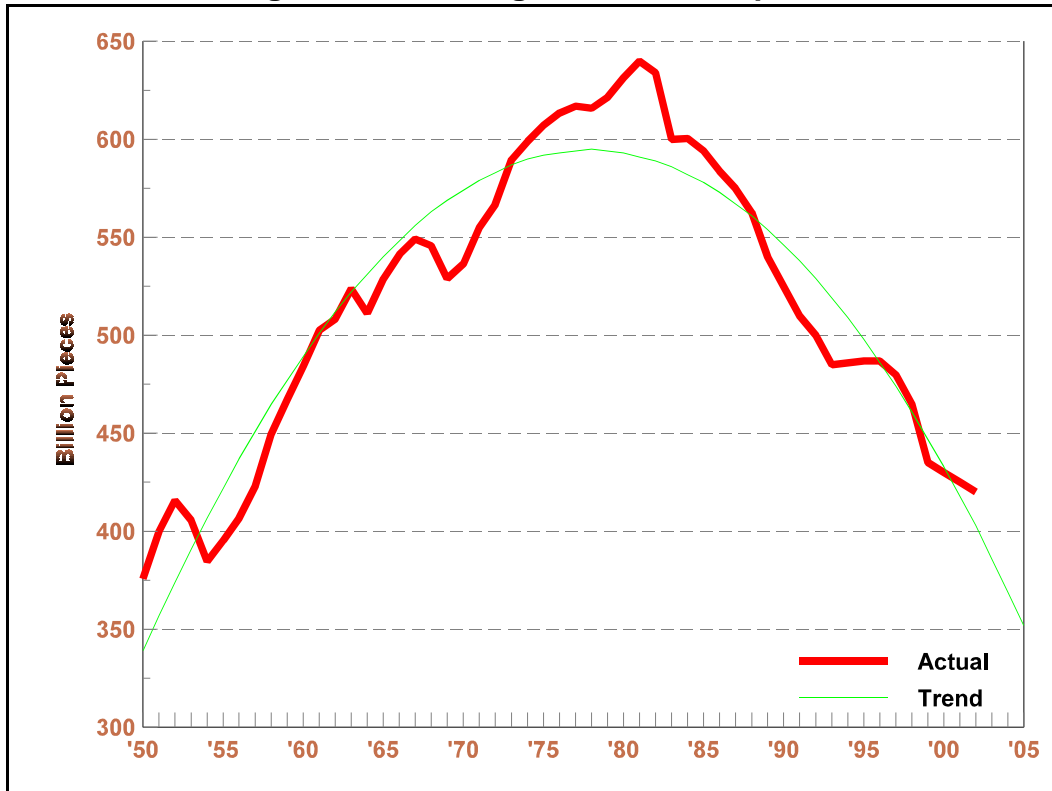


Primary data source, USDA, ERS. Trend $R^2 = .89$.

Cigarette Consumption

After World War II, U.S. consumption of cigarettes showed a long and steady period of growth, until it reached a peak of 640 billion in 1982. Since then, the decline has been about equally steep and steady. By 2002, consumption was down to 400 billion cigarettes (**Figure 13**). (The difference between U.S. cigarette production of 565 billion pieces (**Figure 12**) and consumption of 430 billion pieces in 2002 (shown below) largely is exports, which is discussed later in the report.)

