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Recent Changes in State and Local Funding for Education in Georgia

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Executive Summary

Relative to previous recessions, the 2001 recession was short and weak. Even so, it had a significant effect on the fiscal conditions of U.S. state and local governments, including Georgia. In this Policy Brief we examine how the 2001 recession affected K-12 state and local education spending in Georgia.

Since we are interested in the role of state and local governments, we consider state revenue (via grants) to local school systems and own source revenues raised by local school systems, excluding federal funds. The data are obtained from the annual revenue reports prepared by the Georgia Department of Education (GDOE). All values are expressed in real (inflation adjusted) terms, and years refer to school years ending in the year specified.

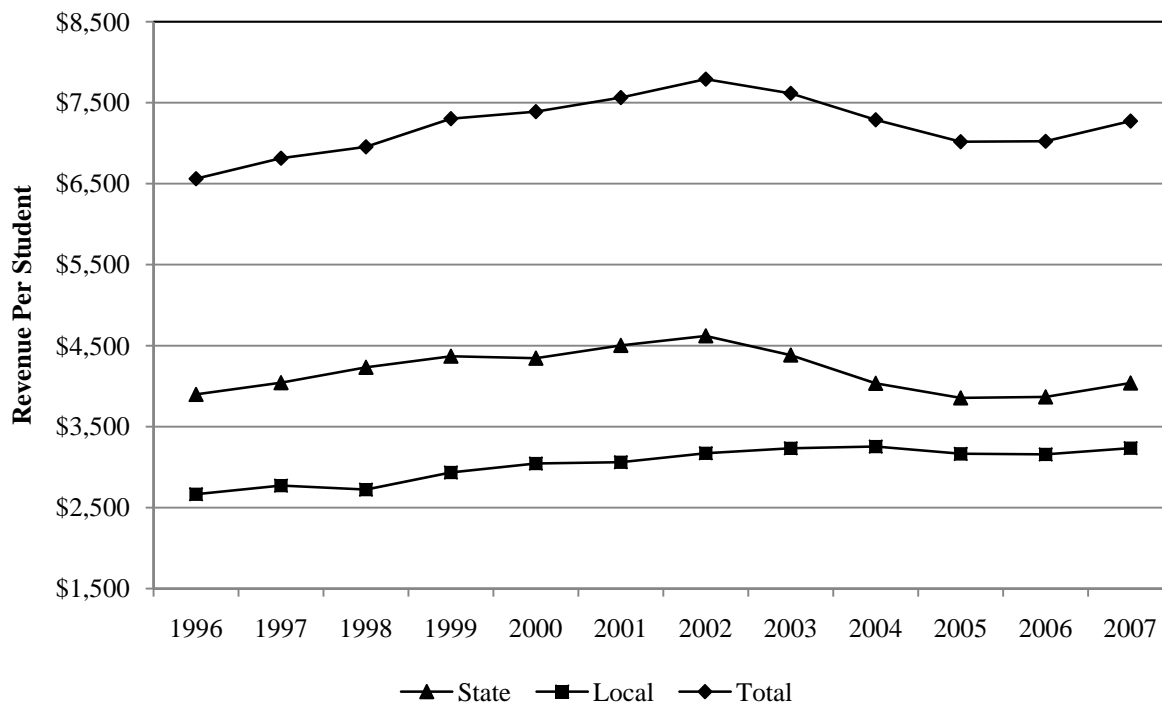
Georgia Trends in K-12 Expenditures

Figure A presents state real revenue per student, local real revenue per student, and state plus local real revenue per student for Georgia using the GDOE data. From 1996 through 2002, state real revenue per student increased and increased at about the same rate as local real revenue per student. However, beginning in 2002 state real revenue per student fell, and fell until 2005, at which point it began to increase again. Local real revenue per student increased nearly every year between 1996 and 2007, the exceptions being between 1997 and 1998 and between 2004 and 2005. Total state revenue per student follows a pattern similar to state revenue per student.

Over the period 1996 to 2002, state, local, and total revenue per student increased at roughly the same rate. Real state revenue per student increased at a rate of 2.88 percent per year, real local revenue per student increased at 2.94 percent per year, and real total revenue per student increased 2.90 percent per year. However, over the more recent 2002-2005 period, real state revenue per student fell 5.86 percent per year and local revenue per student was essentially flat, so total revenue per student fell at an annual rate of 3.42 percent.

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FIGURE A. REVENUE PER STUDENT, GEORGIA (2005\$)



The pattern of change in the post-recession years in state and local revenue per student across Georgia was not uniform, and not all school systems experienced decreases in revenue per student after the recession hit. The major discretionary fiscal change that a school system can make is to its property tax rate. Locally raised revenue per student can change from year to year, but this depends on both economic conditions and the ability and willingness of local school systems to make discretionary changes to tax rates. Changes in state revenue per student to local school systems (e.g., grants) can be due to several factors, including an increase or decrease in the appropriation for state education aid and changes in basic aid received through the Quality Basic Education program (QBE) due to changes in the value of a district's five mill local required contribution.

We turn now to a descriptive analysis of how state and local real revenue per student changed since 1996, but focus on the post-2001 recession period. We start with consideration of the change in state plus local revenue per student. Table A shows the number of Georgia school systems that experienced increases and

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decreases in total (state plus local), state, and local real revenue per student for each year from 1996 to 2007. (Data were not available for all years for two districts, Gainesville City and Hancock County, so in some tables we report information for only 178 of the 180 school districts.) For 2000 to 2001, i.e., the year prior to the 2001 recession, only 28 school systems reported a decrease in total real revenue per student. With the onset of the 2001 recession, the number of school systems that experienced a decrease in total real revenue per student increased; 131 (or 73.6 percent) reported a decrease in total real revenue per student between 2002 and 2003, 155 (or 87.1 percent) reported a decrease between 2003 and 2004, and 168 (93.3 percent) reported a decrease between 2002 and 2005.

TABLE A. SCHOOL SYSTEMS BY NATURE OF CHANGE IN REAL REVENUE PER STUDENT

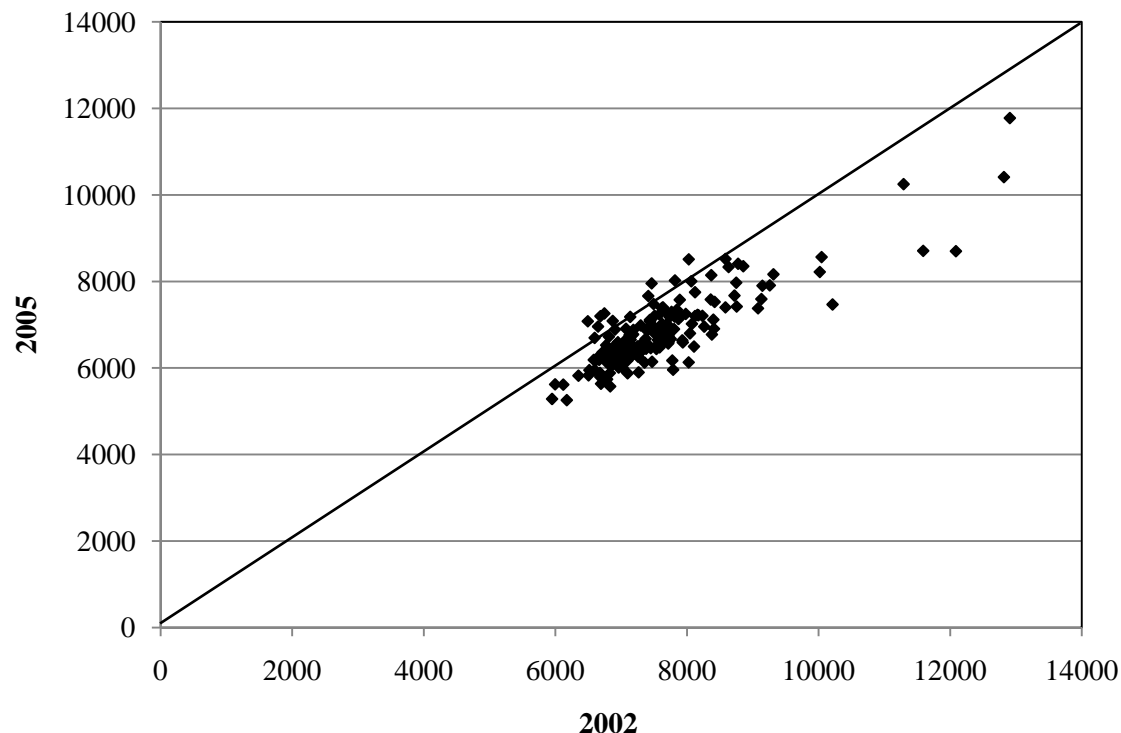
Period	-----State + Local-----		-----State-----		-----Local-----	
	Increases	Decreases	Increases	Decreases	Increases	Decreases
1996-	118	60	100	78	133	45
1997-	152	26	161	17	79	99
1998-	165	13	150	28	157	21
1999-	122	56	100	78	126	52
2000-	150	28	156	22	97	81
2001-	148	30	145	33	102	76
2002-	47	131	21	157	87	91
2003-	23	155	11	167	110	68
2004-	28	150	21	157	68	110
2005-	91	87	75	103	97	81
2006-	158	20	158	20	114	64

