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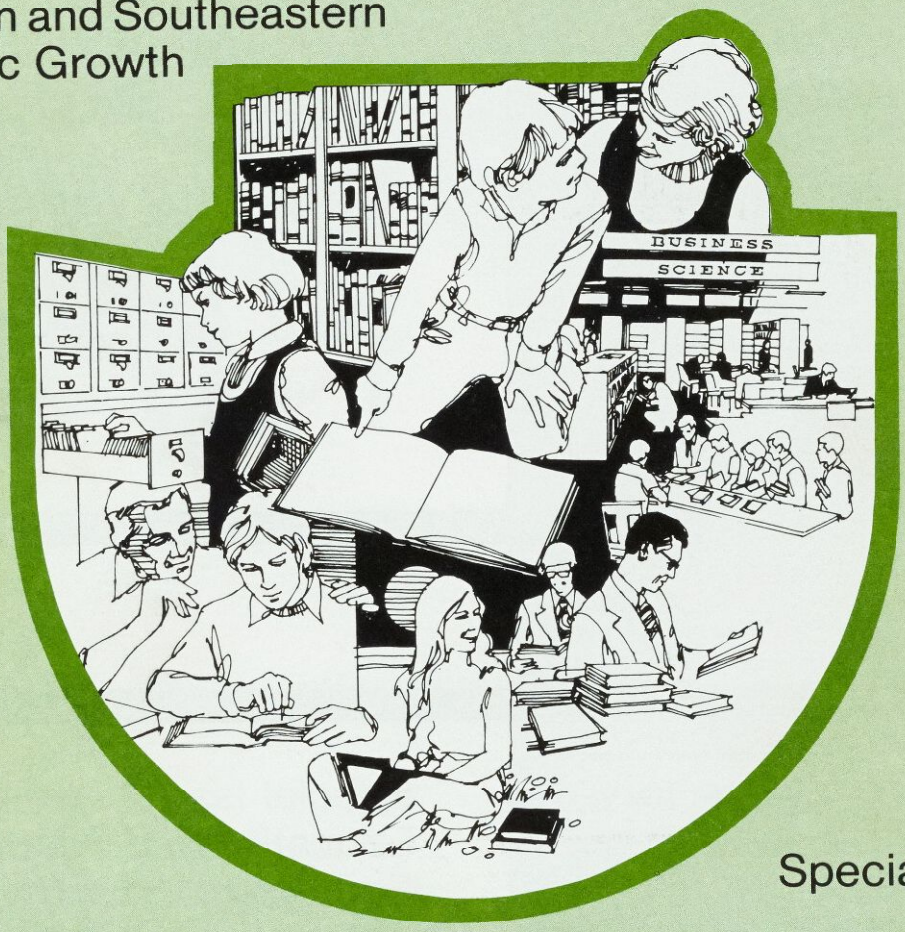
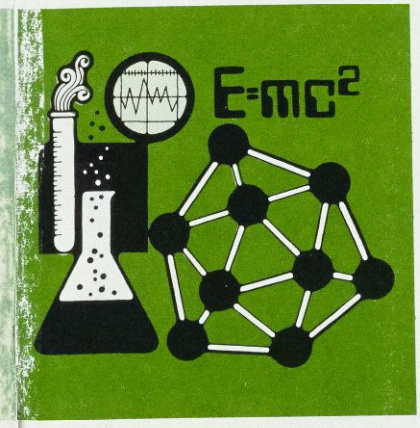
Education and Southeastern Economic Growth



Special Issue



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Special Issue: Education and Southeastern Economic Growth

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Overview

Promoting stable growth is one of the most important objectives of the Federal Reserve System's monetary policy, and productivity is an important component of growth. The successful conduct of monetary policy depends on a sound understanding of current and projected productivity and economic growth. Productivity is the relationship of production inputs to outputs; more specifically, it is the value of goods and services produced per unit of labor, capital, or other input. Productivity gains are a prominent source of economic growth because they enable economies to expand beyond what can be achieved by merely increasing the quantity of labor and capital inputs. Labor productivity, the most commonly used measure, is the ratio of output to man-hours worked. However, changes in this incomplete measure of productivity reflect not only improvements or declines in the quality and efficiency of workers, but changes in the capital stock with which laborers work.

The Federal Reserve Bank of Atlanta is particularly interested in the Sixth District's future economy and the sources contributing to growth. (That District includes Alabama, Florida, Georgia, and parts of Louisiana, Mississippi, and Tennessee.) The Atlanta Fed's Research Department conducts studies of productivity and economic growth. For some time, the Bank's Research Department has sought to identify, analyze, and publish its findings about the sources of longer term growth and change in the region. This continuing analysis helps us better understand current developments in the Southeast's economy and improve our assessments of their implications for the future.

In the 1970s and early 1980s, productivity failed to show the kind of improvement that has characterized the U.S. economy for decades. This lack of improvement was one of the causes of poor economic performance, as evidenced by the "stagflation" that we experienced. It was thought that our capital stock was becoming antiquated and that we were rigid in the way we operated our nation's factories—and, as a result, that we were becoming less competitive in world markets for manufactured goods. Many observers concerned with the troubling performance cited education as one explanatory factor. Their logic was straightforward: education improves the quality of future workers in a variety of ways, they reasoned, enhancing their productivity.

Some critics pointed to declining standardized test scores from the late 1960s forward as evidence that our educational system has been slipping. They argued that lower scores showed that schools were failing to produce workers as qualified as those who had entered the labor force in earlier periods. Increased competition from foreign countries, where the quality of schooling appeared to be more rigorous or where

the emphasis on science, mathematics, and technical subjects was relatively greater, reinforced the view that America's school system was a factor in the nation's slower economic growth and waning productivity gains, and that changes in the educational system were needed.

Numerous special reports by national, regional, and state task forces, commissions, and specialists (listed on page 58) added legitimacy to the view that shortcomings in our school system contributed to lagging economic growth. Despite their diverse authorship and varying specific concerns, most of these reports allege that the nation's schools are in serious trouble and in need of major reform. The most widely known example of this "need to improve" view is *A Nation at Risk*, the final report of the Special Presidential Commission on Education, published in 1983.

Policymakers in the Southeast were among the first to become concerned about education and its relation to economic growth. The Southeast has long suffered a reputation for inferior educational institutions and, concomitantly, a work force suited primarily for low-skill, low-wage jobs. Notwithstanding this apparent shortage of better educated workers, the region has grown rapidly since World War II. This expansion has helped narrow the regional-national gap in per capita personal incomes, from half the U.S. norm in some southeastern states in the immediate postwar period to an average of around 90 percent by the late 1970s. The region attracted an in-migration of manufacturers and businesses during this period because its less skilled work force commanded lower wages.

In the past several years, however, accelerating international trade has heightened competition from low-wage foreign producers in many industries important to the region. The dollar's rise in the foreign exchange market since 1980 has further weakened markets for many products. Southeastern localities increasingly have had to vie with lower wage offshore sites in their bids to attract manufacturers. In addition, the service sector, which has been growing more rapidly in the Southeast than nationally, has tended to create jobs that pay lower wages than those in the goods sector. Policymakers have thus looked to advanced technology industries for growth opportunities that could help offset job losses in import-threatened industries such as textiles and apparel. However, many believe this shift requires an educational foundation that is lacking in most areas of the region.

Numerous southeastern opinion leaders and policymakers now believe that educational policies must be changed if regional states are to continue progressing toward national income norms. Several southeastern states already have begun to enact programs designed to upgrade the quality of their school systems. For example, Tennessee has raised the state's sales tax to fund an incentive system geared to retaining and rewarding high-quality teachers, and Mississippi recently raised taxes to support a statewide kindergarten program.

For a better understanding of the chief issues in the education debate, the Atlanta Fed's Research Department sponsored a symposium last May. The participants, southeastern specialists with an academic or policy interest in the economics of education, addressed the symposium topic, "Education and Southeastern Economic Growth," from their professional perspectives.[1] This gathering helped staff members to identify the numerous and complex issues that remain unresolved.

As a result of this symposium and other research, the department's regional economists identified four important topics, which are addressed as separate contributions in this special issue: (1) What is the relationship between education and economic growth and productivity? (2) How does the Southeast's "inventory of human capital,"

as measured by educational attainment levels, literacy rates, and standardized test scores, compare with that of other regions? (3) Does the financing of education in the Southeast differ significantly from the rest of the nation, and, if so, what does that imply for the region's capacity to alter its educational system to enhance worker productivity and regional growth? (4) Finally, does the Southeast's educational system seem adequate to prepare its work force for the jobs of the 1990s and beyond?

These topics were chosen for research because they formed a logical progression of questions important to policymakers and voters, and together appeared to cover the critical issues in the current debate. The research was conducted primarily to provide a broad, updated regional perspective rather than to advance the theoretical understanding of the relationship of education to productivity and growth. Nonetheless, by identifying aspects of the linkage that need to be understood better, we believe that our contributions do enhance appreciation of the overall relationship.

This special issue could not, of course, treat all of the aspects of the current debate over education and regional or national economic growth. The intentionally broad topics addressed here exclude some subjects, such as the proper role of vocational education. They also omit certain important social policy questions, such as whether additional spending on education would promote equality of opportunity, or to what extent racial discrimination has contributed to the region's lagging educational performance or to lingering differences in black-white education levels. Moreover, the authors have not attempted to prescribe how schools might move toward greater efficiency or quality. Such vital questions as how smaller class size, higher per pupil expenditures, or better trained teachers might improve student performance and subsequently raise worker productivity seem better left to educators, psychologists, and other specialists.

