

## 6. Measuring the Impact of Tobacco on State Economies

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## 6. Measuring the Impact of Tobacco on State Economies

*On the basis of available evidence, states' economic dependence on tobacco can be shown to be a factor countervailing the efforts of upstream, policy-based interventions such as those of the American Stop Smoking Intervention Study (ASSIST). In areas such as tobacco excise taxes and the adoption of tobacco control policies, there are substantial differences between national averages and those of tobacco-producing states. Therefore, a state-level variable representing the state's economic dependence on tobacco farming and manufacturing was developed for use as a covariate in the ASSIST evaluation regression analyses.*

*This chapter outlines the issues and assumptions leading to the development of this economic dependence variable, which was based on the economic contribution of tobacco growing and manufacturing, within a broader context including factors such as tobacco consumption, exporting, and importing. The chapter also examines research on the state-level economic impact of tobacco, the wide divergence in assumptions and outcomes between industry-sponsored and non-industry-sponsored studies, and trends toward a continued diminishing impact of tobacco on state economies over time.*

### Introduction

This chapter describes the development of a measure for state economic dependence on tobacco, as a covariate factor in the analyses performed for the ASSIST evaluation model.<sup>1</sup> It contains some basic background information on tobacco growing and manufacturing in the United States, describes studies by the tobacco industry and others that assess the economic contribution of tobacco to the national economy and the economies of individual states, reviews the methods used to construct state-level measures of the economic impact of tobacco for use in the ASSIST evaluation, and discusses these data and associated trends.

Tobacco has played an important role in the economy of the United States since the colonial era. American Indians presented Christopher Columbus with gifts of tobacco upon his arrival in 1492, and he introduced tobacco to Europe upon his return there. As demand rose in Europe, tobacco became the most important American agricultural export of the late eighteenth century.<sup>2</sup> High tobacco tariffs in England helped lead to the American Revolutionary War. Subsequently, the tobacco industry contributed significantly to the economic growth of the United States through much of the nineteenth and twentieth centuries.

Although the consumption of tobacco products has declined in recent years, tobacco growing and manufacturing continue to be important parts of several state economies, with a potential impact on the implementation of upstream, policy-based tobacco control

interventions in these states. Evidence such as the following suggests that the economic importance of tobacco plays a key role in shaping state tobacco control policies and activities, social norms about tobacco use, and, consequently, tobacco use itself:

- As of January 1, 2004, the four states with the lowest cigarette excise taxes per pack were Virginia (2.5¢), Kentucky (3¢), North Carolina (5¢), and South Carolina (7¢), all among the top tobacco-growing states. Since then, Virginia, Kentucky, and North Carolina have all significantly increased their cigarette excise taxes, while South Carolina still ranks among the lowest.
- The average cigarette excise tax in the six leading tobacco-growing states (Kentucky, North Carolina, Georgia, South Carolina, Tennessee, and Virginia) is currently 25.7¢ per pack, while the average in non-tobacco-growing states is 100.5¢ per pack. The overall average excise tax for all states as of February 2006 is 91.7¢.
- The strength of state clean indoor air laws in non-tobacco-growing states was nearly five times that in the six leading tobacco-growing states, as measured by a comprehensive index that accounts for state preemption in 1999.<sup>3</sup>

Limited empirical evidence supports the notion that the economic impact of tobacco on a state's economy can act as a barrier to the adoption of effective tobacco control policies. Chaloupka and Saffer,<sup>4</sup> for example, found that states with greater per capita production of tobacco were less likely to adopt laws

restricting smoking, with a statistically significant effect on the adoption of only the most comprehensive restrictions. Similarly, Ohsfeldt and his colleagues<sup>5</sup> found that the per capita value of state tobacco production had a negative impact on the strength of state restrictions on smoking and on state cigarette excise taxes. As a result of findings such as these, a study was undertaken as part of the ASSIST evaluation that ultimately led to state-level economic dependence on tobacco being quantified as a covariate in the evaluation analysis.

## Background

### Tobacco Growing

The 2002 Census of Agriculture indicates that there were 56,977 farms that grew tobacco in the United States in that year, just under 2.7% of all U.S. farms.<sup>6</sup> These farms used 428,631 acres to grow tobacco—less than 0.5% of all farm acreage in the United States. This percentage was down sharply from the 93,530 farms and 837,363 acres reported in the 1997 Census of Agriculture. Tobacco farming generally has been quite profitable, with the typical farm that grows tobacco generating nearly four-fifths of its gross income from tobacco.<sup>7</sup> While these figures indicate a significant reduction in the number of tobacco farms and acreage devoted to tobacco growing, there has been a sharp rise in the average tobacco acreage per tobacco farm, with the average acreage per farm increasing by nearly two-thirds from 1987 to 2002.

Tobacco growing in the United States has been declining for several decades, and the rate of decline has been accelerating in recent years (see figure 6.1). Overall tobacco leaf production peaked at more than 2.3 billion pounds in 1963 and then declined gradually from 1963 through 1990. From 1990 through 1998, production was relatively stable, averaging about 1.6 billion pounds per year. Since 1998, however, overall leaf production has dropped sharply, falling by nearly 50%.

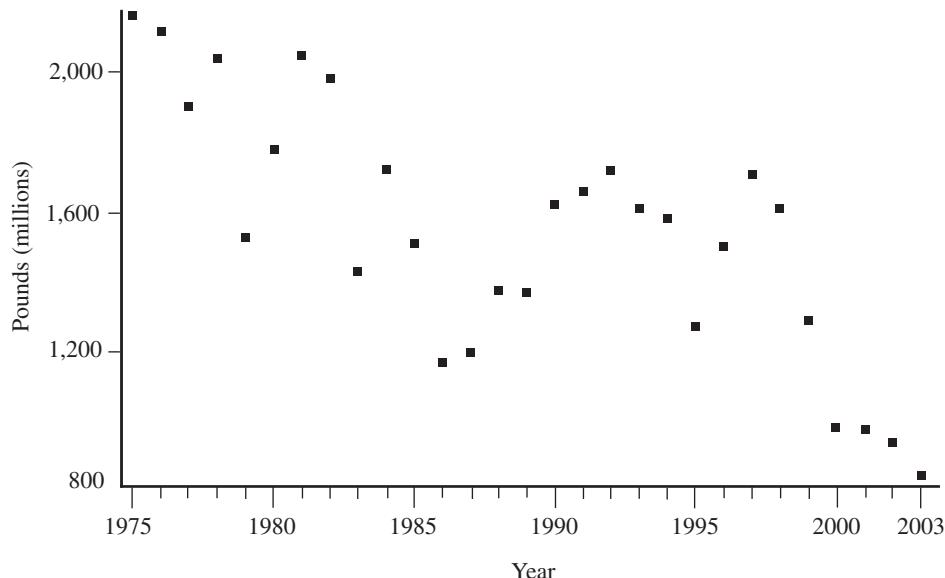
Several factors have contributed to the decline in overall tobacco leaf production in the United States (see figure 6.2):

- **Declining U.S. cigarette production.** U.S. cigarette production peaked at just over 750 billion cigarettes in

1996 and has declined sharply since then, falling to just under 500 billion cigarettes by 2003.