Source: Calculations by authors from Georgia Department of Education, Annual

Figure B is a plot of state plus local revenue per student in 2005 against the same variable for 2002, adjusted for inflation. The solid line represents points for which revenue per student in the two years are equal; points below the solid line represent school systems for which 2005 state plus local revenue is less than 2002 revenue, adjusted for inflation. As can be seen, those school systems that had the largest decreases in total revenue per student generally were those systems that were spending larger amounts per student in 2002.

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FIGURE B. LOCAL PLUS STATE REVENUE PER FTE



For the period 2000 to 2007, there were no school systems that did not experience a decrease in total real revenue per student in any year, and only 4 systems that experienced only one year in which total real revenue fell. Twenty-five systems had 2 years of declining total real revenue per student, 71 had 3 years, and 78 experienced a decrease in total real revenue per student in at least 4 of the 7 years.

Turning to changes in state revenue per student. Most (176) school systems experienced a decrease in state revenue per student between 2002 and 2005, adjusted for inflation. The number of school systems that reported a decrease in state revenue per student fell to 20 for the period 2006-2007, approximately the number that reported a decrease between 2000 and 2001, or just before the recession. The larger decreases in state revenue were experienced by school systems with the larger total revenue per student in 2002.

There were more school systems that had an increase in local revenue per student between 2002 and 2005, adjusted for inflation, than had an increase in state

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revenue per student. Between 2002 and 2005, 75 school systems had a decrease in local revenue, while 105 systems had an increase in local revenue. Most systems had increases or decreases in local revenue between 2002 and 2005 of less than \$500 per student. In three cases the change exceeded \$1,000. In general, those school systems with the smallest local revenue per student in 2002 had the largest percentage increase in local revenue over the period.

Local School Systems' Responses to State Revenue Reduction

We turn now to consideration of whether school systems attempted to replace the reduction in state revenue per student in an attempt to hold total real revenue per student constant. Table B shows the distribution of school systems that had increases and decreases in real state or local revenue per student between 2002 and 2005. (The year 2002 was the year before state revenue per student began to fall, while 2005 was the year that state revenue per student was the smallest in the post-2001 period.) Over this period, 176 school systems had a decrease in state revenue per student, adjusted for inflation; of these, 101 increased local revenue. However, 75 of the 176 systems reduced local revenue, and thus clearly did not attempt to replace lost state revenue. Furthermore, as noted above, only 12 school systems did not experience a decrease in total revenue per student. It is clear that very few school districts replaced the reduced state revenue. By way of comparison, in the 1997 to 1999 period, 146 school systems increased local revenue.

TABLE B. CHANGE IN REVENUE PER STUDENT, 2002 TO 2005

	-----State-----		
	Increase	Decrease	Total
Local			
Increase	4	101	105
Decrease	0	75	75
Total	4	176	180

Source: Calculations by authors from Georgia Department of Education, Annual Revenue Reports.

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The 2001 recession had a negative effect on real state revenue per student. Many school systems did increase local revenue over the period 2002 to 2005, and the increase was larger the greater the decrease in state revenue per student. However, very few local school systems increased local revenue sufficiently to fully offset the decrease in state revenue.

We also compared the annual change in real local revenue per student over the two periods, 1996-2002 and 2002-2005. Typically the increase in the earlier period was larger than the change in the second period. In fact, 115 school systems had larger annual increases in local revenue per student, adjusted for inflation, in the first period than the second period.

We also attempted to explain the relationship between state revenue changes and local revenue more systematically using regression analysis. The dependent variable is the level of local real revenue per student. Since we are interested in the extent to which local school systems increased local revenues to offset declines in state revenues, the independent variable of interest is state real revenue per student. Another independent variable is the real property tax base per student. We also estimate equations that include a time trend, year dummy variables, year dummies interacted with state real revenue per student, and state revenue per student interacted with a dummy variable equal to one for the post-recession years 2003 through 2005 in which state revenue per student declined.

In all regressions, the coefficients on state revenue per student are negative and statistically significant, which is consistent with the hypothesis that lower state revenue per student results in school systems increasing local revenue per student. The coefficients suggest that a dollar reduction in state real revenue per student causes local school systems to increase real revenue per student, but only by about 40 cents. For the period, 2002-2005, the increase in real revenue per student per dollar decrease in real revenue per student was somewhat smaller, about 30 cents. Also, the coefficients on the property tax base are positive and statistically significant in all five regressions, which is consistent with the expectation that school systems with greater property tax wealth per student generate greater local revenue per student.

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Summary and Conclusions

How did the 2001 recession affect education spending in Georgia, and how did local school districts respond? Our analysis indicates that most school systems in Georgia experienced a decrease in real revenue per student during the 2002 through 2005 period, and indeed that the reductions in state plus local and in state real revenue per student were greater in Georgia than the U.S average. However, not all Georgia school systems suffered a decrease, and the decreases (when they occurred) varied widely across the state's school systems. Of greater interest is whether local school systems responded to the reduction in state real revenue per student by increasing local real revenue per student. Thus, the extent to which local school systems choose to replace reduced state aid is a discretionary decision based on economic and political factors. Our results suggest that Georgia local school systems responded inversely to changes in state real revenue per student, increasing local revenues when state revenues decline but not by enough to fully replace reduced state revenue.

I. Introduction

Relative to previous recessions, the 2001 recession was short and weak. Even so, it had a significant effect on the fiscal conditions of U.S. state and local governments. Own source revenues had increased both for state and for local governments from 1992 until the recession began in mid-2001, at which point state revenues fell dramatically, by 3.4 percent. Although local government own source revenue did not fall, it did not grow as fast; between 2001 and 2002, local real own source revenue increased by 1.6 percent, compared to an average of 2.7 percent for the previous 10 years.

In this report we examine how the 2001 recession affected K-12 education spending in Georgia. We first explore how economic conditions affected aggregate state and local financing of K-12 education in Georgia; this is the subject of Section II. We then turn in section III to consideration of individual school systems in Georgia, where we examine the variation across school systems in the changes in total revenue, state aid, and local revenue per student, focusing on the post-recession period. We then address in Section IV how the cuts in real revenue per student at the *state* level affected *local* real revenue per student; that is, did Georgia *local* school districts attempt to offset reductions in *state* aid by increasing their own local revenues for education? Section V has some concluding observations.

To summarize the results, we find that total revenue per student and state revenue per student, adjusted for inflation, fell over the period 2002 to 2005, and that real local revenue per student over that period was flat. Most school systems experienced decreases in real total and state revenue per student, but the magnitude of post-recession cuts in total revenue per student and in state real revenue per student varied widely across Georgia local school systems. We find weak evidence that local real revenue per student increased in response to reduced state real revenue per student.

II. Georgia Trends in K-12 Education Expenditures

We focus on the allocation of state and local revenue to K-12 education, excluding federal funds to state and local governments for education spending. Since we are interested in the role of state and local governments, we consider state revenue (grants) to local school systems and own source revenues raised by local school systems. The data are obtained from two sources. We gather Georgia data on K-12 education from the National Center for Education Statistics (NCES).¹ We use fall membership to calculate per student revenue.² We supplement NCES data for Georgia with data from the annual revenue reports prepared by the Georgia Department of Education (GDOE) and available on the GDOE website; unlike NCES information, GDOE per student revenue is calculated using full time equivalent (FTE) students. All values are expressed in real (inflation adjusted) terms.³ Note that all years refer to school years ending in the year specified.