The findings presented in these articles are striking in that they contradict some widely held popular views. In the first article, Bobbie McCrackin surveys economic theory and empirical research on the relationship of education to productivity and growth. Her conclusion is that economists and other social scientists investigating this issue for nearly three decades have by no means reached a consensus that an increase in years of schooling contributes substantially to productivity and growth. Although economists are not ready to reject investments in schooling as worthwhile, extensive research has revealed—but not resolved—complexities and fundamental methodological problems. Many factors other than education, including parent income and social status, personal ability, race, and sex, also are related to differences in income. Moreover, these social and psychological factors interact with education in such a way that better-endowed students seem able to use schooling experience more effectively to achieve higher subsequent earnings. Furthermore, economists have been unable to determine what portion of education's contribution to aggregate productivity is due to substantive improvements in job-related skills derived from formal schooling and what portion is attributable to the more efficient allocation of manpower that schooling produces. Such unresolved questions call for further research and suggest caution on the part of policymakers considering increasing public investment in education because they assume that such expenditures are causally related to economic growth.

In the second article, Gene Wilson and Gene Sullivan conduct an "inventory" of the Southeast's "human capital assets." They find that the educational level of the Southeast's population, traditionally lower than the rest of the country, is catching up with levels of other regions, thanks to sharp local gains in years of formal schooling and rapid in-migration of better educated residents in recent decades. Moreover, a careful analysis of the generation of students now entering the work force indicates that the amount of schooling they have acquired is virtually the same as for those in other parts of the country. Analysis further shows that the region's educational infrastructure (teachers and schools) has converged toward national norms. Whether quality also is approaching parity is difficult to measure because consistent data for gauging differences between states in this region and the nation are lacking. As older workers retire and are replaced by the better educated younger generation, and as people of above-average educational levels are attracted from other areas, the Southeast's labor force should grow increasingly competitive with that of other regions.

In the third article, Bobbie McCrackin and Gene Sullivan find several contrasts between the financing of education in the Southeast and in other regions. Regional and national increases in per pupil expenditures in the last decade have run only moderately ahead of the rate of inflation,

and progress in closing the gap between regional and national spending has been slight. The authors examined several economic explanations that might account for this disparity in spending. The regional factors include inflexible funding mechanisms in some southeastern states, rapidly rising educational costs, relatively large school age populations, and lower personal incomes. In some respects the Southeast's financial burden clearly is heavier, constraining the region from moving more rapidly toward national educational spending patterns. Nonetheless, the evidence does not rule out the possibility that lower spending simply reflects less demand for education in the Southeast. However, growing demands for higher educational quality, revised methods of generating educational revenue, and the likelihood that pressures for capital expansion will ease as student enrollments decline all brighten prospects for increased financing in the years ahead.

In the final article, William Kahley assesses the capacity of the Southeast's education system to prepare the region's residents for the jobs of the future. He concludes that it exhibits no serious shortcomings in this respect since the Southeast's education system has proven adequate in recent decades to accommodate a higher- than-national-average growth rate, and since no sharp change in labor market demand seems likely. Occupational employment changes expected in both the nation and the Southeast in the next 10 years are similar to changes that have occurred over the past few decades. Many fast-growing occupations will demand a college education or specialized training, but numerous jobs also are expected to be created that will require only a high school diploma. Although the region's jobs will grow faster than nationally, a continuing in-migration of workers educated elsewhere will narrow the gap between the educational level and quality of the region's work force and that of the nation. Some evidence exists that workers in the Southeast will require less formal education than nationally because of disparities in the mix of industry and occupational growth. However, the average wage rate of new workers in the region is likely to continue moving toward the national norm, helping its income level to rise toward the national level.

Any economic analysis of education entails several limitations and problems of which the reader should be aware. First, education, to a greater extent than many public programs, has social benefits that economists are not equipped to measure in their calculations of comparative returns on expenditures. For instance, they cannot place a dollar value on such beneficial effects as the civic virtues and social stability of a better educated electorate or the enhanced cultural level of a people with an average of, say, twelve rather than eight years of formal schooling. In this respect, schools are similar to parks: the value of the recreation, tranquility, and beauty derived by current and future generations cannot be determined economically.

Second, even if economists consider only the measurable economic effects of schooling, productivity is difficult to gauge. Consequently, most researchers are forced to rely on income as a surrogate for productivity on the assumption that earnings differences reflect productivity differences in competitive markets. Although this assumption is theoretically sound, various market imperfections render it unrealistic in the contemporary mixed economy of the United States and most developed countries. In many cases, incomes are much lower than the true productivity involved in the job being performed: the lower salaries of many key public officials exemplify this phenomenon.

Another problem involves the geographic scope of policymakers. Policy decisions on education typically are made at the state and local level, but labor markets, especially for jobs requiring advanced training or education, are national. Given reasonably competitive markets, labor is mobile and seeks the best opportunities regardless of local educational opportunities. Expanding the infrastructure of higher education in one state makes no sense, for example, if there is excess college and university capacity nationwide. When the purpose of education becomes focused on improving aggregate regional productivity, therefore, policymakers need to take national labor force characteristics into account.

Having raised these caveats, we hope that readers of this special issue of our *Review* will find its contents both useful and thought-provoking.

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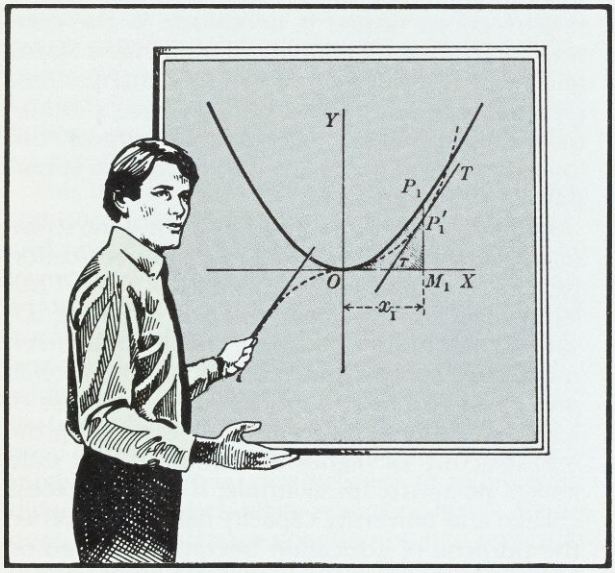
[1] Symposium participants included Clarence Jung, professor of economics at the University of Richmond's E. Claiborne Robins School of Business; Elchanan Cohn, professor of economics at the University of South Carolina and editor of the *Economics of Education Review*; Eva Galambos, research associate, Southern Regional Education Board; Howard Tuckman, distinguished professor of economics at Memphis State University; Daniel Saks, professor of education policy and economics and senior research associate in the Institute for Public Policy Studies at Peabody College, Vanderbilt University; Ronald Bird, research director for the Southeastern Regional Council for Educational Improvement; and Kern Alexander, education policy coordinator for the Florida Governor's Office of Planning and Budgeting, professor of education administration at the University of Florida, and editor of the *Journal of Educational Finance*.

Education's Contribution to Productivity and Economic Growth

Bobbie McCrackin



As this review of relevant studies indicates, social scientists have tried to clarify the link between education and productivity for several decades. In attempting to gauge the social returns to education, their studies ultimately seek to understand how public funds can be allocated most efficiently.

For nearly three decades, economists have studied the extent to which education adds to worker productivity at the microeconomic level and to economic growth in the aggregate. This article reviews the major theoretical and empirical contributions to these issues as well as less familiar works whose research and analysis are more current. It discusses the arguments and policy implications developed by leading scholars in this field, weighs the empirical evidence, and identifies areas for further research.

Studies in the late 1950s and early 1960s suggested that the "externalities" of education were significant. (An externality exists when an economic activity has output, either good or bad, for which those who are affected do not pay or receive compensation. That is, the gains or losses are external to the economic unit producing them. Examples often cited are research and pollution.) These discussions, as well as others treated in this article, do not consider the non-economic externalities of education which may add to public welfare. For example, the cultural environment of an educated society may be better, and civic responsibilities may improve as a result of widespread educational achievements. Such research implicitly supported public policies of increased expenditures for schooling. As subsequent research has refined the methodologies employed, the positive relationship between education and productivity has come under increasing challenge. One line of criticism maintains that the apparent relationship between education and higher lifetime incomes is really the result of greater ability or favorable family characteristics. This challenge has far-reaching policy implications because it suggests that increased public spending for education is an

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inequitable allocation of taxpayers' money. According to this view, the chief beneficiaries were those who, by virtue of their family's higher socioeconomic status or their own superior abilities, are most likely to succeed without public financial support of additional schooling.

A second important criticism stresses the interaction of demand and supply in determining returns to investment in education. Proponents of this view maintain that if demand for "educated" workers fails to keep pace with supply, the rate of return to additional education may fall over time. In addition, if some segments of the labor market are closed to certain groups like women and blacks, increased investments in education will not have the expected effect.