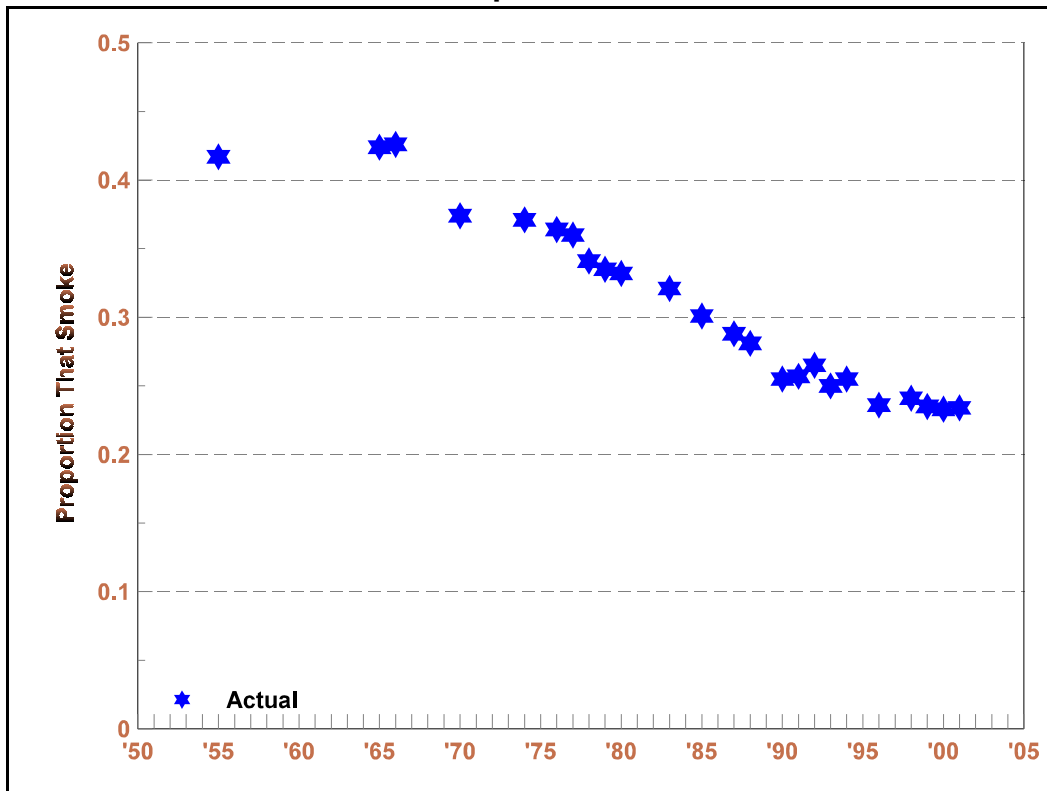
Figure 13. U.S. Cigarette Consumption



Primary data source, USDA, ERS. Trend $R^2 = .91$.

What has happened to reduce the consumption of cigarettes? First, according to periodic survey data published by the Center for Disease Control and Prevention, the proportion of the adult population of smokers stopped increasing and began declining shortly after the first Surgeon General's report on the health effects of tobacco in 1964 (**Figure 14**). After the proportion of adult smokers reached nearly 43% in 1966, it subsequently declined to about 23.4% in 2001.

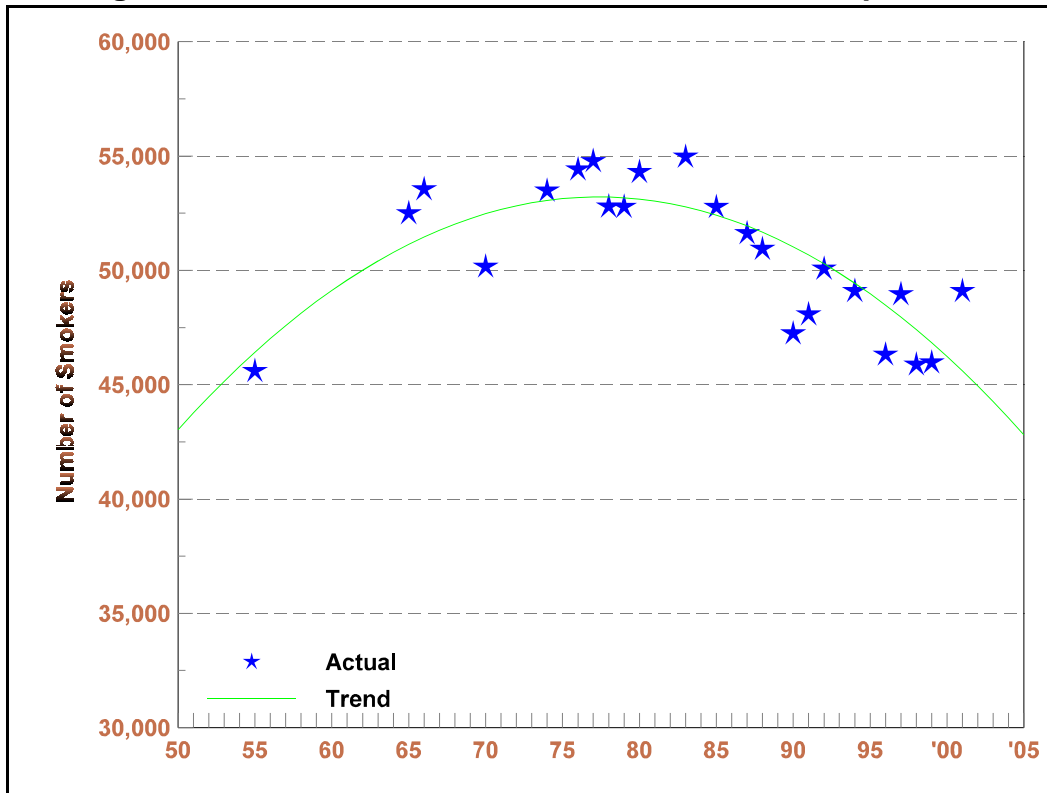
Figure 14. Cigarette Smoking Prevalence of the U.S. Adult Population



Primary data source, NIH, CDC.

Consequently, the size of the adult smoking population not only has failed to grow, it actually has declined from a peak of about 55 million in 1983 to a current level of about 49 million (a number about equal to the 1960 smoking population) (Figure 15).

