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STATE LOTTERIES: WHAT DO WE KNOW ABOUT IMPACTS?

by David A. Penn



State-sponsored lotteries now operate in 40 states, the District of Columbia, Mexico, Puerto Rico, and the U.S. Virgin Islands.¹ North Dakota and Tennessee are the most recent states to approve lotteries. Voters in Oklahoma will vote again in fall 2004 to decide whether the state should operate a lottery.

Lotteries are big business. According to the North American Association of State and Provincial Lotteries (NASPL), lottery sales in the United States reached \$44.9 billion during fiscal year 2003, up from \$42.4 billion in 2002 and \$38.9 billion in 2001. By comparison, Americans spend substantially less at sporting-goods stores, somewhat more at furniture stores, about 10 times more at grocery stores, and three times more at clothing stores.²

Nine Southern states currently operate state-sponsored lotteries: Florida, Georgia, Kentucky, Louisiana, South Carolina, Tennessee, Texas, Virginia, and West Virginia. Lottery sales reached \$11.8 billion in the Southern states in fiscal year 2003, up 10.8 percent from 2002.³

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Lottery profits have helped some states weather a period of slow tax revenue growth.

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Lottery profits averaged 31 percent of sales in fiscal year 2003, according to the NASPL; profits are revenues that are available for spending by the states after prizes are awarded and after administrative costs. Profits reached \$4.0 billion in fiscal year 2003 for participating Southern states including \$955.2 million in Texas, \$1,035.2 million in Florida, and \$751.5 million in Georgia.⁴ In Tennessee, the Tennessee Education Lottery recently remitted \$63.8 million to the Tennessee Education Lottery Corporation for college and technical school scholarships. The Tennessee Lottery is targeted to raise at least \$88 million for scholarships by July 1, 2004.⁵

In general, lottery profits are relatively small compared with total state tax revenue, just 2.6 percent in fiscal year 2003.⁶ For a few states, however, lottery profits are much more significant. In Georgia, lottery profits equaled 5.6 percent of state tax revenue for fiscal year 2003. Lottery profits generated substantial proportions of state tax revenue for Delaware (9.8

percent), Massachusetts (6.0 percent), Oregon (6.8 percent), Rhode Island (10.7 percent), South Dakota (11.0 percent), and West Virginia (11.5 percent).

Lottery profits have helped some states weather a period of slow tax revenue growth. From 2002 to 2003, for example, state tax collections in the lottery states increased by just 1.0 percent, but lottery profits rose by 3.8 percent. In eight states (Arizona, Georgia, Kentucky, Missouri, New Mexico, New York, Oregon, and Virginia) lottery profits grew even as state tax revenues fell.

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Why do state governments promote lotteries?

When asked why he robbed banks, Willie Sutton responded, “Because that’s where the money is.” State governments promote lotteries because they are viewed as a good source of

additional revenue. Unlike other government activities, lotteries are established and operated for the explicit purpose of maximizing revenues for the state (Garrett 2001).

Impact of lotteries on consumer behavior

An important aspect of lotteries has to do with how households choose to spend for lottery tickets. For a particular level of household income, spending for lottery tickets means spending less for something else.

Recent research shows that lottery spending does not reduce household spending for other forms of gambling, either legal or illegal. In other words, households don't substitute lottery gambling for other forms of gambling; instead, they cut spending for nongambling items. On average, research shows that households spend nearly two percent less on all other items in order to purchase lottery tickets. The decline in consumption spending is 2.7 percent for households in the lowest income third. Also, the introduction of a lottery increases the probability that a household will participate in gambling (Kearney 2002).

Impact on government revenues and expenditures

Education funding is the biggest winner from lotteries: lottery profits are spent exclusively for education in 11 states, and education is one of a number of specified beneficiaries in 12 more states. Six states use lottery profits entirely for general fund purposes, while in nine states profits are used for multiple noneducation purposes including construction, conservation, tax relief, economic development, general fund, the arts, and support for local governments.

Lottery sales are very sensitive to personal income

Lottery sales rise quickly as household income increases and fall quickly when income falls. According to a 1994 study, lottery sales increase by 3.9 percent for each 1 percent increase in total income (Mikesell 1994). This means that when the economy is expanding and income is rising, lottery sales will rise much faster, nearly four times faster, than income. The study also discovered that lottery sales increase slightly when the unemployment rate increases: a 1 percent increase in the state unemployment rate results in about a 0.2 percent increase in lottery sales.