A third major criticism alleges that schooling contributes minimally to productivity even though additional years of schooling add to income. The explanation given is that employers use education as a means of screening job applicants: the higher the level of education, the more likely is an applicant to be a productive employee. This criticism also implies that less rather than more public support of education is desirable, especially at the college level, since returns to education accrue primarily to individuals, not to society.

This approach claims to mount a profound challenge to human capital theory. However, the criticism is based on a microeconomic analysis. To the extent that screening results in a better allocation of workers among occupations and jobs, it may improve aggregate productivity and output.

Economists have yet to reach a consensus regarding the relationship between education and productivity. The "screening hypothesis" is difficult to test empirically and has not led to outright rejection of the original hypothesis. Still, an appreciation of the complexity of the relationship has developed. Current economic research thus suggests cautious expectations of returns to increasing investment in education and a preference for specific rather than global policy goals. Further research is needed specifying the complexities of the relationship of education to productivity and economic growth. In addition, the regional dimensions of the relationship, such as the extent to which underinvestment in education retards economic development in a particular region, require more investigation, especially since state and local governments are primarily responsible for educational administration and funding.

Classical and Neoclassical Views of Education

The relationship between education and productivity is part of a subset of economics known as "economics of human capital." Economists have long recognized that certain factors such as education, on-the-job training, migration, and health care enhance worker productivity. Just as technological advances improve physical capital, education presumably increases cognitive skills and thereby enables workers to perform more efficiently. Although the term "human capital" came into prominence in the 1960s, the concept was recognized several centuries ago. From the seventeenth to the nineteenth century, a number of statisticians and public finance specialists tried to estimate the value of their nation's human capital as the basis for tax reforms or for insurance purposes.[1]

Classical economists also acknowledged the importance of human capital. Adam Smith discussed differences in training as the basis for wage variations: just as investment in physical capital increases the return to entrepreneurs, he argued, so does the worker's investment in training produce a return that may more than

cover the costs of acquiring those skills. Early economists who emphasized the role of education in productivity gains include Nassau Senior (1790-1864), Johann von Thunen (1783-1850), J. B. Say (1767-1832), and J. S. Mill (1806-1873). The concept of human capital, however, was not thoroughly explored or advanced as a major tenet of classical economics.[2] Even the widespread practice of loosely incorporating acquired skills into definitions of the capital stock essentially ended with the neoclassical economist Alfred Marshall (1842-1924). He viewed the practice as unrealistic since humans are not marketable in the same manner as physical capital.

National Income Growth Accounting

After virtually disappearing, economists' interest in human capital revived in the 1950s because of an anomaly discovered in the study of national income growth. Analyses of increasing U.S. national income over the previous two decades were unable to account for the volume of growth in terms of expansion of the physical capital and of the quantity of labor.[3] Economists engaged in national income growth accounting faced a puzzle: how could output rise faster than the growth rate of input resources?

In attempting to account for this unexplained residual of growth, economists began to shift their focus from the quantity to the quality of the labor force. They revised their basic concept of the production function: national income was to be construed not simply as a function of capital and labor but as a function of capital and the quality as well as the quantity of labor. The higher levels of education that workers had achieved relative to earlier periods, they believed, could have increased productivity through labor's more efficient use of capital. The leaders of this early research were Theodore Schultz and Edward Denison, who, working independently, both developed empirical estimates suggesting education's substantial contribution to growth. Denison's research concluded that education was responsible for one-fifth of the economic growth between 1930 and 1957, which was double its contribution from 1909 to 1929.[4] Schultz's estimates were very close to Denison's.

In addition to his early empirical work, Schultz formulated the broad conceptual and theoretical foundations for a theory of human capital.[5] One of his most important contributions was the concept of education as investment, not merely consumption, as it was then viewed by most economists. This break with the past had far-reaching implications. For example, it implied a higher savings and investment rate for the United States. National income accountants tally as investment only inventories, machinery, factories, office buildings, and other structures. (Although consumers' durable goods also are machines yielding a flow of returns, they do not count as investment because they make no further contribution to market production.) Schultz conceded that some portion of education consists of present consumption but maintained that education is an act of investment insofar as it contributes to future productivity. He also noted that education involves future consumption: in his view, better educated individuals make wiser consumption decisions in the future and, thus, indirectly affect the economy positively.

Schultz also stressed the importance of including opportunity costs in calculating returns to education rather than merely estimating direct costs and benefits. The practice of computing the cost of earnings opportunities forgone while in school, he remarked, would lower estimates of the return to education substantially but would more accurately assess the contribution of education.[6] Another conceptual contribution by Schultz was the establishment of number of years of schooling as a unit measure of education.[7]

Rate of Return to Investment in Education

After the initial discovery of education's potentially large role in economic growth and the development of a conceptual base for human capital theory, empirical research on that theory began to proliferate.[8] However, the method of research shifted away from the national income growth accounting used by Denison and Schultz to one centered on rates of return. One reason for this shift was economists' widespread disillusionment with aggregate production functions. Another was interest in testing and specifying the relationship more thoroughly.

In addition, researchers sought to understand the microeconomic relationship between education and productivity better so that they

might clarify the macroeconomic linkage between education and growth advanced by Denison and Schultz. On the assumption that in a market economy workers are paid their marginal productivities and that education enhances productivity by improving workers' cognitive skills, most research used earnings or income as a proxy for productivity. However, some researchers probed the complexities of the process by which education boosts productivity and earnings.

Finally, the practical nature of this research rendered return rates important: policymakers must allocate scarce funds on a marginal basis. For example, from the point of view of a state or federal policymaker, it is less useful to know how much variance in income is accounted for by education than how much an incremental expenditure for schooling will return in comparison with the amount allocated to improve highways or airports. The pioneer in this effort was Gary Becker, who in the early 1960s developed estimates as well as extensive theoretical specifications of a rate of return model.[9]

At that time researchers generally agreed on several findings.[10] First, they concurred that the rate of return was greater than or equal to that of investment in physical capital, whose rate of return was then held to be 10 percent. Second, the rate of return declines with higher levels of education. Third, the private rate of return is higher than the social rate of return. The private rate of return is based on direct tuition costs incurred by the individual or his family and the opportunity costs of employment forgone during the years spent in school. Social costs also include those borne by the public sector, such as tax-supported subsidies of educational institutions and student loans offered at below-market rates. Fourth, rates of return are fairly consistent from nation to nation, although the return to education diminishes with economic development; returns are higher in less developed economies than in advanced ones.

Schultz calculated that the rate of return to elementary school is 35 percent while that to high school is close to 11 percent.[11] The return to elementary school is higher because the opportunity cost of elementary school is low in developed countries and because such costs make up the lion's share of the costs, according to Schultz.

Despite generally declining returns to higher levels of education, research indicated the existence of a "credential effect," by which returns for completing a given level of education added more to earnings than for completing any year of study within that level. Jerry D. Goodman calculated that although obtaining a high school diploma had a surprisingly small effect, graduation from college offered almost seven times the return of a single year of college.[12] Although his model is quite simple and the amount of variance explained is only 16 percent, his findings are supported by the work of others.

Research by George Psacharopoulos exemplifies comparisons of social and private rates of return. He estimated the private rate of return to secondary schooling as 19-20 percent, and its social rate of return as 11-14 percent. His calculations indicated the private rate of return to higher education is 14-15 percent, whereas the social return to college is 10-11 percent.

The first systematic comparison of rates of return in various countries was Psacharopoulos' 1973 investigation of 32 countries. His findings were strengthened by his 1980 replication, which corroborated most of his original results. He concluded that in developing economies the social rate of return to primary schooling is 27 percent, that to high school 16 percent, and to higher education 13 percent. In developed countries, the rates were 10 percent for secondary schooling and 9 percent for higher education.[13]

Better Specification

As research into human capital theory continued to expand, economists produced more complete specifications of the theoretical model and subjected it to more rigorous tests. Jacob Mincer refined and further specified the linkage between education and growth through his research into on-the-job training and its contribution to higher productivity and earnings, which he maintains is substantial. Mincer attributed the rather weak 10 percent correlation between education and income to the fact that the return to education varies over workers' life cycles. At its maximum, he said, schooling has a coefficient of determination of .33 and accounts for one-fourth of the variance in earnings.[14] This maximum occurs during the first decade after entering the work force, when the effects of education investment have depreciated the least and the contribution made by experience is minimal.

Some economists began to examine the direct linkage between education and productivity to understand more precisely how education adds to productivity and earnings. The foundation for such research was established in the mid-1960s by Richard Nelson and Edmund Phelps, who argued that education's chief value might lie in its capacity to expedite the application of technology.[15] The role of schooling, they contended, was to enable workers and managers or entrepreneurs to adapt to change.

Although subsequent researchers did not test all ramifications of the Nelson-Phelps hypothesis, several analyzed education's importance in fostering the application of technology by farmers. Using 1964 American census data on farmers in four midwestern states, George Fane analyzed sales per farm in relation to education and other independent variables. He found that more highly educated farmers exhibit superior managerial efficiency; that is, education enables farmers to produce more with the same volume of resources.[16] According to Marlaine E. Lockheed's analysis of the relationship of education to farm productivity in 18 low-income countries, farm productivity increases 7.4 percent, on the average, as a result of the completion of four additional years of elementary education. Four to six years seemed to be a threshold below which education has little impact on productivity.[17] Rati Ram found the impact of education to be greater on farm operators than on farm laborers, presumably because the former have more authority to apply their knowledge.[18] Most of these studies used data on farmers in developing countries, and so their empirical findings in support of the Nelson-Phelps hypothesis cannot necessarily be applied to the United States and other developed economies.