Figure 15. Number of Adult Smokers in the U.S. Population

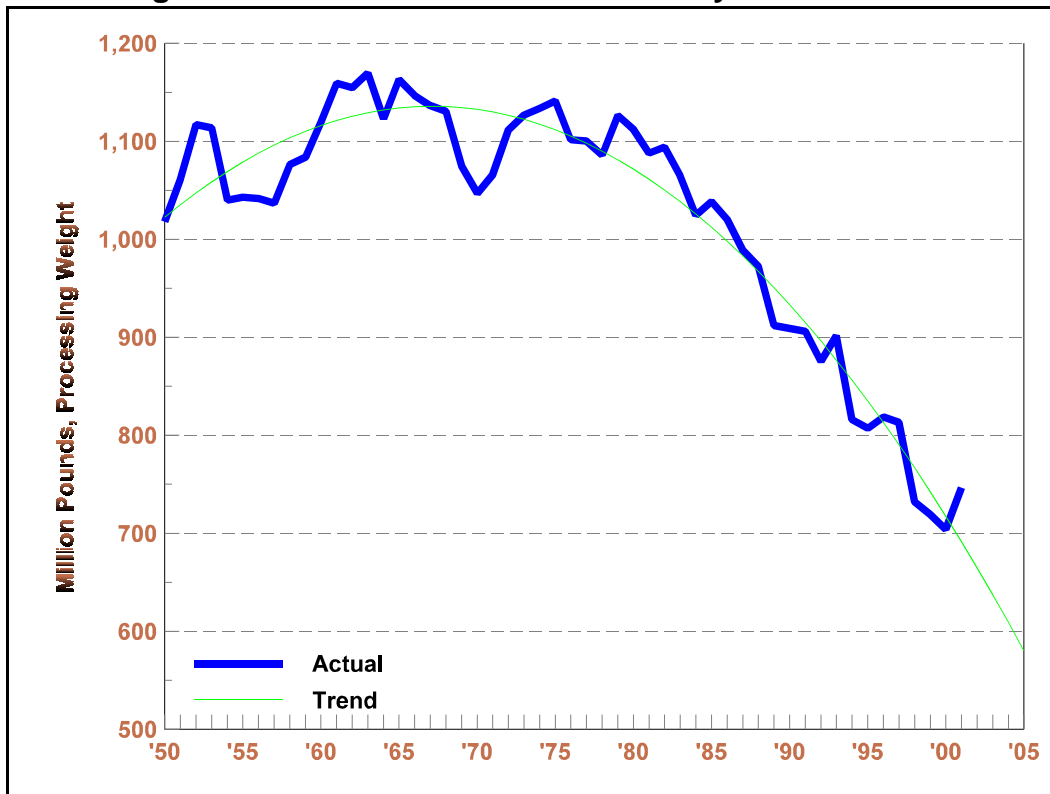


Primary data source, NIH, CDC. Trend $R^2 = .72$.

U.S. Consumption of U.S.-Grown Cigarette Tobacco

Since farmers grow tobacco, they likely are more interested in the consumption of cigarette tobacco than of cigarettes. From a peak of 1.17 billion pounds (processing weight) in 1963, U.S. annual cigarette tobacco consumption has declined to 747 million pounds in 2001 (Figure 16).

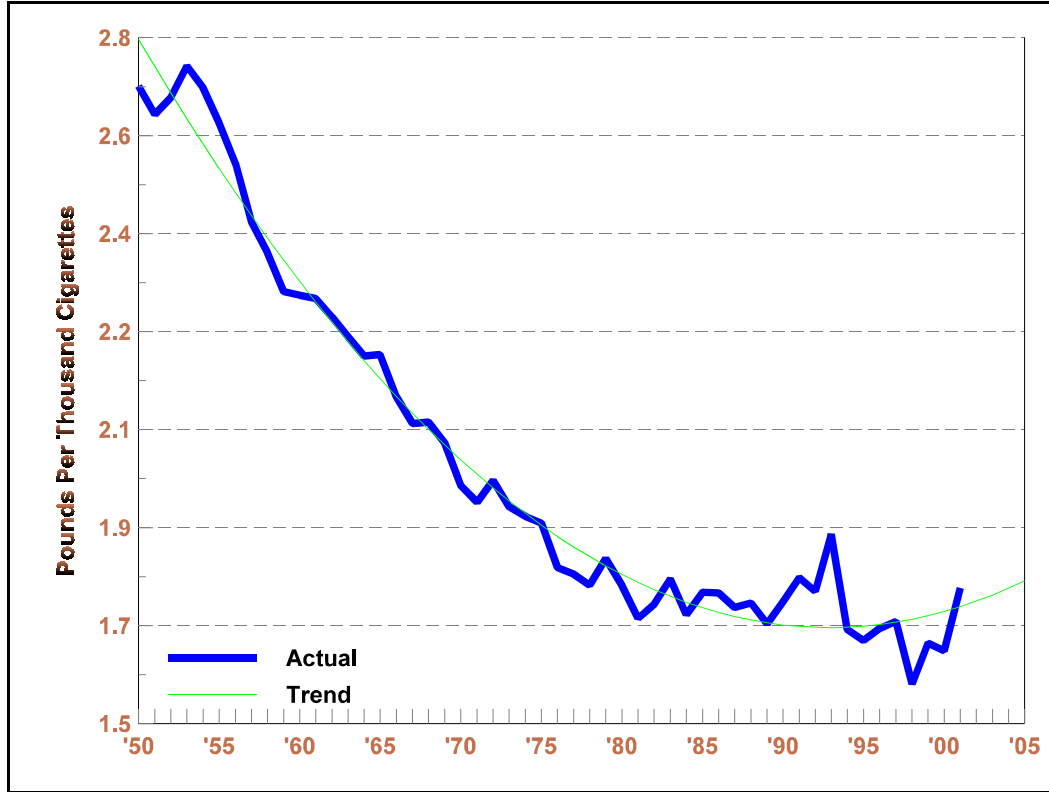
Figure 16. Total Tobacco Consumed by U.S. Smokers



Primary data source, USDA, ERS. Trend $R^2 = .93$.

