Fiscal Research Center

**DISTRIBUTION OF
PER CAPITA INCOME IN GEORGIA
1969-2000**

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Acknowledgments

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Executive Summary

Since the mid 1980s, the state of Georgia has been popularly characterized as consisting of two (or more) distinct economies or economic regions, the Atlanta Region and the remainder of the state. Since the appearance of the term "two Georgias" in the local lexicon, policy makers have attempted to address problems associated with the perception that Atlanta and its surrounding counties are experiencing tremendous economic growth, while the remainder of the state languishes. Because the quality and quantity of local public services are determined, in part, by local economic activity, concerns have been raised about the existence of two Georgias and how such an economic partition might affect the distribution of revenue generating capacity among counties across the state.

Past research suggests that the average income of different areas of a country tend to converge as overall income rises. Using per capita personal income (PCI) data from the Bureau of Economic Analysis (BEA), we compare 1969 PCI with 2000 PCI to determine: 1) if convergence has occurred 2) how changes in PCI are geographically distributed, and 3) whether these data support the popular conception that Georgia consists of two separate economies.

PCI Distribution

Over the past three decades, every county in Georgia has experienced an increase in inflation-adjusted PCI, pushing Georgia from 37th to 23rd highest PCI in the nation, and from third to second highest PCI in the Southeastern region. Within Georgia, we find that, aside from three outlier counties at the upper end of the county-level PCI distribution (Cobb, Fulton and Fayette), PCI among the rest of the counties in the state have moved in the direction of PCI convergence. Figure A compares the mean-centered distribution of PCI for 1969 with 2000 PCI distribution. The method of mean centering inflates each county's PCI by the same percentage increase in PCI so that the average PCI for 1969 equals the average for 2000, while preserving the relative variation in the 1969 adjusted distribution. Mean centering allows the direct comparison of the variation in PCI between years that are far apart. The comparison in Figure A shows that between 1969 and 2000 the county-level

distribution of PCI became more tightly distributed across most of the PCI range. With the exception of the three outlier counties at the upper end of the distribution in both years, we see evidence of convergence among the remaining counties. Using a standard statistic, the coefficient of dispersion, to measure how widely dispersed PCIs are across counties, we find that in 2000 there is less dispersion, i.e., greater concentration around the mean, than in 1969 (excluding the three outliers in each year).

Geography of PCI

Figure B presents maps that show the geographic distribution of PCI by income-quartile for 1969 and 2000 (darker shades represent higher PCI quartiles). In 1969, there were few counties in the top PCI quartile (the top 40 counties) in Georgia's southern regions; only Chatham, Lowndes, Glynn, and Jeff Davis had PCIs in the top quartile. Counties in the bottom quartile in 1969 were almost entirely rural counties, and were located mainly in the eastern half of the state.   By 2000, counties in the top PCI quartile had become geographic ally less concentrated. In particular, several new top-quartile counties emerged across southern and coastal Georgia. However, counties in the lowest PCI quartile remained concentrated in the southern areas of the state, particularly the southeastern re gion. Furthermore, South Georgia increased its share of counties with relatively low PCI.

Conclusion

The boundary separating the "two Georgias" is difficult to identify based solely on PCI. Although counties in the Atlanta region have experienced very strong PCI growth since 1969, strong PCI growth has not been confined solely to Atlanta or to north Georgia. The inflation-adjusted difference in PCI among most of Georgia's counties has declined since 1969, and every county in the state experienced positive growth in inflation-adjusted PCI over that 31-year period. Furthermore, counties starting with a relatively low PCI in 1969 experienced faster growth in PCI than did counties with high PCI. However, there remain substantial differences in PCI

between rural counties in South Georgia and more urbanized counties across the state.

The reason for PCI convergence is not directly discernable from these data. The causes may include income growth among existing families, in-migration of higher educated and higher paid workers, or out-migration of relatively poor residents from low-PCI counties to higher-PCI counties. Regardless of the causes, the evidence presented in this paper suggests that based on one measure the two Georgias have become closer to one Georgia.

**FIGURE A. DISTRIBUTION OF PCI AMONG GEORGIA COUNTIES, 1969 AND 2000
(MEAN CENTERED)**
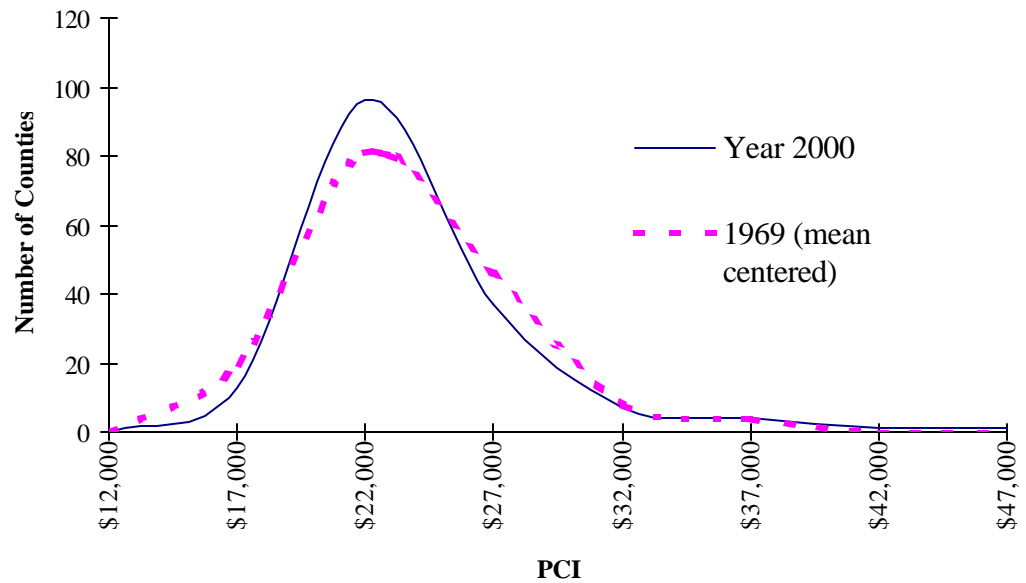
FIGURE B. PER CAPITA INCOME BY QUARTILE FOR 1969 AND 2000
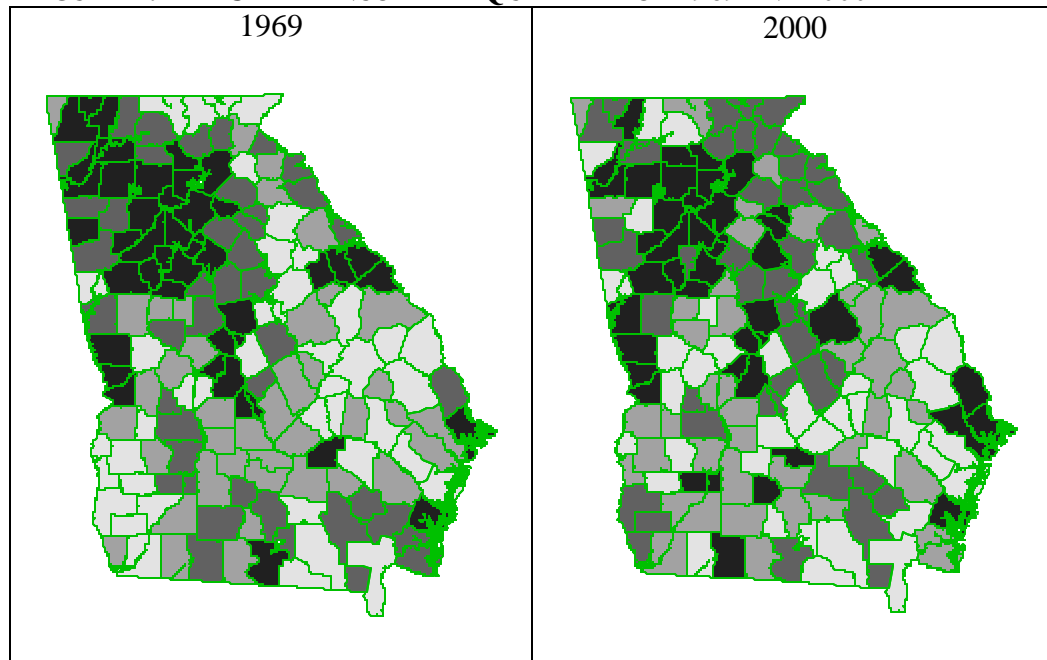
NOTE: Dark shaded counties have the highest PCI.

I. Introduction

There has been substantial research and popular discussion focused on the economic status of Georgia and the relative economic conditions of its counties. The data and methods used in that research have varied, but, among policy makers and researchers the common thread woven into this discussion centers on the perception of regional economic disparities within the state. Although descriptions and comparisons of Georgia's urban and rural economies have been around for many years, Charles Floyd (1985; 1986) is perhaps the first to make clear a set of economic boundaries in geographic terms. Floyd explored the issues of economic growth and industrial change in employment within Georgia counties from the 1950s to the 1980s. His observations led him to conclude that the rapid growth in the Atlanta region, combined with the decline in agricultural jobs and per capita income in South Georgia, provided evidence of a significant economic division within the state.

Subsequently, Floyd's characterizations of Georgia's economy were held up to scrutiny. Albert Neimi (1986), in a rebuttal to Floyd, examined Georgia's historical levels of per capita income by county and found that Atlanta was growing, but not at the expense of the remainder of the state. As evidence he pointed out that in 1959, Atlanta had 35 percent higher per capita income than the rest of the state, but by 1984, the difference had dropped to just 20 percent. In terms of income per person, Neimi suggests that the state outside of the Atlanta region was catching up with Atlanta. Thus, if there was an economic gap between Atlanta and the remainder of the state, it was shrinking as Atlanta grew.

Despite the importance of income and its geographic distribution in fiscal policy matters, little recent attention has been directed specifically at quantifying geographic differences in well-being, presenting these differences in a geographic context, or at determining whether these differences have been growing or shrinking over time. Reports about the geographic distribution of income usually examine the income differences between individuals, households or different segments of the population. This report differs from earlier studies by examining changes in Georgia's county-level income over the past three decades and relating these changes to fiscal disparities within Georgia. In addition to providing an updated picture of

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income for counties and regions in Georgia, this paper compares Georgia's income relative to other states in the Southeastern region and the nation. In both a distributional and geographic context, this report describes the income differentials that exist between Georgia counties, how these differentials have changed over time and the potential effects on Georgia's fiscal landscape.

Past research suggests that the average income of different areas of a country tend to converge as the overall income level rises (Barro and Sala-I-Martin 1991; Barro 1997; Harberger 1998). If this national-level result were applicable to sub-regions of a nation, we would expect that the rise in state-level income would result in a convergence in county-level income within the state. For a state, the convergence in county-level income would translate into greater fiscal parity among its counties. We explore this relationship in Georgia and its counties.

Georgia has seen considerable growth in state-level per capita income over the past three decades. Based on the research cited above, the presence of such growth suggests that county-level per capita income should be converging. When considering all counties in Georgia, the evidence for income convergence is not conclusive. However, by looking beyond the three richest Atlanta MSA counties, we find substantial evidence that the remainder of Georgia has experienced income convergence. Furthermore, based on geographic observations, counties with relatively high per capita income became less geographically concentrated within the state. South Georgia has seen its share of high per capita income counties increase relative to other parts of the state, although a "gap" in income level persists between the Atlanta area and the remainder of the state.

