

Impacts of Tobacco Program and Production Changes on Tennessee's Economy

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INTRODUCTION

For decades, tobacco has been a significant cash crop in Tennessee, generating nearly a quarter of a billion dollars in cash receipts annually. Tobacco is capable of generating about \$2,000 per acre in net income, more than ten times the net income per acre than the second leading crop in the state. Large profit margins in tobacco production are primarily the result of the federal tobacco program, which stabilizes prices through the marketing quota system and a joint producer/industry-funded stock management program.

Recently, a number of factors have contributed to significant changes in the tobacco industry. Leaf demand has fallen dramatically due to declining exports, increasing imports of foreign leaf, a lower percentage of U.S. leaf in domestic cigarettes, and reduced cigarette demand due to health concerns and significantly higher prices following the tobacco settlement. The amount of burley tobacco that producers can market under the federal tobacco marketing quota program (basic quota) has been cut by more than half since 1997. Following the tobacco Master Settlement Agreement (MSA) in 1998, cigarette manufacturers agreed to the National Tobacco Growers' Settlement Trust (Phase II), whereby manufacturers make payments to tobacco-growing states that must be used to directly compensate tobacco growers and quota owners for negative economic consequences resulting from the MSA. Additional ad hoc payments have been distributed to tobacco growers and quota owners through the Tobacco Loss Assistance (TLAP) program.

The objective of this research is to estimate the economic impacts by region in Tennessee of recent changes in the tobacco industry, including tobacco settlement-related direct payments to producers and quota owners (Phase II payments), reduced production due to declining tobacco quotas, and ad hoc emergency assistance paid to tobacco growers and quota owners. Impacts are estimated using the economic contributions of the tobacco producing sector in 1997 as the baseline. The economic linkages which the study provides can be used to examine the

consequences on non-agricultural and agricultural sectors, given the influx of payments and the decline in production. This is the first known study to jointly estimate the impacts of declining tobacco production and infusion of tobacco-related payments on a state's economy.

BACKGROUND

Tobacco Production in Tennessee

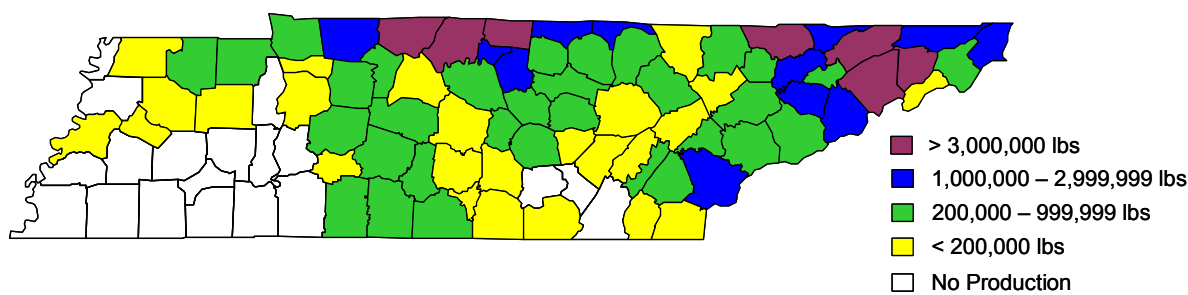
Tobacco is the leading cash crop in Tennessee, generating about one of every five dollars in crop receipts and about one of every ten dollars in all agricultural receipts. Tobacco receipts in Tennessee in 2000 totaled \$199 million. Tobacco receipts over the 1995-1999 period averaged \$218 million.

Three types of tobacco are grown in Tennessee: burley, dark-fired, and dark air-cured. The dominant type is burley tobacco (type 31), which is a light air-cured tobacco and a primary component of the American-blend cigarette (along with flue-cured tobacco and oriental tobacco). Historically, about 85 percent of all tobacco grown in Tennessee has been burley tobacco. Dark tobaccos (dark-fired tobacco, types 22 and 23, and dark air-cured tobacco, type 35) are primarily used for chewing tobaccos and snuff. About 14 percent of the state's tobacco production is dark-fired and one percent is dark air-cured.

This study considers only changes in burley tobacco production and payments, accounting for nearly 90 percent of all tobacco economic activity in the state. Because they are not used in cigarette production, dark tobaccos have not been eligible for tobacco settlement payment programs. Dark tobacco quotas have also been less affected than burley and flue-cured quotas by changes in the cigarette manufacturing industry resulting from the tobacco settlement, declining exports, increasing imports, and increasing taxes.