The drop in pounds of tobacco smoked is a reflection of the declining number of smokers combined with a smaller amount of tobacco in each cigarette. A long steady decline in the amount of tobacco in cigarettes began in 1953 and continued to the late 1970s (**Figure 17**). For the first half of this century, cigarettes contained about 2.7 pounds of tobacco per thousand pieces. Since 1980, the tobacco content has averaged about 1.7 pounds per thousand pieces—a 37% reduction from the level of the 1950s.

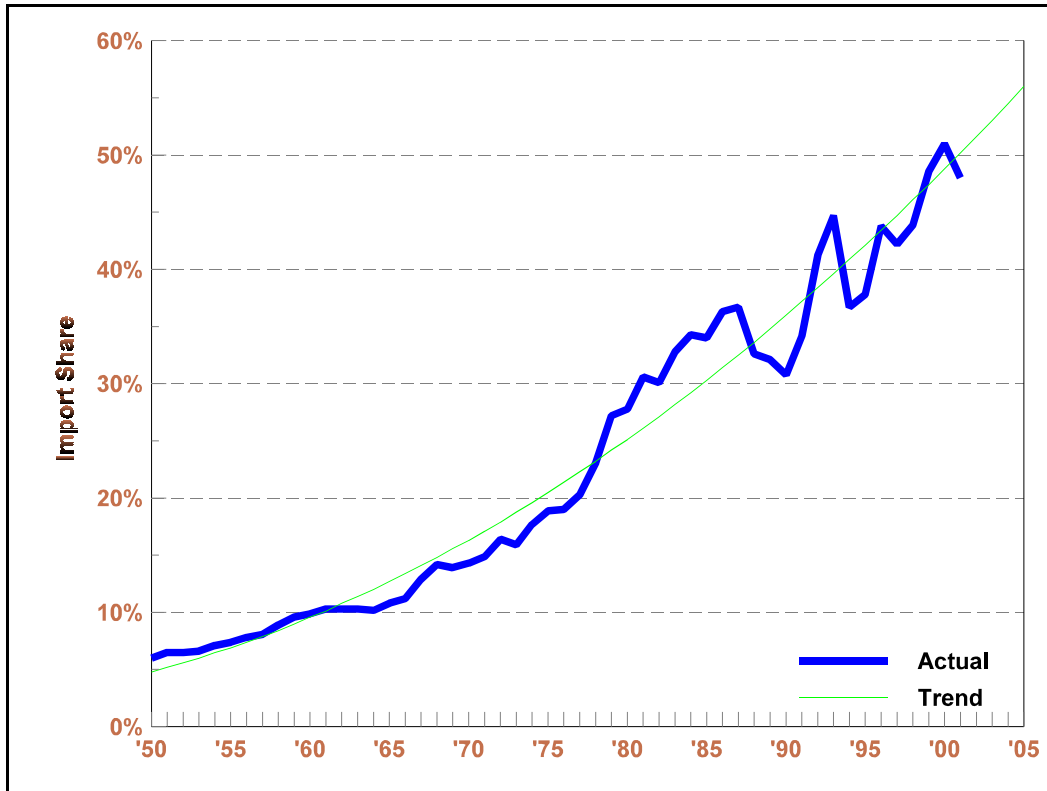
Figure 17. Tobacco Content of U.S.-Manufactured Cigarettes



Primary data source, USDA, ERS. Trend $R^2 = .97$.

The utilization of U.S.-produced tobacco in cigarettes has been further reduced by the substitution of foreign-grown tobacco. The proportion of foreign tobacco in U.S.-manufactured cigarettes has been increasing since 1950. In 1950, foreign tobacco content amounted to 6%, but by 2001 it reached 48% (**Figure 18**).

