The Georgia Lottery: Assessing Its Administrative, Economic, and Political Effects

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Abstract

This article examines the Georgia lottery as a "policy laboratory" and its potential effect on state-level policy diffusion. The authors summarize an extensive research project they directed that included a survey of every state that offers a lottery, a general population survey of Georgia citizen attitudes toward the lottery, and results from an economic model summarizing the economic effects of the lottery. The analysis reveals that the Georgia lottery has been a significant source of revenue for the state's budget and operates in an administratively cost-effective manner. The analysis also confirms the conventional wisdom that lower-income households spend a greater proportionate share of their income on the lottery and that African Americans are more frequent players than whites. Furthermore, the Georgia lottery enjoys broad public support, the key to which appears to be the earmarking of lottery funds to specific, new, popular education programs. However, the data reveal that those educational programs promulgated by the Georgia lottery benefit citizens from both high and low socioeconomic status. Finally, the article suggests that lottery-generated funds may reach a plateau or peak during the first decade of implementation and that state policymakers should design lottery-funded programs accordingly.

INTRODUCTION

Governments, in their search for new revenue sources while holding the line on taxes, are relying more frequently on legalized gambling, such as casinos, video poker, and state-run lotteries (Borg & Mason, 1990; Herring & Bledsoe, 1994; Mikesell & Zorn, 1986). The state of Georgia established its lottery in 1992 to fund newly created educational programs. Recently, Alabama, Tennessee, South Carolina, and North Carolina have considered lotteries and the newly elected governor of Maryland has proposed the introduction of slot machines to generate revenue to fund educational budgets or to shore up revenue shortfalls. In Tennessee,

> Supporters (of the Tennessee lottery) point to Georgia's HOPE Program—which provided 277 million in scholarships to 169,399 college students last year—as the model if Tennessee voters pass a lottery referendum in the

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> November 5 general election. "Georgia has had many, many students who have stayed at home that would have probably gone to Eastern schools and out-of-state schools," said Ken Wood, a counselor at East Ridge High School in Hamilton County. (Ross, Jr. 2002)

Clearly, state and local governments look to other political entities to determine which policies are successful. Stream (1999) identifies both internal and regional factors that scholars have found influence policy diffusion. Internal factors include political context, problem severity, state fiscal health, interest groups, and the regulatory environment. Regional diffusion provides ideas and information (Walker, 1969; Berry & Berry, 1990). That is, internal factors set the stage for a policy's adoption; the existence of a solution to a similar set of conditions elsewhere in the region shapes a state's response to those conditions. Neglected from this model is the fact that states serve as competitors with other states in the region for both businesses and new residents. Innovations that provide one state a competitive advantage, then, are likely to be mimicked by neighboring states.

To analyze the success or failure of one public lottery and thus its applicability as a model for other states to emulate, this article presents a multifaceted look at the State of Georgia's experience with its state-run lottery. The authors summarize a year-long research project undertaken by the University of Georgia's Carl Vinson Institute of Government to assess the administrative, economic, and political aspects of the Georgia lottery. The two authors served as principal investigators for the project, which was funded by the Georgia legislature. The findings and conclusions presented herein are solely those of the authors.

Georgia's voters approved the constitutional amendment creating the Georgia Lottery for Education in November 1992. In pitching the lottery to Georgia's voters, Governor Zell Miller promised that net receipts would benefit education. He created four new educational programs that would be funded by lottery receipts.

- The HOPE Scholarship Program, which provides allowances for tuition, mandatory fees, and books for Georgia students enrolled in public, private, or technical postsecondary institutions.
- The Pre-Kindergarten Program, which provides free, voluntary pre-kindergarten for four-year-olds at approved public and private sites.
- The Technology Program, which provides funds for educational institutions to purchase and maintain instructional technology and to train personnel to use the technology.
- The Construction Program, which finances construction projects through the Department of Education, the Department of Technical and Adult Education, and the Board of Regents of the State University System of Georgia.

By the end of its first full year of operation, the Georgia lottery earned a record-breaking $1.1 billion in sales. Since that time, annual sales have increased steadily while total lottery-funded educational expenditures approached $4 billion by the end of fiscal year 2000. Between 1993 and 2000, the Lottery for Education Fund enabled 488,000 Georgia high school graduates to attend college and technical schools through the HOPE Scholarship Programs; fully funded more than 308,000 slots for four-year-olds to attend a pre-kindergarten program; and provided $1.6 billion to Georgia's public schools for technology purchases and $600 million for education construction.

As part of its revenue generation strategy; the Georgia Lottery Corporation presents a wide variety of games to attract a broad spectrum of players. Lotto and Big Game drawings occur several times a week where winners have the chance of winning millions of dollars. Pick 3 drawings are held twice daily, while Pick 4 and Fantasy Five drawings occur once daily. Payouts in these games vary proportionally with the odds of winning. Players know the results of Instant Games, such as scratch tickets, which have payouts that range between a free ticket and $5,000, immediately. Keno drawings occur every five minutes; terminals are found in bars, restaurants, and truck stops.

The design of Georgia's lottery is unique among public lotteries because of the transparency of the spending of receipts. Most state-run lotteries deposit receipts into the general fund or supplement spending for existing programs. Those states that do use lottery receipts to enhance existing educational spending divert an equal amount away from education such that the net increase in education spending is negligible (Mikesell & Zorn, 1986; Borg & Mason, 1988; Stark, Wood, & Honeyman, 1993; Spindler, 1995; Miller & Pierce, 1997). Georgia created four new educational programs that would only be funded through lottery receipts. As a result, the Georgia lottery created several stakeholder groups, including parents of college-bound children, parents of younger children, and those living in rapidly growing school districts. The existence of stakeholder groups is typically one reason policies are viewed as successes (Jones, 1984; Pressman & Wildavsky, 1984). The HOPE scholarship program also benefits from the perception that benefits are earned; students must have a B-average in their classes to earn a HOPE scholarship and maintain a B-average in their college coursework to maintain their HOPE scholarship. This reward structure gibes well with the American ethos of performance-based rewards and the use of incentives to induce behavior.