Figures 1-3 and Table 1 present real total revenue and revenue per student for Georgia using NCES data since these data were available for a longer period than data from the Georgia Department of Education website. The trend line, using only 1991-2001 data, is presented only for revenue per student. The two sets of figures show similar patterns, so we focus on revenue per student.

There was a general increase in state revenue per student during the 1990s, and then a decrease each year between 2002 and 2005 (Figure 2). Local revenue per student dipped a little between 2001 and 2003, but then turned up (Figure 3). The net effect was a decrease in state plus local real revenue per student after 2002 (Figure 1). For Georgia, the fall in state plus local real revenue per student after 2001 was more severe and continuous than for the U.S.

¹ For years prior to 2004, data were obtained from the *Digest of Education Statistics*, available at <http://nces.ed.gov/programs/digest/>. For 2004 and 2005, data were obtained from *Elementary and Secondary Students, Staff, Schools, School Districts, Revenues, and Expenditures: School Year 2004-05 and Fiscal Year 2004*, available at <http://nces.ed.gov/pubs2007/overview04/>. For 2005, data were obtained from *Revenues and Expenditures for Public Elementary and Secondary School Districts: School Year 2004-05 (Fiscal Year 2005)*, available at <http://nces.ed.gov/pubs2007/revexpdist05/index.asp>.

² For FY 2004, fall membership is the only measure of enrollment available.

³ We use the annual NIPA price index for state and local government to calculate real values.

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FIGURE 1. TOTAL REVENUE AND REVENUE PER STUDENT, GEORGIA (2000\$)

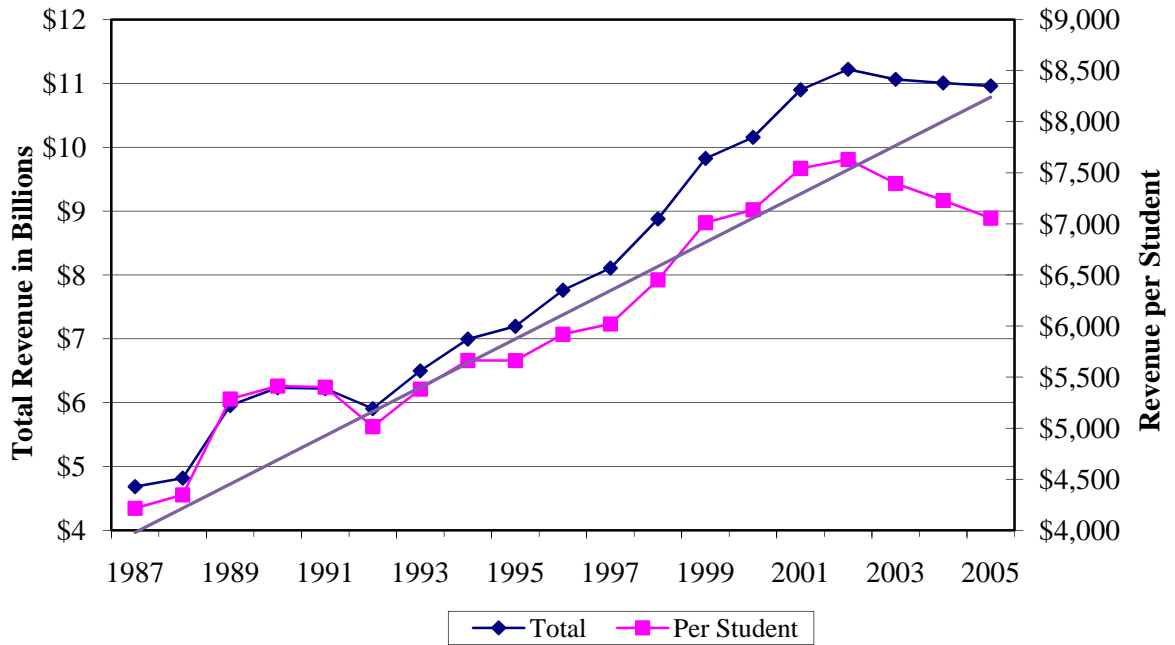
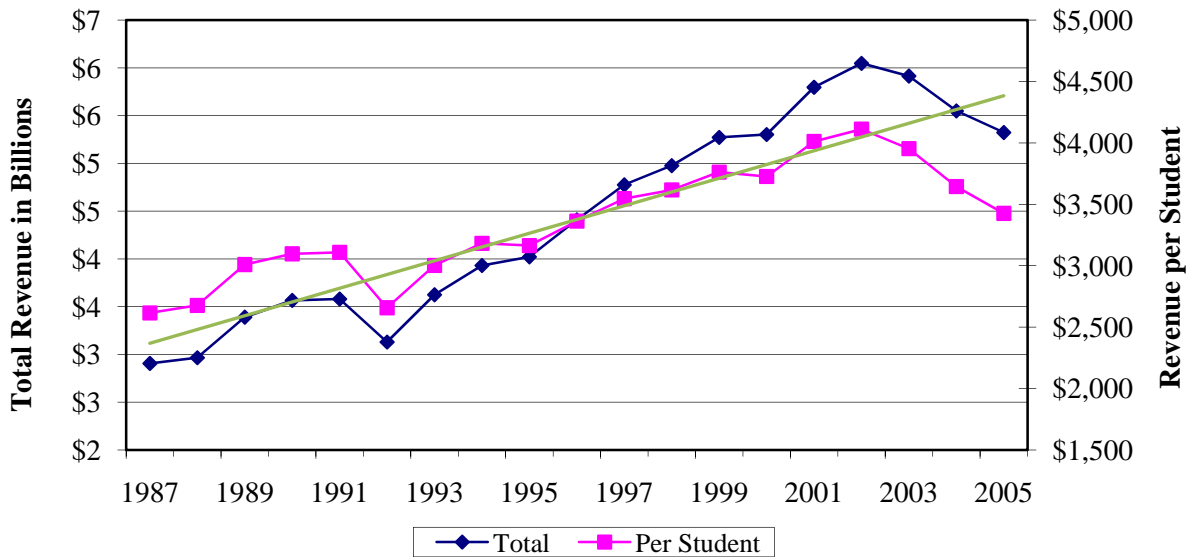
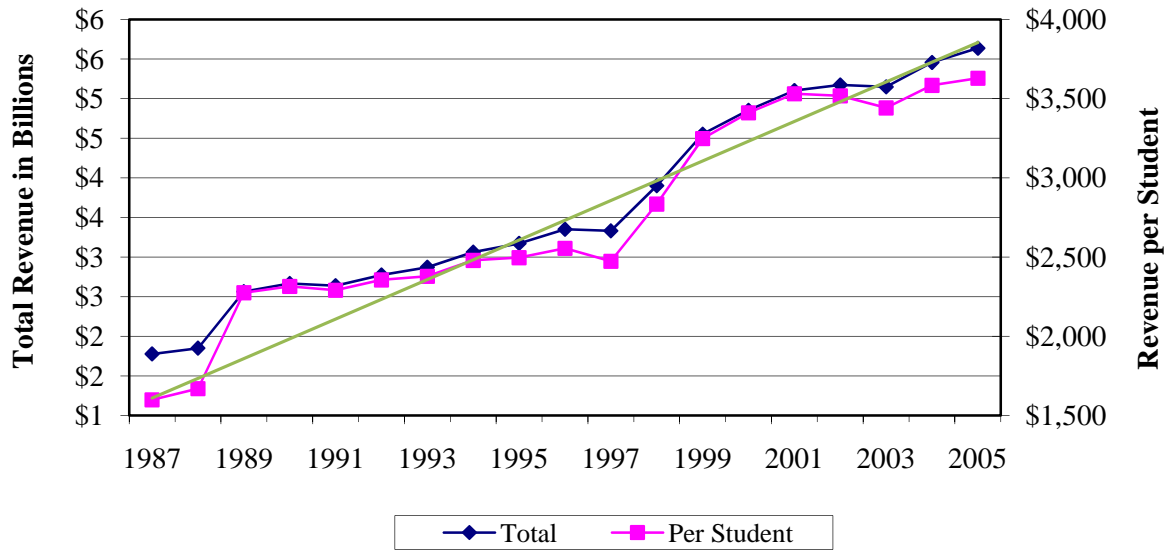