Volatility of revenues

Several studies conclude that lottery revenue is very volatile, swinging up and down out of proportion with local economic conditions. Therefore, according to these studies, lottery

revenues add instability to state government revenues.

A recent study provides a different view. Analyzing data for lottery revenues from 1986 to 1992, Szakmary and Szakmary found that while lottery revenue is very volatile, it tends to have a low correlation, sometimes a negative correlation, with other sources of state government revenue. This means that lottery revenue tends to rise when other sources of revenue are falling and vice versa. Thus, lottery revenues do not destabilize state government revenues as claimed by other, earlier studies. Szakmary and Szakmary argue that it is the overall stability of total state government revenue that matters, not the volatility of just one component.

Revenue substitution

Some states deposit lottery profits into the general fund, but most states designate, or earmark, lottery funds for specific purposes. Public schools are the primary beneficiaries of earmarked lottery funds. Some researchers are skeptical about the effectiveness of earmarking, since state governments could redirect a portion of current funding for education with the expectation that lottery revenue will make up the difference.

A recent study shows that earmarking lottery profits for education does increase education spending, but not dollar for dollar; a dollar increase in earmarked lottery profit raises education spending by 60 to 80 cents (Evans and Zhang 2003). States are reducing a portion of current funding for education and substituting lottery dollars.

Although spending for education does not increase by the full amount of lottery profits, earmarking proves a more effective means of supporting education than does depositing lottery profits in the general fund. Evans and Zhang show that spending for education increases by just 40 to 50 cents for each dollar of lottery profit deposited in the general fund.

A related issue involves the effect of lottery spending on other sources of tax revenues. Spending by households on the lottery means less spending for other items that may generate sales tax revenue for state and local governments. A 1993 study estimates that sales and excise tax collections will be lower than they would have been without lottery spending (Borg et al. 1993); the study estimates that for each dollar in lottery profit earned by the state, 10 to 15 cents of sales or excise tax revenue is lost. The negative impact on sales taxes is more substantial in states such as Tennessee that rely heavily on sales tax revenue.

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Revenue leakages

Before the existence of the Tennessee Lottery, Tennesseans bought lottery tickets in Kentucky, Georgia, Virginia, and other states; dollars earned in Tennessee but spent in other states represented a leakage of spending from the Tennessee economy. In Virginia, 1.8 percent of lottery winners were Tennesseans in 2002, as were 3 percent of Georgia lottery winners and 12 percent of the winners in the Kentucky lottery.⁷ The Tennessee Lottery undoubtedly greatly reduces out-of-state spending for lottery tickets, generating lottery profits in Tennessee instead of some other state. The Tennessee Lottery also creates opportunities to capture lottery spending from other states. For example, during the first week of sales, four of the top 10 selling vendors were located in Ardmore, Tennessee, near the Alabama state line.⁸

Impacts of state-sponsored lotteries

College enrollment

Georgia's HOPE Scholarship program raised the first-time freshman enrollment rate in Georgia by 6.9 percentage points, according to a recent study (Cornwell 2003). These results control for other factors that may affect the enrollment rate such as tuition rates, per capita income, and wage rates. The study also discovered that 55 percent of the enrollment gain attributable to HOPE occurred in four-year public institutions of higher education. The college attendance rate at these institutions rose 12 percent due to HOPE scholarships (Cornwell, p. 14).

Lost scholarships

The HOPE scholarship program guarantees support for one year; support for additional years of study is conditional upon maintaining a "B" average. A 1999 study examined the scholarship loss rate in Georgia's HOPE program; just how many lose HOPE scholarships in Georgia's higher education system? The study found that among incoming Georgia Tech freshmen with HOPE scholarships in 1996, nearly 57 percent failed to achieve a 3.0 grade average for their 45th credit hour (Dee and Jackson 1999).

In Tennessee, higher education officials expect just 35 to 40 percent of students who earn Tennessee HOPE scholarships to maintain grades sufficiently high to retain scholarships through graduation. The largest loss of scholarships is expected to occur between the sophomore and junior years.⁹

The study of the Georgia HOPE scholarships found that the rate of scholarship loss varied considerably across academic disciplines;

academic programs typically perceived as more challenging such as engineering and computer science registered relatively high rates of scholarship attrition. Holding constant other variables such as race, gender, and ability as measured by SAT scores, students in engineering, the sciences, and computing are 14.0 to 20.9 percent more likely to lose the HOPE scholarship than are students in other colleges. The implications of this result suggest that the scholarship program

“financially punishes students who choose more challenging courses of study. This horizontal inequity could have further and important unintended consequences because it might discourage students from choosing curricula that present such increased risks for scholarship attrition” (Dee and Jackson, p. 389).