To assess the successes and failures of the Georgia lottery, the research team defined four questions that would drive the research. This article is divided into four major sections, each addressing one of the research questions posed below:

- How successful of a revenue generator is the Georgia lottery?
- Who benefits from the revenue generated by the Georgia lottery?

- What is the overall economic impact on the state of Georgia from its lottery?
- What are the sources of public support for the Georgia lottery?

The article concludes with implications for other state lotteries and for those states considering lottery adoption.

METHODOLOGY

Given the wide variety of questions analyzed, the authors collected data from numerous sources.

1. One of the authors conducted a survey of the thirty-seven states and the District of Columbia that currently offer lotteries, to collect data about the games each state offers, annual income, operating expenses, prize payouts, and vendor commissions.
2. The authors directed a survey of Georgia's population examining rates of play, receipt of benefits and public opinion (n = 803).[1]
3. The authors relied on data held in state databases housed by the P-16 Council,[2] the Georgia Lottery Corporation, and the Georgia Student Finance Commission. These databases supplied enrollment figures in Georgia's public colleges and universities, two-year technical colleges, and private colleges in Georgia; student sociodemographic data and location of school districts for HOPE scholars; lottery-funded pre-kindergarten slots by county; and spending on education technology and school construction by school district. These data were merged with income and sociodemographic data obtained from the US Census Bureau web site.

The authors, consequently, relied on a wide variety of methods to answer the research questions. Often, analyses relied on descriptive statistics, comparisons of means through t-tests, and chi-square statistics to determine intergroup differences. Of special note, the authors developed fixed-effects panel data models to estimate the fungibility of lottery receipts earmarked for education and to determine the relationships between lottery ticket purchasing, receipt of HOPE scholarships, and

[1]The sampling error was no greater than (+)/(–) 3.4%, with a 95% level of confidence.

[2]The P-16 Council is a collaborative effort of the University System of Georgia (USG), the Department of Technical and Adult Education (DTAE), the Department of Education (DOE), and the Office of School Readiness (OSR). These four institutions have signed a series of bilateral agreements to share certain information in order to create a statewide student database. The Office of Information Technology Outreach Services (ITOS) at the University of Georgia is responsible for organizing and linking the P-16 data. The Carl Vinson Institute of Government is grateful to each of the organizations that comprise the P-16 Council for allowing access to these data and to ITOS for technical assistance.

sociodemographic variables. Finally, a model of the "lottery dollar trail" was developed depicting the spending path from lottery tickets purchases to lottery provision expenses and lottery program funding as they feed into the Georgia economy. This model was estimated with the Regional Economic Modeling, Inc. (REMI) macroeconomic model to determine the impacts of the lottery dollar trail on Georgia's economy.

The Georgia Lottery as a Revenue Generator

As with any other source of public funds, the generation of revenue from lotteries should be subjected to the questions of adequacy (does the source of revenue provide the required funds), cost of administration, and equity (Mikesell, 1990). While there have been adequate funds for the programs funded by the Georgia lottery in each year of its operation, experience with other state lotteries indicates that this may not continue to be the case because revenues from lotteries in other states tend to decline after a short period (Mikesell, 1987; Mikesell & Zorn, 1986). This section discusses the Georgia lottery as a revenue source, including revenue generation, the administrative costs of lotteries, and equity issues in participation in the Georgia lottery.

How Much Revenue Does the Georgia Lottery Generate?

In fiscal year 1999, net lottery proceeds were the fourth largest revenue source in Georgia of the major sources of revenue (see Table 1). Notice that net lottery revenue in fiscal year (FY) 1999 exceeded transportation and tobacco taxes. Thus, while lottery revenues are a relatively minor source of operating funds when compared to income and sales taxes, they still are a substantial source of revenue.

TABLE ONE
Major Sources of Revenue in Georgia, FY 1999

Revenue Source	Total Amount (Millions of Dollars)	Percentage of Total Revenue
Personal income tax	5,701	45
General sales and use tax	4,470	35
Corporate income tax	800	6
Net lottery revenue	**648**	**5**
Motor fuel tax	420	3
Other tax revenues	224	2
Motor vehicle fees	219	2
Liquor, beer and wine tax	133	1
Cigar and cigarette tax	92	1
Total Revenue	12,068	100

Source: Georgia Department of Revenue, 1999 Statistical Report.

Previous research has documented that, compared to other major sources of state revenue, state lotteries do not provide a consistent level of funding. Mikesell and Zorn (1986) note that lottery receipts typically fluctuate annually. Lottery receipts in Maine, for instance, declined 50% between 1979 and 1980 and then increased by more than 50% per year for the next three years (Mikesell & Zorn, 1986). Mikesell (1987) finds that lottery sales typically increase in the first few years after their implementation, but the increases taper off and then lottery revenues begin to decrease. Mikesell (1987) also states that the subsequent adoption of a lottery by a neighboring state reduces a state's lottery revenues. Net lottery revenue in Georgia increased from $370 million in fiscal year 1994 to $648 million in fiscal year 1999. Georgia, then, was still in the "upswing" period.[3] If the research conducted by Mikesell and his colleagues is indicative of the experience Georgia can expect, revenues should begin to fall. Several other threats exist to future revenue streams. First, South Carolina and Tennessee, both neighboring states, are in the process of implementing its lottery, which should be operational by the fall of 2001. Second, gambling over the Internet continues to grow unchecked. Thus, Georgia may not see lottery revenues as high as they have been.