FIGURE 2. STATE TOTAL REVENUE AND REVENUE PER STUDENT, GEORGIA (2000\$)



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FIGURE 3. LOCAL TOTAL REVENUE AND REVENUE PER STUDENT, GEORGIA (2000\$)



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TABLE 1. PERCENT CHANGE IN REAL EDUCATION REVENUES FOR GEORGIA
(Percent Change from Previous Year)

Year	-----Total Revenue-----			-----Total Revenue Per Student-----		
	State + Local	State	Local	State + Local	State	Local
1989	23.6%	14.3%	38.5%	21.6%	12.4%	36.3%
1990	4.7%	5.2%	4.0%	2.4%	2.9%	1.7%
1991	-0.2%	0.4%	-1.0%	-0.2%	0.4%	-1.0%
1992	-5.1%	-12.6%	5.1%	-7.1%	-14.5%	2.8%
1993	10.0%	15.8%	3.5%	7.3%	13.0%	1.0%
1994	7.7%	8.4%	6.7%	5.2%	6.0%	4.2%
1995	2.9%	2.3%	3.6%	0.0%	-0.6%	0.7%
1996	7.9%	9.6%	5.6%	4.6%	6.3%	2.4%
1997	4.5%	8.3%	-0.6%	1.7%	5.4%	-3.2%
1998	9.5%	4.2%	17.1%	7.2%	2.0%	14.6%
1999	10.7%	5.9%	16.7%	8.7%	4.0%	14.6%
2000	3.4%	0.6%	6.6%	1.8%	-0.9%	5.0%
2001	7.3%	9.3%	5.1%	5.7%	7.6%	3.5%
2002	3.0%	4.3%	1.4%	1.2%	2.5%	-0.4%
2003	-1.4%	-2.2%	-0.5%	-3.1%	-3.9%	-2.2%
2004	-0.5%	-6.2%	6.0%	-2.2%	-7.8%	4.1%
2005	-0.4%	-4.1%	3.3%	-2.4%	-6.0%	1.2%

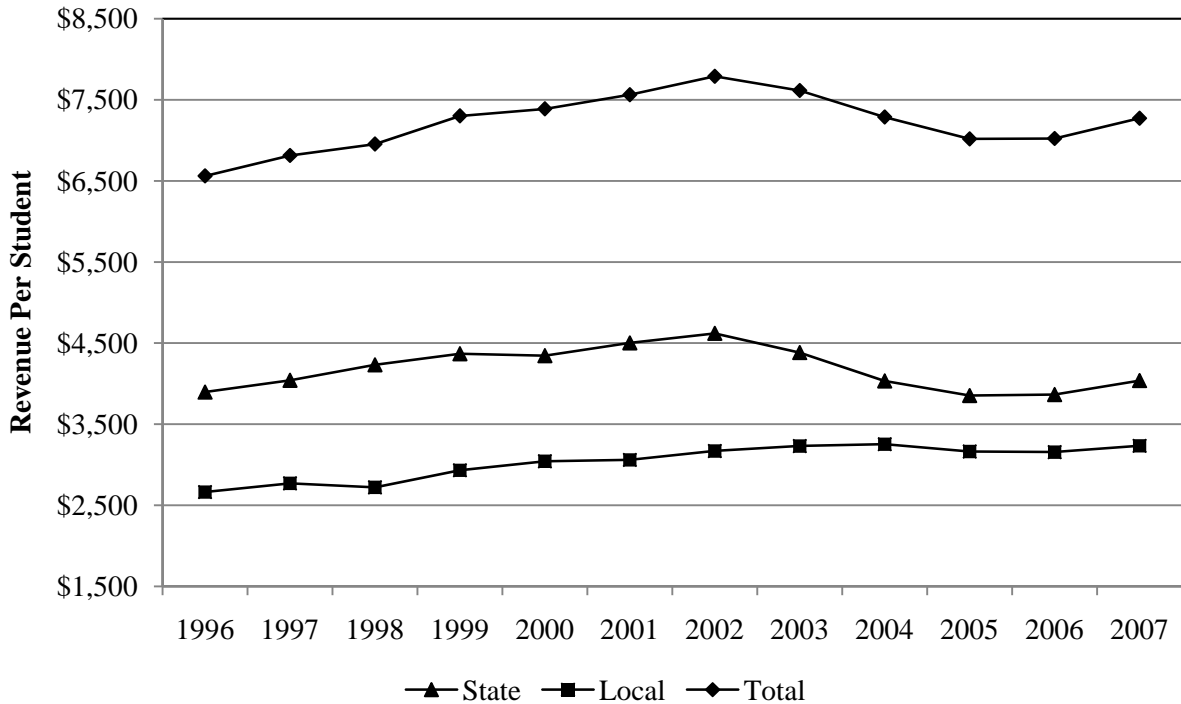
Source: Calculations by authors from National Center for Education statistics.

Figure 4 presents state real revenue per student, local real revenue per student, and state plus local real revenue per student for Georgia using the GDOE data.⁴ From 1996 through 2002, state real revenue per student increased and increased at about the same rate as local real revenue per student. However, beginning in 2002 state real revenue per student fell, and fell until 2005, at which point it began to increase again. Local real revenue per student increased nearly every year between 1996 and 2007, the exceptions being between 1997 and 1998 and

⁴ Data for two small school systems (Gainesville City and Hancock County) were missing for some years, so we exclude those systems from some of our analysis. There are differences in revenue per student as reported by NCES and by GDOE. Most of the difference is due to the fact that GDOE excludes several funds, in particular the capital fund, while the NCES data include revenue from all funds.

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FIGURE 4. REVENUE PER STUDENT, GEORGIA (2005\$)



between 2004 and 2005. Total revenue per student follows a pattern similar to state revenue per student.

Over the period 1996 to 2002, state, local, and total revenue per student increased at roughly the same rate. Real state revenue per student increased at a rate of 2.88 percent per year, real local revenue per student increased at 2.94 percent per year, and real total revenue per student increased 2.90 percent per year. However, over the 2002-2005 period, real state revenue per student fell 5.86 percent per year and local revenue per student was essentially flat, so total revenue per year fell at an annual rate of 3.42 percent.

III. Analysis of Revenue per Student for Georgia School Systems

The analysis in the previous section summarizes state-level changes for Georgia. However, in the post-recession years the pattern of change in state and local revenue per student across Georgia was not uniform. For example, not all school systems experienced decreases in revenue per student after the recession hit. In this section we explore the differences in how Georgia schools systems were affected by the 2001 recession.

Local school systems generate local revenue from a wide range of sources, the largest of which is the property tax. The major discretionary fiscal change that a school system can make is to its property tax rate. The only property tax limit in Georgia that applies to local school systems is a millage rate cap, which is currently binding on only one school system. Of course, a school system's ability or willingness to increase the property tax rate depends on the political conditions within the district. There are many other own source revenues that local school systems rely upon that could generate different levels of revenue from year to year, although most other local revenue sources are only partly under the control of the local school system. Thus, locally raised revenue per student can change from year to year, but this depends on both economic conditions and the ability and willingness of local school systems to make discretionary changes to tax rates.

Changes in state revenue per student to local school systems (e.g., grants) can be due to several factors. First, the state could increase or decrease the appropriation for state education aid. Second, basic aid in Georgia is received through the Quality Basic Education program (QBE), and is net of a five mill local required contribution. Thus, if the (equalized) property tax base per student changes, then net QBE aid will change. Third, equalization aid depends on the system's property wealth per student relative to the wealth per student for the school system at the 75th percentile, and on the system's millage rate. If any of these factors changes, then the amount of equalization aid the system receives will also change. Fourth, there are many categorical state aid programs that could change from year to year. Thus, there are many reasons why a school system might experience a change in state revenue per

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student from one year to the next. Of course it is always possible that changes are the result of reporting errors.