- **Reduced consumption.** U.S. cigarette consumption peaked at 640 billion cigarettes in 1981 and then declined steadily through the early 1990s before leveling off for several years. Since 1998, overall cigarette consumption has further declined by about 8%. Part of this decline is explained by tax and price increases, stronger tobacco control policies, and increased investments in tobacco control programs.
- **Increased cigarette imports.** Cigarette imports have risen over the past several years, from just under 3 billion cigarettes in 1996 to more than 23 billion cigarettes in 2003.

**Figure 6.1. Tobacco Leaf Production**



Source: USDA. 2003. *Tobacco situation and outlook yearbook*. Washington, DC: USDA, Market and Trade Economics Division, Economic Research Service; USDA. 2004. *Tobacco outlook*. Washington, DC: USDA, Economic Research Service.

### A Small and Shrinking Fraternity: Tobacco Growing by the Numbers

Beyond the fact that tobacco farming has declined as a percentage of state revenue, the impact of these declines has been tightly concentrated. Although some form of tobacco is grown in nearly half of the U.S. states, the vast majority of tobacco leaf comes from a small number (6) of states, and the economies of those states are, in turn, affected disproportionately by the recent declines.

- Based on cash receipts from tobacco in 2002, the states most dependent on tobacco farming and manufacturing include (share of total cash receipts in parentheses) North Carolina (37.1%), Kentucky (26.3%), Tennessee (9.1%), Virginia (7.3%), South Carolina (6.2%), and Georgia (6.0%).<sup>a</sup> Other states with cash receipts from tobacco of at least \$4 million in 2002 include Florida, Ohio, Indiana, Connecticut, Pennsylvania, Massachusetts, Wisconsin, Missouri, Maryland, and West Virginia. In total, this second group of states grows less than 8% of the tobacco crop in the United States.
- Despite the fact that 6 states account for the largest share of the overall U.S. tobacco crop, cash receipts from tobacco typically account for a relatively small percentage of receipts from all farm commodities; in 2002, the only state in which tobacco accounted for more than 10% of receipts from all farm commodities was Kentucky (at 14.4%).<sup>a</sup>
- Regional tobacco varieties represent a very small share of the overall market, including Southern Maryland, Virginia dark fire-cured, Kentucky-Tennessee fire-cured, Virginia sun-cured, Green River, One Sucker, Pennsylvania seedleaf filler, Connecticut Valley broadleaf binder, Wisconsin binder, and Connecticut Valley cigar wrapper. The vast majority of the tobacco grown in the United States is flue-cured and burley tobacco, accounting for approximately 61% and 33%, respectively, of tobacco leaf production in 2003.<sup>b</sup>

<sup>a</sup>U.S. Department of Agriculture. 2003. *Tobacco situation and outlook yearbook*. Washington, DC: Market and Trade Economics Division, Economic Research Service, U.S. Department of Agriculture.

<sup>b</sup>Capehart, T. 2004. *Tobacco outlook* (TBS-257, 09.17.04 Summary). Washington, DC: U.S. Department of Agriculture, Economic Research Service.

<http://usda.mannlib.cornell.edu/reports/ersrr/specialty/tbs-bb/2004/tbs257.pdf>.

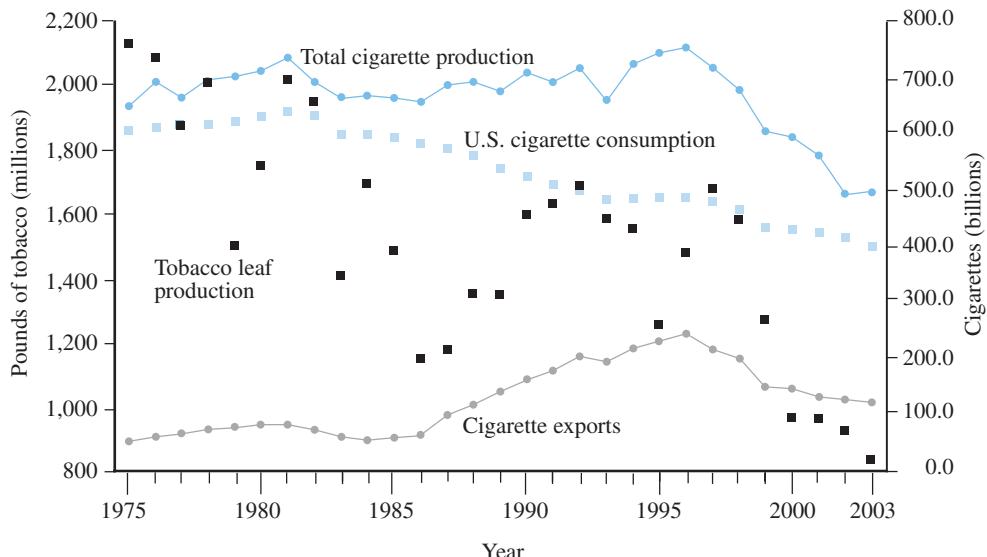
#### ■ Decreased cigarette exports.

Much more of the recent decline in production is the result of the decline in cigarettes exported from the United States. Total exports peaked at nearly 244 billion cigarettes in 1996 but had fallen by more than half (to just over 121 billion cigarettes) in 2003. Much of this decline can be attributed to leading U.S. cigarette manufacturers' shifting production overseas in recent years.