Tobacco production is generally regionalized in Tennessee. A map of burley tobacco production by county in Tennessee is presented in figure 1. Burley production is concentrated primarily in Northeastern and Northcentral Tennessee, where tobacco is grown on at least half of all farms in ten counties. Many of the counties most economically dependent on tobacco income also have the fewest economic alternatives, with high unemployment and low per capita incomes.

Figure 1. Burley tobacco production in Tennessee by county, 2000. (Source: *Tennessee Agricultural Statistics Service*)

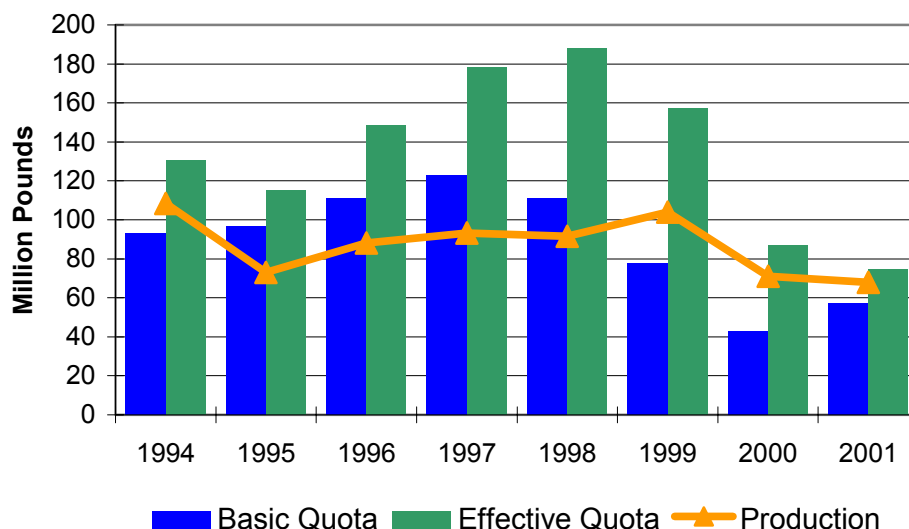


Role of the Tobacco Program

Tobacco production in Tennessee (and throughout the tobacco-growing Southeast) has declined significantly since 1999. The reduction in burley tobacco acreage and production in Tennessee has been a direct result of declining tobacco quotas. Since the 1930s, tobacco production and marketing in the U.S. has been subject to a federal price support and supply control program. The amount of tobacco grown each year is determined by the tobacco marketing quota. The basic quota is calculated each year prior to the start of the production season by a predetermined formula which includes manufacturers' purchase intentions, adjustments for stock levels, and a three year export average. The basic quota is further adjusted by undermarketings or overmarketings from the previous marketing year to determine the effective quota. The amount of tobacco a grower can market through the auction warehouse system or through private contracts is limited by the effective quota owned or leased by the grower, as quotas are a tradable asset. In Tennessee, tobacco quotas can be leased across county lines.

Figure 2 shows burley tobacco basic and effective quota in Tennessee since 1994, as well as burley production (2001 burley tobacco production is estimated). Tennessee has typically produced and marketed less tobacco than the amount allowed by the quota, leading to effective quotas that are significantly higher than basic quotas. Therefore, tobacco quotas have not historically limited total tobacco production in Tennessee. During the 1990s, tobacco production in Tennessee averaged 100.4 million pounds. Basic quota was cut 10 percent in 1998 and another 30 percent in 1999 and while the basic quota dipped below the historical production average in 1999 (down to 77.9 million pounds), effective quota remained sufficiently high so that acreage and production were not significantly affected. In fact, harvested acreage in 1999 was the highest level since 1993 and, combined with average yields, production in 1999 was up 13.5 percent over 1998 and at its highest level since 1994. The 2000 basic burley tobacco quota was set at 42 million pounds, 45 percent below the 1999 basic quota. This level represents a decline of nearly two thirds since 1997. Effective quota in 2000 fell to 87 million pounds, indicating that the buffer protection of the gap between basic and effective quota was being eroded. In 2001, basic quotas recovered somewhat, to 56.9 million pounds (still 54 percent lower than the 1997 level). However, effective quota continued to decline to 74.8 million pounds.