A related approach to examining education-productivity linkages has been through research on vocational education. Since its curricula are targeted more directly toward specific jobs, some thought that vocational education could have a stronger link to productivity than general secondary or higher education. This extensive body of research has not substantiated the hypothesis. August C. Bolino and Noel D. Uri, using sophisticated techniques, found only weak evidence of productivity gains in manufacturing related to vocational education.[19] Their results also proved to be inconsistent at different points in time over the period tested, 1958-69. More recent research has produced similar results, raising questions about the relationship between vocational education and productivity.[20]

Another refinement to the human capital model was the standardization of incomes according to the number of hours worked. Since jobs requiring advanced education tend

to entail longer working hours, and concomitantly the sacrifice of leisure time, calculating returns in relation to hours worked seemed important.[21] Empirical tests showed that adjusting for hours worked lowered the return to graduate and high school education from that estimated by previous researchers.[22]

A final major refinement was the search for better data sets allowing more detailed analyses of critical linkages. Anita A. Summers and Barbara L. Wolfe, reasoning that years of schooling may be too crude a measure to determine the impact of education, used a longitudinal sample of Philadelphia students to assess the relationship between various measures of school performance and subsequent changes in cognitive achievements. (A longitudinal sample provides observations of a fixed population sample over multiple time periods. A cross-sectional sample does so only at a fixed point in time, and thus infers changes over time by examining differences between age groups, or "cohorts.") The authors' sample offered information on a variety of quality measures. Their results indicated that differences in educational quality were indeed a significant determinant of improved achievement, as measured by performance on standardized tests. Yet teachers' advanced degrees and higher test scores turned out to be much less important than experience in improving students' achievement in most subjects.[23]

Other research has extended Summers' and Wolfe's investigation of school quality and student achievement linkages to the relationship between achievement and subsequent earnings. Paul Wachtel, for example, made a preliminary investigation into the effects on subsequent earnings of attending a higher quality college.[24] Wachtel used college costs as a surrogate for quality on the assumption that, if colleges operate like efficient firms, cost differences imply quality (productivity) differences. Using this specification, he found a lower rate of return than most research then had. Although he cautioned readers regarding the applicability of his specific rates of return because of possible sample bias and the still rather crude measure of quality differences, the implication of his findings is that estimates that do not take quality differences into account are biased, and human capital policy based on such estimates results in an overinvestment in education.

Education vs. Ability, Personality, and Family Background

As human capital research mushroomed and replications failed to produce consistently positive results, some of the initial consensus regarding educational investments eroded. Yet scientific theories may linger for years even though empirical support is weak; they are rejected only when alternatives arise that better account for current scientific puzzles.[25]

One such puzzle in the 1970s was income distribution, which gained prominence over earlier interest in growth and productivity gains. As economists attempted to explain income inequality at the same time they were specifying the human capital model more precisely, contradictions and criticisms grew more salient. Some researchers argued that the statistical relationship between education and earnings was spurious: they contended that factors omitted from research, such as ability, family background, and personality traits like ambition, were actually responsible for higher earnings. Fully specified equations that included these variables would eliminate the effects of education, they contended.

One of the most influential spokesmen for this view was Christopher Jencks. His early arguments and evidence implied that public policies designed to decrease inequality through educational investments would fail to achieve their objective because education was strongly correlated with such background factors as socioeconomic status, native ability, race, gender, and personality traits. By providing supplementary financial support to education, he believed, public policy was further skewing income distribution by aiding those already most likely to succeed economically.

Although Jencks' 1972 book was less rigorous in its methodology than the work of many human capital practitioners, it prompted a significant response from other economists, who began to estimate the amount of bias that resulted when such factors were ignored. John Hause's studies suggested that schooling and ability interact, biasing estimates of the importance of education upward by 3-18 percent.[26] Paul Taubman and Terence Wales found that exclusion of certain ability and personality traits resulted in a 35 percent upward bias in the estimated effect of higher education on earnings. Controlling for ability, they calculated

that the social and private rates of return were essentially equal and less than that from investing in physical capital.[27]

B. F. Kiker and W. P. Liles tested for bias by controlling sequentially not only for ability but for motivational and behavioral traits. Using longitudinal data drawn from a five-year panel study of 3,200 respondents, they estimated that the introduction of ability measures reduces the impact of education by 13 percent; incorporation of personal traits such as risk avoidance, sense of efficacy, trust, and mobility reduces the coefficient of education by 27 percent.[28] Although ability by itself explained only a small portion of variance in earnings, jointly the three sets of variables—education, ability, and behavioral traits—accounted for 50 percent of the variance, a much higher percentage than that of models linking education alone with earnings.

Although Jencks and his colleagues modified their arguments somewhat after their more sophisticated later replications produced less dramatic results, they still concluded that education per se is not the most efficient method for achieving income equality or promoting productivity gains. They employed 11 samples and ran stepwise regressions to determine the effect of education on income and occupational status before and after introducing causally prior independent variables into their equations. (In stepwise regressions dependent variables are either added to or subtracted from equations singly and sequentially in an effort to determine the independent magnitude of each variable.) According to the estimate derived from their best sample, and holding ability and family background constant, they calculated that education accounts for 20 percent of the variance in income, while family background accounts for 22 percent. Personality traits and ability had a much smaller impact.[29] They concluded that education has a greater effect on occupational status than on earnings, which suggests that the effect of schooling on earnings works through choice of occupation.

The most far-reaching critique deriving from this "self-selection" hypothesis was formulated by Samuel Bowles and Herbert Gintis. Their empirical work, which is consistent with that of Jencks and others, is less important than their philosophical attack, which essentially maintained that schools serve as a mechanism for perpetuating inequality.[30] Education, they argue, most benefits those with higher socioeconomic status and ability. Moreover, rather than contributing to productivity by transferring cognitive skills, education merely fosters social stability. It does so, they contended, by inculcating future workers with the skills needed for factory work—obedience to hierarchy and acceptance of sharp inequalities between incomes of workers and managers or owners.[31] They hold that because success in school ostensibly is based on meritocratic norms, whereby rewards accrue to achievement rather than traits such as class, race, or gender, individuals with lower grades, test scores, and levels of education come to believe their subsequent lower earnings are fair. In reality, they reasoned, the students most likely to succeed in school are those with the greatest initial resources (ability, family income, higher social status). The authors did not strongly dispute the contribution of education to growth. Instead, they argued that the real issue is how much more growth could have been achieved under an alternative system that fosters creativity and autonomy rather than conformity and obsequiousness.[32]

Although Bowles' and Gintis' critique stems from their Marxian perspective, which most human capital theorists reject, other economists have confirmed that increased educational investment has not achieved equity to the extent expected. W. Lee Hansen found that the proportion of lower-than-median income students enrolled or planning to enroll in college relative to that of above-median income students failed to increase as expected from federal policies from the early to the late 1970s.[33] Furthermore, Bowles' and Gintis' charges have sharpened the debate about the process through which schooling contributes to productivity.

One problem now recognized with many studies is due to a phenomenon known as "multicollinearity." When this occurs, variables specified as causal tend to move together. As a result, it is often not possible to isolate the impact of a single variable on the results being studied. Thus, in a statistical sense the explanatory variables are not independent. If measures of ability are highly correlated with measures of education, we may not be able to tell which factor explains differences in income among individuals. Family background variables, such as income or parents' education, also might be closely related to other variables in the equation.[34]

Another confounding factor relates to the validity of the indicator used to measure ability. Typically it is measured in a manner closely related to schooling, for example, by achievement test scores. In fact, productivity-related ability requisite to professional success may be closer to motivation than to test-taking skills. Some productivity studies have shown only a weak correlation between test scores and specific productivity-related tasks.[35] Despite

shortcomings of research on the importance of ability, personality, and family background in determining education's impact on productivity, earnings, and growth, this challenge to human capital theory remains important. It has tempered the claims of even the most sanguine advocates of investment in education as a means of fostering economic growth.

Segmented Labor Markets

An offshoot of the debate over ascriptive traits versus education in influencing productivity was derived from the theory of dual or segmented labor markets. In the 1960s, economists noted the existence of dual economic sectors in some developing economies. Some proponents of human capital theory applied this concept to advanced economies. If blacks or women were effectively excluded from certain occupations or levels of advancement, either by protective legislation, self-exclusion, or discrimination, then merely equalizing educational investments would not overcome income disparities. The lower incomes and occupational status of blacks with the same educational level as whites implicitly supported this hypothesis.[36] This critique has not gained popularity, but it does point to another potential weakness of human capital theory, particularly as the basis for achieving equity goals.

Interaction of Supply and Demand

Another challenge to human capital theory was presented by the sharp increases in the labor force during the 1970s. The result of this change was a mismatch of supply and demand that forced many college-educated entrants to the labor force to take jobs in lower status occupations than normally associated with their level of training. As a result, the measured return to higher education began to fall. These findings revealed an important methodological shortcoming of most human capital research. Despite advances in statistical methods, most empirical studies consisted of single equation models rather than equations that determine results simultaneously. Notwithstanding the large number of variables in some of these equations, they were "reduced form equations," incorporating both supply and demand interactions in an unspecified manner. Human capital theory focuses on supply variables and implicitly assumes that demand keeps pace with a higher quality labor supply. Rapid expansion of the labor force in the 1970s refocused attention on the interaction of demand and supply as a determinant of the rate of return to investment in education.