The remainder of this report proceeds as follows. Section II briefly describes the data and methods used in this analysis. Section III provides an analysis of the changes in the overall distribution of per capital income, focusing on state- and county-level changes in per capita income. In the next section (Section IV) we examine the geographic pattern of the county-level changes in PCI within Georgia and relate these changes to the theory of income convergence and to the popular depiction of Georgia as being comprised of two or more distinct economic regions. Section V provides concluding remarks.

II. Data and Methods

We focus on per capita income because it is one of the best measures of the quality of life and because the level and quality of local public services, in part, depend on the local capacity to generate tax revenues, and revenue generating capacity is dependant on the economic well-being of those residing in a county. Per capita income data are obtained from the Regional Economic Information System, a division of the U.S. Bureau of Economic Analysis; the most current data available is 2000. County-level (state-level) per capita income (PCI) is the total income (wages, rents, profits, interest and capital gains) in a county (state) divided by the total county (state) population.   The county-level (state-level) per capita income does not capture geographic differences in cost of living or cost of providing public services, nor does it capture all income derived from cash transactions or from do-it-yourself activities, even though these do increase an individual's effective level of well-being. Furthermore, PCI does not represent a measure of the income distribution among individuals *within* an area.[1] When using the state or county-level PCI, one should be aware that the unit under examination is a geographic area, not a person.

State-level inflation-adjusted per capita income (i.e., real PCI) is used to examine the level of and improvements in the income tax base of Georgia residents as compared with the rest of the nation and the Southeastern Region. County-level real per capita income is used to examine the distribution of county-level income within the state and to make income comparisons between Georgia's counties over time. Adjusting for PCI inflation makes income from years that are decades apart comparable in terms of the level of well-being.   Mean-centered PCI is used to

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[1] First, the individuals who reside in a county (or any geographic area) changes over time. Second, the same PCI could result from two different distributions of income. For example, suppose there are two counties, A and B, both with two residents, and both have identical PCIs of $10,000. In county A, both residents earn $10,000 per year. In county B, one resident earns $20,000 per year, while the other resident earns nothing. County A has an equal distribution of income among its residents, while county B has a very unequal distribution, but their PCIs do not reflect the differences in distributions.

compare distributions from different years. [2] By mean-centering a distribution we are able to more directly compare the relative dispersion of PCI in different years.[3] The method of mean centering inflates each county's (state's) 1969 PCI by the same percentage increase in PCI so that the average PCI for 1969 equals the average PCI for 2000, while preserving the relative variation in the adjusted distribution.

The inter-quartile range, which measures the absolute difference in PCI between the first and third quartiles (i.e., between the 25th and 75th percentiles), is also used to highlight changes in the distribution while eliminating the effects of outliers in the county-level data. We also use the coefficient of variation (CV) to point out changes in PCI variation between years. The CV is computed as the ratio of the standard deviation to the mean. A larger CV provides evidence that a distribution is becoming more spread out. Where applicable, we adjust PCI for inflation using the Consumer Price Index (CPI). PCI numbers that have been adjusted for inflation are referred to as "real PCI."

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[2] Mean centering the 1969 PCI multiplies each of the county-level PCI values by a constant, $\dfrac{\overline{X}_{2000}}{\overline{X}_{1969}}$, where $\overline{X}$ represents the average county-level PCI for the subscripted year. This transformation equates mean PCI for 1969 with the mean PCI for 2000, while preserving the variation in the 1969 PCI.

[3] It should be noted that using any income measure to proxy for well-being has inherent limitations. For example, counties that are relatively poor or agricultural-based are more likely to have substantial amounts of its population's income derived in the "underground economy." Bartering, cash wages and cash transaction are likely to go unreported, all of which reduce the PCI reported. Furthermore, PCI does not adjust for county-level differences in the cost of living.

III. State- and County-Level Income and Income Distribution

This section focuses on the distribution of state-level (and Georgia's county-level) PCI for 1969 and for 2000, highlighting substantial changes in the shapes of the two distributions. We examine the changes in PCI for all states and for those in the southeastern region.   We also examine county-level changes in the PCI distribution within Georgia.

1. Across-State Comparisons of Per Capita Income

Over the period 1969 to 2000, the average annual growth rate in real PCI for the U.S. was 1.75 percent. Within the nation, state-level per capita income (PCI) has become more tightly distributed. Average annual real state-level PCI growth over the period 1969 to 2000 ranged from 1.10 percent to 2.26 percent. Overall, the states that had relatively high PCI in 1969 exhibited slower income growth than states with lower 1969 PCI. The correlation coefficient between growth rate and 1969 PCI is -0.47, indicating a moderately strong negative relationship between 1969 PCI and the PCI growth rate between 1969 and 2000.

Figure 1 presents the underlying distributions of state-level PCI, and provides a visual comparison of the distribution of PCI for 1969 (mean centered) and for 2000 (see section II for an explanation of mean centered). In 1969, the mean-centered distribution of PCI was tri-modal and contained a relatively large number of states in the upper mode (where PCI is around $36,000). The 1969 distribution also contained more states with relatively low PCI as compared with 2000.

By 2000, the shape of the PCI distribution had changed substantially. First, the upper mode had largely disappeared.   Second, there was an increase in concentration of states in the center of the distribution. Third, the upper tail of the PCI distribution became more extended.

Figure 2 presents state-level ranked PCI (mean-centered PCI for 1969). A 1969 mean-centered PCI above the 2000 PCI represents a ranking that has experienced a relative decline in PCI over the 31-year period. Figure 2 shows that states in the lower rankings saw their PCI increase, while states in the higher rankings

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FIGURE 1. DISTRIBUTION OF PCI AMONG STATES, 1969 AND 2000
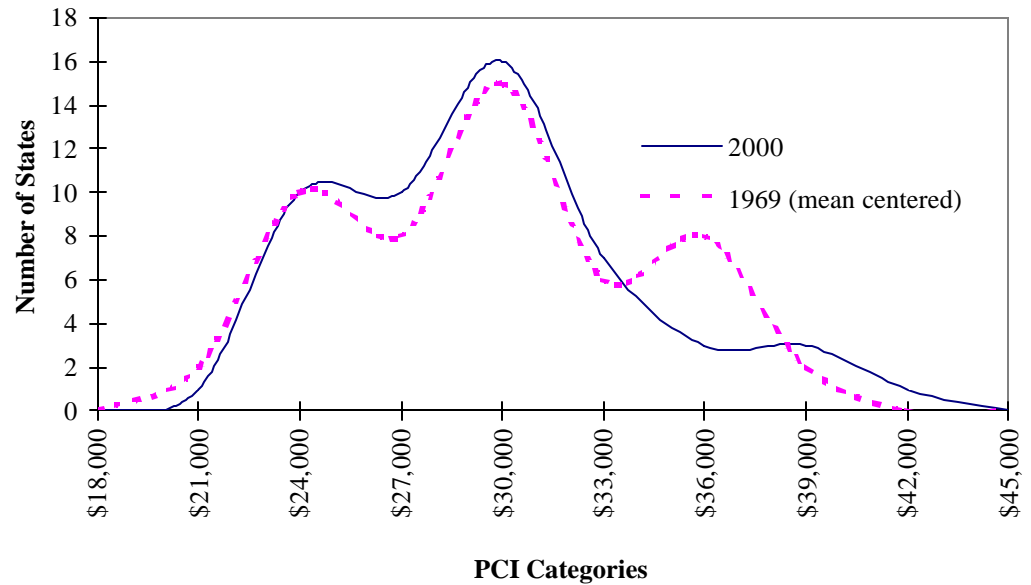
FIGURE 2. STATE PCI PROFILE FOR 1969 (MEAN CENTERED) AND 2000
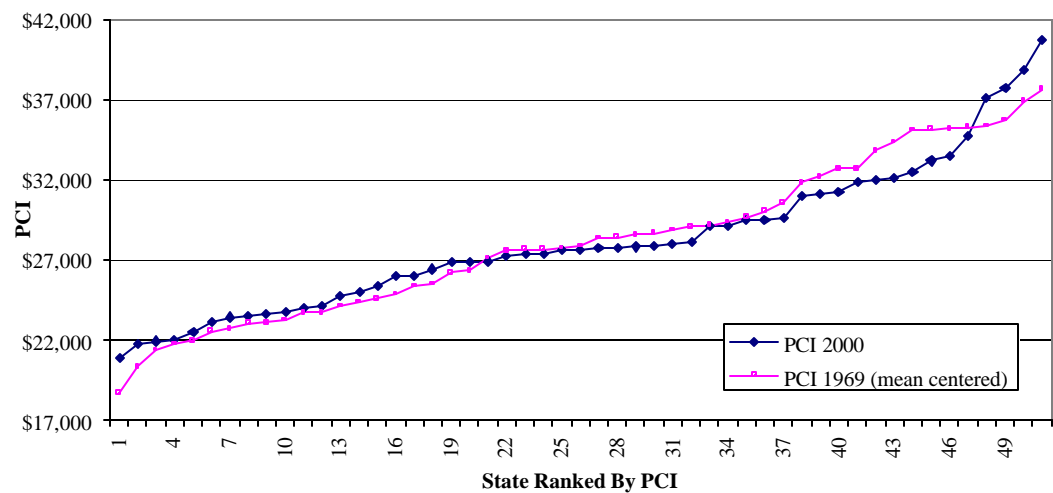
experienced a relative decline in PCI, except for the four top ranking states. Aside from these top four rankings, the two PCI profiles and distributions indicate a general movement toward convergence in state-level income within the U.S.

Figure 3 presents a scatter plot of state-level PCI for 1969 against 2000 PCI. The linear trend line indicates that, for the most part, states with high PCI in 1969 also had high PCI in 2000. The correlation coefficient between 1969 and 2000 PCI is 0.83, indicating a relatively strong positive relationship. However, for states at the far right of the scatter plot (those that started in 1969 with the very highest PCI), the corresponding 2000 PCIs are more variable than for states that started with lower PCIs. States near the middle of the 1969 PCI distribution saw their PCIs increase substantially over the 31-year period, allowing them to catch up to and, in some cases, overtake other states that in 1969 started with higher PCI. This movement from the middle toward the top led to a reduction in the overall variation in PCI. The coefficient of variation (CV) for state-level PCI in 1969 was 17.1.[4] By 2000, the CV had decreased to 16.1, or by 5.8 percent. Thus, at the state level the distribution of per capita income has become more uniform over the last three decades.

2. Georgia's Income

In real terms, Georgia has experienced substantial growth in PCI over the last three decades. In 1969, the average inflation-adjusted PCI for the state was $15,620, ranking Georgia at 37th in the nation (Table 1). Within the 12-state Southeastern region, Georgia had the third highest PCI, trailing only Florida and Virginia. By 2000, Georgia's PCI had grown by 77.9 percent to $27,794, pushing Georgia up to 23rd in the nation and from third to second in the region.[5] Georgia's PCI growth lifted the state from 82.2 percent to 94.3 percent of the national average PCI (see Table 2). Furthermore, within the Southeastern region, the ratio of Georgia's PCI to

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[4] The coefficient of variation (CV) is given by $\frac{standard\_deviation}{mean} \times 100$. In general, the CV is useful for comparing the variability in data, especially when the means differ.

[5] See Figure A3 in the Appendix for a breakdown of PCI growth by quartile for Georgia counties as compared with the states between 1969 and 2000.