We turn to a descriptive analysis of how state and local real revenue per student changed since 1996, but focus on the post-2001 recession period. We start with consideration of the change in state plus local revenue per student. Table 2 shows the number of Georgia school systems that experienced increases and decreases in total (state plus local), state, and local real revenue per student for each year from 1996 to 2007. (There are 180 local school districts in Georgia. However, data were not available for all years for two districts, Gainesville City and Hancock County, so in some tables we report information for only 178 school districts.) For 2000 to 2001, i.e., the year prior to the 2001 recession, only 28 school systems reported a decrease in total real revenue per student. With the onset of the 2001 recession, the number of school systems that experienced a decrease in total real revenue per student increased; 131 (or 73.6 percent) reported a decrease in total real revenue per student between 2002 and 2003, 155 (or 87.1 percent) reported a decrease between 2003 and 2004, and 168 (93.3 percent) reported a decrease between 2002 and 2005.

TABLE 2. SCHOOL SYSTEMS BY NATURE OF CHANGE IN REAL REVENUE PER STUDENT

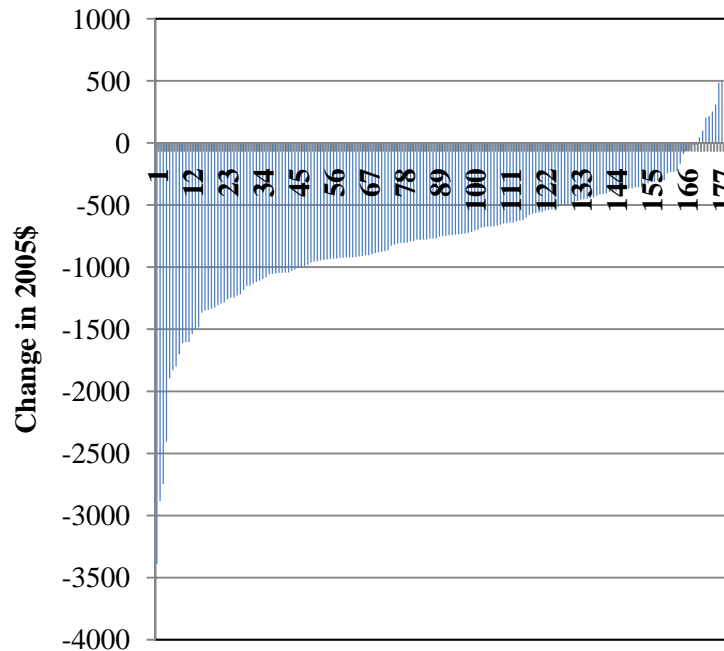
Period	-----State + Local-----		-----State-----		-----Local-----	
	Increases	Decreases	Increases	Decreases	Increases	Decreases
1996-1997	118	60	100	78	133	45
1997-1998	152	26	161	17	79	99
1998-1999	165	13	150	28	157	21
1999-2000	122	56	100	78	126	52
2000-2001	150	28	156	22	97	81
2001-2002	148	30	145	33	102	76
2002-2003	47	131	21	157	87	91
2003-2004	23	155	11	167	110	68
2004-2005	28	150	21	157	68	110
2005-2006	91	87	75	103	97	81
2006-2007	158	20	158	20	114	64

Source: Calculations by authors from Georgia Department of Education, Annual Revenue Reports.

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Figure 5 shows the change in state plus local revenue per student between 2002 and 2005 (in 2005 dollars) for each school system. As can be seen in Figure 5, most (168) school systems experienced a decrease in state plus local revenue per student between 2002 and 2005, adjusted for inflation. Furthermore, the magnitude of the increases are much smaller than the decreases. Figure 6 shows the percentage change in state plus local revenue per student between 2002 and 2005 (again in 2005 dollars) for each school system.

FIGURE 5. CHANGE IN STATE PLUS LOCAL REVENUE PER FTE, 2002 TO 2005



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FIGURE 6. PERCENT CHANGE IN STATE PLUS LOCAL REVENUE PER FTE, 2002 TO 2005

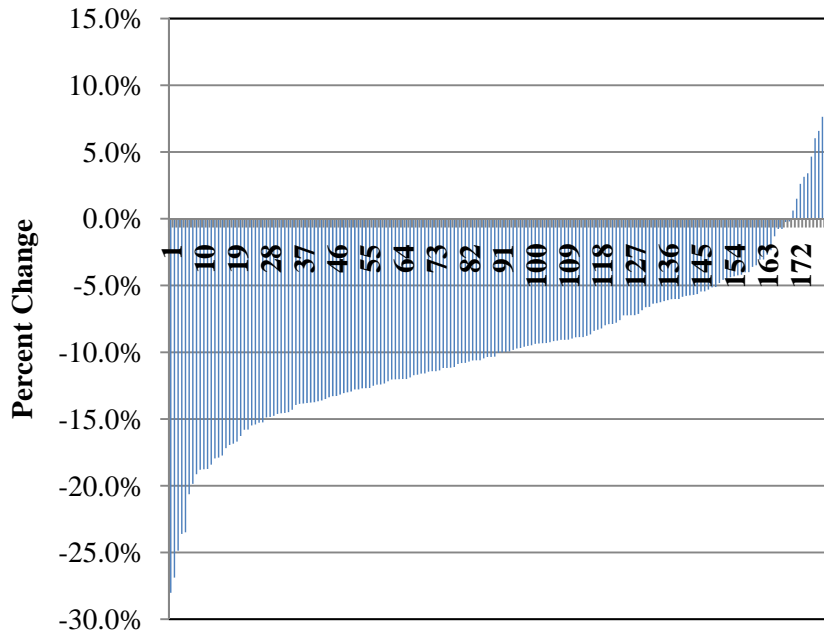
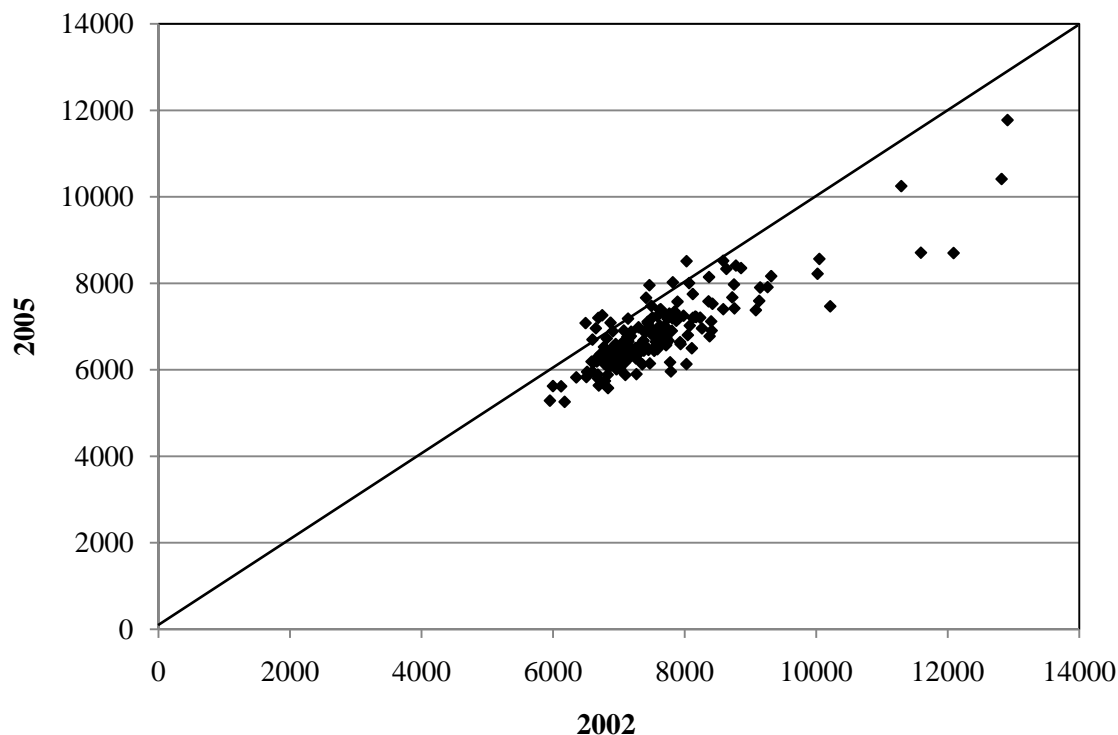


Figure 7 shows the same information but in a different way. Figure 7 is a plot of state plus local revenue per student in 2005 against the same variable for 2002, adjusted for inflation. The solid line in Figure 7 represents points for which revenue per student in the two years is equal; points below the solid line represent school systems for which 2005 state plus local revenue is less than 2002 revenue, adjusted for inflation. As can be seen, those school systems that had the largest decreases in total revenue per student generally were those systems that were spending larger amounts per student in 2002.