Figure 18. Share of Imported Tobacco in U.S.-Manufactured Cigarettes

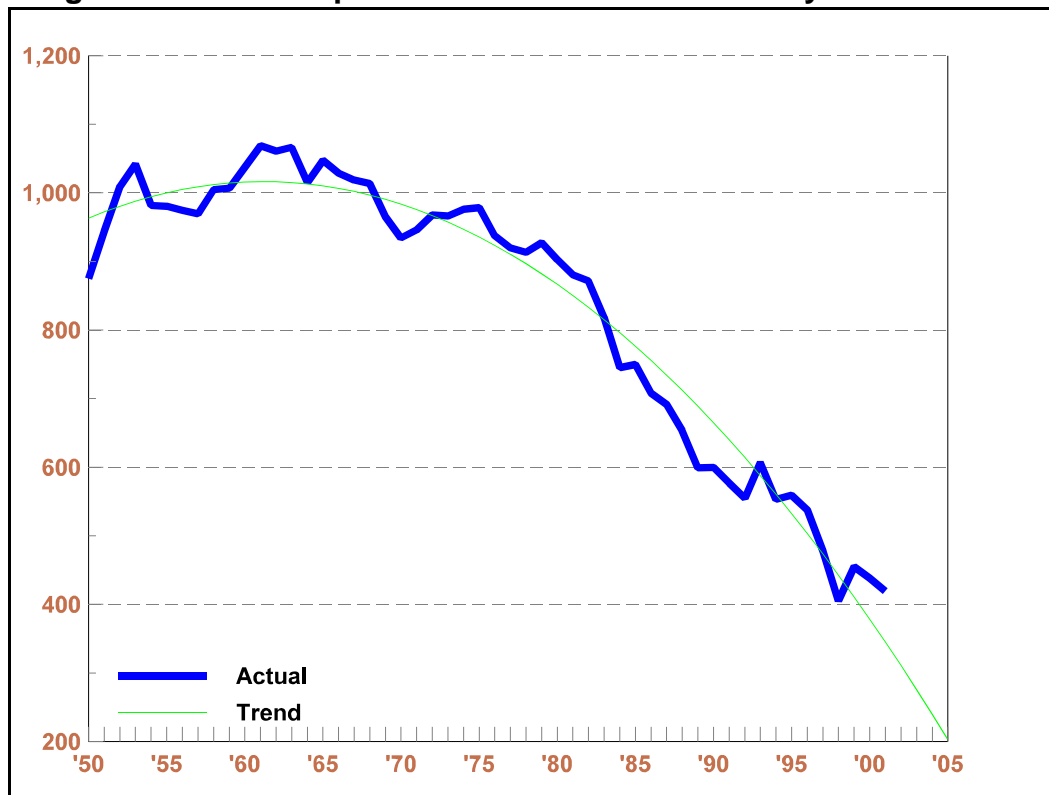


Primary data source, USDA, ERS. Trend $R^2 = .97$.

The share of foreign tobacco in U.S. cigarettes might have been expected to decline in response to the 75% domestic content law that took effect January 1, 1994. However, the tariff rate quota, which replaced the domestic content law in September 1995, does not serve as an effective import barrier because of its generous size and because manufacturers can recover the duty they pay on imported tobacco if it is subsequently exported in cigarettes. During the September 13, 2001 through September 12, 2002 quota year, 247.4 million pounds declared weight were imported under the 332.2 million pound limit (amounting to 74% of the quota).

How do the combined forces of a gradually declining population of cigarette smokers, a declining per capita consumption rate, a reduced quantity of tobacco in each cigarette, and the substitution of foreign tobacco for domestic tobacco in cigarettes translate into consumption of domestic tobacco by U.S. smokers? **Figure 19** shows a relatively steady decline from 1,029 million pounds in 1966 to 419 million pounds in 2001. A simple linear projection puts the consumption of U.S.-grown tobacco by U.S. smokers at 203 million pounds in the year 2005.

Figure 19. Consumption of U.S.-Grown Tobacco by U.S. Smokers



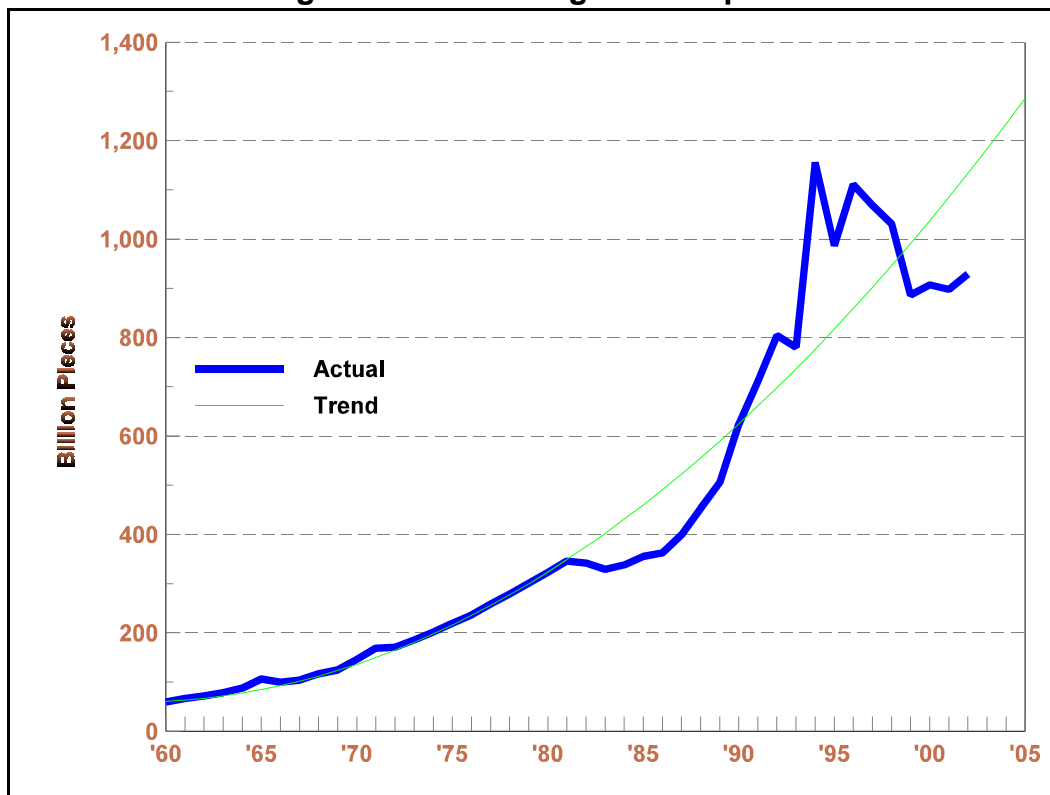
Primary data source, USDA, ERS. Trend $R^2 = .96$.