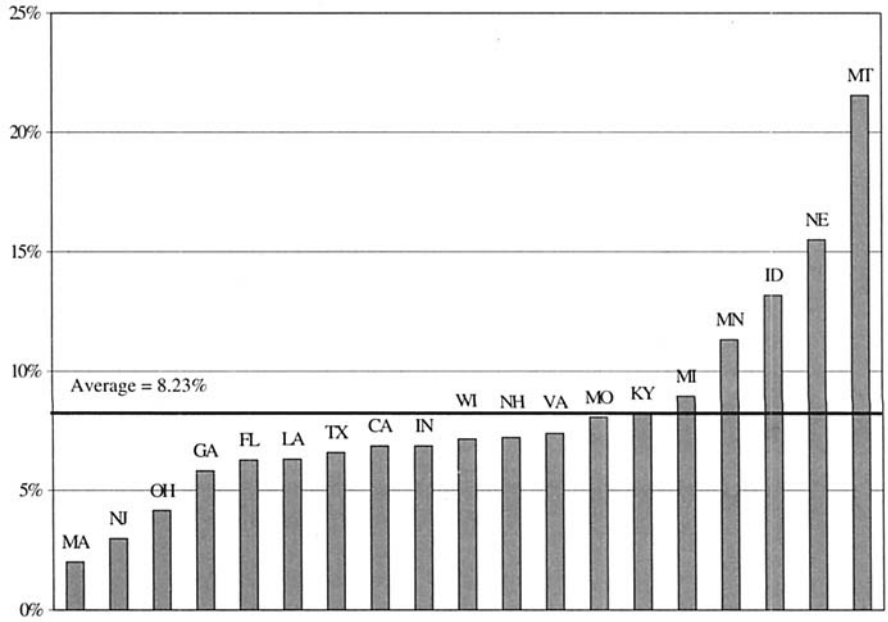
ADMINISTRATIVE COSTS

Several economists have explored whether state lotteries are subject to economies of scale. Economies of scale exist when the average cost of providing a good or service declines as the number of goods or services provided increases, allowing overhead costs to be spread over a larger base. Lotteries that take advantage of economies of scale are more efficient and yield a larger net surplus. DeBoer's (1985) analysis of the administrative costs of lotteries in seventeen states between 1974 and 1983 indicates that economies of scale do exist in state lotteries; administrative costs per dollar of sales decline as sales increase. Caudill et al. (1995) expand on DeBoer's study, focusing on those states that offered a lottery between 1984 and 1991 and including statistical tests to determine the validity of DeBoer's earlier results. Caudill et al. confirm DeBoer's finding that state lotteries are subject to economies of scale.

The authors surveyed thirty-seven states and the District of Columbia for their lottery revenues and detailed operating expenditures over the lives of their lotteries. Twenty-six states and the District of Columbia provided usable responses to the survey. The administrative costs studied include management of the lottery, the purchase of supplies, the operation of computer networks, and advertising. These data were supplemented by population figures collected from the US Census Bureau.

[3]Even though net revenue in 1998 fell slightly below net revenue in 1997, total lottery ticket sales have increased each year. The decrease in net revenue in 1998 was due to increased prize payouts.

FIGURE ONE
Total Costs of Providing States' Lotteries as a Percentage of Lottery Sales, FY 1999

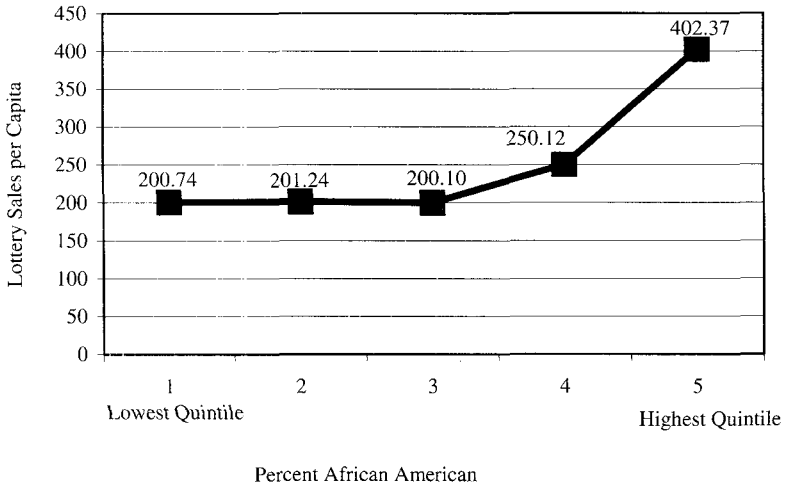


Compared to other states, the Georgia lottery is well run. Figure 1 contains each responding state's total costs of lottery operations as a percentage of lottery sales in fiscal year 1999.[4] Only three states provide their lotteries at a lower cost as a percentage of sales than Georgia—Massachusetts, New Jersey, and Ohio. Georgia's total costs are 5.8% of lottery sales, almost 2.5 percentage points less than the average of all states that responded.[5] The states at the lower end of the spectrum in costs as a percentage of lottery sales in Figure 1 are also those states with the largest lotteries, providing additional support for the conclusion that lotteries may be subject to economies of scale. The states on the right side

[4]Three states (Rhode Island, West Virginia, and South Dakota) collect revenues from the operation of video lottery terminals. This method of revenue generation differs substantially from other lottery activities. Video lotteries provide substantial revenues for those states at minimal costs and typically are provided by private-sector agents rather than the states. In South Dakota, for instance, the lottery commission serves as a regulatory agency over private sector providers of video lottery games. Given the difference between video lottery games and other, more traditional games, the analyses conducted by the Vinson Institute excluded Rhode Island, West Virginia, and South Dakota.

[5]Note that, in some cases, adjustments were made to revenue or expenditure items so that comparisons would be consistent across states. For instance, in some instances, tickets distributed as prizes were counted against income while other states treated them as an expense. Thus, percentages reported here may not be exactly as reported by states.

FIGURE TWO
Lottery Sales per Capita, FY1998, by Percent African American Quintile



of Figure 1 are low-population density states, where economies of scale are more difficult to achieve.