Several researchers have provided indirect evidence in support of demand-side factors. In comparing skill and educational requirements for over 200 occupations with the levels of workers in such occupations, Ivar Berg found that jobs were being filled by people with greater educational qualifications than earlier.[37] Factory foremen typically held college degrees, where previously this job had been filled by promoting blue-collar workers from the shop floor.

Employing a method similar to Berg's and using large, more current Census Bureau samples, Russell Rumberger concluded that the labor

force had become increasingly overeducated from 1960 to 1976. He estimated that in 1960 white males with some college education had completed .69 more years of schooling than needed for the jobs they held; by 1976, such workers had .83 more years of schooling than needed. In 1960 white males with a college degree had 1.20 more years of schooling than required and in 1976, 1.23.[38]

Using more recent data (1970-81), Anne McDougall Young found that the supply of college graduates still outstripped demand for professional and technical jobs traditionally filled by those holding bachelor's degrees. The percentage of college graduates finding such occupations declined from 67 to 54 percent over the period; a larger proportion of college graduates became blue-collar or service workers.[39] Concomitantly, the proportion of high

school graduates who found jobs as sales and clerical workers fell by half during the 1970s as competition from college graduates unable to find professional and technical jobs increased.[40] Young attributed this decline to the entry of the baby-boom cohort into the labor force and predicted that, as those workers are absorbed, supply will more closely match demand for college-educated labor in the future.

One problem with the method used by Berg and Rumberger is that it entails two distinct job classifications, one used in the Census Bureau's sampling of households to determine occupational and employment status, the other by the U.S. Employment Service, which categorizes jobs according to qualifications. Thus, this method has elements of subjectivity that cloud the reliability of several indicators. Moreover, occupational status is a less useful indicator than earnings because the latter, in a competitive market, may connote marginal productivity.

R. B. Freeman advanced the demand-side criticism of human capital theory by comparing returns to college training in 1969 and 1974. He found that the wages of college-trained workers, particularly new entrants to the labor force, had fallen relative to high school graduates over the period. The resultant drop in rates of return was 2 to 4 percentage points.[41] Freeman's findings probably lack general validity because they were based on a short time period during which Vietnam War veterans were being absorbed into the labor force. However, Finis Welch confirmed that cohort size affects the age-earnings profile and the educational-earnings relationship.[42] Notwithstanding certain weaknesses of findings by Freeman, Young, and Berg, they demonstrated the problems of focusing exclusively on aspects of supply and ignoring demand factors.

Screening Hypothesis

A serious challenge to human capital theory, particularly the education-productivity linkage, is termed the "screening" or "signaling hypothesis." Proponents of this approach contend that education does not intrinsically enhance individual productivity. Rather, they say, it serves as a filtering mechanism for employers or as a signaling device for would-be employees. Education, according to this perspective, serves both parties as a symbol of potential productivity, not as a vehicle for acquiring cognitive skills relevant to more productive performance on the job. Thus, the screening hypothesis shifts attention to the interaction of supply and demand, although its focus is at the microeconomic level of the worker and the firm rather than at the macroeconomic level emphasized by Berg, Freeman, and others.

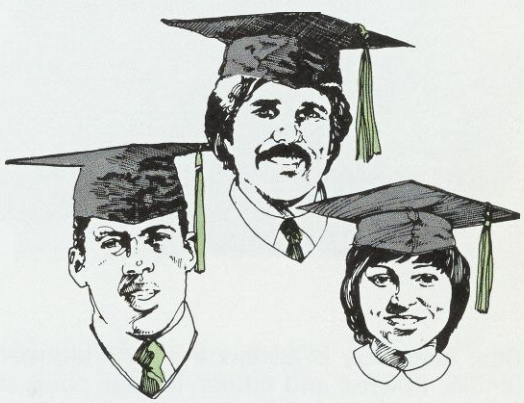
The screening hypothesis downplays the significance of education far more than the self-selection hypothesis does. Most advocates of the latter hold that education interacts with other personal traits such as ability and socio-

economic status in fostering individual productivity gains, not that education makes no contribution to individual productivity. The screening hypothesis does not deny that individuals ought to invest in education, since they stand to reap the benefits of a job, but it suggests that any social rate of return to investment in education is due to the efficient distribution of manpower it promotes by steering students to the jobs where they have the greatest comparative advantages. Advocates consider increased or even continued public finance of education, particularly at the postsecondary level, a suboptimal allocation of funds because they believe schooling adds little to individuals' on-the-job performance beyond what they could offer by virtue of their own abilities. Its high cost is not justified by the efficiency gains that it reaps.

The screening hypothesis grew out of the economic consideration of markets in which uncertainty is a significant factor. The theoretical basis of the screening hypothesis was most fully articulated by Michael A. Spence, but Kenneth J. Arrow contributed to its conceptual formulation.[43] Like Arrow, Spence assumed, for the sake of developing his mathematical model, that there are two types of labor, one with a marginal productivity of 1, the other with a marginal productivity of 2. In the absence of signaling, the employer has no way of distinguishing the two types and, hence, pays each one his expected marginal productivity, which is the same for everyone. This situation is disadvantageous to those with a marginal productivity of 2.[44] Spence sought to demonstrate mathematically that jobs may have prerequisites that convey no essential information and serve no significant function.[45]

Kenneth I. Wolpin devised a simple and straightforward test of the screening hypothesis. He contrasted educational levels of self-employed workers with those of organizations' employees. Presumably, the self-employed would not need schooling to serve as a screening device to obtain jobs. From a longitudinal sample of 5,000 males, he selected individuals who were self-employed during at least their first and latest jobs over a 20-year period. He compared their schooling and earnings with those of a comparable group of nonprofessional salaried employees and found that self-employed respondents had .6 fewer years of schooling than their control group counterparts. Since the difference in education was so slight, he concluded that schooling serves only a minor screening function. However, Wolpin did not control for ability differences. This omission is particularly important as self-employed respondents scored slightly lower on the intelligence test, and other research has shown a correlation between ability and educational achievement. In addition, the self-employed subset of 157 was considerably smaller than the control group, which numbered 1,099.[46]

Others who have attempted to subject the screening hypothesis to empirical verification have produced mixed results. These results owe in part to the complexity of the hypothesis, and in part to the assumptions most researchers have felt necessary to adopt in subjecting the hypothesis to empirical scrutiny. Two of these

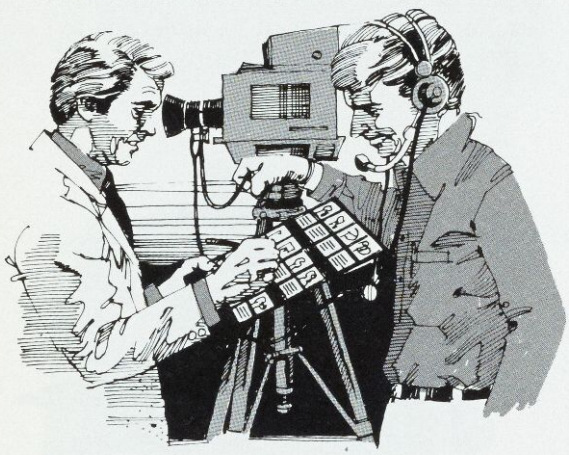


assumptions are that better educated workers perceive their productivity to be lower (or are uncertain about it) and they are risk-averse. Thus, most tests of the screening hypothesis are indirect, and conclusions rely heavily on sometimes questionable inferences. Work by Taubman and Wales and John Riley exemplies these problems.[47, 48]

A variant of the screening hypothesis was developed by Lester C. Thurow. Called the "job competition model," this version is based on the assumption that employers minimize costs by hiring the candidates with the lowest

probable training costs. According to the job competition model, most skills are learned informally on the job.[49] It contends that the focal point of labor market competition is not wages, as neoclassical economics maintains, but rather entry-level positions that provide a start up the promotional ladder. Wage differentials and rates of increase vary according to the career ladder on which a labor market entrant begins. The labor market's chief purpose is to allocate employees to training ladders so employers can minimize training costs.

Thurow's explanation for the failure of increased investment in education to reduce



income inequality is distinct from the approach of Jencks, Bowles, and others. If wage competition followed the precepts of neoclassical economics, then increasing numbers of college-educated workers should lower wages for such workers. Instead, college graduates increasingly take jobs formerly held by high school graduates because the focus of competition is the job itself, not wages. The job candidate's focus is not on the entry-level salary but on the expected lifetime incomes of various career tracks. This trend lowers the average earnings of college graduates in the aggregate but not the absolute wage level of jobs requiring a college degree. Thurow tested his model by comparing actual income distribution patterns with those predicted by the job competition model, but, as he acknowledged, the test is indirect and capable of alternative interpretations.[50]

The screening hypothesis presents a serious challenge to the alleged linkage between education and productivity, although it does not claim that education contributes nothing to aggregate productivity. By signaling to employers the potential productivity of job candidates, it results in a more efficient allocation of workers to jobs where they have a comparative advantage than that which would occur in the absence of schooling. The key question is whether an alternative, less expensive signaling mechanism than 12-16 years of schooling is feasible. However, the hypothesis has not been well supported empirically. Indeed, it may not be testable.