Cigarette Exports

Cigarette manufacturers have not had to depend solely upon the U.S. market for the sale of cigarettes. In sharp contrast to the declining domestic market, the rest of the world has offered U.S. cigarette makers opportunities for expansion. World cigarette trade has been increasing steadily for most of the past 30 years (**Figure 20**). The ups and downs of the past 6 years are unusual and are partially attributed to financial crises in Asia and Eastern Europe that impacted demand. However, with increasing incomes and consumption in many of the developing countries of the world, there is little reason to believe the longer term opportunity for growth in these markets has stopped. However, there is a growing health concern throughout the world combined with restraints on advertising that could reduce the growth prospects for cigarette manufacturers.

World consumption in 2002 (using world cigarette production as a proxy for consumption), excluding the United States, may have been about 5 trillion cigarettes, with about one-third being American-style cigarettes made from primarily flue-cured and burley tobacco. If the milder American-style cigarette is the preferred choice, then manufacturers have a large market of existing smokers yet to be reached with American-style cigarettes.

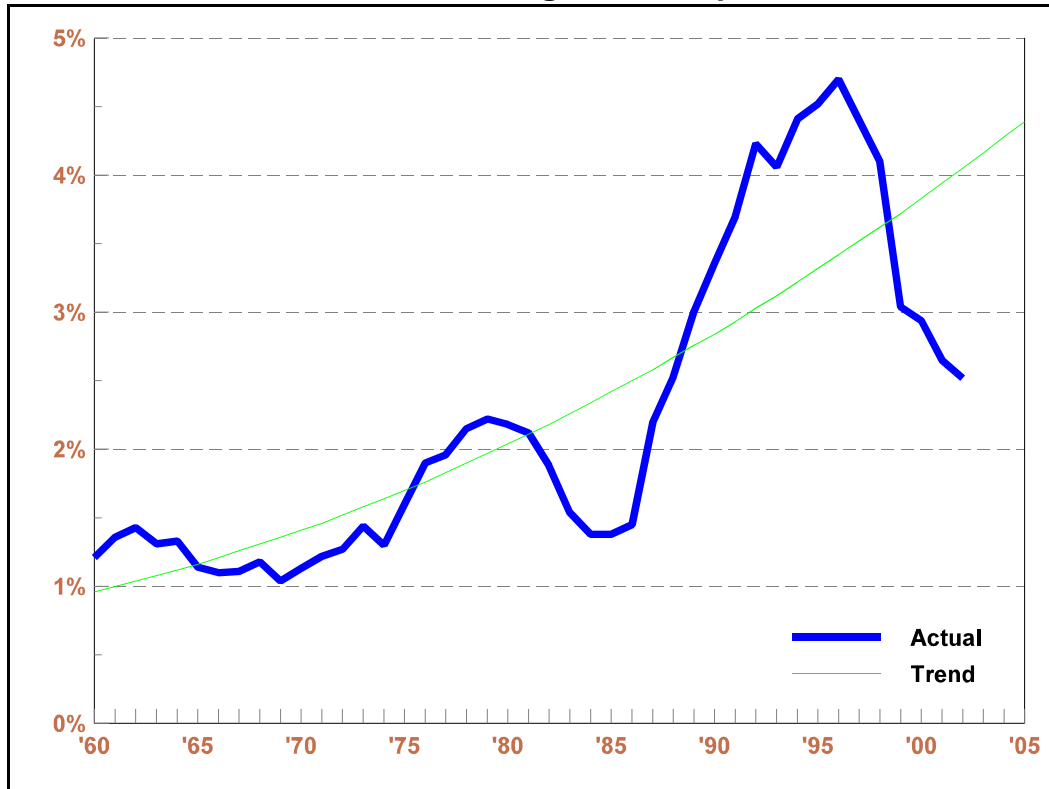
Figure 20. World Cigarette Exports



Primary data source, USDA, FAS. Trend $R^2 = .93$.

U.S. domestic cigarette manufacturers captured a sizable part of the foreign cigarette consumer market. In fact, between 1980 and 1996 the U.S. exports grew from 2.18% to 4.70% of foreign consumption (**Figure 21**).