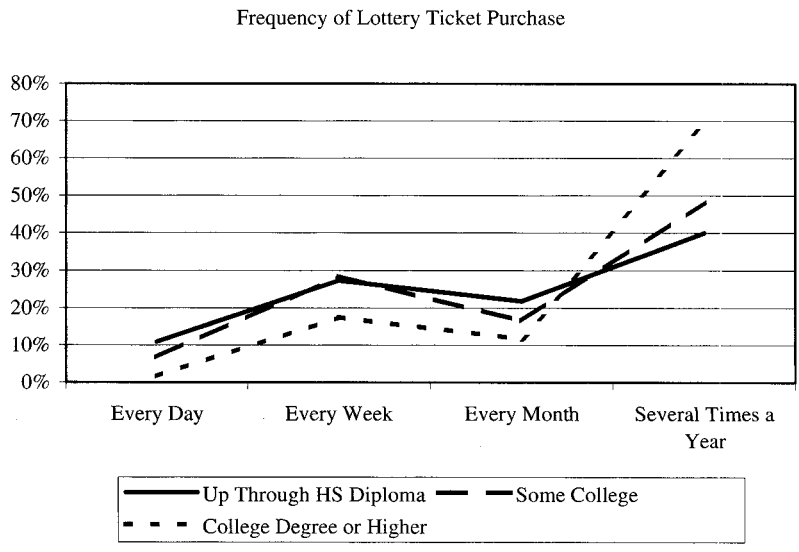
Who Plays the Georgia Lottery?

The primary findings of this study pertaining to lottery play corroborate results found in earlier studies (Clotfelter & Cook, 1989; Cornwell & Mustard, 1999; Rubenstein & Scafidi, 1999); lottery play is inversely related to education, while African Americans and people from lower-income households tend to spend a greater portion of their incomes on lotteries than those from higher income households.

For instance, the study found that lottery spending per capita was highest in those counties with the greatest proportion of African American residents. Figure 2 presents the average lottery sales per capita for counties in each quintile of percent African American in FY1998. The averages of lottery sales per capita in the lowest three quintiles were approximately the same. As the percentage of African Americans in a county increased beyond that in the three lowest quintiles, lottery sales per capita increased, such that average lottery sales per capita in the highest quintile was double that of the lowest three.

Education was also related to the frequency of lottery play, in that those with fewer years of educational attainment were more likely to play the lottery more frequently than those that have gone to school beyond high school. Figure 3 contains frequency of play of respondents to the Georgia population survey for those individuals that have played the lottery in

FIGURE THREE
Frequency of Lottery Ticket Purchasing, by Education Level of Respondent



Note: Chi-square = 21.48, DF = 6, $p = 0.0015$, $n = 411$

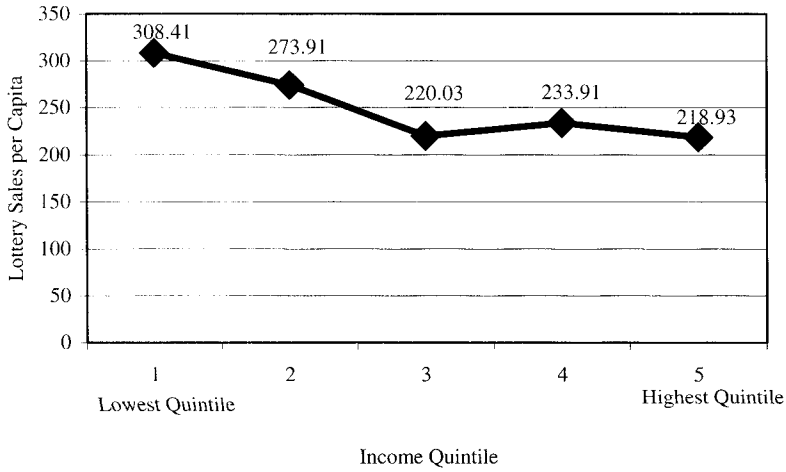
the past year, by educational attainment.[6] It shows that the least educated participate in the lottery more frequently than those with a high school diploma or more. This relationship was statistically significant at $p = .0015$. Note, however, that most respondents indicated they play the lottery only several times per year.

The study also found that lottery play was regressive, in that those from the lowest income categories spent a larger proportion of their income on lottery tickets than those from higher income categories. Figure 4 contains average county lottery sales per capita for each county income quintile. Those counties in the lowest income quintiles had the highest average lottery sales per capita; this declined by 25% in the middle quintile.

This research largely confirms what is already known about other lotteries—lottery play is regressive in that those from lower income strata and educational attainment participate in the Georgia lottery more so than those from higher income strata and with higher educational attainment. This research also demonstrated that African Americans are more likely to participate in the lottery more frequently and to reside in areas where lottery sales per capita are higher.

[6]Note that the results in Figure 3 include only those that reported they had purchased a lottery ticket at any time. Fully 30.3% of the respondents to this survey indicated that they had never purchased a Georgia lottery ticket.

FIGURE FOUR
Lottery Sales per Capita, FY1998, by Percent Income Quintile



Benefit Distribution

As shown in Figure 5, the HOPE and pre-kindergarten programs currently receive the bulk of available funding, with 73% of lottery appropriations distributed to these two programs in fiscal year 1999. This trend is likely to continue given a 1998 amendment to the Georgia Constitution that explicitly designates HOPE and pre-kindergarten as the spending priorities for lottery revenue.