Figure 2. Tennessee burley tobacco basic quota, effective quota, and production, 1994-2001. (Sources: Farm Service Agency, Tennessee Agricultural Statistics Service)



During the 1990s, tobacco acreage in Tennessee ranged from 52 to 72 thousand acres, averaging 61 thousand acres over the last decade. Tobacco production over this period averaged 100.4 million pounds. Although basic quotas began their downward slide in 1998, higher effective quotas caused a lag response in acreage and production. Tobacco production fell from 104 million pounds in 1999 to 71 million pounds in 2000, a decrease of one third. Tobacco acreage declined from 63 thousand acres in 1999 to 46 thousand acres in 2000, a 27 percent reduction.

Tobacco production for 2001 is forecast at 68 million pounds, which would be the smallest crop since 1989. The decline is due to a further reduction in tobacco acreage of more than 10 percent down to 41 thousand acres. While tobacco basic quota in Tennessee increased by about one third in 2001, the effective quota further decreased by 14 percent to just under 75 million pounds, leading to further reductions in tobacco acreage. The effective quota in Tennessee in 2001 was 60 percent lower than the 1998 level and nearly one third less than the five-year average production level. Tobacco quotas are projected to be near the 2001 level in 2002, thus a rebound in tobacco production in Tennessee is not indicated.

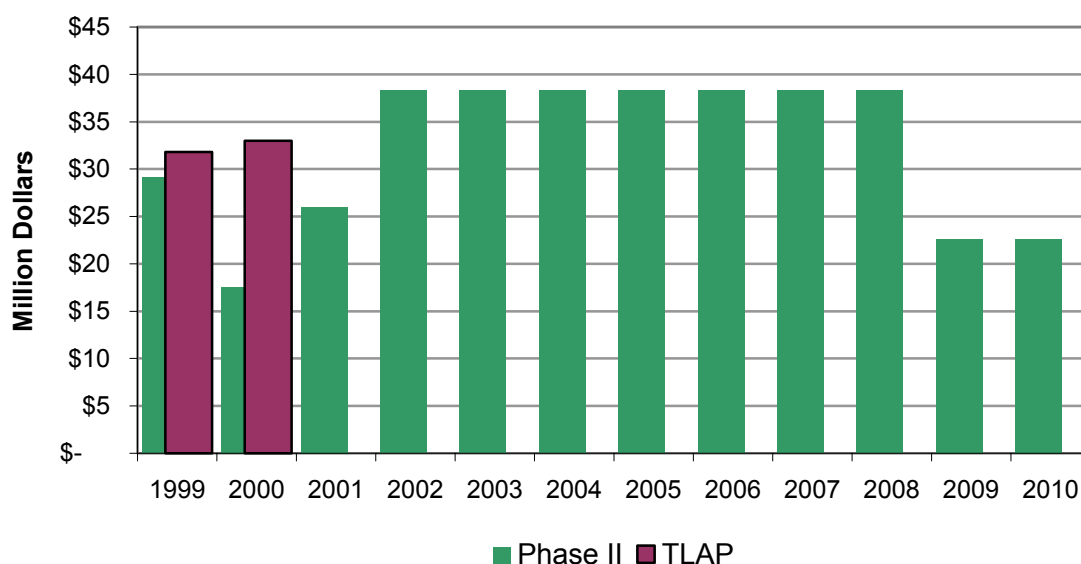
By design, the tobacco program stabilizes prices by inducing quota volatility. When demand for tobacco declines, prices remain relatively fixed and quota declines to accommodate the shrinking market. The policy of cutting quotas while maintaining relatively stable prices tends to place more of the burden of reduced market demand on growers than on quota owners. As demand shifts downward, quotas decline and price remains relatively fixed. Adjustment in the market comes through the quota rental rate, which increases. Thus, quota owners recover some of the value of lost quota by increasing the value of the remaining quota. The grower leasing a significant portion of the quota he grows bears the brunt of the downward adjustment through higher quota lease rates, though still benefiting from the reduce risk afforded by stable prices.