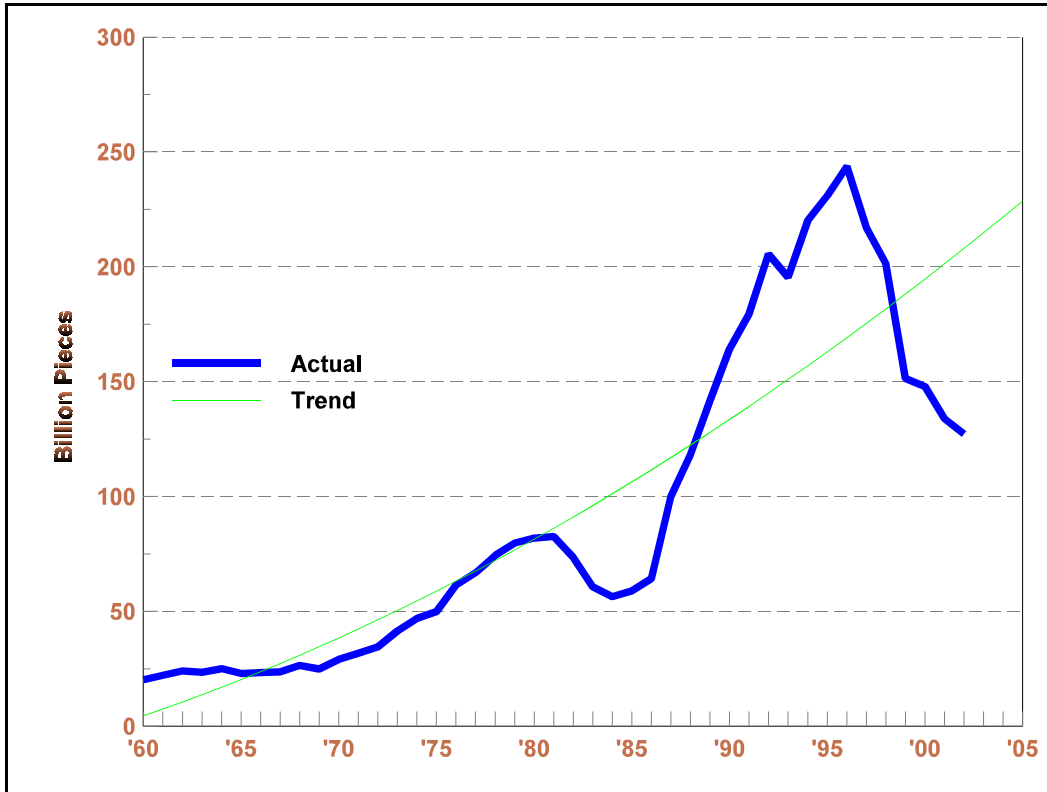
**Figure 21. U.S. Cigarette Exports
As Share of Foreign Consumption**



Primary data source, USDA, FAS. Trend $R^2 = .66$.

In absolute terms, U.S. cigarette exports increased from about 82 billion pieces to about 244 billion pieces — a 200% increase (**Figure 22**). Annual exports then dropped dramatically to an estimated 127 billion pieces in 2002. The decline reflects the financial crises in Asia and Eastern Europe, and more importantly the expansion in overseas production by U.S. companies. The expansion in foreign production by U.S. companies suggests less likelihood of recovery for U.S. cigarette exports in the future.

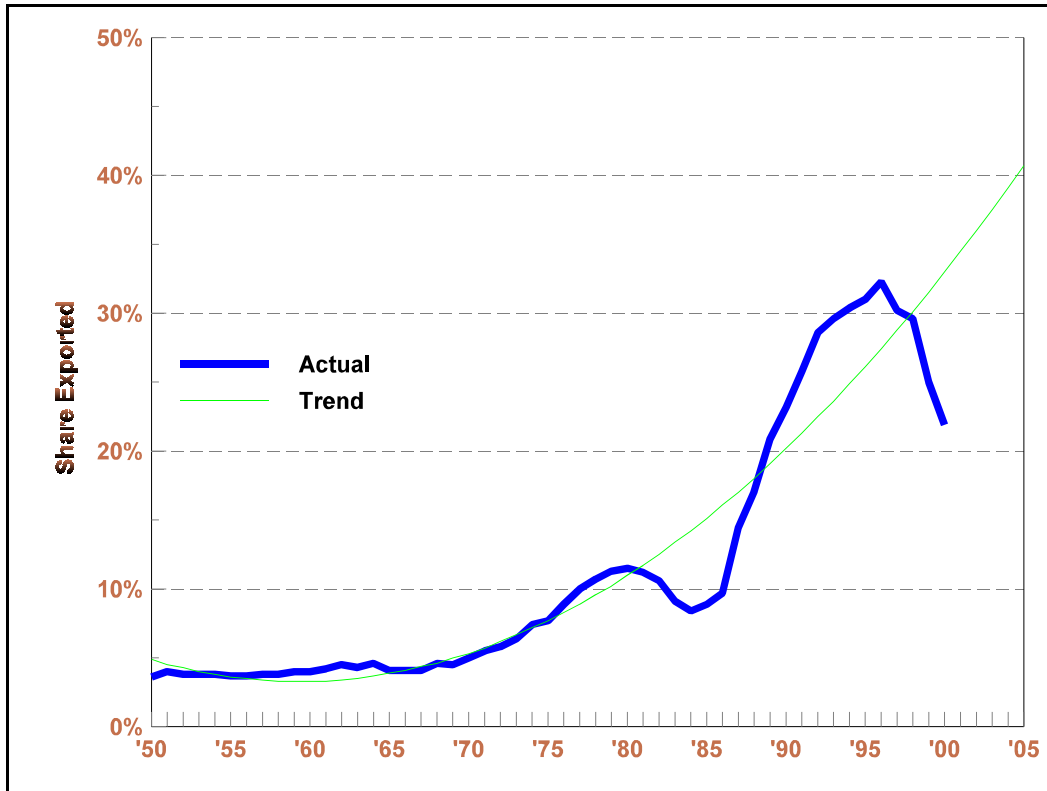
Figure 22. U.S. Cigarette Exports



Primary data source, USDA, ERS. Trend $R^2 = .76$.