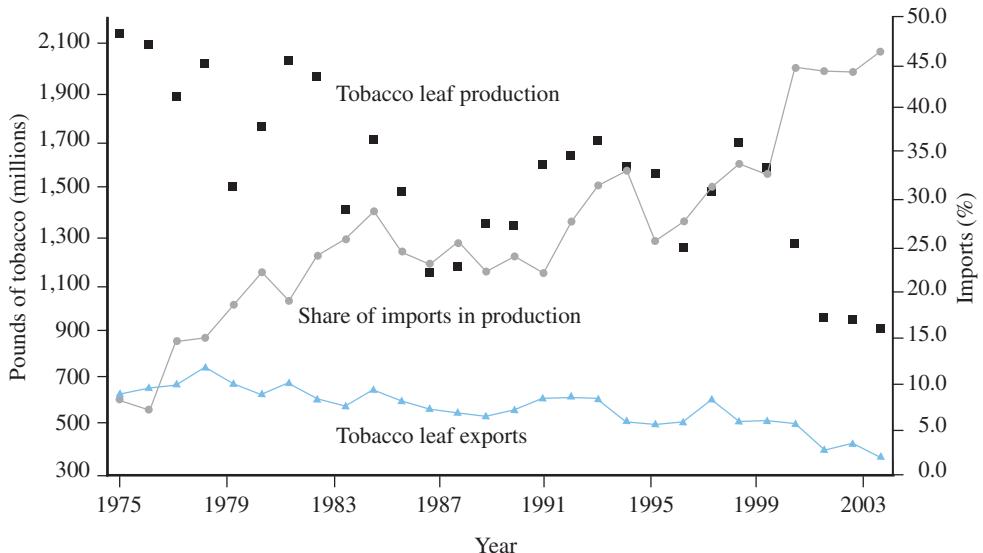
Changes in the global markets for tobacco leaf have also contributed to the decline in U.S. tobacco leaf production

(see figure 6.3). One such change is the sharp increase in U.S. imports of foreign-grown tobacco leaf. Imports of flue-cured tobacco grew from an average of 15.6 million pounds per year in the early 1970s to an average of 192.6 million pounds per year for the most recently available 5 years (1998 through 2002); similar patterns exist for imports of burley tobacco (average of 19.0 million pounds per year in the early 1970s and 202.4 million pounds per year for 1998–2002).<sup>8</sup>

Consequently, the share of imported tobacco leaf used in U.S. cigarette

**Figure 6.2. Tobacco Leaf Production and Cigarette Production, Consumption, and Exports**

Source: USDA. 2003. *Tobacco situation and outlook yearbook*. Washington, DC: USDA, Market and Trade Economics Division, Economic Research Service; USDA. 2004. *Tobacco outlook*. Washington, DC: USDA, Economic Research Service.

**Figure 6.3. Tobacco Leaf Production and Exports, and Imports' Share in U.S. Use**

Source: USDA. 2003. *Tobacco situation and outlook yearbook*. Washington, DC: USDA, Market and Trade Economics Division, Economic Research Service; USDA. 2004. *Tobacco outlook*. Washington, DC: USDA, Economic Research Service; USDA. 2004. *U.S. tobacco import update*. Washington, DC: USDA, Economic Research Service.

production rose from less than 1% in the early 1970s to 46.3% in 2002.<sup>8</sup> At the same time, exports of U.S.-grown tobacco leaf have fallen by nearly half over the past 25 years, from a peak of 765 million pounds in 1978 to 384 million pounds in 2002.<sup>8</sup> The significant growth in tobacco farming in other countries and reductions in barriers to trade in tobacco leaf have greatly increased competition in the global tobacco markets, resulting in lower-priced and better-quality tobacco leaf. The relatively high U.S. tobacco leaf prices (in large part the result of the price support system in the United States) have contributed to the declines in both domestic and foreign demand for U.S.-grown tobacco leaf.

### Tobacco Manufacturing

While tobacco leaf is the primary ingredient in tobacco products, it accounts for a very small share of the overall value of tobacco products. Gale and his colleagues<sup>7</sup> estimated that in 1997, domestically grown tobacco leaf accounted for about 2.3% of the total value of the tobacco products consumed in the United States. The largest share of this total, 43%, was the value added in tobacco product manufacturing—defined as the final value of the tobacco products produced minus the costs of the raw materials and intermediate products used in producing tobacco, such as tobacco leaf, papers, filters, and packaging materials. A relatively small share of this percentage was labor costs (just over 6%), whereas a much larger share went to advertising (almost 20%). Capital costs (including profits) accounted for much of the remainder of the manufacturing share, while

wholesale and retail value added and federal, state, and local taxes accounted for the rest of the overall value.

There are three primary types of manufacturing related to tobacco: stemming and redrying, manufacturing cigarettes, and manufacturing other tobacco products. In contrast to the large number of tobacco farms, relatively few establishments are involved in tobacco manufacturing. On the basis of the most recently available data from the Census of Manufacturers, in 1997, 25 establishments owned by 14 companies were involved in tobacco stemming and redrying,<sup>9</sup> 13 establishments were owned by 9 companies involved in manufacturing cigarettes,<sup>10</sup> and 63 establishments were owned by 52 companies involved in manufacturing other tobacco products. Collectively, these establishments employed 33,620 persons, with cigarette manufacturing accounting for nearly two-thirds of the total.<sup>9–11</sup> Although tobacco product manufacturing involves relatively few people, the value added by manufacturers is significant. In 1997, the value added in production was \$29.3 billion for manufacturing cigarettes, \$2.7 billion for manufacturing other tobacco products, and \$0.7 billion for stemming and redrying.

In contrast to tobacco farming, tobacco manufacturing takes place in a small number of states. As with tobacco farming, however, most of the economic contribution of tobacco manufacturing is concentrated in even fewer states. Almost two-thirds of the value added from tobacco manufacturing in 1997 came from manufacturing in North Carolina (34.3%), Virginia (21.4%), and

Kentucky (9.8%). Other states in which tobacco products are manufactured include Alabama, Florida, Georgia, Illinois, Pennsylvania, Tennessee, and West Virginia.

Overall employment in tobacco manufacturing has been falling for several decades. In 1977, almost 61,000 persons were employed in tobacco manufacturing; by 2000, employment had fallen by more than half to just over 28,000 persons. As with the declines in tobacco leaf production, part of this decline in employment can be attributed to declines in overall U.S. cigarette production and consumption. In addition, much of the decline in employment is the result of tobacco industry actions, including increased automation of production processes (a longstanding trend)<sup>12</sup> and the shifting of production from the United States to other countries (particularly important in more recent years). Major factors behind the shift to overseas production include reductions in trade and investment barriers, the opening of previously closed markets (particularly in Asia and Central/Eastern Europe), lower labor and other operating expenses, and an interest in locating in expanding markets.