One of the firsts tasks undertaken in examining the beneficiaries of lottery-funded programs was to determine if proceeds were actually being used to fund educational services or if they were being redirected into other uses. Previous research has largely demonstrated that lottery revenues earmarked for education displace state spending for education, resulting in a negligible net increase in education financing (Mikesell & Zorn, 1986; Borg & Mason, 1988; Stark et al., 1993; Spindler, 1995; Miller & Pierce, 1997). As illustrated in Figure 6, spending on education increased after the implementation of the Georgia lottery. Statistical analyses of a panel data model predicting education spending in the fifty states, controlling for enrollment, found that the Georgia lottery clearly has resulted in additional education spending. This outcome runs counter to the experiences of almost every other state that allocates lottery revenues to education. Lotteries in those states either do not alter spending on education, or are associated with reduced spending on education. The difference between Georgia and the remaining states is the transparency of spending of lottery dollars. When Georgia created its lottery, it created programs that are solely funded by lottery dollars. As a result, spending on those new programs was kept separate from spending on existing

FIGURE FIVE
Lottery Appropriations by Program, FYS1994–1999

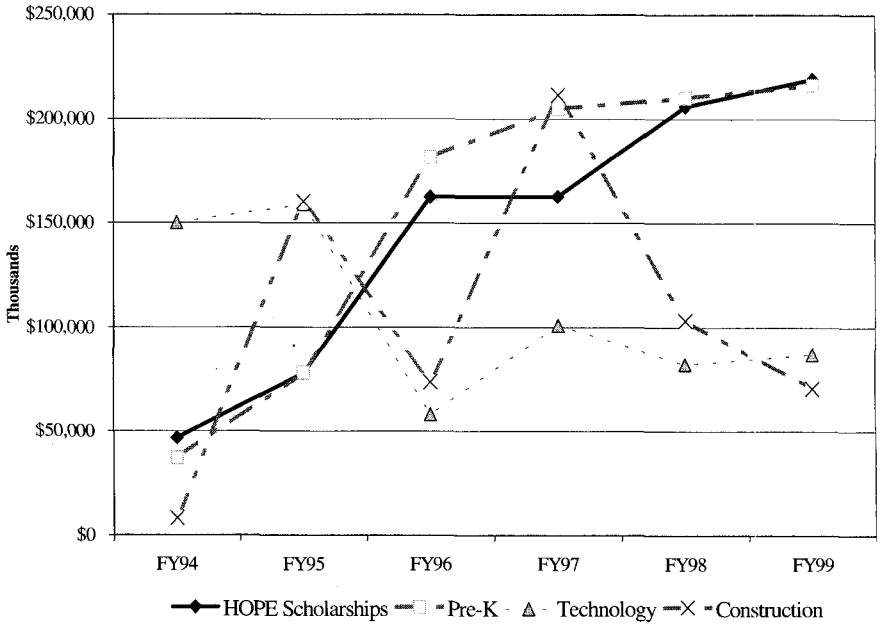
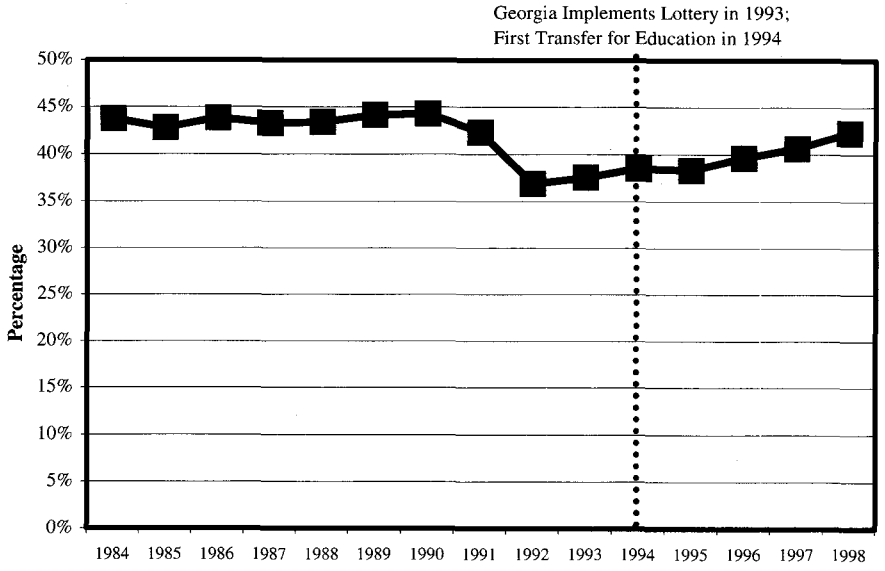


FIGURE SIX
Education Expenditures as a Percentage of Total Expenditures Before and After the Lottery: Georgia



Source: Department of Commerce, US Bureau of Census, State Government Finance Data, 1984–1998

educational items. Furthermore, the education programs funded by the lottery have grown in popularity, such that they receive a large amount of public scrutiny, and diversion of funds from those programs would then be easily detected.

Distribution of HOPE Dollars

Within the HOPE Scholarship Program there are several separate financial aid plans.[7] The most publicized of these provides assistance for residents (1) attending Georgia public colleges or universities, (2) attending a private college in Georgia, or (3) enrolled in a degree-granting program at a Georgia Department of Technical and Adult Education (DTAE) institution. The public college scholarship is the largest HOPE program in terms of spending. Between 1994 and 2000, the public scholarship program provided more than $550 million, which is almost three times the amount of funds for education, as did the technical institute program. Total spending for the private college HOPE scholarship program was slightly less than $100 million. The HOPE scholarships for public and private college are merit-based, in that high school graduates in the class of 2000 or later must have earned a 3.0 GPA in the core-curriculum high school courses and students who receive HOPE must maintain a 3.0 GPA in their college courses.[8]

In examining overall HOPE assistance, residents in higher SES counties received more assistance per capita than did residents in lower SES counties (Table 2).[9] There is very little difference between the average

TABLE TWO
Relationship between County Socioeconomic Status and Average Total HOPE Assistance Received

Socioeconomic Status	Average Total HOPE Assistance Received between 1993 and 1999 per Capita (1999 Population)
Lowest Quartile	109.64
Second Quartile	110.80
Third Quartile	116.17
Highest Quartile	127.61

Source: Georgia Student Finance Commission (Amount of HOPE Assistance); US Census Bureau (Measures for the Construction of Socioeconomic Status).