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FIGURE 7. LOCAL PLUS STATE REVENUE PER FTE



We can also consider the cumulative number of years that school systems experienced a decrease in total real revenue per student over the period 2000 to 2007. For the period 2000 to 2007, there were no school systems that did not experience a decrease in total real revenue per student in any year and only 4 systems that experienced only one year in which total real revenue fell. Twenty-five systems had 2 years of declining total real revenue per student, 71 had 3 years, and 78 experienced a decrease in total real revenue per student in at least 4 of the 7 years.

Turning to changes in state revenue per student, Figure 8 shows the distribution of changes in state revenue per student between 2002 and 2005 (in 2005 dollars) for each school system. As can be seen in Figure 8, most (176) school systems experienced a decrease in state revenue per student between 2002 and 2005, adjusted for inflation. The number of school systems that reported a decrease in state revenue per student fell to 20 for the period 2006-2007, approximately the number that reported a decrease between 2000 and 2001, or just before the recession.

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FIGURE 8. CHANGE IN STATE REVENUE PER FTE, 2002 TO 2005

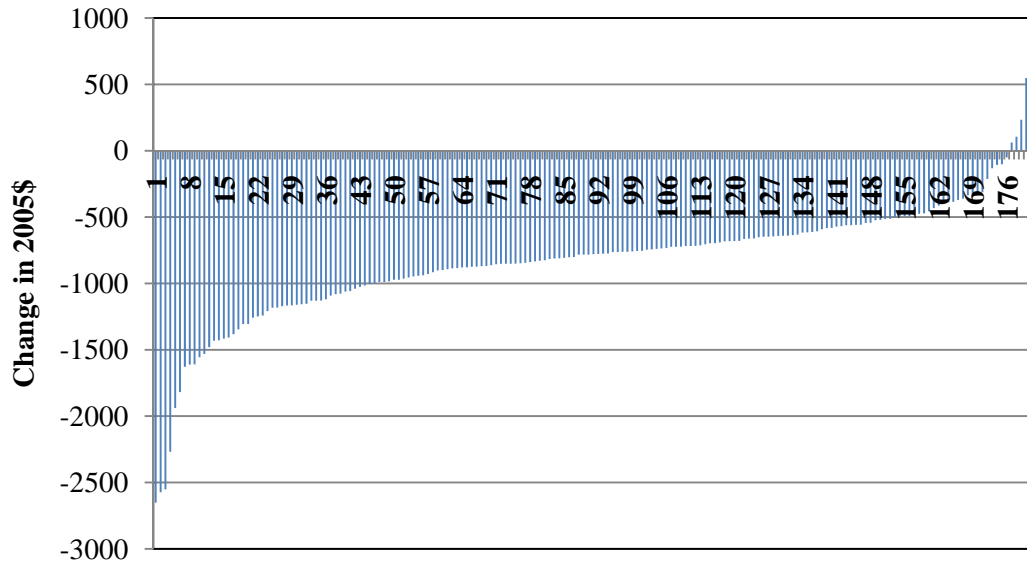


Figure 9 shows the change in state revenue per student plotted against 2002 total revenue per student. As can be seen, the larger decreases in state revenue were experienced by school systems with the larger total revenue per student in 2002.

Figure 10 shows the distribution of the change in local revenue per student between 2002 and 2005 (in 2005 dollars) across school system. There were more school systems that had an increase in local revenue per student between 2002 and 2005, adjusted for inflation, than had an increase in state revenue per student. Between 2002 and 2005, 75 school systems had a decrease in local revenue, while 105 systems had an increase in local revenue. Most systems had increases or decreases in local revenue between 2002 and 2005 of less than \$500 per student. In three cases the change exceeds \$1,000.

Figure 11 shows the percentage change in local revenue per student against 2002 local revenue per student. In general those school systems with the smallest local revenue per student in 2002 had the largest percentage increase in local revenue over the period.

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FIGURE 9. CHANGE IN STATE REVENUE PER FTE

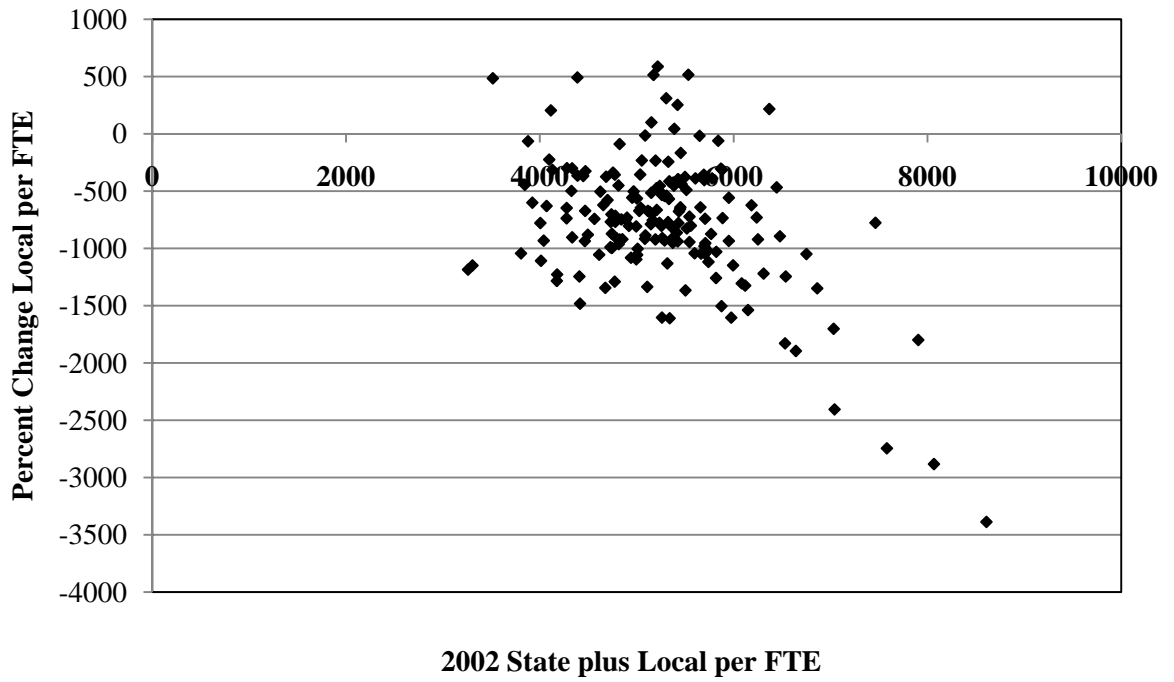
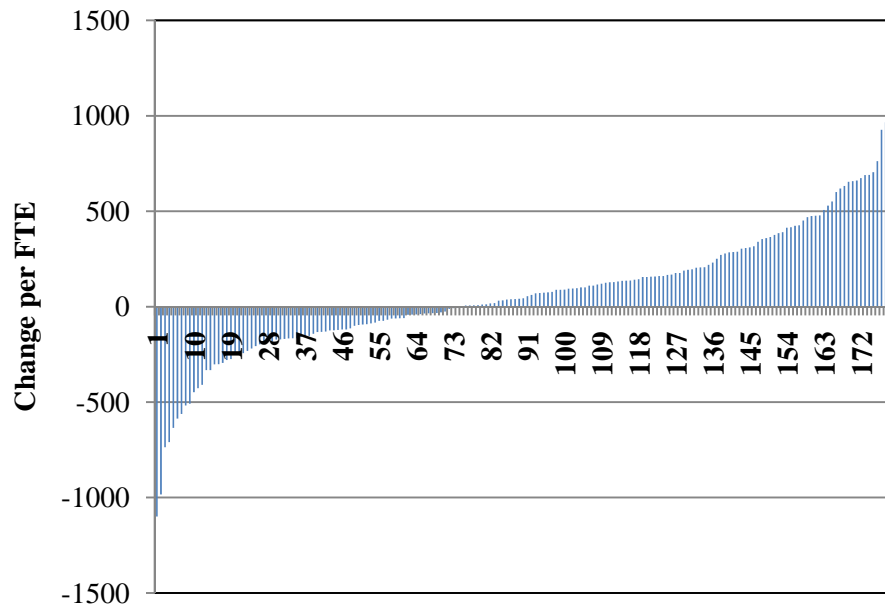
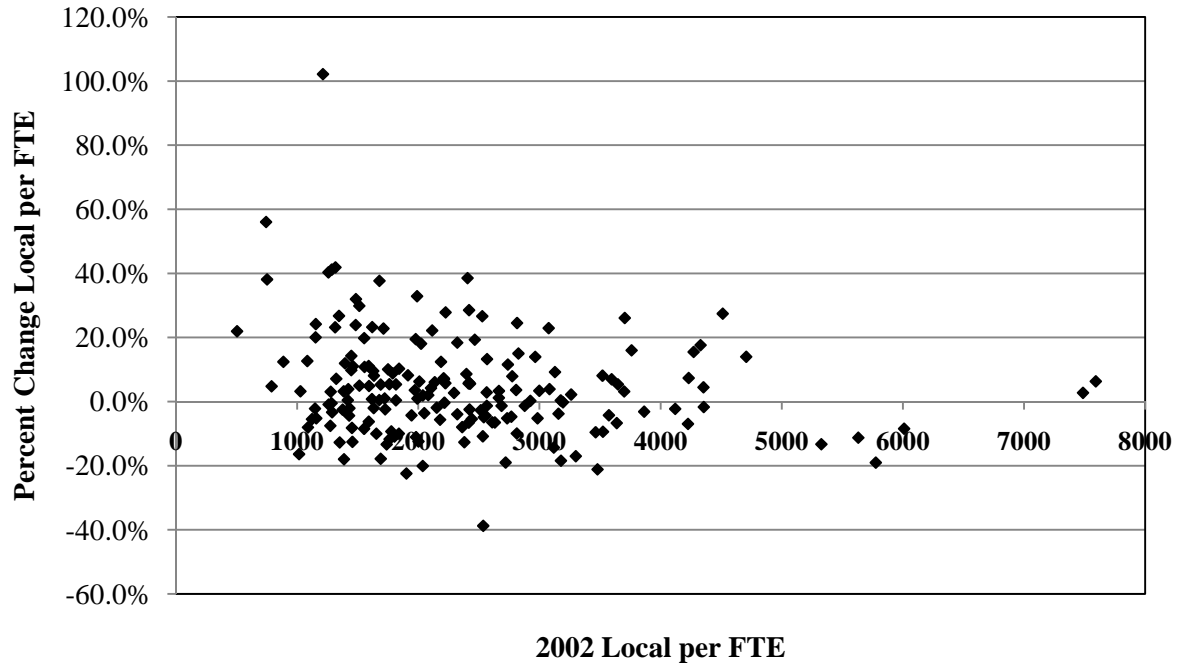