## **Studies on the Economic Impact of Tobacco**

### **Tobacco-Industry-Sponsored Studies**

The earliest studies on the impact of tobacco growing, manufacturing, and related activities on the U.S. and state economies were produced by the tobacco industry, and comparable studies

have been produced in numerous other countries. Over the past 25 years, industry-commissioned studies in the United States have estimated the industry's contributions to employment, income, and tax revenues.<sup>13–18</sup> These studies have often been used in efforts to influence legislators in debates over tobacco control policies by arguing that stronger tobacco control policies and the resulting reductions in tobacco use would lead to significant job losses and reductions in income and tax revenues. More recently, reductions in industry settlement payments to the states have been added to the list of potential negative economic consequences of tobacco control policies (see the discussion on the Philip Morris USA Web site about the impact of state cigarette tax increases on Master Settlement Agreement payments).<sup>19,20</sup>

The tobacco-industry-sponsored studies typically conclude that tobacco makes a significant contribution to virtually every state economy. The methodologies used in these studies are similar. For example, the 1996 American Economics Group<sup>18</sup> study describes the economic impact of tobacco in multiple sectors: the core sector, the supplier sector, and the expenditure-induced sector.

- The *core sector* includes not only the growing of tobacco and the manufacturing of tobacco products but also the wholesale and retail distribution of tobacco products.
- The *supplier sector* is defined by the industries that are involved in producing goods and services that are used by those in the core sector, including those supplying paper products; fertilizer for tobacco

farmers; and gas, water, and electricity used in farming, manufacturing, and distribution.

- The *expenditure-induced sector* reflects the “multiplier” effects associated with the spending resulting from the incomes generated by those working in the core and supplier sectors, as well as effects resulting from government spending of excise and sales tax revenues from tobacco products, and personal and corporate income taxes and FICA taxes from those in the core and supplier sectors.

The 1996 American Economics Group report, the most recent industry-sponsored, publicly available report, describes the economic impact of tobacco in 1994. This report concludes that tobacco generated over 1.8 million jobs that produced \$54.3 billion in wages and benefits, while total taxes generated from tobacco were almost \$36 billion. Most of tobacco’s economic impact comes from the supplier and expenditure-induced sectors rather than the core sector. For example, jobs in the core sector accounted for less than one-quarter of the total, whereas incomes earned in the core sector accounted for just over one-sixth of the total. Similarly, according to American Economics Group estimates, less than half of the taxes generated by tobacco come from sales and excise taxes on tobacco products, with the majority coming from personal, FICA, and corporate income taxes. Within the core sector, the jobs most clearly dependent on tobacco (those in tobacco growing, auction warehousing and distribution, and manufacturing) and the incomes they generate account for a small share

of the core sector totals (43.3% and 32.6%, respectively).

### Non–Tobacco-Industry-Sponsored Studies

In recent years, the tobacco-industry-sponsored studies have been increasingly scrutinized, and several recent studies have concluded that the estimates produced by the tobacco-industry-sponsored studies significantly overstate the impact of tobacco on the U.S. and state economies.<sup>21–25</sup> The key difference between these studies and the tobacco-industry-sponsored studies results from the non–tobacco-industry-sponsored studies’ focus on the net rather than gross economic impact of tobacco. Specifically, the non–tobacco-industry-sponsored studies explicitly model the alternative economic activity that would result if resources used for tobacco were used for other economic activity. This perspective is given little attention in the tobacco-industry-sponsored studies; for example, in the 1985 Chase Econometrics study,<sup>14</sup> the authors acknowledge that money not spent on tobacco would be reallocated to other spending and that there would be virtually no difference at the national level between economic activity with and without tobacco.

Warner and Fulton<sup>22</sup> were the first to formally address this issue in their analysis of the economic impact of tobacco on the Michigan economy. Using a relatively sophisticated macroeconomic model (the REMI model developed by Regional Economic Models, Inc.) adapted for Michigan, Warner and Fulton forecast the effects on employment and income

under alternative scenarios ranging from accelerations in the rate of decline of tobacco use to the complete elimination of tobacco consumption. They then compared these forecasts with those assuming a continuation of the current trend in tobacco consumption. In each scenario, the money that would have otherwise been spent on tobacco was redistributed to spending on other goods and services on the basis of the typical spending patterns of Michigan consumers. Assuming a doubling in the rate of decline in tobacco use, Warner and Fulton<sup>22</sup> predict relatively modest gains in employment and incomes in Michigan. Under the more extreme assumption that tobacco consumption would be eliminated, they estimate an overall increase of about 5,600 jobs in Michigan and an increase in Michigan incomes of \$226 million. These gains reflect the fact that Michigan is an importer of tobacco products and that, in the absence of tobacco, funds once spent on tobacco would be more likely to be spent on goods and services produced in Michigan, producing more jobs and higher incomes in Michigan.

As in Warner and Fulton's 1994 study,<sup>22</sup> Warner et al.<sup>24</sup> reallocated the money that would have been spent on tobacco to spending on other goods and services on the basis of regional consumption patterns. These estimates were compared with those generated by assuming that existing trends in tobacco use would continue. On the basis of their findings, Warner et al. conclude that industry claims about large job losses resulting from stronger tobacco control policies and programs and resulting declines in tobacco use are significantly

### The Regional Impact of Tobacco Economics

Warner and his colleagues<sup>a</sup> examined tobacco's net economic impact on regional economies, based on the eight regions defined by the U.S. Department of Commerce's Bureau of Economic Analysis, with the bureau's southeastern region divided into non-tobacco-growing and tobacco-growing/producing states. Modeling a period between 1993 and 2000, Warner et al. predict that

- A doubling of the downward trend in tobacco use would lead to a loss of 36,600 jobs in the southeastern tobacco region by 2000—only 0.2% of total employment in the region—with offsetting increases in the rest of the country.
- Even a total elimination of tobacco use would stabilize at slightly more than 1% of the employment in this region, while producing a net *gain* of jobs at a national level. Warner and colleagues predict a loss of about 303,000 jobs in the southeastern tobacco region in this case, stabilizing to 222,000 jobs by 2000 as the regional economy adjusted, but the number of jobs gained in other regions would rise to produce an overall increase of 133,000 jobs nationally.

<sup>a</sup>Warner, K. E., G. A. Fulton, P. Nicolas, and D. R. Grimes. 1996. Employment implications of declining tobacco product sales for the regional economies of the United States. *JAMA: The Journal of the American Medical Association* 275 (16): 1241–46.

overstated and that the real economic impact of tobacco is relatively small.

These forecasts are consistent with observed economic activity in major tobacco-growing regions, as described by the United States Department of Agriculture (USDA) in 1997.<sup>25</sup> In its review, the USDA concludes that the declines

in tobacco production in the 1980s had relatively little impact on the economies of major tobacco-growing regions, with inflation-adjusted income rising by 28% on average in all U.S. tobacco-growing counties from 1979 through 1989. The USDA study attributes this result to the fact that tobacco growing accounted for less than 1%, on average, of total incomes in these counties.