[7]In addition to the scholarships discussed in the text, HOPE includes two cancelable loan programs for aspiring teachers as well as the Public Safety Grant, which provides postsecondary educational assistance to the children of public safety officials who are killed or disabled in the line of duty.

[8]Before 2000, high school graduates were required to maintain a 3.0 GPA in all high school courses to be eligible for a HOPE scholarship to public or private college.

[9]Socioeconomic status is an index that combines standardized scores of per capita income, the county's unemployment rate, the percentage of adults without a high school diploma, and the percentage of adults with a college degree or higher.

TABLE THREE
Freshman Enrollment and Receipt of HOPE Scholarship, FY1994 to FY1999

	White		African American	
Year	Percent of Entering Freshman	Percent of HOPE Scholars	Percent of Entering Freshman	Percent of HOPE Scholars
1994	75.1%	85.0%	20.0%	10.9%
1995	68.1%	76.0%	26.8%	19.1%
1996	67.1%	76.2%	27.3%	18.8%
1997	66.5%	76.1%	27.3%	18.6%
1998	66.7%	76.0%	26.7%	18.3%
1999	66.4%	74.1%	26.5%	21.2%

Source: P-16 Council database.

amounts of HOPE assistance received by counties in the two lowest SES quartiles. Counties in the third highest SES quartile received, on average, $5.37 more per capita than those in the second highest quartile. Residents in counties from the highest SES quartile received, on average, more than ten dollars per person than those residents in the next highest SES quartile. The difference between the lowest and highest SES quartiles is almost eighteen dollars per person; residents in counties with the highest SES received 16.4% more HOPE assistance, on average, than residents in those counties in the lowest SES stratum.

In examining the receipt of HOPE scholarships for public colleges and universities, the authors found that white freshmen received a disproportionately large number of HOPE scholarships while African American students received a disproportionately smaller amount (see Table 3). In FY1999, about 27% of USG freshman were African American, but African American students represented only 21% of freshman HOPE recipients. In the same year, roughly 66% of fall-term freshman in the university system were white and 74% of freshman HOPE recipients were white. It is worth noting, however, that the disparities that existed early in the program's existence have diminished somewhat.

Another area of concern is the retention of one's HOPE scholarship for college. In addition to the high school GPA requirement, the HOPE scholarship requires degree-seeking students to maintain a 3.0 GPA while enrolled in college. Table 4 presents information by race and ethnicity on seniors enrolled in the fall term of fiscal year 1999. For seniors, the overrepresentation of white students among HOPE recipients is even more pronounced than in the findings for freshmen. While 74% of University System of Georgia (USG) seniors are white, 86% of senior HOPE recipients are white. Conversely, African Americans comprise about 20% of total USG seniors, but only about 9% of senior HOPE recipients.

TABLE FOUR
Racial Composition of Seniors and Senior HOPE Recipients, USG—Fall Term, FY1999

	African American	White
Percent of Seniors Enrolled in a USG Institution	20.48%	74.10%
Percent of Senior HOPE Recipients in a USG Institution	8.78%	86.09%

Source: P-16 Council database.

In contrast to HOPE's public and private college scholarship programs, the technical institute scholarship carries no specific GPA requirements. Our analysis found that the benefits of this program were more equitably distributed across racial groups. Table 5 presents data on students enrolled in DTAE institutions between fiscal years 1994 and 1998. In the first few years, white HOPE recipients were somewhat overrepresented among DTAE enrollees. Over time, this distribution has become more representative of enrollment figures; African American students accounted for 35.6% of the total enrollment in public technical institutions in fiscal year 1998, while 37% of DTAE HOPE recipients were African American. In fiscal year 1998, 59% of enrollees were white as were 59% of DTAE HOPE recipients. Clearly, for both African American students and white students, HOPE's technical collège scholarship program appears to have a well-balanced racial composition.

Pre-Kindergarten

The pre-kindergarten program provides a fully funded slot in a pre-kindergarten class to any four-year old in Georgia.[10] Our analysis finds that the pre-kindergarten program benefits residents in lower socioeconomic status counties more so than residents in higher socioeconomic counties. Using the measure for county socioeconomic status described earlier, Table 6 contains the average number of pre-kindergarten slots per 100 four-year olds in counties in each socioeconomic stratum. Those counties in the lower two strata have a much higher average number of pre-kindergarten slots than counties in the upper two strata.

[10]The pre-kindergarten program is much more than a day care service; the purpose of the pre-kindergarten program is to develop in children the skills and habits needed to succeed academically and socially. Research conducted by Basile (1996) for the Georgia Council for School Performance confirms that parents believe that the lottery-funded pre-kindergarten program achieves these purposes. Other research demonstrates that pre-kindergarten classes are led by trained teachers and that kindergarten teachers believe that pre-kindergarten participants are more prepared for kindergarten than are non-pre-kindergarten participants (Brackett, Henry, & Weathersby, 1999).

TABLE FIVE
Enrollment at DTAE Institutions and DTAE HOPE Recipient, FY1994 to FY1998

	White		African American	
Year	Percent of DTAE Enrollment	Percent of HOPE Recipients	Percent of DTAE Enrollment	Percent of HOPE Recipients
1994	64.8%	73.0%	30.3%	23.8%
1995	63.6%	66.3%	31.2%	30.1%
1996	62.2%	63.8%	32.5%	32.5%
1997	60.0%	60.4%	33.9%	35.5%
1998	58.8%	59.1%	35.6%	37.0%

Source: P-16 Council database.