Tobacco Settlement and TLAP Payments

The economic impact of the significant quota cuts has been cushioned somewhat by recent direct payments to tobacco growers and quota owners through the National Tobacco Growers Settlement Trust (Phase II) and the Tobacco Loss Assistance Program (TLAP). The Master Settlement Agreement reached in 1998 between major cigarette manufacturers and 46 states contained language that called for participating manufacturers to meet with representatives of major tobacco producing states to come up with a plan to help compensate tobacco growers and quota owners for declining tobacco consumption and demand resulting from the settlement. The result was establishment of the National Tobacco Growers' Settlement Trust Fund, which has come to be known as "Phase II" of the tobacco settlement. Phase II calls for participating cigarette manufacturers to pay \$5.15 billion into a national tobacco grower trust over 12 years to be distributed among tobacco-growing states based on each state's share of 1998 tobacco quotas.

Phase II funds may only be used to make direct payments to tobacco quota owners and producers who suffer economic losses due to industry settlement of state lawsuits. According to the agreement, each participating state is responsible for establishing a board to distribute funds among eligible tobacco quota holders and growers. Total Phase II payments to Tennessee growers and quota owners are expected to be about \$390 million over the 12 year period. Figure 3 shows the state's level of Phase II and TLAP payments by year, with future Phase II payments projected.

Figure 3. Tennessee tobacco settlement Phase II payments and Tobacco Loss Assistance Program (TLAP) payments, 1999-2001, projections, 2002-2010. (Source: Farm Service Agency, Tennessee Department of Agriculture)



The Tennessee Tobacco Farmers Certifying Board is charged with developing and implementing annual plans for distributing Tennessee's share of the Phase II monies. In 1999 and 2000, the board decided to allocate 80% of the Phase II payments to tobacco growers and 20% to quota owners. In 2001, the board decided to change the allocation of funds so that 90% is

distributed to growers and 10% to quota owners. Payments to quota owners are based on basic quota in the previous year and payments to growers are based on actual marketings in the previous year. For the 1999 tobacco crop, Tennessee distributed nearly \$29 million in Phase II payments to more than 68,000 tobacco growers and quota owners. Payments for the 2000 crop totaled nearly \$17.5 million, and payments for 2001 are expected to be issued to about 55,000 growers and quota owners totaling \$26 million. Phase II payments are scheduled to continue through 2010.

In recent years, Congress has legislated a number of broad and specific ad hoc agricultural disaster assistance packages. Federal dollars allocated as compensation for reductions in tobacco quota or acreage have been administered by the U.S. Department of Agriculture's Farm Service Agency under the Tobacco Loss Assistance Program (TLAP). In October 1999, Congress appropriated \$328 million in TLAP funds under broad farm disaster legislation, although payments were not issued until calendar year 2000. In July 2000, a second round of \$340 million in TLAP funds was appropriated by Congress. TLAP payments were allocated among tobacco growing states based on the state's share of reduction in tobacco quota and were distributed according to the state's payment formula already established for Phase II payments.

In calendar year 2000, Tennessee burley tobacco growers and quota owners received just over \$50 million in direct payments: \$17.6 million in Phase II tobacco settlement payments¹ and \$33 million in the second round of TLAP payments.

DATA AND METHODS

This study employs input-output analysis for five regions within the state to derive the economic relationships and linkages between the tobacco production sector and the rest of the economy. County-level data were aggregated by economic analysis region to estimate the effects of declining tobacco production and monetary payments on each region and the state. Annual estimates of burley tobacco production by county are available from the Tennessee Agricultural Statistics Service. Administration of the state's Phase II payments is handled by a private law firm contracted by the Tennessee Tobacco Farmers Certifying Board and county-level payment data are summarized by the Tennessee Department of Agriculture. TLAP payments are administered by the Tennessee Farm Service Agency and are summarized by county.

Input-output analysis can provide detailed information on the interrelationships in a regional economy and on how introduced changes impact that regional economy and the aggregate economy (state-level, in this case). The input-output analysis is conducted using the Impact Analysis for Planning (IMPLAN) software and databases to build regional economic accounts. IMPLAN is a demand-driven (backward linkages) program developed by the U.S. Forest Service and the Minnesota IMPLAN Group at the University of Minnesota and widely