FIGURE 10. CHANGE IN LOCAL REVENUE PER FTE, 2002 TO 2005



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FIGURE 11. PERCENT CHANGE AND 2002 LOCAL REVENUE PER FTE



IV. Local School Systems' Response to State Revenue Reduction

We turn now to consideration of the issue of whether school systems attempted to replace the reduction in state revenue per student in an attempt to hold total real revenue per student constant. Table 3 shows the distribution of school systems that had increases and decreases in real state or local revenue per student between 2002 and 2005. (The year 2002 was the year before state revenue per student began to fall, while 2005 was the year that state revenue per student was the smallest in the post-2001 period.) All but four school systems experienced a decrease in state revenue per student, adjusted for inflation. Over this period, nearly all (176) school systems had a decrease in state revenue, of which 101 increased local revenue. However, 75 of the 176 systems reduced local revenue, and thus clearly did not attempt to replace lost state revenue. Furthermore, as noted above, only 12 school systems did not experience a decrease in total revenue per student. It is clear that very few school districts replaced the reduced state revenue. By way of comparison, in the 1997 to 1999 period, 146 school systems increased local revenue.

TABLE 3. CHANGE IN REVENUE PER STUDENT, 2002 TO 2005

	-----State-----		Total
	Increase	Decrease	
Local			
Increase	4	101	105
Decrease	0	75	75
Total	4	176	180

Source: Calculations by authors from Georgia Department of Education, Annual Revenue Reports.

Figure 12 is a plot of the change in local revenue per student against the change in state revenue per student. The figure suggests that the larger the decrease in state revenue, the larger the increase in local revenue per student. Figure 13 shows the percentage changes in state and in local revenue per student, and suggests the same pattern between the two variables as in Figure 12.

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FIGURE 12. CHANGE IN LOCAL REVENUE AND STATE REVENUE PER FTE, 2002 TO 2005

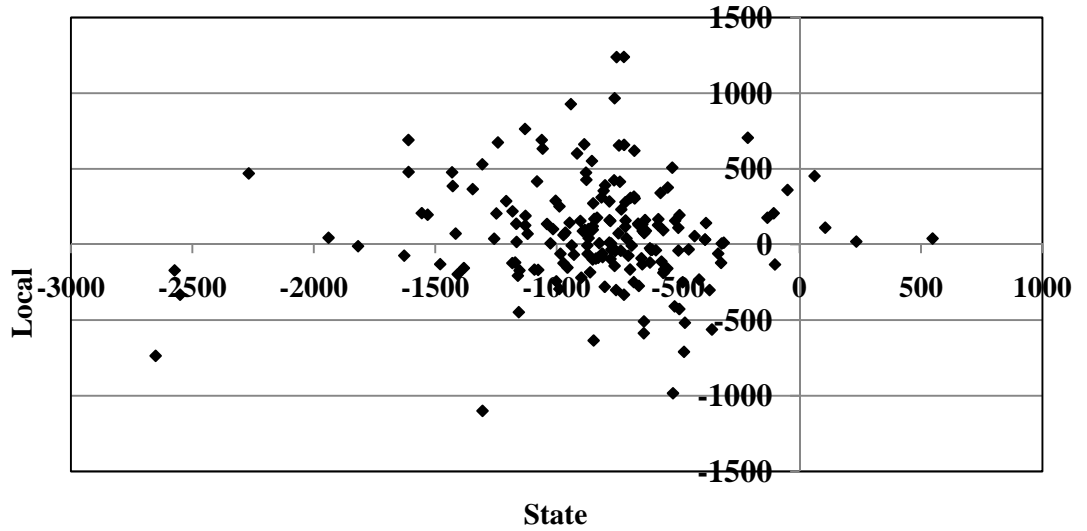
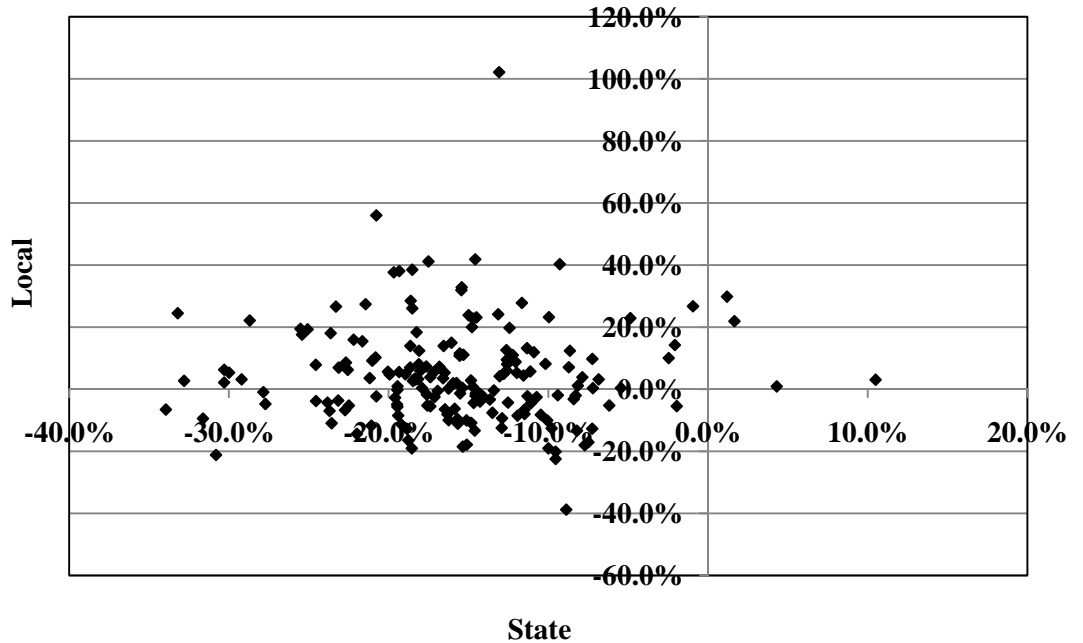