Consumption Value of Education

Some economists have attempted to muster empirical support for human capital theory by showing how the consumption benefits of education contribute to social as well as private economic well-being.[52] Lewis Solmon developed evidence showing that better educated individuals have a higher saving rate and manage their portfolios more effectively by their choice of savings instruments.[53] Numerous studies have demonstrated a correlation between education and health. For example, infant mortality declines as mothers' education increases, and higher levels of education are associated positively with longevity.[54]

Aside from methodological shortcomings of particular studies within this line of research, a primary weakness is the open-ended nature of the approach. If education's full contribution is to be assessed as the basis for policy decisions on increasing public support, then consumption-related detractions of education also must be considered. For instance, some researchers have argued that a surfeit of college graduates relative to the supply of available jobs requiring higher education leads to widespread job dissatisfaction and poorer health for the degree holders forced to accept jobs below their training. Such job dissatisfaction, if widespread, could place a drag on economic growth, they believe, in addition to the waste of resources in educating workers for jobs that do not exist.[55] Furthermore, this approach implies that consumption effects of alternative programs also must be incorporated into the decisionmaking process. Such a research agenda appears too

large to serve as an efficient basis of policy decisions.

Current Status of Human Capital Theory

Economists have yet to reach a consensus regarding education's effects on productivity and growth. In its 1981 study of productivity, the Congressional Budget Office did not recommend federal investment in education as the best policy to improve productivity because, it concluded, the relationship is unclear.[56] Nonetheless, human capital theory is not bankrupt. Despite the strong implications of the screening hypothesis, its empirical support has been insufficient to replace human capital theory. The more extensive empirical challenges arising from the confounding effects of ability, family background, and personality traits have modified the claims of human capital theorists, but economists have yet to reject the theory as useless.

One reason for the sustained interest in human capital theory is the recent shift of focus back to the original puzzle that human capital theory sought to explain—productivity and growth. During the 1970s, most of the research that challenged investment in education on the basis of its correlation with ability and socioeconomic status was set in the broader policy context of equalizing incomes. Critiques seriously questioned the effectiveness of investing in education to reduce income inequality. As Jencks aptly concluded, "If we want to redistribute income the most effective strategy is probably still to redistribute income."[57]

During the late 1970s and early 1980s, however, national attention shifted to the nation's waning productivity and macroeconomic growth. In this policy framework, the self-selection hypothesis is less damaging. If the paramount policy goal is growth rather than equity, it matters less that greater public support of education aids those already blessed with the greatest potential for productivity. An example from a hypothetical developing country is illustrative: such a nation might catalyze much more growth by investing a given amount of money to educate the most able quartile of youth for 12 years each than to spend the same amount of money to educate all youth for three years each. Failure to educate the most talented youth would result in a talent loss and lower aggregate economic output.[58]

Despite this newfound interest in the contribution of education to economic growth, the results of a recent effort to revive the growth accounting approach while incorporating more sophisticated techniques that have developed since Denison's pioneering study do not support the optimism of early human capital theorists. Dale W. Jorgensen replicated Denison's work but added an adjustment for relative wage rates. The result showed education's contribution to the 3.9 percent annual growth rate as only 10 percent, not 20 percent as Denison had found for the period 1930-57.[59] Hours worked was found to be a more significant source of labor's contribution to growth than was quality. Physical capital and technological advances each contributed more to growth than did labor.

Questions for Future Research

Methodological improvements still will have an important role in clarifying the social and private rates of return to education, thereby improving our understanding of how much schooling society should have. The use of simultaneous equation models rather than reduced form equations would help to separate the effects of supply and demand factors and

thus more accurately inform policymakers. Longitudinal rather than cross-sectional data sets also would generate more accurate estimates, since the phenomena under study occur sequentially over a long period. Finally, the use of more direct measures instead of proxies for such variables as ability and productivity should improve specifications of the hypothesized relationships.[60] Even years of schooling is no longer an adequate unit measure, since a decline in standardized test scores for more than a decade indicates that grade level achievement is no longer comparable over time.

However, economic research also must move beyond macro-level questions and investigate the education-productivity linkage more thoroughly. Evidence suggests that the highest return is to primary schooling, but elementary study is already compulsory in the United States and most advanced nations. Therefore, quality, not quantity, becomes the critical issue.[61] How should schools at each level optimally allocate the funds available? To answer this question policymakers need to know how education contributes to productivity—and the relationship is far more complicated than originally conceived.

Which aspects of schooling offer the highest returns to additional dollars of funding? How should public support be allocated among math, music, and extracurricular activities? Should federal, state, and local governments invest marginal dollars in advanced teacher training, libraries, computers, buildings, or gymnasiums? Should high schools focus more on vocational training, or is this better left to proprietary post-secondary institutions? The type of research carried out by Summers and Wolfe exemplifies the direction suggested. Researchers must advance such research by investigating the relationship between cognitive measures of school performance and economic indicators of on-the-job performance.[62]

In addition, education outside the school system needs to be incorporated into human capital theory. Economists must further Mincer's work regarding on-the-job training. Anne Daly has observed the importance of apprenticeship programs in Germany.[63] In the United States, study of the substantial amount of publicly funded training in the military might alter existing rate of return estimates.

Another avenue of needed additional research is the role of entrepreneurship. Economic growth connotes more than expansion of national income. An underdeveloped country in which oil is discovered typically experiences rapid increases in aggregate and per capita income. However, unless this income is invested wisely, it is possible that no economic development will occur. In the absence of entrepreneurial activity, incomes likely will revert to initial levels once the resource is depleted.[64]

Finally, an important but relatively unexplored area is that of interregional disparities. A widespread notion exists that underinvestment in human capital, particularly education, has placed regions such as the South at an economic disadvantage. In contrast, strong support of

education seems to have helped areas such as New England to revive quickly from the challenges of global economic competition in the textile and machine-tool industries, and states like California to sustain a high level of prosperity. Education, it is argued, provides the foundation for the advanced technology industries in New England and California, but little systematic research has been carried out to support this hypothesis. On the other hand, labor, especially more highly educated labor, is a mobile factor of production. Thus, the perception of a linkage between education and

productivity could encourage regional policymakers to overinvest in education relative to the amount of capacity existing nationwide.

Some studies of plant location decisions conclude that a state's reputation for education is less important than other factors such as taxes, regulation, transportation, and resources, including cheap labor. However, such studies usually focus on plants that have already been moved to a particular region, ignoring those companies that chose to locate elsewhere and growth of companies already located in the region. In addition to this bias, such studies have not been integrated with the literature dealing with economic growth and productivity.

Regional studies of the education-income linkage that are more closely related to human capital literature are limited in number and have shortcomings. Marshall R. Colberg's evidence suggested that the return to secondary and postsecondary schooling in the South is greater than in the rest of the country for black but not white males.[65] However, his statistical analysis is less sophisticated and rigorous than most described above. More advanced testing of the regional issue was done by Barry R. Chiswick, who concluded that the scarcity of skilled labor relative to unskilled labor in the South renders the return to education greater in this region than in other areas.[66] His findings indicate that regional differences in the number of years of schooling and rate of return to schooling account for 60 percent of the variance in incomes between states. His model is fairly simple, though, and the independent variables may have been substantially related, as he admitted.[67]

Further research on the regional externalities of education is needed since the largest share of education support comes from state and local governments. State and local efforts to boost productivity in regional labor markets by investing more in education may lead to investing too many resources in schooling in the aggregate. The reasons are that with advanced education students migrate to other regions anyway, and the onset of declining college enrollments suggests the existence of excess capacity, particularly at the postsecondary level. On the other hand, if all states were to rely too heavily on in-migration and reduce sharply their support of education, a macroeconomic underinvestment could result. Because of this complicating factor of migration, it is important to gain a fuller understanding of the role of education in regional economic development in order to avoid nonoptimal investment in education nationwide.

NOTES

[1]B. F. Kiker, *Human Capital in Retrospect* (Columbia, South Carolina: University of South Carolina Press, 1968), pp. 24, 113.

[2]Mark Blaug, "Classical Political Economy: A Reexamination," in *Essays on Adam Smith*, ed. Andrew S. Skinner and Thomas Wilson (London: Oxford University Press, 1975), pp. 573ff.

[3]See Robert Solow, "Technical Change and the Aggregate Production Function," *The Review of Economics and Statistics*, vol. 39 (August 1957), pp. 312-20; Solomon Fabricant, *Basic Facts on Productivity Change*, Occasional Paper 63 (New York: National Bureau of Economic Research, 1959).

[4]See Edward F. Denison, *Accounting for U.S. Economic Growth, 1929-1969* (Washington: Brookings Institution, 1974).

[5]Machlup also has contributed to the foundation of the economics of education, but his importance lies more in the area of providing a broad background than of advancing the borders of knowledge. See, e.g., Fritz Machlup, *Knowledge: Its Creation, Distribution, and Economic Significance*, Vol III, *The Economics of Information and Human Capital* (Princeton: Princeton University Press, 1984).

[6]Theodore W. Schultz, *The Economic Value of Education* (New York: Columbia University Press, 1963), p. 30.