Exports grew from less than 10% of the total market for U.S. cigarette manufacturers in the mid-1980s to 32% in 1996, and dropped to 22% in 2002 (Figure 23). In spite of the recent decline, the foreign cigarette market remains important to America's farmers as an outlet for their tobacco, taking nearly 130 million pounds farm weight in 2002 (15% of production).

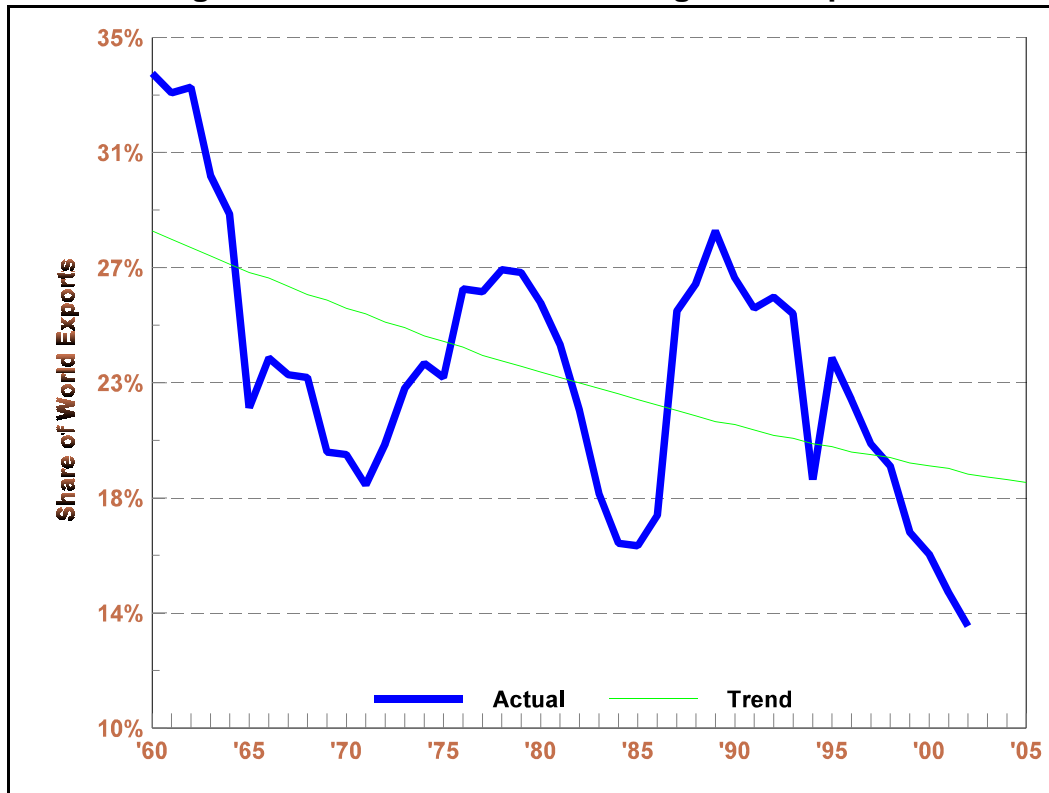
Figure 23. Exported Cigarettes as Share of U.S. Output



Primary data source, USDA, ERS. Trend $R^2 = .90$.

The growth in U.S. cigarette exports was dramatic. In fact, the export of U.S. cigarettes provided the only growth market for domestic leaf tobacco after 1978. However, the future may not keep pace with the past. Domestic manufacturers have actually lost market share. In the early 1960s, the United States accounted for more than 33% of global cigarette exports. In 2002, by contrast, the U.S. share was 14% (**Figure 24**). The data are too erratic to give statistical validity to a trend line, but the large loss of market share does raise questions about the global competitiveness of domestic manufacturers.

Figure 24. U.S. Share of World Cigarette Exports



Primary data source, USDA, FAS. Trend $R^2 = .30$.

The apparent lack of competitiveness of domestic cigarette manufacturers may be more of a problem for U.S. growers than for the manufacturers. Philip Morris, the largest domestic manufacturer is addressing the problem by acquiring foreign manufacturing plants. These foreign operations will likely be the source of cigarettes supplying the growing global demand for American-style cigarettes. As anecdotal evidence, Philip Morris claims in its 2002 Annual Report to stockholders a 3.5% increase in sales from its international operations. That increase pushed Philip Morris International's total shipments (non-U.S.) to 723.1 billion cigarettes. In contrast, total U.S. output was 565 billion (22% less than Philip Morris off-shore production), and U.S. exports declined 5%. R. J. Reynolds Tobacco, the second largest U.S. cigarette manufacturer, adopted a different strategy by selling its international operations to Japan Tobacco Inc. in 1999.