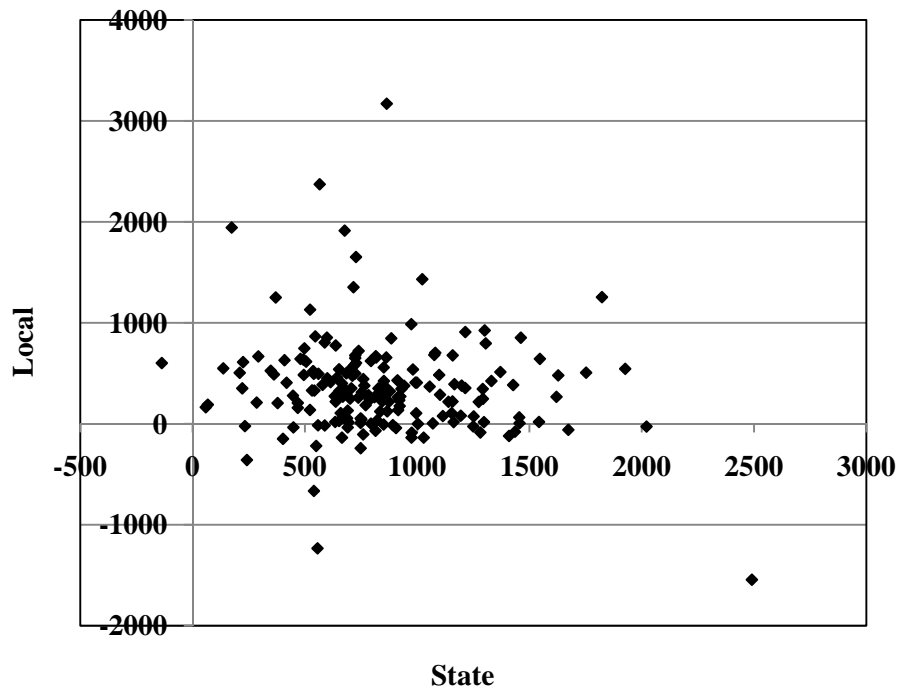
FIGURE 13. PERCENT CHANGE IN LOCAL AND STATE REVENUE PER FTE, 2002 TO 2005



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In sum, it is clear that the 2001 recession had a negative effect on real state revenue per student. Many school systems did increase local revenue over the period, and the increase was larger the greater the decrease in state revenue per student. However, very few local school systems increased local revenue sufficiently to fully offset the decrease in state revenue. Indeed, Figure 14 shows the change in state and in local real revenue per student between 1996 and 2002. Most school systems increased real revenue per student by less than the increase in state revenue per student.

FIGURE 14. CHANGE IN REVENUE PER STUDENT, 1996 TO 2002



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FIGURE 15. ANNUAL CHANGE IN LOCAL REVENUE 1996 TO 2002 AND 2002 TO 2005

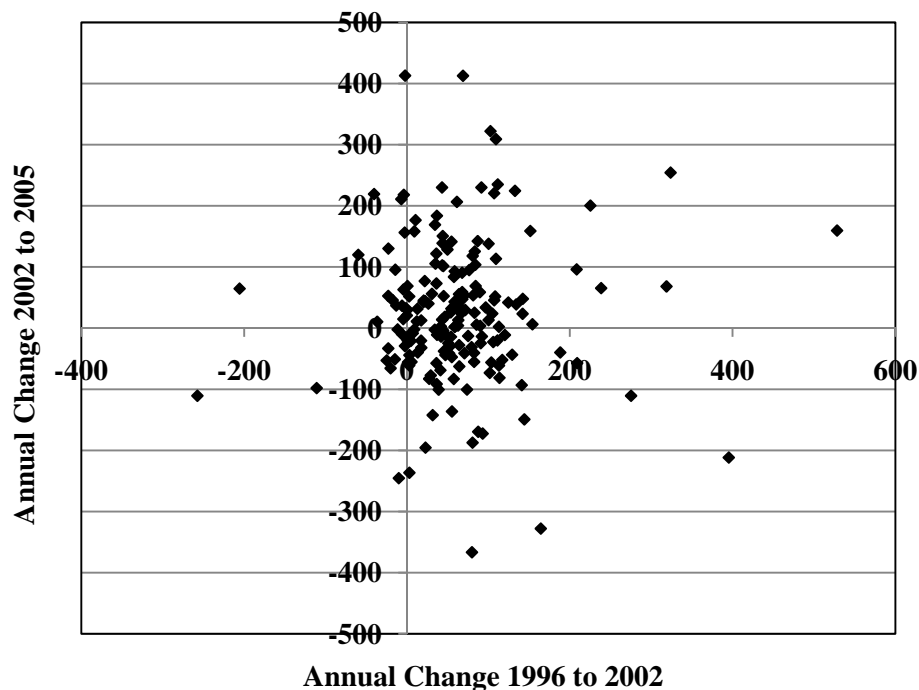


Figure 15 compares the annual change in real local revenue per student over the two periods, 1996-2002 and 2002-2005. The figure shows that typically the increase in the earlier period was larger than the change in the second period. In fact, 115 school systems had larger annual increases in local revenue per student, adjusted for inflation, in the first period than in the second period.

We have attempted to explain the relationship between state revenue changes and local revenue more systematically using regression analysis. The data for the regressions include the 178 school systems for which data were available for all years for the period 1996 through 2007. The dependent variable is the level of local real revenue per student. Since we are interested in the extent to which local school systems increased local revenues to offset declines in state revenues, the independent variable of interest is state real revenue per student. Another independent variable is the real property tax base per student. We also estimate equations that include a time trend, year dummy variables, year dummies interacted with state real revenue per student, and state revenue per student interacted with a dummy variable equal to one

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for the post-recession years 2003 through 2005 in which state revenue per student declined.

In all regressions, the coefficients on state revenue per student are negative and statistically significant, which is consistent with the hypothesis that lower state revenue per student results in school systems increasing local revenue per student. The coefficients suggest that a dollar reduction in state real revenue per student causes local school systems to increase real revenue per student, but only by about 40 cents. For the period, 2002-2005, the increase in real revenue per student per dollar decrease in real revenue per student was somewhat smaller, about 30 cents. Also, the coefficients on the property tax base are positive and statistically significant in all five regressions, which is consistent with the expectation that school systems with greater property tax wealth per student generate greater local revenue per student.

V. Summary and Conclusions

How did the 2001 recession affect education spending in Georgia, and how did local school districts respond? Our analysis indicates that most school systems in Georgia experienced a decrease in real revenue per student during the 2002 through 2005 period, and indeed that the reductions in state plus local and in state real revenue per student were greater in Georgia than the U.S average. However, not all Georgia school systems suffered a decrease, and the decreases (when they occurred) varied widely across the state's school systems. Of greater interest is whether local school systems responded to the reduction in state real revenue per student by increasing local real revenue per student. Thus, the extent to which local school systems choose to replace reduced state aid is a discretionary decision based on economic and political factors. Our results suggest that Georgia local school systems responded inversely to changes in state real revenue per student, increasing local revenues when state revenues decline.

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