### Measuring the Economic Impact of Tobacco for ASSIST

On the basis of the studies discussed in the previous section, the measure of the contribution of tobacco to state economies developed for the ASSIST evaluation focuses on the core activities that are directly related to tobacco. Specifically, this measure was intended to focus on tobacco growing, warehousing, and manufacturing; the measure excludes the wholesale and retail distribution of tobacco products, the supplier sector, and the expenditure-induced sector, given that economic activity related to tobacco in these sectors would almost certainly be replaced by economic activity related to other goods and services in the absence of tobacco and, hence, does not depend on tobacco.

An initial examination of the data available from published sources as well as data presented in the tobacco-industry-sponsored studies<sup>16,18</sup> clearly indicated that tobacco warehousing was a relatively minor activity, with tobacco growing and tobacco product manufacturing accounting for 95% or more of direct tobacco employment and an even higher share

of income. Moreover, the correlations between the warehousing and tobacco-growing measures for both employment and income were very high (.94), indicating that tobacco growing served as an effective measure of both activities. Given the relatively minor economic contribution of tobacco warehousing, its high correlation with tobacco growing, and the lack of reliable state-level data on it, the measure developed for the ASSIST evaluation focused on tobacco growing and tobacco manufacturing.

Industry-sponsored studies make a variety of somewhat arbitrary assumptions (e.g., assuming that each tobacco-farming-related job is a half-time job and that the number of unpaid workers relative to paid workers is the same for all farms<sup>18</sup>) to produce estimates of the number of full-time-equivalent farmers growing tobacco and the incomes they earn from tobacco farming. For this evaluation, rather than adopting these arbitrary assumptions and the likely error that would be introduced into the economic impact measure, an alternative measure was used that more directly reflects the value of tobacco farming. Specifically, state-level cash receipts from tobacco, available from the USDA, were used to capture the contribution of tobacco farming to state economies.

Similarly, several alternative measures of the economic contribution from tobacco manufacturing were considered, including total employment in tobacco product manufacturing, total compensation in tobacco product manufacturing, and the value added from tobacco product manufacturing. Published data on these measures were available from

### The Problem of Quantifying Tobacco Labor

Alternative metrics were considered in the development of the measure of the impact of tobacco on state economies, including measures based on employment and wages. However, quantifying employment and wages for tobacco farming is a difficult task, given that few farmers grow tobacco exclusively (indeed, on farms that grow tobacco, only 6% of the land, on average, is used for tobacco<sup>a)</sup>; many working on farms are unpaid (e.g., owner-operators and family labor); and employment is seasonal and includes many temporary, short-term laborers.

<sup>a</sup>Gale, H. F. Jr., L. Foreman, and T. Capehart. 2000. *Tobacco and the economy: Farms, jobs and communities* (Agricultural Economic Report No. 789). Washington, DC: U.S. Department of Agriculture, Economic Research Service.

multiple sources, including the Bureau of Labor Statistics (the ES-202 reports), the Bureau of Economic Analysis (state annual personal income tables), and the U.S. Census Bureau (County Business Patterns reports). All data obtained were for Standard Industrial Classification 21, which includes the following activities: multiple aspects of tobacco processing; production of cigarettes, cigars, and other tobacco products; tobacco thrashing, stemming, and redrying; and related activities. Varying amounts of data are contained in these published reports, with some data unreported for confidentiality reasons (e.g., for confidentiality reasons, the BLS ES-202 reports do not contain information on employment when 70% or more of the total in the state is controlled by one firm). The published data were supplemented with

unpublished information from a variety of federal and state agencies, and, on the basis of historical trends and relative shares, some imputation was done to obtain estimates of employment in and compensation from tobacco manufacturing for each state in each year, with the imputation done so that the sum of state estimates equaled reported estimates for the United States.

To provide an understanding of the relative importance of tobacco to the overall state economy, all measures were divided by an appropriate measure of total economic activity in the state. Specifically, the dollar-denominated measures were divided by gross state domestic product (GSP), and the employment measures were divided by total employment in the state (both obtained from the Bureau of Economic Analysis). Finally, a single variable reflecting the combined economic contribution of tobacco growing and manufacturing was obtained by adding the measures of the value of crop receipts from tobacco as a share of GSP and the total compensation for tobacco manufacturing as a share of GSP. This variable was ultimately used as a covariate as part of state conditions for the regression analyses described in other chapters.

### State Data and Trends

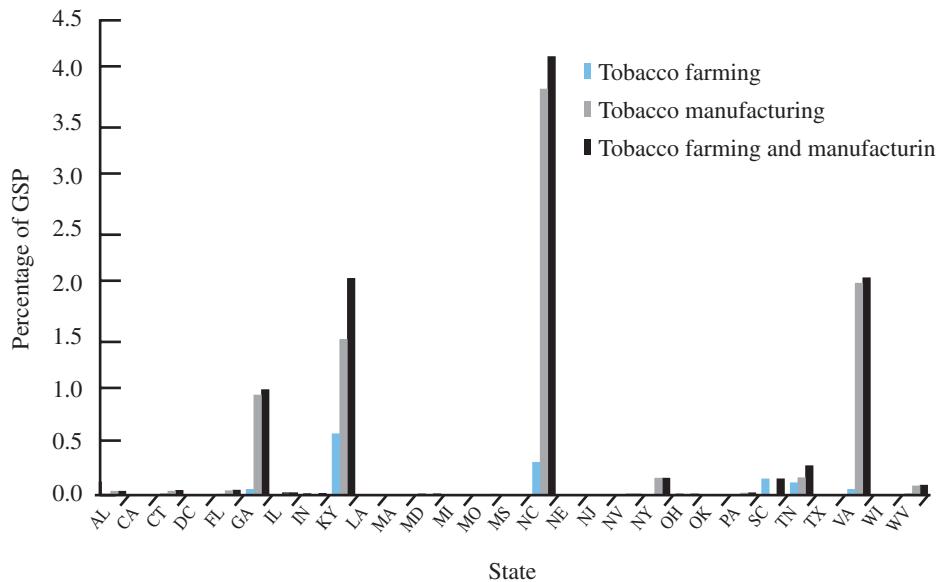
Several interesting observations emerge from the data on the contribution of tobacco to state economies. First, as illustrated in figure 6.4 (the data in figures 6.4–6.11 were calculated by the authors) and table 6.1, while tobacco growing and manufacturing do contrib-

ute to economic activity in a number of states, this contribution is relatively minor in most of these states. In 2000, for example, the share of GSP accounted for by tobacco farming and manufacturing was just over 4% in North Carolina, just over 2% in Kentucky and Virginia, and slightly less than 1% in Georgia. Over the period from 1979 through 2000, the share of GSP accounted for by tobacco growing and manufacturing exceeded 0.2% in any year in just two other states—South Carolina and Tennessee.