[7]Ibid., p. 6. While this measure has certain problems, it has provided the foundation for substantial advances in theoretical and empirical research in this aspect of human capital theory. Its importance becomes more obvious by comparing it with another aspect of that theory, health care. Understanding of the contribution of health to economic development has progressed much less than that of education. One reason is the lack of basic, standard measures of inputs and outputs.

[8]D. A. Frenzel and D. J. McCready, "Economics of Education: The Development of a Sub-Discipline," *The American Economist*, vol. 26 (Spring 1982), pp. 38, 41. From 1960 to 1973 the number of journal articles increased 1200 percent; the relative share of dissertations on this topic expanded tenfold from 1957 to 1976.

[9]Gary S. Becker, "Investment in Human Capital: A Theoretical Analysis," *Journal of Political Economy*, vol. 70, Supplement (October 1962), p. 39; see also idem, *Human Capital* (New York: Columbia University Press, 1964). For example, he maintained that human capital theory explains the shape of the age-earnings profile, which tends to rise sharply and then level off over time. Earnings are low in early life, according to a human capital approach, because opportunity and

direct costs of education and training are highest during this period; thereafter, earnings accrue to this investment in schooling, causing an initial sharp rise in earnings for a period of years. The reason that most training is undertaken by younger rather than older people is not a function of biological aging, favoring the alertness or receptiveness of youth, but rather the greater potential return over time if investments are made at an early age.

[10]Early methodological disputes concerning the proper method of calculating returns, whether by internal rate of return or present discounted value, were resolved in favor of the former. See Elchanan Cohn, "Investment Criteria and the Ranking of Educational Investments," *Public Finance*, vol. 27, no. 3 (1972), pp. 355-60, for an example of this debate.

[11]Schultz, *Economic Value of Education*, p. 61.

[12]Jerry D. Goodman, "The Economic Returns of Education: An Assessment of Alternative Models," *Social Science Quarterly*, vol. 60 (September 1979), p. 275.

[13]George Psacharopoulos, "Returns to Education: An Updated International Comparison," in *Education and Income*, World Bank Staff Working Paper No. 402 (Washington: World Bank, 1980), pp. 94ff.; see also, idem, "Education as an Investment," *Finance & Development* (September 1982), pp. 41-42. (He did not estimate return rates for elementary schooling in advanced economies because of the widespread practice of compulsory schooling and child-labor restrictions.)

[14]Jacob Mincer, "Education, Experience, and the Distribution of Earnings and Employment: An Overview," in *Education, Income, and Human Behavior*, ed. Thomas F. Juster (New York: McGraw-Hill, 1975), pp. 78-79; see also idem, *Schooling, Experience, and Earnings* (New York: National Bureau of Economic Research, 1974).

[15]Richard Nelson and Edmund Phelps, "Investment in Humans, Technological Diffusion, and Economic Growth," *American Economic Review: Papers and Proceedings*, vol. 56 (May 1966), pp. 69-75.

[16]George Fane, "Education and the Managerial Efficiency of Farmers," *Review of Economics and Statistics*, vol. 57 (November 1975), pp. 458-59.

[17]Marlaine E. Lockheed et al., "Farmer Education and Farm Efficiency: A Survey," *Economic Development and Cultural Change*, vol. 29 (October 1980), pp. 60-61.

[18]Rati Ram, "Role of Education in Production: A Slightly New Approach," *Quarterly Journal of Economics*, vol. 95 (September 1980), pp. 365-73.

[19]August C. Bolino and Noel D. Uri, "Vocational Education: A Human Capital/Productivity Nexus?" *Journal of Behavioral Economics*, vol. 11 (Winter 1982), pp. 1-32.

[20]Research by Eva Galambos of the Southern Regional Education Board (Atlanta, Georgia), reported at a Federal Reserve Bank of Atlanta Symposium on Education and Southern Economic Growth, May 1984, challenges the effectiveness of many vocational education programs based in high schools.

[21]C. M. Lindsay, "Measuring Human Capital Returns," *Journal of Political Economy*, vol. 79 (December 1971), pp. 1195-1215.

[22]R. S. Eckaus, "Estimation of the Returns to Education with Hourly Standardized Incomes," *Quarterly Journal of Economics*, vol. 87 (February 1973), p. 127.

[23]Anita A. Summers and Barbara L. Wolfe, "Improving the Use of Empirical Research as a Policy Tool: An Application to Education," Research Paper No. 41, Federal Reserve Bank of Philadelphia, June 1979.

[24]Paul Wachtel, "The Returns to Investment in Higher Education: Another View," in Juster, *Education, Income, and Human Behavior*, pp. 161-62.

[25]Thomas S. Kuhn, *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press, 1970).

[26]John Hause, "Ability and Schooling as Determinants of Lifetime Earnings, or If You're So Smart, Why Aren't You Rich?" in Juster, *Education, Income, and Human Behavior*, pp. 131, 143, 148.

[27]Paul Taubman and Terence Wales, "Education as an Investment and a Screening Device," in Juster, *Education, Income, and Human Behavior*, pp. 96, 103.

[28]B. F. Kiker and W. P. Liles, "Evidence of Biases in the Contribution of Education to Growth in Earnings," *Journal of Behavioral Economics*, vol. 7 (Winter 1978), pp. 101-19.

[29]Christopher Jencks et al., *Who Gets Ahead? The Determinants of Economic Success in America* (New York: Basic Books, 1979), pp. 223, 292.

[30]Herbert Gintis, "Education, Technology, and the Characteristics of Worker Productivity," *American Economic Review: Papers and Proceedings*, vol. 61 (May 1971), p. 268.

[31]Ibid., p. 272.

[32]Samuel Bowles and Herbert Gintis, "The Problem with Human Capital Theory—A Marxian Critique," *American Economic Review: Papers and Proceedings*, vol. 65 (May 1975), p. 81; see also idem, *Schooling in Capitalist America* (New York: Basic Books, 1976).

[33]W. Lee Hansen, "Economic Growth and Equal Opportunity: Conflicting or Complementary Goals in Higher Education" (Madison, Wisconsin: University of Wisconsin, August 1982).

[34]Zvi Griliches, "Sibling Models and Data in Economics: Beginnings of a Survey," *Journal of Political Economy*, vol. 87, no. 5, part 2 (October 1979), pp. S58-60. One method of incorporating unspecified background measures into analyses was the use of comparative samples of brothers and pairs of males matched for specified ability and background factors. Zvi Griliches pointed out that the results of studies using sibling data are not only inconsistent but also fraught with potential bias, since they introduce numerous unspecified dynamics such as birth order and larger family size.

[35]Kenneth J. Arrow, "Higher Education as a Filter," *Journal of Public Economics*, vol. 2 (July 1973), p. 215.

[36]Russell W. Rumberger concluded that blacks were more educated than whites in the same occupational categories. Rumberger, *Overeducation in the U.S. Labor Market* (New York: Praeger, 1981), pp. 73ff. Kiker and Liles calculated that an additional year of schooling increased earnings 3.8 percent for white males but only 1.2 percent for black males, holding personality and ability variables constant.

[37]Ivar Berg, *Education and Jobs: The Great Training Robbery* (Boston: Beacon, 1971), pp. 50, 59.

[38]Rumberger, *Overeducation*, Table 10, p. 81.

[39]Anne McDougall Young, "Educational Attainment of Workers, March 1981," *Monthly Labor Review*, vol. 105 (April 1982), p. 53.

[40]Anne McDougall Young, "Trends in Education Attainment Among Workers in the 1970's," *Monthly Labor Review*, vol. 103 (July 1980), p. 45.

[41]R. B. Freeman, "The Decline in the Economic Rewards to College Education," *Review of Economics and Statistics*, vol. 59 (February 1977), pp. 21ff.

[42]Finis Welch, "The Effects of Cohort Size on Earnings: The Baby Boom Babies' Financial Bust," *Journal of Political Economy*, vol. 87, no. 5, part 2 (October 1979), pp. S65-97.

[43]Arrow, "Higher Education," pp. 199-203, 215-16, argued that the social rate of return to education becomes positive if there are two types of labor, one like a commodity and another capable of being performed at various efficiency levels. On this assumption, an efficiency gain is possible by not having the first type of workers perform the second type of task. However, the positive nature of this return depends on higher institutions' restricting entry and upon the cost of higher education.

[44]Michael A. Spence, *Market Signaling: Informational Transfer in Hiring and Related Screening Processes* (Cambridge: Harvard University Press, 1974), p. 12.

[45]Ibid., p. 25.

[46]Kenneth I. Wolpin, "Education and Screening," *American Economic Review*, vol. 67 (December 1977), pp. 949-58.

[47]Taubman and Wales, "Education as an Investment," Table 4-5, p. 115. Taubman and Wales, for example, tested for evidence of screening by comparing actual occupational distributions by educational level with those expected under free entry. They found that less-educated workers were much more represented in lower status occupations than one would expect on the basis of preference. For example, 6.8 percent of workers were in service occupations, whereas the authors expected 1.4 percent to choose such occupations.

[48]John G. Riley, "Testing the Educational Screening Hypothesis," *Journal of Political Economy*, vol. 87, no. 5, part 2 (October 1979), pp. S236, S240-41. John G. Riley produced several sets of empirical findings that, he argued, support the screening hypothesis. For example, he concluded, the difference between actual and predicted earning increases with experience. This divergence suggests that the importance of the education signal depreciates as employees demonstrate productivity directly to employers. In addition, the data seemed to validate his assumption that individuals who seek screened jobs are not only uncertain of their own potential productivity but are also risk-averse. They fear they have less ability and would earn less than other individuals with higher ability seeking unscreened jobs.