TABLE SIX
Average Number of Lottery-Funded Pre-Kindergarten Slots per 100 Four-Year-Old Children in Counties Separated by Socioeconomic Status

SES Quartile	Average Number of Pre-K Slots per 100 Four Year Old Children
Lowest Quartile	60.91
Second Quartile	66.93
Third Quartile	55.93
Highest Quartile	53.58

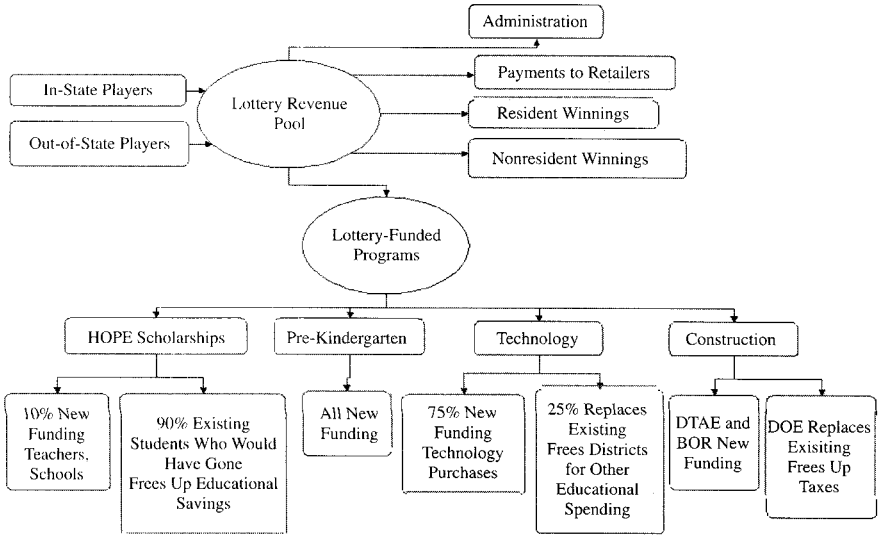
Source: Number of pre-kindergarten slots provided by the Office of School Readiness.

MACROECONOMIC MODEL

The next task undertaken during the study was to estimate the impact of the lottery dollar trail on the overall Georgia economy (see Figure 7). By introducing a new commodity (lottery tickets), Georgians shift purchases away from some goods and services so that they may purchase lottery tickets. Lottery purchases by Georgia residents were assumed to come directly out of their general consumption expenditures. All nonresident purchases were treated as new money in Georgia.[11] Some of those revenues from lottery ticket sales purchase services to manage the Georgia lottery and purchase lottery tickets from suppliers. Other revenues are paid back to winners, which may then be respent in the Georgia economy

[11]The share of revenue from in-state and out-of-state purchases was calculated according to the location of winners. The Georgia Lottery Corporation has indicated that, from its inception through January 1997, 83.88% of lottery winners were from Georgia and 16.12% of lottery winners were from out-of-state. Given the random nature of the lottery, these numbers are excellent proxies for resident versus nonresident ticket purchases.

FIGURE SEVEN
The Lottery Dollar Trail



or paid to out-of-state winners. Winnings by out-of-state players are assumed to permanently leave the Georgia economy. Vendors also receive a portion of lottery revenues. Finally, the state uses the remaining lottery receipts to fund educational programs. This lottery "dollar trail" also has indirect effects on the Georgia economy. Reducing demand for nonlottery ticket items results in fewer jobs to produce nonlottery-ticket items. However, people employed to manage the lottery and provide the educational services funded by lottery revenue will spend their earnings, which circulate in the Georgia economy. The lottery dollar trail model was estimated with the use of a REMI Policy Insight structural model, which is a macroeconomic general equilibrium model.

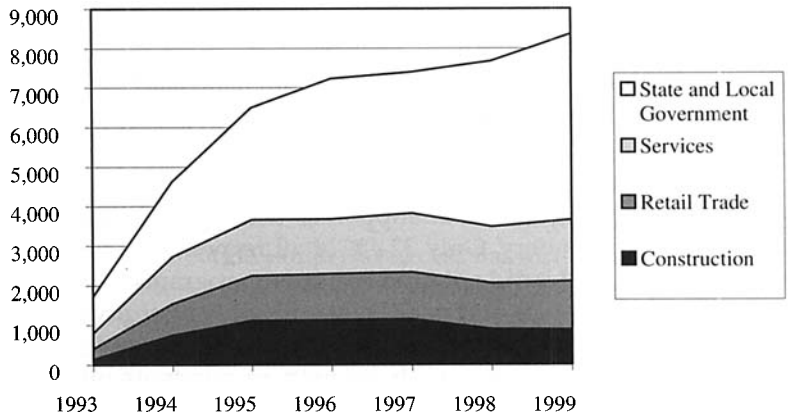
The study found that the Georgia lottery has definitely had a positive impact on Georgia's economy. Table 7 summarizes the results of the model. In its first year of operation, the Georgia lottery was responsible for creating more than 1,500 jobs in Georgia. By 1999, more than 8,000 jobs in Georgia were attributable to the presence of the lottery and its funded programs. The largest gains were in state and local government employment, which includes all employment for public education (Figure 8). Services and retail trade also realized positive job gains from the lottery as money was spent and respent in the Georgia economy. Consequently, the Georgia lottery increased Georgia's gross state product and total personal income annually between 1993 and 1999. The $342 million increase in total personal income in 1999 is more than $41 per capita. Note that the economic impact of the Georgia lottery was largely felt in its first few

TABLE SEVEN
Results of the REMI Estimation of the Lottery Dollar Trail

Calendar Year	Employment Gains	Contribution to Gross State Product (millions of dollars)	Total Income Personal (millions of dollars)	Population Increase
1993	1,597	50.26	49.09	380
1994	4,486	147.10	146.30	1,802
1995	6,395	216.60	217.00	3,879
1996	7,071	243.70	254.90	5,833
1997	7,219	247.90	278.10	7,528
1998	7,393	251.30	299.20	8,826
1999	8,019	271.10	342.00	10,010

Notes: All values represent the amount of that variable in the Georgia economy that year attributable to the Georgia lottery. They do not represent year-to-year changes and are not additive over years. All dollar figures measured in constant 1992 dollars.