Second, as illustrated in figure 6.5, the economic contribution of tobacco to the national economy has been declining for most of the period from 1979 through 2000. Tobacco farming contributed just over 0.1% of gross domestic product (GDP) in the early 1980s; by 2000, this

was down to less than 0.03% of GDP. Tobacco manufacturing's contribution to GDP has been somewhat more stable but has been generally declining since the early 1990s. In general, the value of tobacco manufacturing depends heavily on the price of tobacco products, as can be seen by some of the larger changes in the share of GDP accounted for by tobacco manufacturing over time. For example, the “Marlboro Friday” reductions in the prices of leading cigarette brands in 1993 contributed to a significant decline in the economic impact of tobacco manufacturing, whereas the settlement-related price increases of the late 1990s contributed to the increase in the economic impact of tobacco manufacturing at the end of the period. Recent declines in the production of tobacco products have almost certainly

**Figure 6.4. Tobacco Farming and Manufacturing as Share of Gross State Product (GSP), 2000**



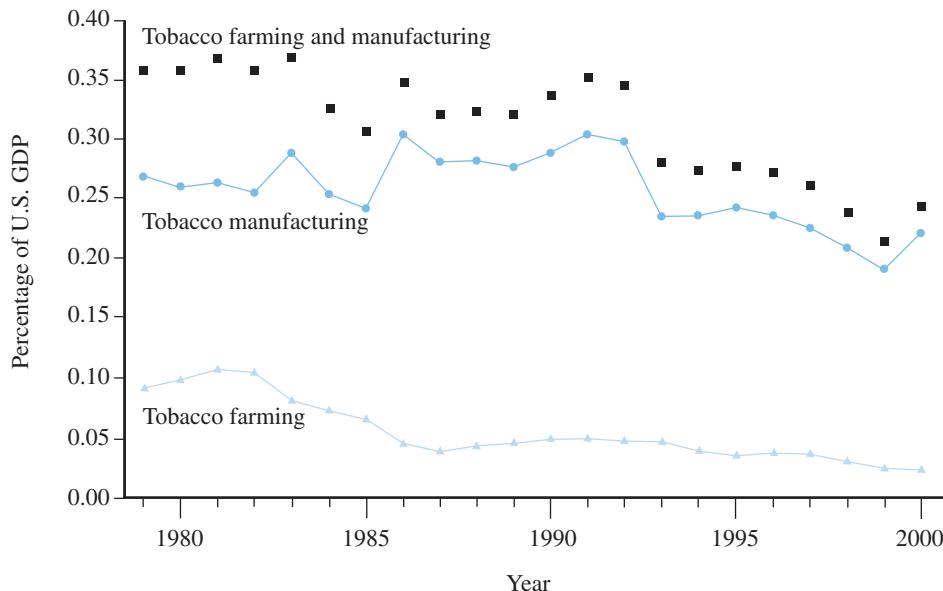
*Note:* Tobacco farming and manufacturing do not contribute to GSP in Alaska, Arkansas, Colorado, Hawaii, Iowa, Idaho, Maine, Minnesota, Mississippi, Montana, North Dakota, New Hampshire, New Mexico, Oregon, Rhode Island, South Dakota, Utah, Vermont, Washington, and Wyoming.

**Table 6.1. Percentages of Gross State Product from Tobacco Growing and Manufacturing**  
 (Shading indicates ASSIST states.)

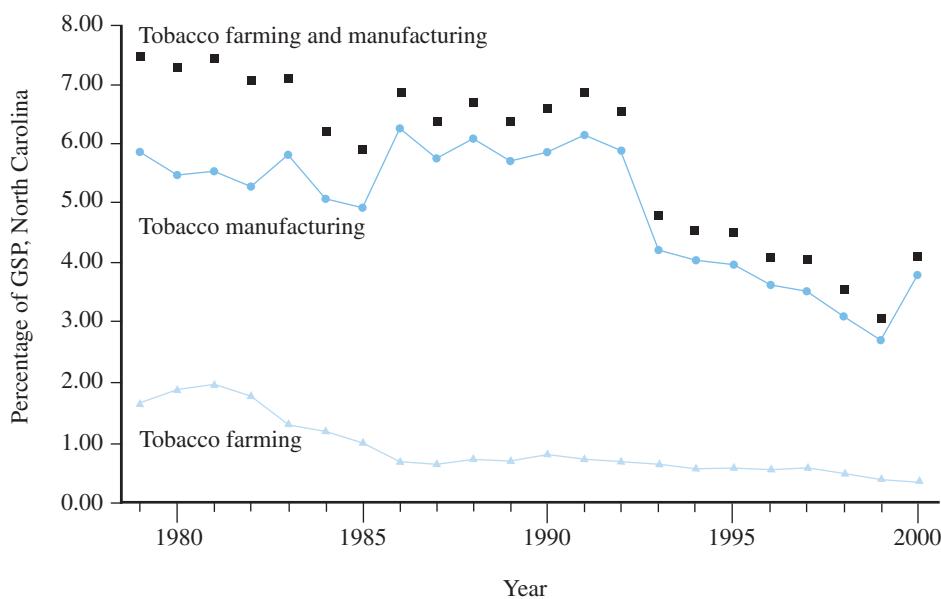
State	1992	1993	1994	1995	1996	1997	1998	1999
AK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AL	0.03	0.02	0.02	0.03	0.03	0.03	0.03	0.03
AR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AZ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CT	0.11	0.07	0.05	0.06	0.07	0.07	0.07	0.06
DC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FL	0.03	0.02	0.02	0.03	0.03	0.03	0.03	0.03
GA	1.11	0.90	0.87	1.13	1.15	1.15	1.08	1.01
HI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ID	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IL	0.02	0.01	0.01	0.02	0.02	0.02	0.01	0.01
IN	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.01
KS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
KY	3.43	3.24	3.25	2.94	2.99	2.61	2.31	2.03
LA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MA	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MD	0.02	0.02	0.01	0.02	0.01	0.01	0.01	0.01
ME	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MO	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NC	6.51	4.81	4.53	4.48	4.11	4.07	3.54	3.04
ND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NJ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NV	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.03
NY	0.11	0.11	0.14	0.15	0.19	0.18	0.19	0.19
OH	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01
OK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PA	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.01
RI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SC	0.28	0.26	0.23	0.22	0.24	0.23	0.19	0.16
SD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TN	0.42	0.38	0.33	0.31	0.34	0.30	0.26	0.22
TX	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VA	2.93	2.50	2.50	2.48	2.44	2.26	2.04	1.83
VT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WI	0.02	0.02	0.01	0.01	0.01	0.01	0.00	0.00
WV	0.09	0.08	0.09	0.09	0.08	0.08	0.08	0.07
WY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