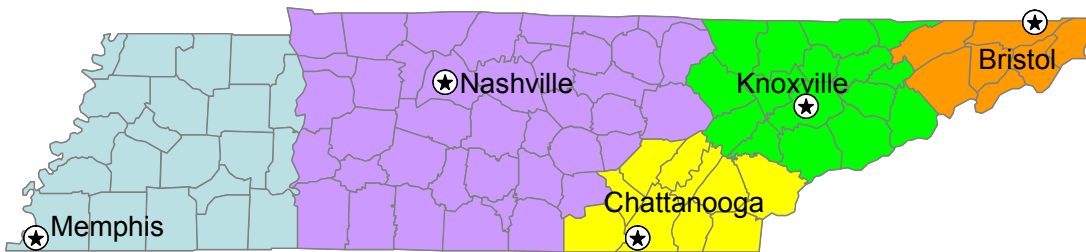
¹ Phase II funds are not made available to states until late-November for a payment year and Phase II checks to growers and quota owners are not distributed before the last week of the year or early the following year. Farmers do not report Phase II as income to the IRS until the following tax-year. Thus, Phase II payments for the 1999 tobacco crop are considered calendar-year 2000 Phase II payments.

used for input-output analysis. The approach requires a transaction matrix which shows the inter-industry purchases and sales. A direct coefficient matrix giving the proportion of each industry's expenditures by sector, and a Leontief inverse showing the sales caused by a dollar change in final demand (demand by the ultimate consumers of the product) are calculated from that matrix.

The IMPLAN modeling system provides estimates of direct, indirect, and induced impacts that result from changes in the tobacco sector's economic activity. Direct impacts are the result of changes in final demands in the tobacco sector. Indirect impacts occur through changes in inter-industry purchases such as inputs or services as these industries respond to the changes in demands by the tobacco sector. Finally, induced impacts are the result of changes in household incomes and changes in household spending that are the result of changes in final demands in the tobacco sector. Direct, indirect, and induced effects are analyzed for total industry output (TIO), employment, and total value added (TVA). Total industry output represents the annual dollar value of the goods and services that an industry produces. Total value added represents the dollar value of wages and salaries including benefits, self-employment income, interest, rents, royalties, dividends, profits, plus excise and sales taxes. Employment represents the number of total wage and salary employees, both full and part-time, as well as self-employed.

Based on areas of overall economic activity, the state of Tennessee was divided into the following five economic analysis regions closely following Bureau of Economic Analysis (BEA) regions: Memphis, Nashville, Knoxville, Chattanooga, and Tri-Cities (Bristol, Johnson City, Kingsport). A map of the economic trade regions is presented in figure 4. The study uses the 1997 IMPLAN model for the state (with values for agriculture adjusted for the 1997 Census of Agriculture) as the baseline, which was the year prior to the tobacco settlement and dramatic quota cuts. Impacts are estimated based on county-level changes in acreage and yields (production), regional prices, and county-level direct payments from Phase II and TLAP. In addition to providing regional impacts for the five BEA regions, state-level impacts are also estimated. Intrastate leakages among the regions are accounted for in the state IMPLAN model so that the sum of regional impacts over all five regions does not equal the total impact statewide.

Figure 4. Five Tennessee economic analysis regions.



RESULTS

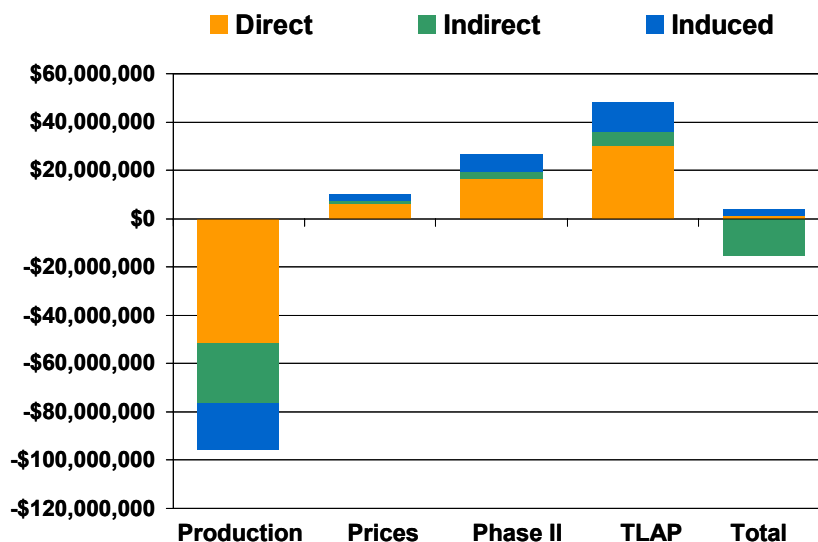
Total impacts (direct, indirect, and induced) on total industry output, total value added, and employment for each region are presented in table 1. Impacts are presented separately for (1)