**FIGURE 3. STATE-LEVEL SCATTER PLOT OF 1969 PER CAPITA PCI AND
2000 PER CAPITA PCI**
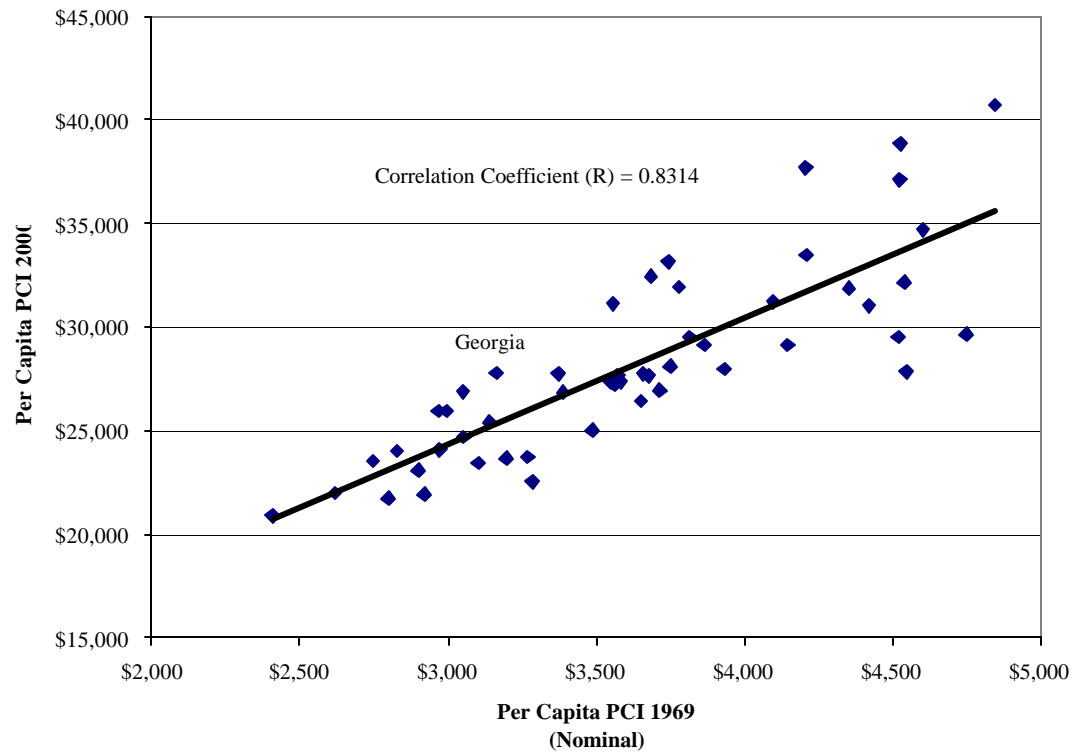
TABLE 1. PER CAPITA INCOME FOR STATES IN THE SOUTHEASTERN REGION

Ranking	State	1969 PCI	State	2000 PCI
-	United States	$18,999	United States	$29,469
-	South Eastern Region	$15,235	South Eastern Region	$26,194
1	Florida	$18,075	Virginia	$31,120
2	Virginia	$17,577	**Georgia**	**$27,794**
3	**Georgia**	**$15,620**	Florida	$27,764
4	North Carolina	$15,072	North Carolina	$26,882
5	Kentucky	$14,677	Tennessee	$25,946
6	Tennessee	$14,657	Kentucky	$24,085
7	Louisiana	$14,331	South Carolina	$24,000
8	South Carolina	$13,965	Alabama	$23,521
9	West Virginia	$13,822	Louisiana	$23,090
10	Alabama	$13,575	Arkansas	$21,995
11	Arkansas	$12,938	West Virginia	$21,738
12	Mississippi	$11,896	Mississippi	$20,900

TABLE 2. PCI COMPARISONS, 1969 AND 2000

	1969 PCI	2000 PCI
United States	$ 18,999	$ 29,469
Southeast Region	$ 15,235	$ 26,194
Georgia	$ 15,620	$ 27,794
Georgia/Nation	82.2%	94.3%
Georgia/SE Region	103%	106%

the regional average PCI increased from 103 percent in 1969 to 106 percent in 2000 (Table 2).

3. County-Level Income in Georgia

We now turn to the questions of how the distribution of county-level income in Georgia has changed and how these changes in income were distributed within the state. We explore these changes in the distribution of county-level PCI using several graphical and statistical methods.

Figure 4 provides a scatter plot of 1969 and 2000 PCI for Georgia counties (Appendix Table A2 contains the data for all counties). The regression line in Figure 4 depicts a strong positive relationship between 1969 and 2000 PCI (the correlation

**FIGURE 4.   COUNTY-LEVEL SCATTER PLOT OF 2000 PCI AND 1969 PCI FOR
GEORGIA**
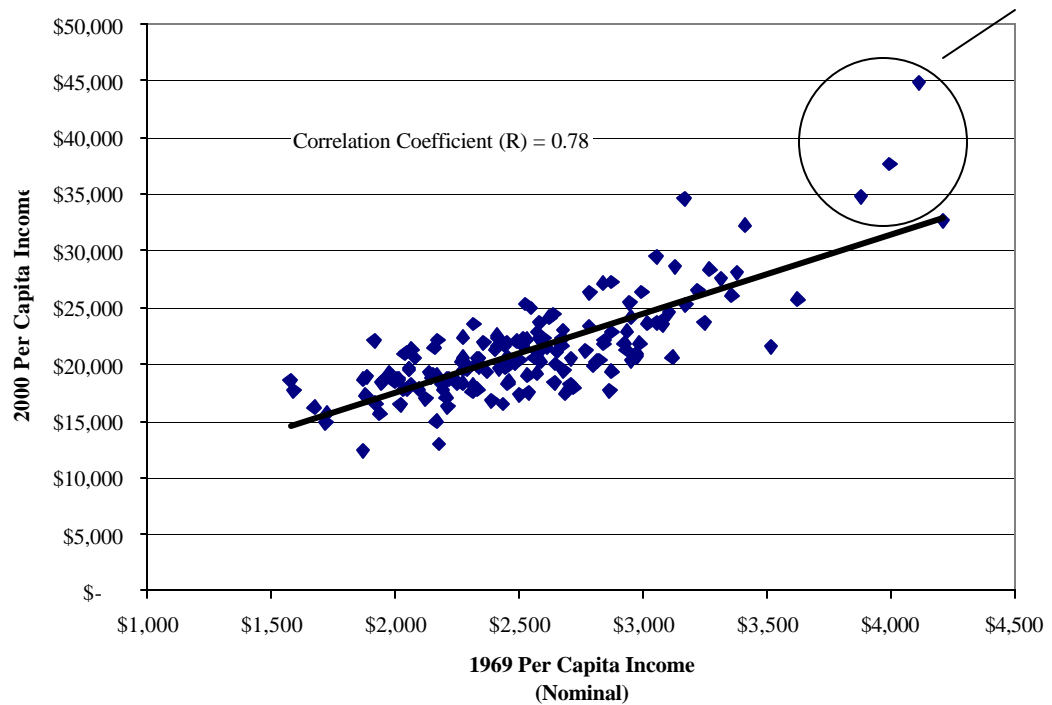
coefficent is +0.78), indicating that within Georgia most counties that started with
high PCI in 1969 ended up with a high PCI in 2000.[1] As can be seen, counties that
are relatively far from the regression line are located primarily at the upper end of the
income range for both years and lie above the regression line. Three of the four
counties with the highest PCI in 1969 (circled) saw their PCI grow substantially more
than the overall trend (the three counties are Fulton, Cobb, and Fayette).

Figure 5 provides a depiction of the relationship between the initial county-
level PCI (1969) and the growth rates of PCI. The relationship is negative, indicating
that on average a county that started with a relatively high PCI experienced a lower
PCI growth rate relative to other counties in the state.[2] But as can be seen in Figure
5, there are a lot of exceptions. A negative relationship between initial income and

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[1] The estimated regression line for Figure 4 is given by: PCI2000 = 7.0038 (PCI1969) + 3482.5,
and yields an $R^2 = 0.61$
[2] The estimated regression line in Figure 6 is given by:
PCI Growth Rate 2000 = -3E-06 (PCI Growth Rate 1969) + 0.0784 with an R^2 of 0.1001

**FIGURE 5. COUNTY-LEVEL SCATTER PLOT OF 1969 PCI AND PCI GROWTH RATES
FOR 1969 TO 2000 FOR GEORGIA**
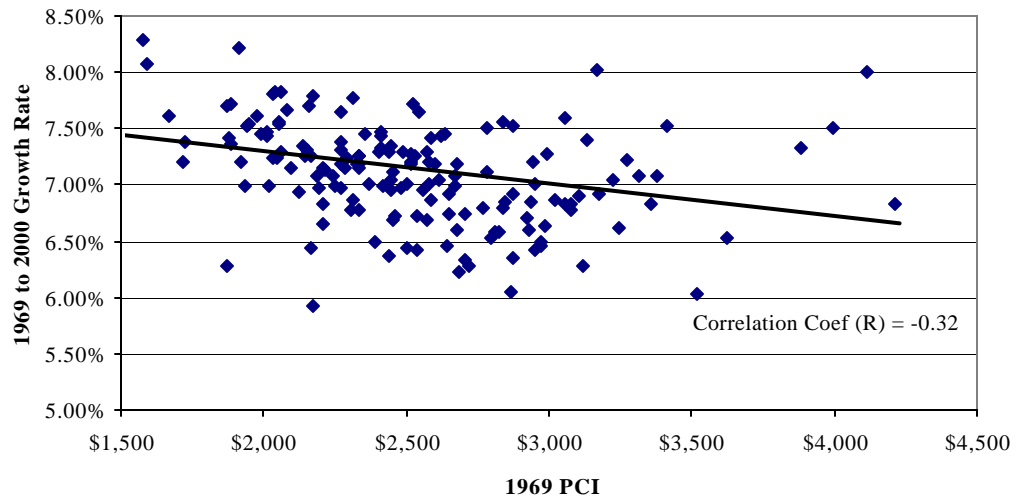
average annual growth rates suggests PCI convergence among Georgia counties; however, given the correlation coefficient is only –0.32, the strength of the convergence in PCI among Georgia counties is only moderate.

A comparison of the PCI in counties at the tails of an income distribution is often useful to gauge the gap that separates very rich from very poor counties. On a per capita basis, the range between the very richest county and the very poorest county increased over the period. In 1969, the county with the highest PCI (DeKalb) recorded an average income that was 2.67 times larger than the county with the lowest PCI (Clay). By 2000, the top county (Fulton) had a PCI that was 3.62 times larger than the poorest county (Long). Comparing PCI at the two tails represents the simplest measure of variability and it is susceptible to outliers; as Figure 4 suggests, there are outliers, especially at the upper end of the PCI distribution.

The interquartile range is less affected by extreme outliers. (See Section II for an explanation of interquartile range). In 1969, the PCI for the county at the top of the third quartile (the 75th percentile) was 1.30 times larger than the county at the top of the first quartile. However, by 2000, the ratio of the first and third quartiles' PCI had declined to 1.21, indicating that for the middle 50 percent of the counties in Georgia, the difference in county-level PCI was narrowing.