In other words, students will have a strong incentive to choose majors that are less academically difficult; enrollment in hard sciences may dip relative to other academic programs on college campuses.

Who plays the lottery?

Many academic studies have concluded that lotteries act much like a regressive tax; poorer households spend a larger portion of their incomes for lottery tickets than do more affluent households. Therefore, the studies conclude, the incidence of lotteries is regressive. But we should be careful to distinguish spending on lottery tickets from taxation. Spending for a lottery ticket is a purely voluntary act; we can avoid the large “lottery tax” simply by not purchasing a lottery ticket.

Lottery sales tend to be higher among African Americans and those from lower-income households. McCrary and Condrey (2001) found that per capita lottery sales in Georgia were highest in counties with the largest proportions of African Americans. They also found that the lower the level of educational attainment the more often a person will play the lottery. Of those who play the Georgia lottery, less than five percent of persons with a college degree play every day, compared to 10 percent of persons with just a high school diploma.

Tax incidence of the lottery

Gallons of ink have been spilled on this issue. Some researchers argue that net lottery revenue can be viewed as an implicit tax on those who purchase lottery tickets. The state of Georgia keeps 35 percent of each dollar spent

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for the Georgia lottery; according to the implicit taxation view, the 35 percent is an excise tax on lottery play. As such, the incidence of the lottery tax can be compared with other taxes such as sales, income, and property.

A recent study of the Georgia lottery examines both spending patterns by income level and the reception of lottery benefits in terms of scholarships (Rubenstein and Scafidi 2002). The study estimates net benefits for households of different income levels. Lower-income households spend more on the lottery than they receive in benefits while higher-income households (making \$50,000 or more) receive more in benefits than they spend for lottery tickets.

Concluding observations

We can learn much from experiences in other states. We know that dollars spent on the lottery are dollars not spent for other goods and services that may generate state and local sales tax revenue. We know that lottery participants typically are among the less educated and less affluent. We know that while lottery revenues are volatile they tend to be countercyclical, rising when most tax revenue sources are falling.

We should be watchful that scholarship funds generated by the lottery generate a net increase in total scholarship dollars and do not simply substitute for current scholarship funds.

Some economic issues remain unclear. When a freshman receives a lottery scholarship, will the student's income increase, or does the student simply cut back the hours he or she needs to work? Does the scholarship affect the likelihood he or she will work while attending college? If students don't need to work so many hours, will the time available for study help to raise graduation rates? Will scholarship students gravitate to degree programs that are perceived as less difficult? The lottery shifts spending from both taxable and nontaxable goods and services and transfers income to college students who then may have more income available for room and board and entertainment. What is the net impact on state and local tax revenues? The Tennessee Lottery will undoubtedly offer new opportunities for studies of economic behavior. ■

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Notes

¹ NAPSL Web site, "Did You Know?"; www.naspl.org/faq.html.

² U.S. Census Bureau, Annual Benchmark Report for Retail Trade and Food Services: January 1992 through February 2004, issued March 2004.

³ Excludes South Carolina since that state's lottery began operations during fiscal year 2002.

⁴ NAPSL Web site.

⁵ "Lottery Raises \$64 million for Education Programs in Tennessee," press release, Tennessee Lottery, April 15, 2004.

⁶ State government tax revenue was \$536.9 billion in fiscal year 2003 while net revenue from lotteries was \$14.1 billion.

⁷ "Chapter 3: Designing Tennessee's Lottery," *An Economic Report to the Governor of the State of Tennessee*, February, 2003, pp. 40-41.

⁸ "Lottery officials are encouraged by strong first-week ticket sales," *The Tennessean*, January 28, 2004, p. 3B.

⁹ "Officials say projected retention rate for lottery scholarships too low," *The Tennessean*, February 12, 2004, p. 6B.

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Lower-income households spend more on the lottery than they receive in benefits while higher-income households (making \$50,000 or more) receive more in benefits than they spend for lottery tickets.