FIGURE EIGHT
Sectoral Employment Gains

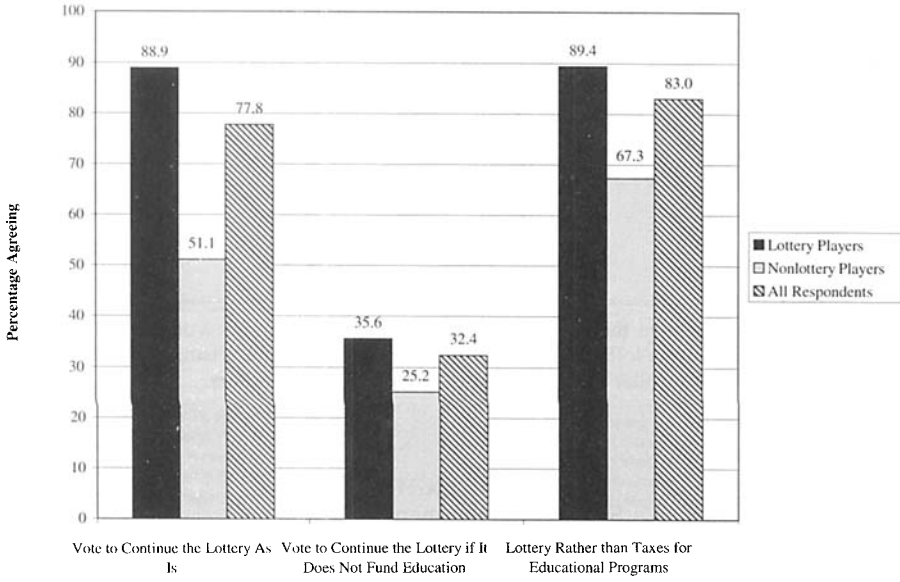


years; the rate of increase in employment gains, GSP, and TPI slowed after 1997. Finally, the Georgia lottery resulted in a relative increase in Georgia's population. Increase in residency can be attributed to the jobs and increased educational opportunities created by the lottery.

Public Opinion

With high rates of play, the popularity of its funded programs, and positive economic impacts in the states, it is not surprising that support for the lottery is strong. Figure 9 illustrates support for the lottery by presenting the rates of respondents to the survey of Georgians who would

FIGURE NINE
Percentage of Respondents that Would Vote to Continue the Lottery if a Referendum Were Held Today



vote to continue the lottery if another referendum were held today. Nearly 78% of the entire sample would vote to continue the lottery, with almost 90% of players and a slight majority of nonplayers voting to continue the lottery. Our study then sought to determine that source of support. It is quite apparent from Figure 9 that support is tied to the education programs funded by the lottery. Only 32.4% of all respondents would vote to continue the lottery if it did not fund education programs. This opinion was shared both by players and nonplayers. Finally, the study sought to compare respondents' preferences for a lottery as opposed to taxes to fund educational programs. Overwhelmingly, respondents opted for a lottery rather than taxes.

CONCLUSIONS

Several points become clear from the preceding analyses of the Georgia lottery. First, the lottery has had a modest, positive economic impact on all of Georgia by creating new jobs and attracting new residents to the state. In addition to this diffuse impact the programs funded by the Georgia lottery have had, the public provides tremendous support for the lottery as a result of the direct ties between lottery receipts and education programs. Removing those ties would result is the loss of a majority of support. That support exists despite the regressive nature of the "lottery tax" and the relatively high costs of revenue generation when

compared to other forms of state revenue, even though the Georgia lottery itself is well-managed when compared to other state lotteries. The preceding analyses yield these major findings:

- The Georgia lottery has been a significant and successful source of revenue generation for the state's budget.
- The Georgia lottery is operated in an administratively cost-effective manner when compared to other states.
- Analyses of Georgia lottery play confirm the conventional wisdom: lower-income households tend to spend a greater portion of their incomes on lottery play; African Americans tend to play the lottery more frequently than whites; and persons with lower educational attainment are more frequent lottery players.
- Unlike other states, state spending on education increased after implementation of the lottery with specific new educational programs the targets of these funds.
- Georgia's new educational spending benefits citizens of both high socioeconomic status (HOPE) and lower socioeconomic status (pre-kindergarten).
- Overall, the lottery has been a positive influence on the Georgia economy as measured by gross state product, personal income, and population growth.
- Public opinion strongly supports the lottery.

However, the Georgia Lottery's success has also spread the seeds of its potential demise. As HOPE and pre-kindergarten program participation increase and as neighboring states adopt Georgia-like lotteries, there is a potential for shortfalls in program funding. Then, in a reverse from most other state experiences with lotteries, general fund dollars may need to be directed to supplement lottery revenues for popular programs. In one editorial,

> State officials estimate that in the next few years lottery sales will be unable to fully finance the college scholarship and early learning initiative. To keep the programs afloat, money may have to be set aside in the state budget's general fund. . . . While the future growth of lottery revenues is somewhat uncertain, the demand for that money is clear. . . . State officials readily admit that the crunch time for those programs supported by the lottery is looming in the not-too-distant future—about three years from now, according to a rough estimate by the director of the governor's Office of Planning and Budget. (*Athens Banner Herald*, 2002)

The solution to this problem lies, perhaps, in some sort of means testing for future program beneficiaries if general fund revenues cannot cover projected shortfalls. What is important about this lesson is that revenue

from public lotteries may be constrained by an upper boundary that is reached some time within the latter part of the first decade of a lottery's existence. Those states developing lotteries should be cognizant of this limitation and not establish programs that are likely to exceed net lottery receipts.

In closing, Jewett states that an argument "for devolution of federal power is that states can act as policy laboratories and over time states will gravitate to the policies that demonstrate success" (2001, p. 137). As demonstrated above, the Georgia lottery has been successful from an economic as well as an administrative and political perspective. The authors believe that a primary reason for the lottery's success is based on its earmarking funds for new, popular educational programs that benefit a broad spectrum of the state's population. As other states explore lotteries, there are positive lessons as well as warnings to be garnered from the Georgia experience.

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