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Figure 6 depicts the estimated distribution of county-level PCI for the years 1969 (mean-centered) and 2000 (the 1969 and 2000 distributions in nominal dollars is contained in Figures A1 and A2 in the Appendix). Figure 6 suggests that the 1969 distribution of PCI is "flatter" than the 2000 distribution.   The more compact distribution in 2000 provides a visual indication of the greater relative dispersion of PCI in 1969. There are notably fewer counties at the left (lower end) of the PCI distribution, between \$12,000 and about \$18,000, in 2000 than in 1969. Figure 6 provides visual evidence that between 1969 and 2000 county-level PCI, for most of Georgia's counties, tended toward convergence.

However, the CV increased over this period, from 19.07 in 1969 to 30.37 in 2000, suggesting divergence rather than convergence.   However, because the distribution is right-skewed, there is the potential for outliers to substantially affect the size of the CV.[8] If Fulton County is omitted from both the 1969 and 2000 distributions, the CV decreases from 18.53 in 1969 to 18.52 in 2000, indicating essentially no convergence in county-level PCI in Georgia. However, by dropping the top three counties in both years (DeKalb, Fulton and Cobb in 1969 and Cobb, Fulton and Fayette in 2000), all of which are more than three standard deviations above the mean PCI, we see stronger convergence among the remaining counties. Excluding these four outliers, the CV for the year 2000 decreased to 16.86, from 17.36 in 1969. Thus, outside of the very highest income counties, the county-level PCI for Georgia has converged over the last three decades.

Although much of the state has experienced a convergence in income, questions remain about the influence of high-PCI counties at the far right of the distribution on the overall distribution of total personal income for Georgia.

Figure 7 presents the aggregate share of Georgia's total personal income by each quartile of counties. To produce Figure 7, we ranked Georgia's counties by PCI lowest to highest, divided the counties into 4 groups (or quartiles) of 40 counties (39

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[8] Observations in a data set that are more than 3 standard deviations from the mean are often considered outliers. Fulton County's PCI is 3.28 standard deviations above the mean in 1969 and 5.48 standard deviations above the mean in 2000. In 1969, DeKalb, Fulton and Cobb each have PCI greater than 3 standard deviations above the mean. Cobb, Fulton, Fayette and Forsyth have PCI greater than 3 standard deviations above the mean in 2000; however, for comparison only the top three counties are dropped in each year. See Table A2 in the Appendix for more detail.

**FIGURE 6. DISTRIBUTION OF PCI AMONG GEORGIA COUNTIES , 1969 AND 2000
(MEAN CENTERED)**
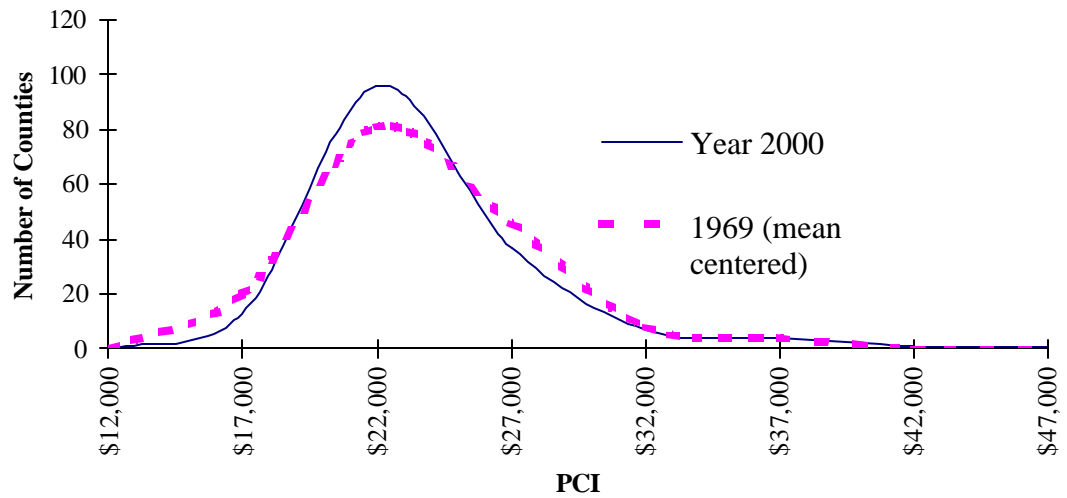
**FIGURE 7. PERCENT OF GEORGIA'S TOTAL PERSONAL INCOME BY QUARTILE, 1969
AND 2000**
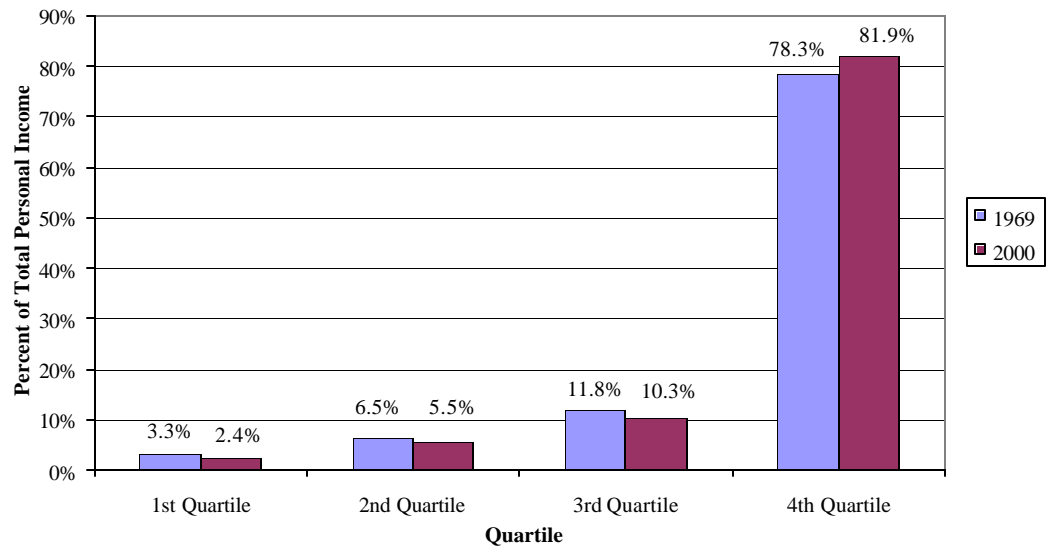
in the 3rd quartile), and within each quartile, summed the total county-level income and divided by the state's total personal income. The first quartile contains counties with the lowest PCI. The first, second and third quartiles each saw its share of the state's total personal income decline over the 31-year period. Thus, total income has become more concentrated within the top income quartile (quartile 4); more of the state's total income is being generated in counties with the highest PCIs. However, the change over the period is not very large.

The income convergence that is depicted in Figures 6 and 7 could be the result of the out-migration of persons from low-PCI counties and in-migration to relatively high-PCI counties. The loss of persons from a low-PCI county has the effect of reducing total county income. Conversely, the arrival of workers in a high-PCI county would increase that high-PCI county's total income. Thus, the shift in total income depicted in Figure 7 may be the result of migration as well as changes in PCI.
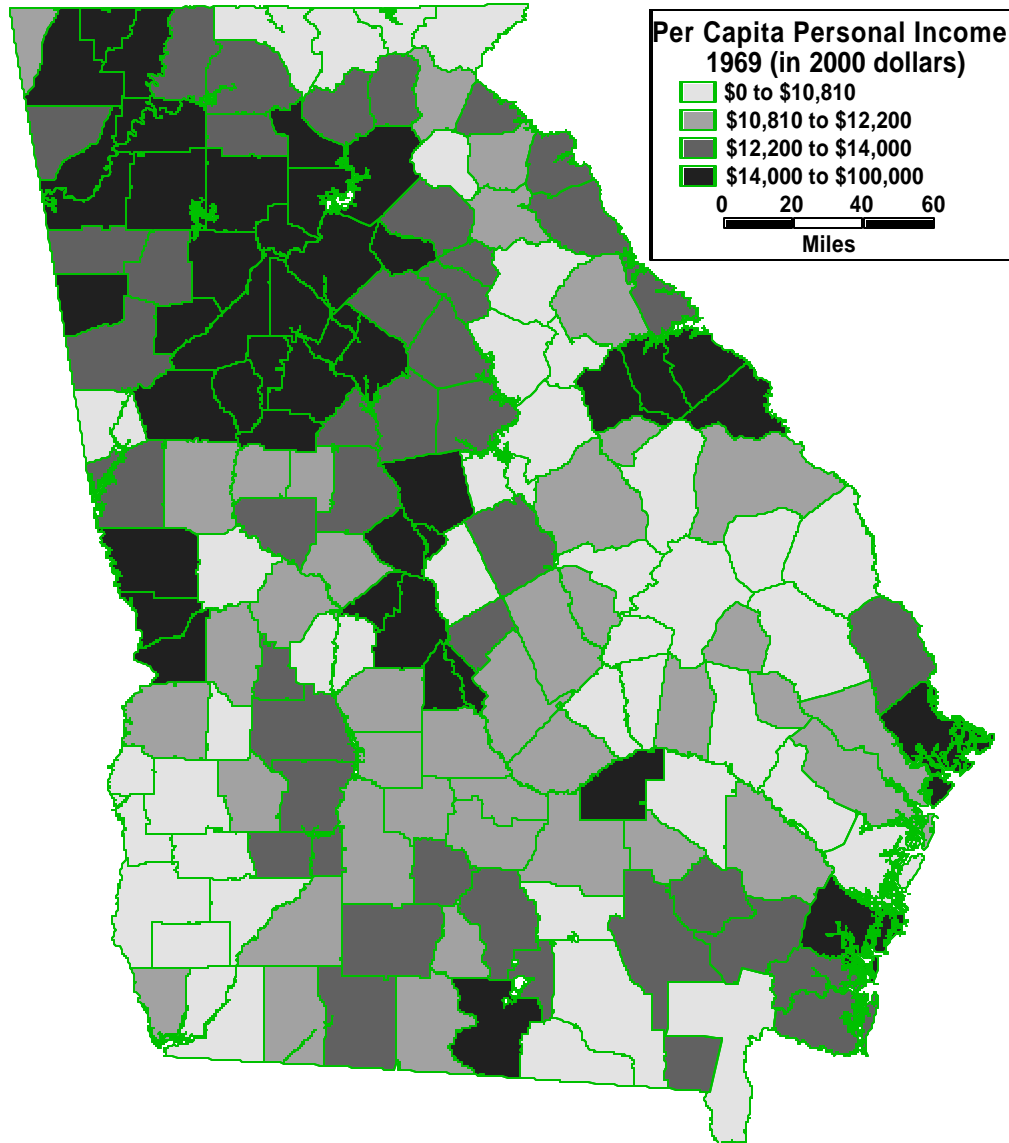
IV. Geography of Income

Several researchers describe a persistent gap in economic conditions among Georgia regions. Most of the research has focused on the differences between Atlanta metropolitan counties (or all of north Georgia above the fall line) and the rest of the state. Some have concluded that Georgia is actually composed of two or more sub-economies. Charles Floyd (1985), recognizing that there were stark differences between the fast-growing Atlanta Metropolitan Area and the counties in other regions of the state, was the first to formulate the hypothesis that Georgia was actually "two Georgias." The concept of the "two Georgias," regardless of its validity, has become a popular way to describe the social and economic differences that exist between north Georgia and south Georgia. The following sections examine the geographic distribution of county-level PCI and the geographic distribution of PCI growth over the past 31 years.

