

Economic Impacts of Sportsmen Expenditures on the Tennessee Economy for 2005

by

Jamey Menard and Burton English

Tennessee's network of streams, comprised of over 60,000 miles within 13 major basins, supports over 300 different species of fish (U.S. Fish & Wildlife Service, 2001). The state has 927 square miles of streams and lakes. If small streams and lakes are accounted for, approximately 1,209 square miles of streams and lakes exist (NRI, 1997). Because of this abundant aquatic habitat, expenditures by sportsmen for goods and services, land, labor, capital equipment, and other materials enhance both the local economy and the local tax base. One way the extent of economic benefits garnered by an economic region can be measured is in terms of the number of jobs created and the amount of personal income accruing to residents. These impact measures can be further broken down into *direct, indirect, and induced* (or *ripple*) effects.

Total economic impacts attributable to increased business activity are computed as the sum of the direct, indirect, and induced effects. *Direct* effects are those attributable specifically to the new expenditures in a region. *Indirect* effects arise from businesses' expenditures on raw materials, services, supplies, and other operating expenses, which help to support jobs in other local businesses. *Induced, or ripple* effects, are created as the new income generated by the direct and indirect effects is spent and re-spent within the local economy (for a more detailed description, please see Appendix A). These impacts are measured for total industry output, employment, total value added, and indirect business taxes.

For 2005, fishing expenditure data were gathered via surveying both fishing license holders and a random sample of fishing individuals. Aggregate capital expenditures (fishing equipment) for 2005, totaling close to \$147 million, was 4.5 percent lower from 2004's expenditure level of \$154 million. The largest decrease in expenditure levels was for lines,

hooks, and sinkers (23.3 percent), followed by reels, rods, and rod making equipment (17.5 percent), and creel, fish bags, and nets (15.3 percent). However, expenditures for other equipment and artificial lures and flies increased 40.0 percent and 1.3 percent, respectively. Aggregate capital expenditures by fishing type increased for trout and reservoir by 18.1 and 6.8 percent, respectively. On the other hand, capital expenditures for pond/small lake and warm-water fishing decreased by 29.2 and 13.5 percent, respectively.

Aggregate trip related expenditures increased 0.8 percent from 2004's expenditure level of \$780 million to \$786 million. For 2005, trout fishing had the largest expenditure total per trip at \$53.62, followed by reservoir fishing at \$49.73, warm water fishing at \$46.40, and pond fishing at \$30.85. In general, fuel and food were the largest trip related expenditures. For aggregate expenditures based on fishing type, the largest expenditure was for reservoir fishing (\$392.2 million), followed by pond/small lake fishing (\$178.4 million), warm-water stream fishing (\$121.1 million), and trout stream fishing (\$94.6 million). Compared to 2004 expenditure levels, the largest percentage increase in expenditures was for warm water stream fishing at 37.7 percent, followed by expenditures from trout stream fishing (25.1 percent), and reservoir fishing (1.3 percent). Aggregate pond/small lake fishing expenditures, however, decreased 22.2 percent from 2004 expenditure levels.

The estimated level of fishing-related expenditures in 2005 dollars was over \$933 million, which financed more than 18,000 jobs (Table 7). Total value added and indirect business taxes direct expenditures were estimated at \$715 million and \$127 million, respectively. Total impacts for the state's economy were estimated at over \$1.8 billion in total industry output from recreational fishing and fishing related expenditures. Estimated total number of jobs exceeded 27,000, with total value added estimated at over \$1.2 billion. Indirect business taxes

from recreational fishing and related expenditures were estimated at over \$170 million. For the economic indicator total industrial output, the estimated multiplier is 1.93. In other words, for every dollar Tennessee fishermen spent on capital or trip related expenditures, an additional 0.93 cents is generated throughout the state's economy. Likewise, the employment multiplier is estimated at 1.49. For every job created based on expenditures by Tennessee fishing sportsmen, an additional 0.49 jobs are created in other industries throughout the state.

Table 7. Estimated Direct and Total Effects of Fishing-Related Mean Expenditures on the Tennessee Economy for 2005.

Economic Indicators	Direct	Total
Total Industrial Output ^a	\$933,349,456	\$1,801,402,619
Total Value Added ^b	\$714,891,368	\$1,248,496,808
Indirect Business Taxes ^c	\$127,279,365	\$170,594,413
Employment ^d	18,286	27,321

^a**Total Industrial Output** – annual dollar value of goods and services that an industry produces.

^b**Total Value Added** – estimated employee compensation, proprietary income, other income, and indirect business taxes.

^c**Indirect Business Taxes** -- consists of excise taxes, property taxes, fees, licenses, and sales taxes paid by businesses.

^d**Employment** – estimated number of total wage and salary employees (both full and part-time), as well as self-employed.

References

- U.S. Fish and Wildlife Services. *Tennessee Partners for Fish and Wildlife*. July, 2001. Available at <http://www.fws.gov/partners/pdfs/TN-needs.pdf>.
- U.S. Department of Agriculture. *1997 National Resources Inventory: A Guide for Users of 1997 NRI Data Files*. December, 2001. Available at <http://www.nrcs.usda.gov/Technical/NRI/1997/docs/1997CD-UserGuide.pdf>.

Appendix A

1. *Direct* effects are those attributable specifically to the new expenditures in a region. For example, expenditures by sportsmen at a restaurant leads to the employment of waiters, cooks, and cashiers. These workers represent the direct employment impact of the expenditures.
2. *Indirect* effects arise from businesses' expenditures on raw materials, services, supplies, and other operating expenses, which help to support jobs in other local businesses. For example, a restaurant may see its sales expand due to sportsmens' expenditures, thus requiring more purchases from food services wholesalers and, potentially, greater accounting and legal services from other local firms. Note that only the *value added* via the local production process, not the total *retail sale*, gives rise to additional economic benefits for the community. Only the portion of the expenditure actually retained by the local vendor can be used in the calculation of the firm's indirect income impact on the *local* economy. It is for this reason that retail sales, in isolation, represent a poor measure of economic impact. Hence, when local businesses purchase merchandise for resale, most of the proceeds accrue to the community where the goods were manufactured. Thus, the size of a firm's indirect impact on local incomes depends primarily on the dollar value of locally purchased goods and services and whether or not these same goods and services are locally produced or imported into the community. In addition, the amount of indirect employment generated by the business firm will vary with the amount of under-utilization of workers and capacity existing in local businesses. Although the firm's payments to local vendors increases the amount of local business activity, they will not translate to significant increases in employment if local firms are currently experiencing excess capacity. The model assumes that firms are operating at full capacity, so estimates of indirect effects may overstate economic impacts if firms were actually operating at less than full capacity. ("Full" capacity, in this sense, can be thought of as a "traditional" operating level, generally 70-80% of true plant capacity, thus allowing firms to expand operations in the short-run.)
3. *Induced*, or *ripple* effects are created as the new income generated by the direct and indirect effects is spent and re-spent within the local economy. For example, part of the wages received by a firm's employees will be spent on housing. When a restaurant employee rents an apartment in Tennessee, a portion of the rent payment will be used to pay local employees of the apartment complex. These employees will in turn spend a portion of their income in the local community on groceries, housing, etc., thus adding to the amount of local personal income attributable to the firm's activities. However, during each of these subsequent rounds of spending, a large portion of the income generated leaks out of the state economy through taxes, savings, and spending outside the state, thereby diminishing the increment to state income attributable to these firms.