changes due to reduced acreage, (2) changes in receipts due to changes in yields and price, (3) Phase II tobacco payments, and (4) TLAP tobacco payments. While acreage declined significantly over the analysis period, tobacco receipts per acre increased due to higher yields (statewide average yield up about five percent over 1997) and steadily rising prices (averaging up about five percent). Therefore, impacts due to declining acreage are estimated along with concurrent impacts due to changes in yields and prices. Finally, net impacts due to changes in acreage, yields and price, Phase II, and TLAP are presented for each region. The net statewide impact in the tobacco producing sector (TIO) is a reduction in economic activity of more than \$11 million. The total (direct, indirect, and induced) effects statewide are -\$95.8 million due to acreage reduction, \$9.8 million due to higher yields and prices, \$26.6 million due to Phase II payments, and \$48.2 million due to TLAP payments. Total value added impacts (the dollar value of wages and salaries including benefits, self-employment income, interest, rents, royalties, dividends, profits, plus excise and sales taxes) due to declining acreage are -\$36.8 million. This large negative impact is offset by positive wage and salary impacts due to changes in yields and prices and infusion of Phase II and TLAP payments, resulting in a statewide net TVA impact of \$4.1 million.

The impact on the number of jobs in the economy is a net reduction of 2,897 jobs, as indicated by employment impacts. The employment impacts due to declining tobacco acreage (-3,850) far outweigh positive employment impacts due to higher yields and prices (111 jobs), Phase II payments (300 jobs), and TLAP payments (542 jobs). The Nashville region is most negatively impacted by the decline in tobacco acreage in terms of TIO, TVA, and employment. About half of the negative impacts due to declining acreage accrue to the Nashville region. Smaller gains in yields over the 1997 baseline in the Nashville region than in other regions contributes to a net reduction in economic activity in the region of more than \$13 million. The Tri-Cities region is hardest hit in terms of employment impacts, losing 1,273 jobs due to acreage reductions with a net loss of 1,051 jobs. A larger proportion of jobs in this region are tied to the tobacco producing industry and fewer employment alternatives are available.

Direct, indirect, induced, and total impacts for total industry output (TIO) for each region are broken out and presented in table 2. Impacts are presented separately for changes due to reduced acreage, changes in receipts due to changes in yields and price, Phase II tobacco payments, and TLAP tobacco payments. Finally, net impacts due to changes in acreage, yields and price, Phase II, and TLAP are presented for each region. Statewide direct, indirect, and induced TIO effects are also summarized in figure 5. Statewide, the net total impact of reduced production and infusion of cash payments in 2000 is negative, reducing total economic activity in the state by more than \$11 million. The direct impacts of the two cash payments and higher yields and prices compared to 1997 are enough to slightly offset a negative direct impact of -\$51.8 million due to a decline in acreage. Negative indirect effects due to acreage just under -\$25 million, however, outweigh positive indirect effects so that the statewide net indirect impact is -\$15.3 million.

Figure 5. Statewide direct, indirect, induced, and total impacts on total industry output associated with changes in tobacco acreage, prices and yields, Phase II, and TLAP payments, 2000 compared to 1997 baseline.

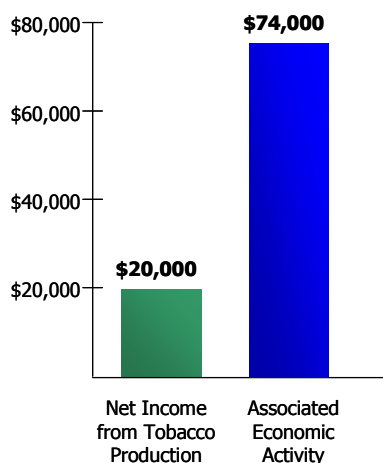


The brunt of the negative net impact is borne by the Nashville region, which suffers a total reduction in TIO activity of more than \$13 million. The Tri-Cities region also experiences an overall decline in economic activity of \$0.5 million. Regional losses in Nashville and Tri-Cities are offset somewhat by positive net impacts in the Knoxville region (\$5.1 million), the Chattanooga region (\$1.9 million) and the Memphis region (\$0.8 million). About half of the total impacts due to declining acreage accrue in the Nashville region. Over 20 percent of the production impacts occur in the Tri-Cities region while another 16 percent occur in the Knoxville region.