1. Geographic Distribution of Income

In this section, we examine the geographic distribution of county-level PCI in 1969 and 2000, highlighting the gap and changes that have occurred over the period. Maps 1 and 2 depict the county-level per capita income by quartiles for 1969 and 2000. In 1969, most of the counties in the top PCI quartile were grouped in the north-central and northwestern areas of the state between the Atlanta and Chattanooga MSAs. However, the counties surrounding Macon (Jones, Bibb, Peach, Houston, and Pulaski), Augusta (Warren, McDuffie, Columbia, and Richmond) and Columbus (Harris, Muscoggee, and Chattahoochee) also were areas of relatively high PCI. (See Map A1 in the appendix for county names.) There were few counties in the top quartile in Georgia's southern regions; only Chatham, Lowndes, Glynn, and Jeff Davis had PCIs in the top quartile. Counties in the bottom quartile in 1969 were almost entirely rural counties, and were located mainly in the eastern half of the state.
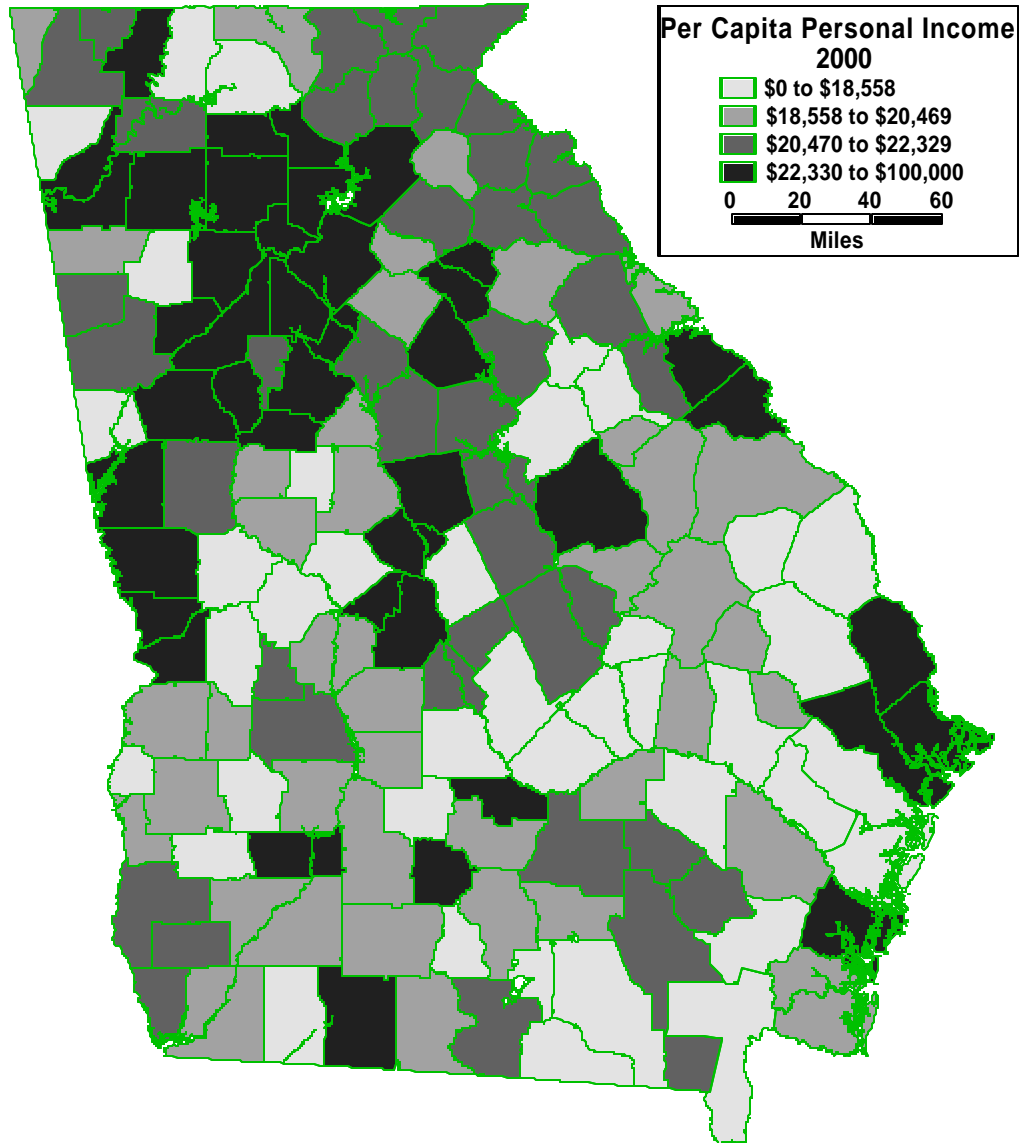
MAP 1. PER CAPITA INCOME, 1969

MAP 2. PER CAPITA INCOME, 2000

Per Capita Personal Income
2000
- $0 to $18,558
- $18,558 to $20,469
- $20,470 to $22,329
- $22,330 to $100,000

0   20   40   60

Miles

In 2000, the north-central and northwestern areas of Georgia remained the largest geographic region of relatively high PCI.   However, high-PCI counties became more geographically disbursed, with several southern and non-Atlanta MSA counties moving into the top quartile. In 1969, none of the Athens area counties were among the top PCI quartile, but by 2000, Clarke, Oconee, and nearby Morgan moved into the top quartile. In the northwestern corner of the state, some of the counties associated with the Chattanooga area dropped out of the top quartile, while counties in the south-central areas of Georgia moved up. Dougherty (Albany), Tift (Tifton), Ben Hill (Fitzgerald) and Thomas (Thomasville) are all south-Georgia counties that moved into the top PCI quartile. The Savannah region also saw its PCI increase relative to the rest of the state. Although South Georgia increased its share of high-PCI counties, some of the counties that in 1969 were in the top quartile dropped out. These include McDuffie, Warren (in the Augusta area) and Pulaski (in the Macon area).

Across   Georgia,   the   top   PCI   quartile   become   geographically   less concentrated.   However,   the   counties   in   the   lowest   PCI   quartile   remained concentrated in the southern areas of the state, particularly the southeastern region. In 1969, 12 counties in the bottom quartile were located at or above the fall line (the geographic feature traditionally used to separate Georgia into northern and southern regions). By 2000, only 9 counties in the bottom quartile were located above the fall line, indicating that South Georgia increased its share of counties with relatively low PCI. In 1969, most of the counties with relatively low PCI were located in clusters in the southeastern and southwestern areas of the state. By 2000, the counties in the southern half of the state that comprised these low-PCI clusters had changed substantially.

In total, South Georgia saw a slight increase in the number of counties in both the top and bottom PCI quartiles. Furthermore, most of the South Georgia counties that joined the top PCI quartile were counties that contain or are near relatively large population (and potentially, employment) centers. Between 1969 and 2000, the clusters of high-PCI counties around Atlanta, Macon and Augusta shrank, while other

areas with smaller population centers, such as Athens, Tifton, and Albany moved into the top quartile.

2. Growth Rates

The average annual county-level growth rate for real PCI for the period 1969 to 2000 was 1.72 percent, and ranged form a low of 0.61 percent to a high of 2.84 percent. Figure 8 presents the distribution of growth rates among Georgia counties. The shape of the distribution is approximately normal (bell-shaped); however, there is a slightly negative skew, indicating that Georgia counties are slightly more likely to have growth rates below the mean growth rate. The bell-shape of the distribution illustrates the wide variation in PCI growth over the past 31 years. For this reason it is important to examine where in the state faster and slower PCI growth has occurred.

Maps 3 and 4 present two different views of the growth rates in county-level PCI for the 1969 to 2000 period. Map 3 provides a 3-dimentional view of the county-level PCI growth rates across Georgia. Counties with higher rates of growth are presented in a darker shade and rise higher from the map's surface. Not surprisingly, the counties in the Atlanta area stand out as the focus of high county-level PCI growth rates. However, moving beyond these counties with the very highest growth rates, we see that relatively high rates of PCI growth are spread across most areas of the state. Notable non-Atlanta counties with especially high growth rates include those located along the northern and southwestern state border and those in the coastal region of the state.

Map 4 breaks the counties into quartiles based on their PCI growth. In this map we see how the counties in the high- and low-growth quartiles are distributed across the state. Map 4 indicates that high-growth counties are not confined to any single region of the state; however, they are clustered within regions. Outside of counties in the 20-county Atlanta Metropolitan Area there appears to be five major clusters of high-growth counties. Three of the five clusters are in the eastern side of the state. In northeast Georgia, high growth of PCI are clustered along the borders of North and South Carolina near the Greenville-Spartanburg-Anderson MSA. Another area of high-income growth occurs further south, in counties on and along the

FIGURE 8. ANNUAL GROWTH RATE IN PER CAPITA INCOME (REAL 1969-2000)
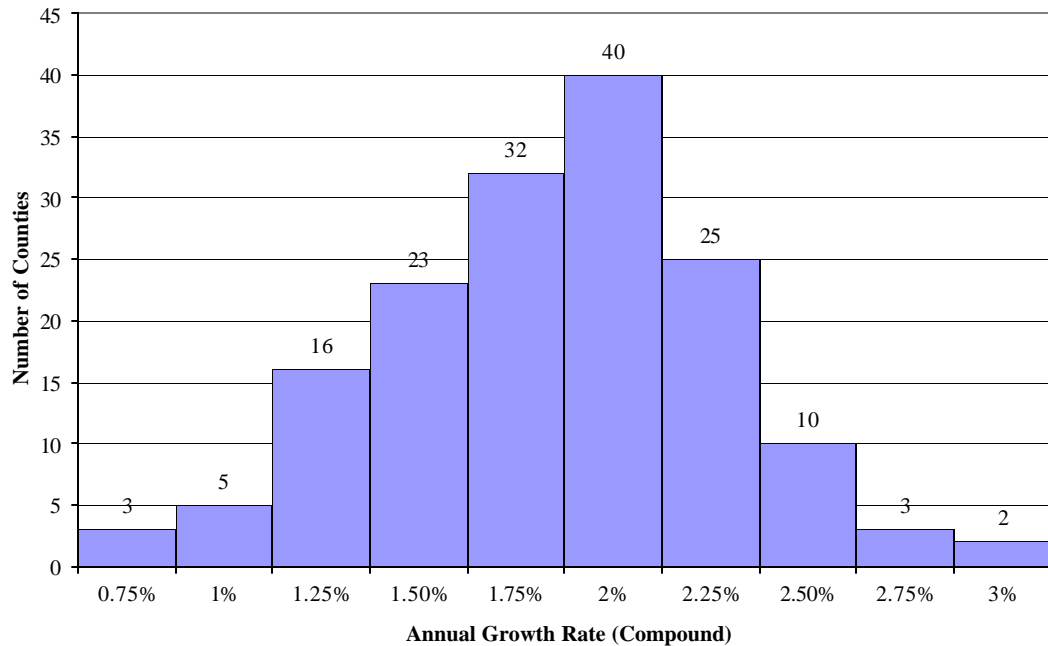
southern edge of the Athens MSA. Still further south is another cluster of high-income growth counties. This cluster is situated between three Georgia MSAs, Augusta, Macon, and Savannah, and it extends from Baldwin in the interior of the state to Bryan on the coast.

The other two clusters of high-income growth counties are located in the western and southwestern areas of the state. Several counties between Dougherty (Albany) and the western border of the state experienced high growth. Many of these counties in southwest Georgia started with a relative low initial PCI in 1969. Geographically, low-income growth rate counties appear to be as concentrated as high-income growth rate counties. Counties in the bottom growth rate quartile are clustered predominantly in the south-central and extreme southern areas of the state, extending from Lamar and Monroe north of the Macon MSA south to the southern border of the state.