## 6. Measuring the Impact of Tobacco on State Economies

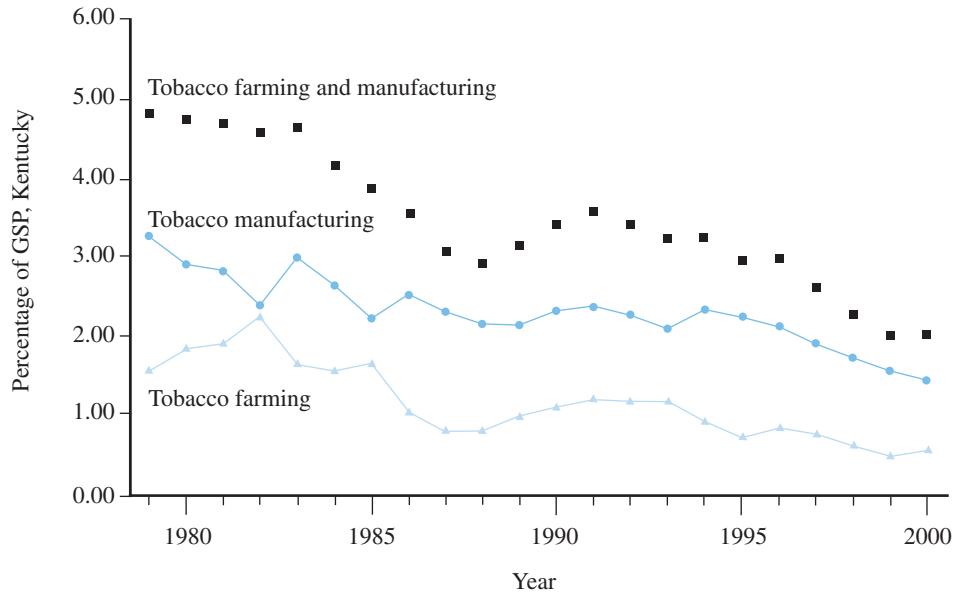
**Figure 6.5. Tobacco Farming and Manufacturing as Share of Gross Domestic Product (GDP), United States**



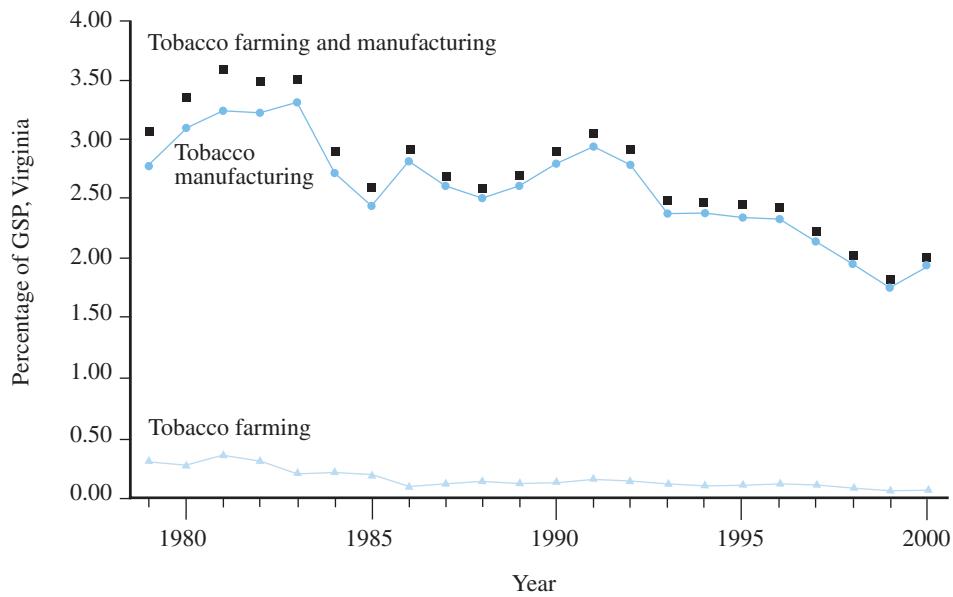
**Figure 6.6. Tobacco Farming and Manufacturing as Share of Gross State Product (GSP), North Carolina**