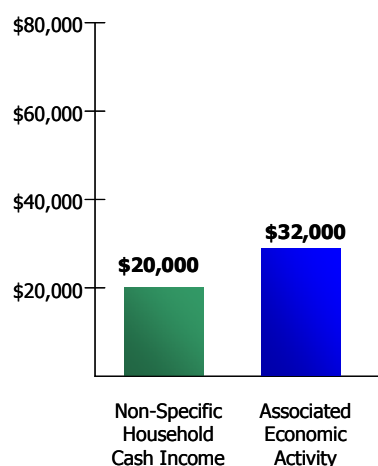
The output multiplier for the tobacco production sector in Tennessee is 1.85, which includes direct, indirect, and induced effects. By contrast, the aggregate household output multiplier for Tennessee is 1.59. The significance of the difference in impacts due to the source of income—production or cash payments—is illustrated in figure 6. Using these multipliers, a tobacco grower in Tennessee harvesting ten acres of tobacco at average yields (2,000 pounds per acre) would generate about \$40,000 in tobacco sales at average prices. The \$40,000 in tobacco cash receipts would yield the grower about \$20,000 in net income from tobacco production. That \$20,000 in net income is associated with \$40,000 in direct effects (direct agricultural sales), \$19,999 in indirect effects (tobacco-related sales such as input supplies), and \$15,000 in induced effects (household expenditures due to tobacco-related income) for a total economic activity impact of \$74,000. If the same grower is given \$20,000 in cash payments (through programs like Phase II and TLAP) instead of earning \$20,000 in net income through tobacco production and sales activities, the total economic activity impact is \$32,000. The direct impact is \$20,000, the indirect effect is \$3,500, and the induced (household) effect is \$8,500.

Figure 6. Example of the multiplier effects of generating \$20,000 in net income in Tennessee from tobacco production versus a lump sum payment of \$20,000.

Net income and associated economic activity from producing 10 acres of burley tobacco in Tennessee



Income and associated economic activity from a Tennessee farmer receiving a \$20,000 lump sum payment.



DISCUSSION

In this study, the net economic impacts in the tobacco producing sector (TIO) include large negative tobacco production and receipt impacts offset in large part by direct payments (as illustrated in figure 5). It is important to note, however, that the negative net impact on tobacco growers is significantly greater than the net impact on economic activity. The mitigating positive impacts resulting from direct payments do not accrue proportionately to tobacco growers, as they are passed along in large part to non-producing households through higher quota lease costs. For example, tobacco growers were paid about \$0.36 per pound of burley tobacco marketed in 2000 under the Phase II payment program. But since 1998, the quota rental rate has risen from an average of about \$0.05-\$0.10 per pound to an average in 2001 of about \$0.45-\$0.50 per pound. Thus, the net economic impact on tobacco producing households is near the combined effects of acreage reductions and higher receipts, as the amount of receipts due to Phase II payments have been largely transferred to non-producing households through higher costs of production (quota rental costs).

As noted earlier, the near elimination of the acreage buffer afforded by effective quotas higher than basic quotas by 2001 is resulting in further reductions in tobacco acreage in 2001, despite rising basic quotas. The relatively large TLAP payments that essentially doubled Phase II payments in calendar year 2000 were not reauthorized in 2001 and are not likely to be repeated. Thus, a comparison of the net impacts in 2000 with the net impacts in 2001 would show a much greater negative economic impact in 2001. Net industry output impacts in 2001 could approach a decrease in economic activity in the state greater than \$50 million, compared to an \$11.2 million decrease in 2000. Opportunity exists to extend this research to estimate 2001 impacts as soon as

county-level data are made available. Such an extension could also expand the analysis to consider impacts of changes in tobacco production and payments for all tobacco types grown in Tennessee, including dark-fired and dark air-cured types. While the minor tobacco types account for less than 15 percent of Tennessee's tobacco production, production is confined to the central and western part of the state so that the impacts on the Nashville and Memphis regions could change considerably.

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Table 1. Regional total impacts on total industry output, total value added, and employment associated with changes in tobacco acreage, prices and yields, Phase II payments, and TLAP payments.