MAP 3. GROWTH RATE IN PER CAPITA INCOME, 1969-2000

**Annual
Percent
Growth**
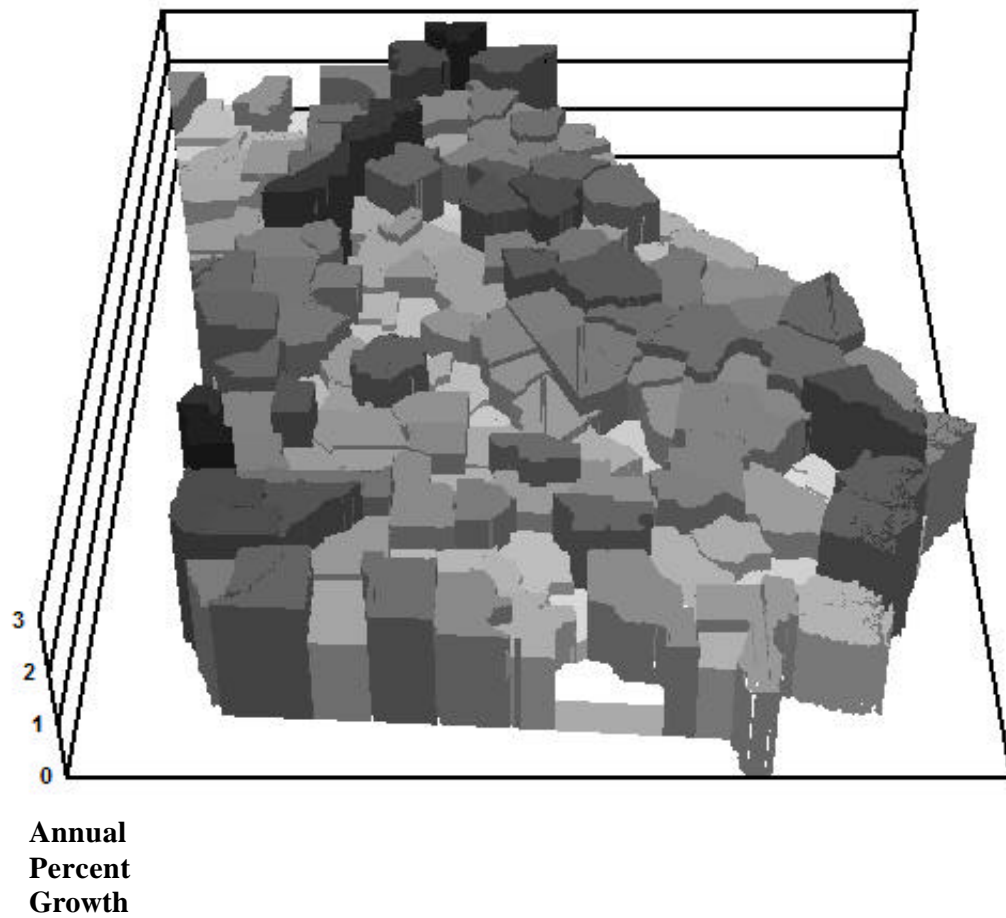
MAP 4: GROWTH IN PER CAPITA INCOME, 1969-2000
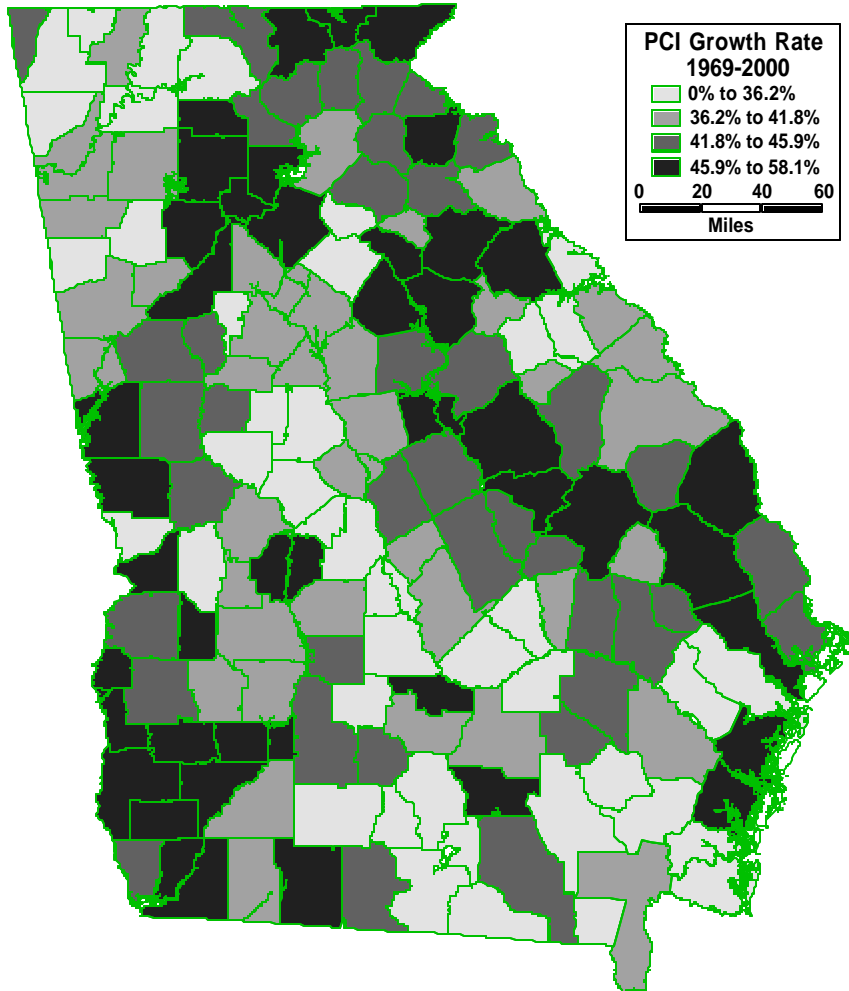
V. Summary

In the maps presented in this analysis, the boundary separating the "two Georgias" is difficult to identify based solely on PCI. We compare 1969 PCI with 2000 PCI and find that, aside from outlier counties at the upper end of the PCI distribution (Cobb, Fulton and Fayette), the rest of the counties in the state have moved in the direction of PCI convergence. Stated another way, every county in the state experienced real positive growth in PCI over that 31-year period, and the real difference in PCI among most of Georgia's counties has gotten smaller since 1969. Furthermore, the county-level growth in PCI is negatively correlated with the level of PCI in 1969, indicating that counties starting with relatively low PCI in 1969 experienced faster growth in PCI. This tendency towards PCI convergence means that county-level per capita fiscal capacity has become more evenly distributed across the state. Additionally, high-PCI counties are no longer confined to a single region. In 2000, high-PCI counties were located in northern, central, and southern areas of the state.

When compared with the rest of the country, Georgia's PCI has improved substantially since 1969. However, there are some counties in the state that continue to have low PCI, slow growth in PCI, or both. Specifically, there remain substantial differences between the PCI for rural counties in South Georgia and the PCI for more urbanized counties across the state. The Atlanta area has been the focus of both high PCI and PCI growth over the past three decades. Contrary to what is expected from modern economic growth theory, counties in the Atlanta area, which started with relatively high PCI, had substantially higher PCI growth than counties with lower PCI. In particular, South Georgia appears more likely to contain clusters of counties in the lowest PCI quartile. At the same time, South Georgia has been the region of the state where many of the new high-PCI counties are located.

The economic growth that has occurred in Georgia over the past decade has attracted educated and skilled workers into Georgia. Urban and suburban counties around the City of Atlanta have been the main beneficiaries of white-collar job growth. The influx of these newer, more highly educated workers has led to an increase in the PCI for counties in the Atlanta Region; however, to some extent, this

has also occurred in other parts of the state. Along the Georgia coastline and in larger cities across the state, job growth has attracted workers to Georgia. Other counties have seen their PCI increase because of out-migration. As low-paid workers move out of job-poor counties, PCI rises. Many rural counties have likely seen their residents move to larger nearby cities in search of entry-level jobs. Alone, the in-migration of educated workers would likely make PCI differentials larger if compatible job growth is relatively concentrated. However, the movement of rural low-skilled, low-paid workers out of low-PCI counties to urban job centers reduces the PCI differentials between urban and rural counties in the state. The end result is that counties in Georgia have seen their per capita fiscal capacity become more equal over the past three decades.

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Appendix A.