**Figure 6.7. Tobacco Growing and Manufacturing as Share of Gross State Product (GSP), Kentucky**

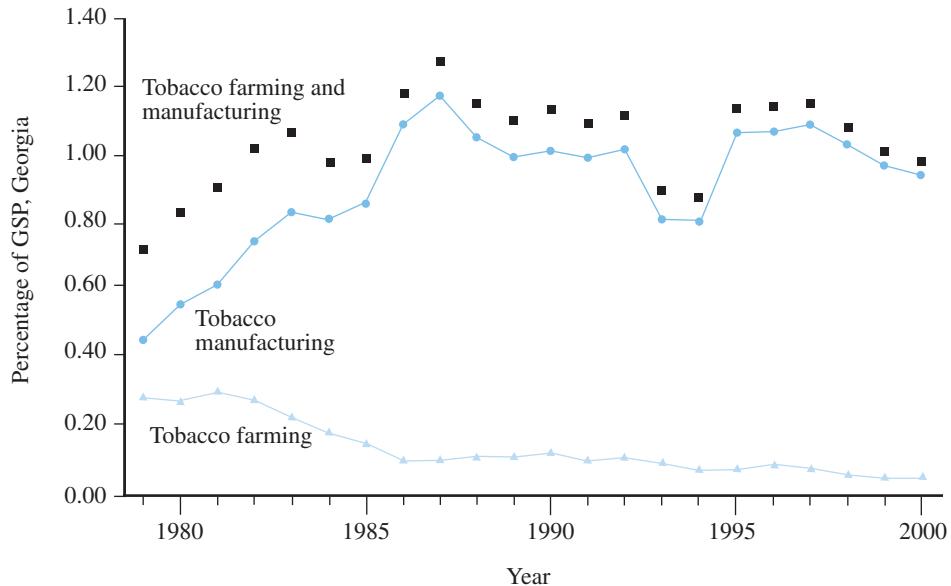


**Figure 6.8. Tobacco Farming and Manufacturing as Share of Gross State Product (GSP), Virginia**

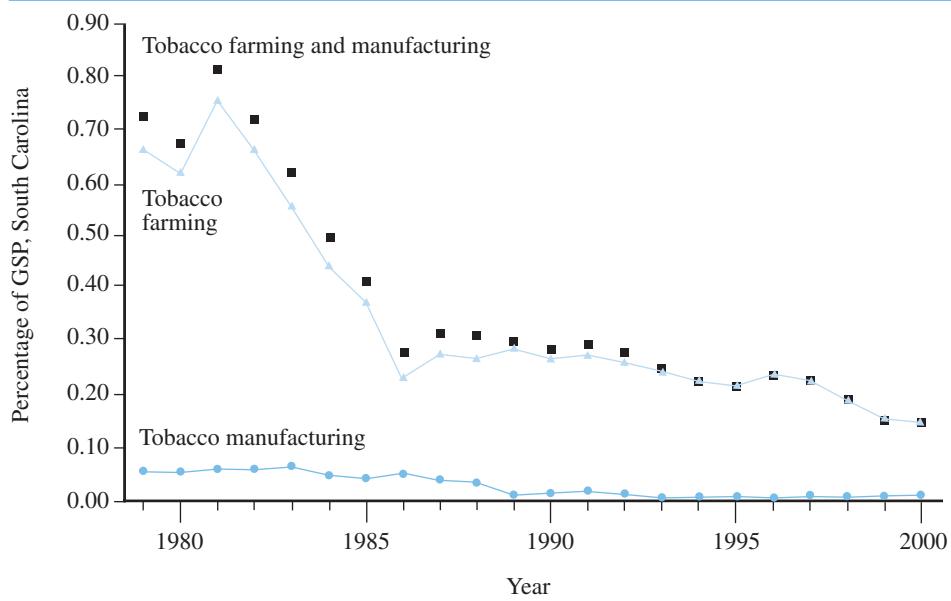


## 6. Measuring the Impact of Tobacco on State Economies

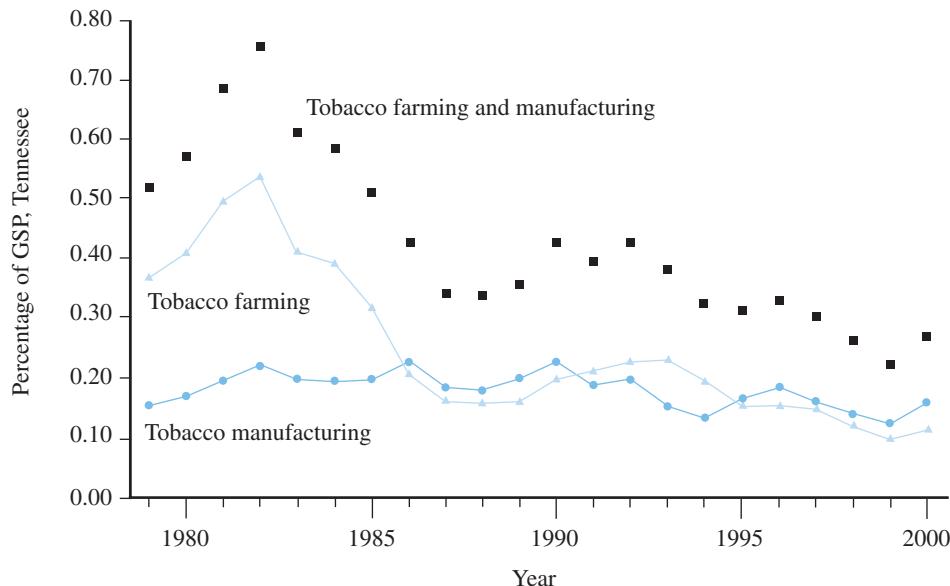
**Figure 6.9. Tobacco Farming and Manufacturing as Share of Gross State Product (GSP), Georgia**



**Figure 6.10. Tobacco Farming and Manufacturing as Share of Gross State Product (GSP), South Carolina**



**Figure 6.11. Tobacco Farming and Manufacturing as Share of Gross State Product (GSP), Tennessee**



led to a renewal of the downward trend in the economic impact of tobacco manufacturing on the U.S. economy.

Finally, even in the states where tobacco growing and manufacturing have had a significant impact on the state economy, their importance has diminished over time (see figures 6.6 through 6.11). For example, in North Carolina and Kentucky, the states where tobacco has historically had the greatest economic impact, the share of GSP accounted for by tobacco growing and manufacturing fell by nearly 60% from 1979 through 1999. Similarly, tobacco's share of GSP in Virginia fell by more than 40% during this period. The only exception to this trend is Georgia, which experienced an increase in tobacco manufacturing's contribution to its GSP in the early 1980s, followed by relative

stability; recent trends in Georgia, however, suggest that the economic impact of tobacco is beginning to fall there as well.

## Summary

Tobacco growing and manufacturing have played important roles in the development and growth of the U.S. economy for many years. While tobacco growing and manufacturing take place in more than half of U.S. states, the economic impact of these activities is concentrated in a small number of states, most notably North Carolina, Kentucky, and Virginia. Moreover, the economic contribution of tobacco to state economies has been falling for many years, the result of declines in tobacco use in the United States, increased use of foreign-grown

tobacco, reduced exports of tobacco leaf and tobacco products, increased automation of tobacco product production processes, and the shift of production facilities to overseas locations.

While the economic influence of tobacco continues to decline, there is still evidence to support its impact on upstream tobacco control interventions such as taxes and legislation—therefore, an accurate evaluation of such interventions must take these economic factors into account. By developing a measure that accounts for tobacco-related state economic conditions, we can provide a more accurate picture of the impact of state-level programs such as ASSIST relative to the environment of the states themselves.

## Conclusions

1. Anecdotal and empirical evidence indicates that state restrictions on smoking, and cigarette and other tobacco product excise taxes are lower in states that have relatively more visible sectors of tobacco growing and/or manufacturing.
2. While substantial gaps exist between the tobacco industry's and the public health community's interpretations of the economic impact of tobacco, studies that incorporate redistribution of tobacco spending have shown negligible employment impact at an overall national level.
3. Despite the limited and declining economic impact of tobacco, arguments about the importance of tobacco to state economies have created barriers to the adoption of effective

and comprehensive tobacco control policies in many states.

4. To factor the potential state-level economic impact of tobacco into the impact of ASSIST on policy outcomes and smoking behavior, a quantitative variable was developed for the ASSIST evaluation analyses, based on key indicators of tobacco growing and manufacturing relative to a state's gross domestic product. This variable, which was subsequently integrated as part of base-level state conditions in the analyses, helped model the relative impact of these economic dependence factors on the kinds of upstream, policy-based interventions studied as part of ASSIST.

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