REGION	Total* Acreage Impacts	Total* Yield & Price Impacts	Total* Phase II Impacts	Total* TLAP Impacts	Total* Net Impacts
Total industry output (TIO) impacts (in 1997 dollars)					
Chattanooga	-1,518,927	1,046,958	748,901	1,532,990	1,809,922
Knoxville	-15,664,169	4,351,989	5,833,686	10,602,660	5,124,166
Memphis	-229,953	-73,084	352,093	725,930	774,986
Nashville	-47,005,574	432,585	11,652,569	21,903,858	-13,016,562
Tri-Cities	-20,014,661	2,917,573	6,232,135	10,319,512	-545,441
State**	-95,822,701	9,838,763	26,621,370	48,203,027	-11,159,541
Total value added (TVA) impacts (in 1997 dollars)					
Chattanooga	-484,374	471,261	337,097	690,034	1,014,018
Knoxville	-6,378,584	2,003,358	2,685,431	4,880,740	3,190,945
Memphis	-71,756	-34,440	165,920	342,090	401,814
Nashville	-17,414,684	207,425	5,587,433	10,502,949	-1,116,877
Tri-Cities	-7,165,778	1,198,176	2,549,761	4,237,965	820,124
State**	-36,777,732	4,749,032	12,849,761	23,266,922	4,087,983
Employment impacts (number of jobs)					
Chattanooga	-54	11	8	17	-18
Knoxville	-971	50	67	122	-732
Memphis	-4	-1	4	8	7
Nashville	-1,536	5	128	241	-1,162
Tri-Cities	-1,273	33	71	118	-1,051
State**	-3,850	111	300	542	-2,897

* Note that total impacts include direct, indirect, and induced impacts.

** Note that state impacts do not equal the sum of regional impacts due to interregional transfers.

Table 2. Regional direct, indirect, induced, and total impacts (in 1997 dollars) on total industry output (TIO) associated with changes in tobacco acreage, prices and yields, Phase II payments, and TLAP payments.

REGION	DIRECT	INDIRECT	INDUCED	TOTAL
Economic impacts resulting from reduced tobacco acreage				
Chattanooga	-921,551	-391,514	-205,862	-1,518,927
Knoxville	-9,215,864	-3,350,868	-3,097,437	-15,664,169
Memphis	-121,734	-73,351	-34,868	-229,953
Nashville	-26,411,238	-11,614,523	-8,979,813	-47,005,574
Tri-Cities	-13,459,083	-3,798,435	-2,757,146	-20,014,664
State	-51,768,157	-24,946,180	-19,108,364	-95,822,701
Economic impacts resulting from changes in tobacco yields and prices				
Chattanooga	742,060	99,118	205,780	1,046,958
Knoxville	2,891,587	457,843	1,002,559	4,351,989
Memphis	-48,125	-7,866	-17,093	-73,084
Nashville	275,088	47,342	110,155	432,585
Tri-Cities	2,182,109	248,178	487,289	2,917,576
State	6,175,676	1,117,840	2,545,247	9,838,763
Economic impacts resulting from Phase II tobacco payments				
Chattanooga	530,804	70,900	147,197	748,901
Knoxville	3,876,070	613,722	1,343,894	5,833,686
Memphis	231,847	37,898	82,348	352,093
Nashville	7,410,073	1,275,252	2,967,244	11,652,569
Tri-Cities	4,661,128	530,125	1,040,882	6,232,135
State	16,709,922	3,024,611	6,886,837	26,621,370
Economic impacts resulting from TLAP tobacco payments				
Chattanooga	1,086,548	145,132	301,310	1,532,990
Knoxville	7,044,714	1,115,433	2,442,513	10,602,660
Memphis	478,013	78,136	169,781	725,930
Nashville	13,929,047	2,397,148	5,577,663	21,903,858
Tri-Cities	7,718,152	877,811	1,723,549	10,319,512
State	30,256,474	5,476,631	12,469,922	48,203,027
Net impacts (acreage + price & yield + Phase II + TLAP)				
Chattanooga	1,437,861	-76,364	448,425	1,809,922
Knoxville	4,596,507	-1,163,870	1,691,529	5,124,166
Memphis	540,001	34,817	200,168	774,986
Nashville	-4,797,030	-7,894,781	-324,751	-13,016,562
Tri-Cities	1,102,306	-2,142,321	494,574	-545,441
State	1,373,915	-15,327,098	2,793,642	-11,159,541

* Note that state impacts do not equal the sum of regional impacts due to interregional transfers.