MAP A1. GEORGIA COUNTIES
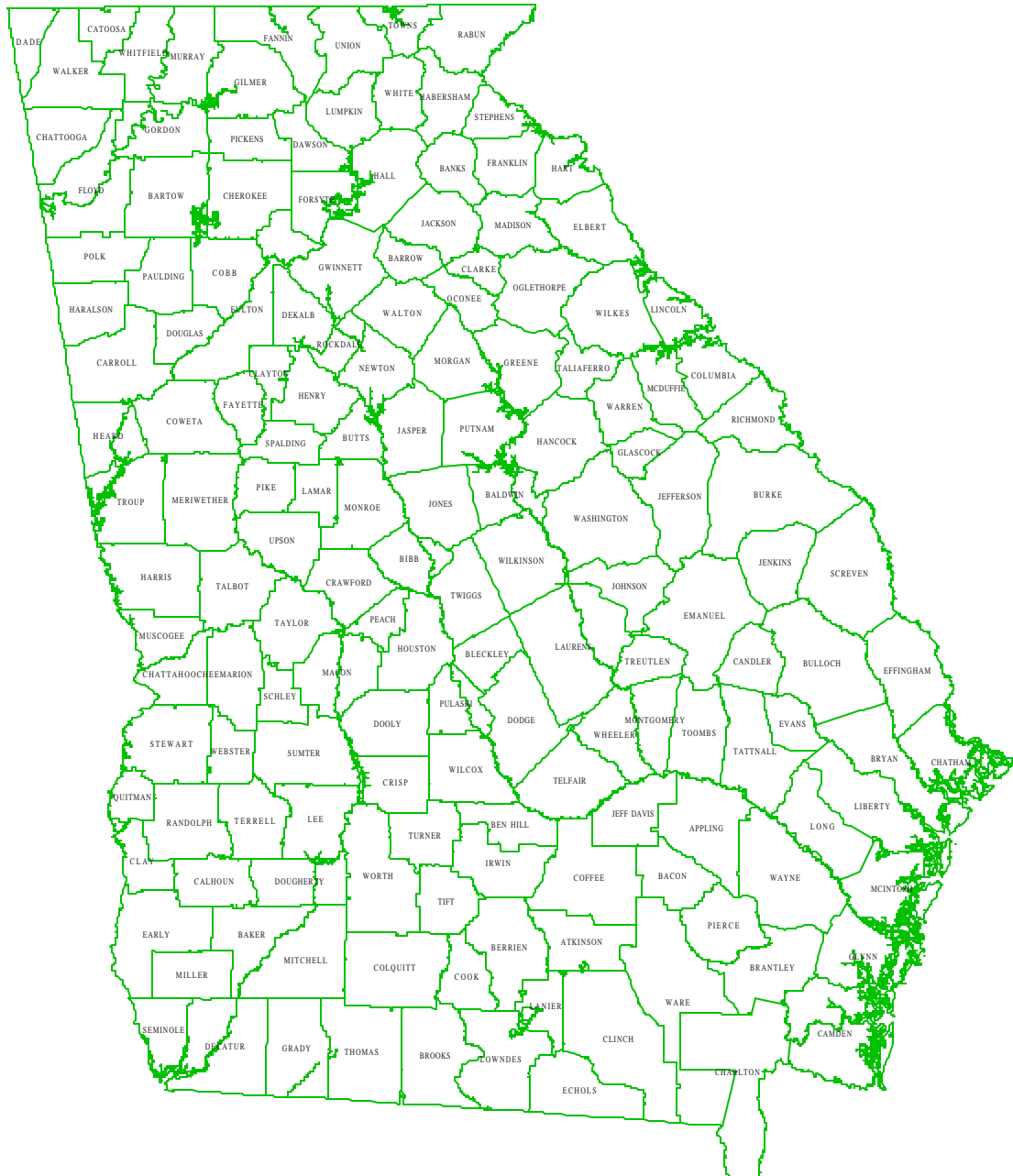
FIGURE A1. DISTRIBUTION OF PCI FOR 1969 (NOMINAL)
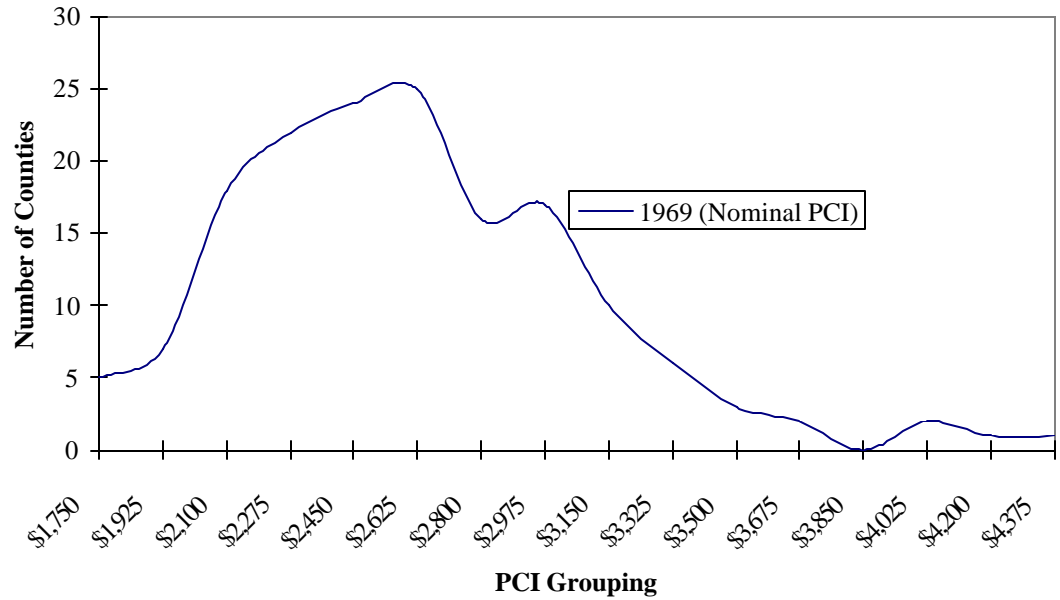
FIGURE A2. DISTRIBUTION OF PCI FOR 2000 (NOMINAL)
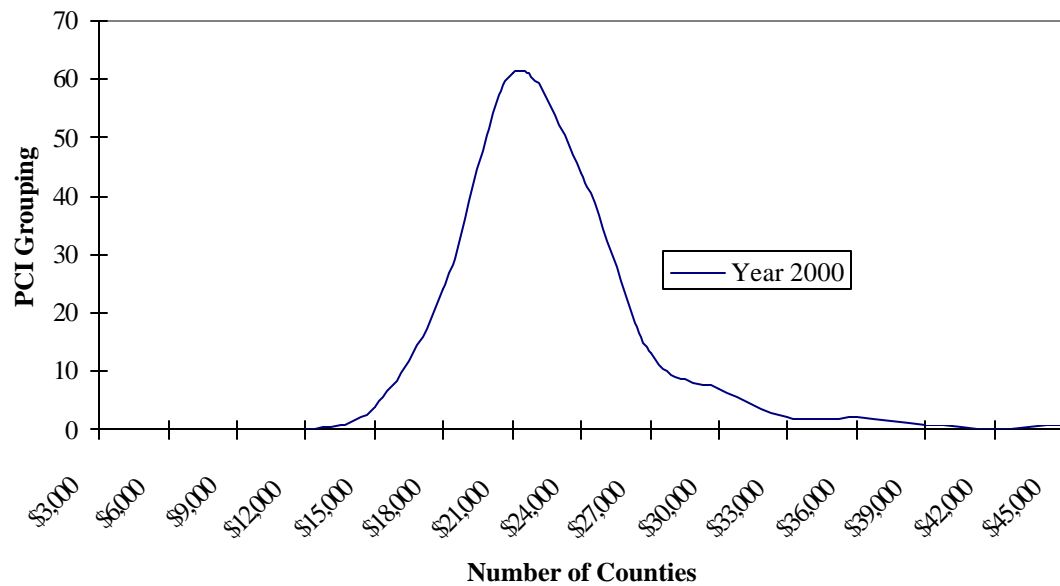
FIGURE A3. ANNUAL AVERAGE GROWTH IN PCI, 1969-2000 (QUARTILES ARE BASED ON 1969 PCI)
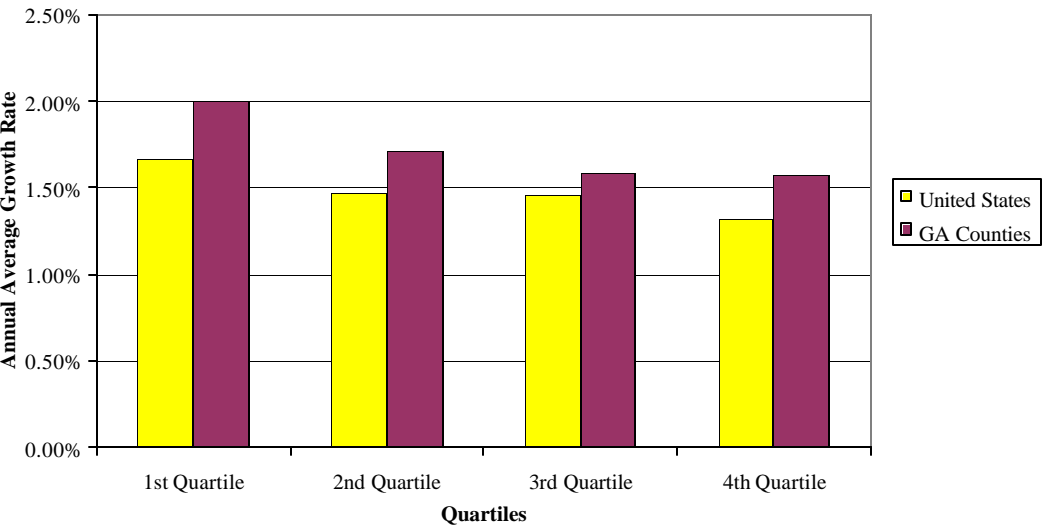
Distribution of Per Capita Income
in Georgia: 1969-2000

TABLE A2. RANKED PER CAPITA INCOME AND GROWTH RATES, 1969, 1969 REAL, AND 2000

Rank	County	Per Capita Income 1969	Real Per Capita Income 1969	County	Per Capita Income 2000	County	Annual Growth Rate in PCI (Compound)
1	DeKalb	$4,211	$20,802	Fulton	$44,838	Clay	2.84%
2	Fulton	$4,115	$20,328	Cobb	$37,665	Towns	2.77%
3	Cobb	$3,996	$19,740	Fayette	$34,762	Quitman	2.65%
4	Fayette	$3,881	$19,172	Forsyth	$34,608	Forsyth	2.59%
5	Muscogee	$3,626	$17,912	DeKalb	$32,630	Fulton	2.58%
6	Clayton	$3,517	$17,374	Gwinnett	$32,268	Greene	2.40%
7	Gwinnett	$3,411	$16,850	Glynn	$29,511	Union	2.40%
8	Bibb	$3,380	$16,697	Cherokee	$28,600	Early	2.39%
9	Columbia	$3,358	$16,589	Chatham	$28,364	Miller	2.37%
10	Whitfield	$3,315	$16,376	Bibb	$28,097	Bryan	2.36%
11	Chatham	$3,270	$16,154	Whitfield	$27,559	Baker	2.31%
12	Houston	$3,248	$16,045	Chattahoochee	$27,274	Morgan	2.31%
13	Rockdale	$3,221	$15,912	Harris	$27,124	Webster	2.29%
14	Douglas	$3,172	$15,670	Rockdale	$26,516	Rabun	2.29%
15	Forsyth	$3,167	$15,645	Coweta	$26,410	Baldwin	2.26%
16	Cherokee	$3,131	$15,467	Troup	$26,311	Washington	2.25%
17	Haralson	$3,119	$15,408	Columbia	$26,080	Oconee	2.24%
18	Hall	$3,104	$15,334	Muscogee	$25,715	McIntosh	2.20%
19	Floyd	$3,078	$15,205	Dawson	$25,462	Macon	2.20%
20	Peach	$3,077	$15,200	Morgan	$25,323	Glynn	2.19%
21	Glynn	$3,054	$15,087	Douglas	$25,234	Harris	2.15%
22	Richmond	$3,054	$15,087	Oconee	$24,996	Decatur	2.15%
23	Henry	$3,019	$14,914	Hall	$24,555	Oglethorpe	2.14%
24	Coweta	$2,994	$14,790	Thomas	$24,459	Atkinson	2.14%
25	McDuffie	$2,988	$14,761	Pickens	$24,156	Chattahoochee	2.13%
26	Catoosa	$2,972	$14,682	Bartow	$24,132	Gwinnett	2.12%
27	Pulaski	$2,972	$14,682	Floyd	$23,887	Screven	2.12%
28	Bartow	$2,951	$14,578	Richmond	$23,685	Troup	2.11%
29	Barrow	$2,950	$14,573	Houston	$23,682	Cobb	2.11%
30	Dawson	$2,945	$14,548	Dougherty	$23,672	Ben Hill	2.08%
31	Spalding	$2,936	$14,504	Henry	$23,624	Johnson	2.07%
32	Walker	$2,932	$14,484	Bryan	$23,560	Wilkes	2.06%
33	Gordon	$2,924	$14,445	Peach	$23,494	Bulloch	2.06%
34	Chattahoochee	$2,873	$14,193	Clarke	$23,382	Thomas	2.05%
35	Jeff Davis	$2,873	$14,193	Effingham	$23,016	Emanuel	2.05%
36	Jones	$2,873	$14,193	Spalding	$22,938	Franklin	2.04%
37	Warren	$2,866	$14,158	Tift	$22,852	Pickens	2.03%
38	Newton	$2,844	$14,049	Jones	$22,831	Calhoun	2.02%
39	Lowndes	$2,842	$14,039	Ben Hill	$22,547	Dougherty	2.01%
40	Harris	$2,838	$14,020	Washington	$22,365	Cherokee	2.00%
41	Upson	$2,824	$13,951	Franklin	$22,306	Hancock	1.99%
42	Monroe	$2,812	$13,891	Stephens	$22,302	Meriwether	1.98%

TABLE A2 (CONTINUED). RANKED PER CAPITA INCOME AND GROWTH RATES, 1969, 1969 REAL, AND 2000

Rank	County	Per Capita Income 1969	Real Per Capita Income 1969	County	Per Capita Income 2000	County	Annual Growth Rate in PCI (Compound)
43	Walton	$2,799	$13,827	Bleckley	$22,280	Talbot	1.97%
44	Troup	$2,786	$13,763	Lumpkin	$22,279	Jefferson	1.96%
45	Clarke	$2,780	$13,733	Putnam	$22,259	Habersham	1.95%
46	Pierce	$2,768	$13,674	Jackson	$22,208	Laurens	1.94%
47	Murray	$2,719	$13,432	Miller	$22,175	Fayette	1.94%
48	Ware	$2,708	$13,378	Newton	$22,125	Pike	1.92%
49	Lanier	$2,707	$13,373	Towns	$22,091	Fannin	1.91%
50	Paulding	$2,685	$13,264	Wilkinson	$22,046	Tift	1.91%
51	Berrien	$2,680	$13,239	Habersham	$21,974	Seminole	1.91%
52	Effingham	$2,677	$13,224	Wilkes	$21,923	Madison	1.91%
53	Bleckley	$2,673	$13,205	Gordon	$21,844	Wilkinson	1.90%
54	Carroll	$2,672	$13,200	McDuffie	$21,833	Jenkins	1.90%
55	Jasper	$2,653	$13,106	Lowndes	$21,759	Putnam	1.89%
56	Lincoln	$2,648	$13,081	White	$21,683	Coweta	1.89%
57	Chattooga	$2,641	$13,047	Carroll	$21,668	Randolph	1.88%
58	Thomas	$2,639	$13,037	Seminole	$21,656	Bacon	1.88%
59	Pickens	$2,622	$12,953	Hart	$21,628	Banks	1.87%
60	Sumter	$2,614	$12,913	Laurens	$21,597	Jackson	1.87%
61	Stephens	$2,599	$12,839	Clayton	$21,570	Stewart	1.86%
62	Polk	$2,584	$12,765	Sumter	$21,526	Tattnall	1.85%
63	Dougherty	$2,583	$12,760	Rabun	$21,491	Appling	1.85%
64	Lumpkin	$2,580	$12,745	Madison	$21,314	Toombs	1.85%
65	Elbert	$2,578	$12,735	Union	$21,297	Chatham	1.83%
66	Colquitt	$2,573	$12,711	Walker	$21,250	Dawson	1.82%
67	Tift	$2,573	$12,711	Pierce	$21,223	Treutlen	1.82%
68	Schley	$2,561	$12,651	Jasper	$21,106	Lumpkin	1.82%
69	Oconee	$2,547	$12,582	Greene	$21,081	Twiggs	1.81%
70	Brantley	$2,536	$12,528	Elbert	$21,004	White	1.81%
71	Camden	$2,534	$12,518	Pulaski	$20,938	Effingham	1.80%
72	Jackson	$2,531	$12,503	Early	$20,921	Hart	1.80%
73	Morgan	$2,525	$12,474	Catoosa	$20,684	Dade	1.80%
74	Putnam	$2,518	$12,439	Coffee	$20,648	Evans	1.80%
75	Hart	$2,516	$12,429	Meriwether	$20,622	Stephens	1.80%
76	White	$2,516	$12,429	Haralson	$20,615	Crisp	1.80%
77	Butts	$2,502	$12,360	Baldwin	$20,556	Worth	1.77%
78	Gilmer	$2,502	$12,360	Schley	$20,555	Brooks	1.77%
79	Wilkinson	$2,488	$12,291	Bacon	$20,508	Clinch	1.76%
80	Lee	$2,483	$12,266	Ware	$20,479	Candler	1.76%
81	Cook	$2,460	$12,152	Stewart	$20,463	Burke	1.74%
82	Coffee	$2,453	$12,118	Butts	$20,396	Coffee	1.73%
83	Lamar	$2,452	$12,113	Upson	$20,347	Clarke	1.73%
84	Habersham	$2,447	$12,088	Barrow	$20,289	Bleckley	1.70%

**TABLE A2 (CONTINUED). RANKED PER CAPITA INCOME AND GROWTH RATES,
1969, 1969 REAL, AND 2000**

Rank	County	Per Capita Income 1969	Real Per Capita Income 1969	County	Per Capita Income 2000	County	Annual Growth Rate in PCI (Compound)
85	Wayne	$2,445	$12,078	Monroe	$20,252	Dooly	1.70%
86	Glascock	$2,443	$12,068	Polk	$20,252	Montgomery	1.70%
87	Seminole	$2,440	$12,054	Pike	$20,233	Whitfield	1.69%
88	Liberty	$2,436	$12,034	Glascock	$20,179	Bibb	1.69%
89	Irwin	$2,420	$11,955	Dade	$20,072	Glascock	1.67%
90	Franklin	$2,414	$11,925	Lincoln	$20,034	Sumter	1.66%
91	Ben Hill	$2,412	$11,915	Lee	$20,019	Rockdale	1.66%
92	Laurens	$2,410	$11,905	Evans	$19,983	Bartow	1.64%
93	Madison	$2,403	$11,871	Toombs	$19,941	Mitchell	1.63%
94	Crawford	$2,390	$11,807	Walton	$19,855	Butts	1.63%
95	Mitchell	$2,370	$11,708	Candler	$19,833	Elbert	1.63%
96	Wilkes	$2,357	$11,644	Wayne	$19,646	Charlton	1.62%
97	Candler	$2,337	$11,545	Irwin	$19,635	Taliaferro	1.62%
98	Stewart	$2,337	$11,545	Decatur	$19,630	Irwin	1.61%
99	Dade	$2,336	$11,540	Oglethorpe	$19,550	Carroll	1.61%
100	Bacon	$2,333	$11,525	Crisp	$19,499	Taylor	1.61%
101	Telfair	$2,333	$11,525	Worth	$19,483	Terrell	1.61%
102	Evans	$2,328	$11,500	Berrien	$19,449	Dodge	1.60%
103	Bryan	$2,316	$11,441	Jeff Davis	$19,373	Lee	1.59%
104	Grady	$2,312	$11,421	Mitchell	$19,341	Wayne	1.58%
105	Turner	$2,309	$11,406	Jefferson	$19,264	Schley	1.58%
106	Toombs	$2,290	$11,313	Macon	$19,181	Heard	1.56%
107	Worth	$2,288	$11,303	Colquitt	$19,165	Jasper	1.55%
108	Crisp	$2,273	$11,229	Fannin	$19,109	Douglas	1.55%
109	Meriwether	$2,273	$11,229	Randolph	$19,025	Jones	1.55%
110	Washington	$2,272	$11,224	Camden	$19,020	Hall	1.53%
111	Dodge	$2,270	$11,214	Baker	$18,919	Grady	1.50%
112	Pike	$2,269	$11,209	Banks	$18,829	Polk	1.50%
113	Taylor	$2,250	$11,115	Brooks	$18,763	Henry	1.49%
114	Dooly	$2,240	$11,066	Johnson	$18,713	Spalding	1.49%
115	Burke	$2,214	$10,937	Burke	$18,698	Newton	1.48%
116	Marion	$2,210	$10,917	Webster	$18,658	Columbia	1.47%
117	Brooks	$2,207	$10,903	Dooly	$18,656	Floyd	1.47%
118	Wilcox	$2,206	$10,898	Emanuel	$18,652	Richmond	1.47%
119	Terrell	$2,194	$10,838	Clay	$18,572	DeKalb	1.46%
120	Montgomery	$2,188	$10,809	Atkinson	$18,557	Wilcox	1.46%
121	Echols	$2,175	$10,745	Bulloch	$18,524	Pierce	1.43%
122	Miller	$2,171	$10,725	Cook	$18,474	Lowndes	1.42%
123	Wheeler	$2,166	$10,700	Screven	$18,396	Telfair	1.42%
124	Randolph	$2,164	$10,690	Chattooga	$18,340	Peach	1.41%
125	Rabun	$2,157	$10,656	Dodge	$18,322	Turner	1.41%
126	Fannin	$2,150	$10,621	Lamar	$18,284	Lincoln	1.38%

**TABLE A2 (CONTINUED). RANKED PER CAPITA INCOME AND GROWTH RATES,
1969, 1969 REAL, AND 2000**

Rank	County	Per Capita Income 1969	Real Per Capita Income 1969	County	Per Capita Income 2000	County	Annual Growth Rate in PCI (Compound)
127	Banks	$2,143	$10,586	Jenkins	$18,268	Ware	1.38%
128	Jefferson	$2,135	$10,547	Taylor	$18,231	Cook	1.36%
129	Heard	$2,123	$10,488	Montgomery	$18,222	Camden	1.36%
130	Clinch	$2,095	$10,349	Lanier	$18,201	Gordon	1.34%
131	Baldwin	$2,079	$10,270	Grady	$18,133	Lamar	1.34%
132	Union	$2,064	$10,196	Murray	$17,994	Colquitt	1.33%
133	Jenkins	$2,062	$10,186	Appling	$17,852	Marion	1.30%
134	Oglethorpe	$2,055	$10,152	Telfair	$17,823	McDuffie	1.27%
135	Decatur	$2,054	$10,147	Clinch	$17,784	Houston	1.26%
136	Appling	$2,050	$10,127	Tattnall	$17,762	Berrien	1.25%
137	Greene	$2,043	$10,092	Terrell	$17,762	Walker	1.24%
138	Early	$2,036	$10,058	Warren	$17,695	Upson	1.22%
139	Tattnall	$2,034	$10,048	Quitman	$17,675	Monroe	1.22%
140	Charlton	$2,018	$9,969	Turner	$17,586	Walton	1.17%
141	Emanuel	$2,015	$9,954	Brantley	$17,503	Muscogee	1.17%
142	Johnson	$2,010	$9,929	Paulding	$17,458	Pulaski	1.15%
143	Bulloch	$1,994	$9,850	Gilmer	$17,315	Crawford	1.14%
144	Macon	$1,978	$9,771	Calhoun	$17,258	Catoosa	1.11%
145	Atkinson	$1,951	$9,638	Wilcox	$17,072	Chattooga	1.10%
146	Screven	$1,945	$9,608	Talbot	$17,054	Wheeler	1.10%
147	Taliaferro	$1,935	$9,559	Heard	$16,944	Gilmer	1.09%
148	Twiggs	$1,922	$9,495	Crawford	$16,762	Brantley	1.08%
149	Towns	$1,915	$9,460	Twiggs	$16,572	Barrow	1.07%
150	Baker	$1,886	$9,317	Liberty	$16,494	Liberty	1.02%
151	Talbot	$1,886	$9,317	Charlton	$16,430	Jeff Davis	1.01%
152	Calhoun	$1,880	$9,287	Marion	$16,274	Lanier	1.00%
153	Long	$1,871	$9,243	McIntosh	$16,214	Murray	0.95%
154	Webster	$1,870	$9,238	Taliaferro	$15,708	Long	0.95%
155	Hancock	$1,722	$8,507	Hancock	$15,675	Haralson	0.94%
156	Treutlen	$1,717	$8,482	Wheeler	$15,000	Paulding	0.89%
157	McIntosh	$1,671	$8,255	Treutlen	$14,829	Warren	0.72%
158	Quitman	$1,589	$7,850	Echols	$12,964	Clayton	0.70%
159	Clay	$1,576	$7,785	Long	$12,374	Echols	0.61%

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