[49]Lester C. Thurow, "Measuring the Economic Benefits of Education," in *Higher Education and the Labor Market*, ed. Margaret S. Gordon (New York: McGraw-Hill, 1974), p. 391.

[50]Ibid., p. 14.

[51] For a general critique of the screening hypothesis, see Richard Layard and George Psacharopoulos, "The Screening Hypothesis and the Returns to Education," *Journal of Political Economy*, vol. 82 (December 1974), p. 985.

[52] Edward Lazear, "Education: Consumption or Production?" *Journal of Political Economy*, vol. 85 (June 1977), pp. 588-90, presented a theoretical specification of the view of education as consumption that increases an individual's wealth. His empirical findings suggest that individuals suboptimize their expenditures on schooling because, he speculated, they associate disutility with school attendance. Few economists have replicated Lazear's model.

[53] Lewis Solmon, "The Relation between Schooling and Savings Behavior: An Example of the Indirect Effects of Education," in Juster, *Education, Income, and Human Behavior*, pp. 253-94.

[54] See, e.g., Robert Michael, "Education and Fertility," in Juster, *Education, Income, and Human Behavior*, pp. 339-64.

[55] Fritz Machlup, "Issues in the Theory of Human Capital: Education as Investment," *Pakistan Development Review*, vol. 21 (Spring 1982), p. 9.

[56] Congressional Budget Office, "The Productivity Problem: Alternatives for Action" (Washington: U.S. Congress, 1981), p. 55.

[57] Jencks et al., *Who Gets Ahead?*, p. 311.

[58] Hansen, *Economic Growth and Equal Opportunity*, pp. 1-2.

[59] Dale W. Jorgensen, "The Contribution of Education to U.S. Economic Growth, 1948-1983," *Discussion Paper 991*, Harvard University (July 1983), pp. 1-4, 36-37.

[60] Mark Blaug, "The Empirical Status of Human Capital Theory: A Slightly Jaundiced Survey," *Journal of Economic Literature*, vol. 14 (September 1976), pp. 833-34, 839; Clarence Jung, Federal Reserve Bank of Atlanta Symposium, May 1984.

[61] Christopher Colclough, "The Impact of Primary Schooling on Economic Development: A Review of the Evidence," *World Development*, vol. 10 (March 1982), p. 180.

[62] Elchanan Cohn, Federal Reserve Bank of Atlanta Symposium, May 1984.

[63] Anne Daly, "The Contribution of Education to Economic Growth in Britain: A Note on the Evidence, *National Institute Economic Review* (1982), pp. 48-56.

[64] Mary Jean Bowman, "Education and Economic Growth: An Overview," in *Education and Income*, p. 13.

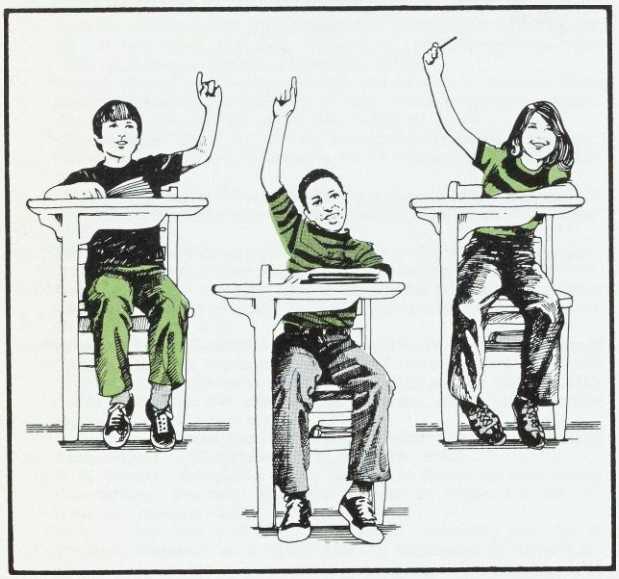
[65] See Marshall R. Colberg, *Human Capital in Southern Development, 1939-1963* (Chapel Hill, North Carolina: University of North Carolina, 1965), Table 8-1, p. 108.

[66] Barry R. Chiswick, *Income Inequality: Regional Analysis within a Human Capital Framework* (New York: National Bureau of Economic Research, 1974), p. 8.

[67] Two economists recently developed a model that specified measures of educational quality as well as quantity. They found that differences in quality of schooling account for a substantial amount of regional income variation that a quantity-only model did not. However, their data are drawn from a sample in a single developing country and thus may not be applicable to U.S. circumstances. See Jere B. Behrman and Nancy Birdsall, "The Quality of Schooling: Quantity Alone Is Misleading," *American Economic Review*, vol. 73 (December 1983), pp. 928-46.

Educational Inventory: Where Does the Southeast Stand?

Gene Wilson and Gene Sullivan



With its improving educational infrastructure, the Southeast is about to catch up with national norms of educational attainment. Those age groups most likely to enter new industries and jobs have shown especially dramatic improvement, enhancing the competitiveness of the region's work force.

Potential economic development of a region hinges heavily both on people and natural resources—but people are its crucial asset. As important as natural resources are, they remain unproductive until men and women acquire sufficient knowledge, skills, and capabilities to harness them. In fact, a resourceful population often can compensate for major deficiencies in other assets in fostering an area's economic development.

Like other resources, the population can be developed to enhance its potential contribution to a region's economy. Given the all-important role of people in economic development, it seems ironic that some regions have paid so little attention to the process of human development, which includes education and training.

Within the United States, the Southeast historically has lagged seriously in improving its human resources. A number of reasons account for the neglect of educational development, but probably the most important relates to the past perception of the economic payoff to resources invested in education. In an economy where for several centuries the masses were employed in hand labor such as chopping timber, harvesting tobacco, and picking cotton, the economic returns to education seemed slim at best. Most people had few incentives to take advantage of the formal schooling that was offered. Thus, school attendance was readily abandoned when any opportunity for productive employment was available, and especially when education involved out-of-pocket costs for cash-scarce households.

For most individuals, those decisions may have been a rational response to the economy

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that persisted in the Southeast until the outbreak of World War II. Yet such rational choices have proven to be short-sighted in light of the rapid economic changes that have emerged within the region since that time. The jobs that accompanied the subsequent industrialization and urbanization of the Southeast demanded capabilities acquired through formal education. Unfortunately, much of the native work force was ill-prepared to make the transition from the low-skilled tasks to which many had been involuntarily restricted or to which they had unwittingly limited themselves.

Although emphasis on education rose with postwar awareness of its new importance, attempts to attract or create industries requiring skilled employees allegedly have continued to be hampered by the relatively poor education in the region. Today, the belief is widespread that desirable future economic development depends on elevating the educational level of the work force. Hence, there is urgent interest in the education of the Southeast's population and how it compares with that of other regions.

This article will attempt to inventory the region's educational assets, generally divided into two categories: the educational infrastructure and the educational attainment of the population. The latter possibly determines economic potential and the former may be important in determining future economic development.

Have educational conditions changed in the region in recent decades? If so, how dramatically? How do the educational systems of southern states compare with those of other regions? Are higher educational opportunities readily available? What is the educational level of the population? These are only a few of the questions that must be answered to understand the region's potential for economic development.

Education

In its broadest sense, education includes any intentional or inadvertent transfer of knowledge or skill either verbally, pictorially, in written form, or via computer. For education to have occurred, at least one person must have increased his or her human skills. A more restrictive view of education, and the one adopted here, would be the purposeful transfer of knowledge or skills through a designed process, that is, formal education. This is similar to manufacturing processes in which inputs are utilized to produce some output. In this instance, human resources and capital are combined to turn out individuals with enhanced knowledge and skill.

The Infrastructure

Human Resources. The most important input of the educational process is almost certainly the teacher, who both transfers acquired knowledge to students and directs the learning process with related materials such as books. In the past 60 years, the number of teachers in the Southeast has increased by 312 percent, and by 146 percent since 1950 alone. While this surge accompanied an increase in the student population, the growth rate in teachers far exceeded that of enrollment (see Table 1) and also has surpassed the national rate of growth. The faster relative gain in the Southeast was at least partly attributable to its low starting position compared with the rest of the nation.

As might be expected, the Sixth District's teacher distribution is related directly to the number of students in different states. Almost half of the Southeast's elementary and secondary schoolteachers work in Florida and Georgia. Mississippi claims the smallest share of teachers,

Table 1. Numbers of Teachers and Pupils, Southeast and United States, 1920-1980

Number of Public School Teachers

	1920	1930	1940	1950	1960	1970	1980
Alabama	12,558	17,130	19,405	21,612	28,810	33,026	41,300
Florida	6,819	10,960	13,189	16,957	46,210	62,419	78,300
Georgia	15,921	19,071	22,846	24,380	37,191	44,007	56,500
Louisiana	8,966	12,173	14,830	15,652	30,026	35,469	42,700
Mississippi	11,962	15,138	14,773	15,627	19,784	22,533	26,300
Tennessee	13,277	18,331	20,147	22,202	29,861	35,450	41,400
Sixth District	69,503	92,803	105,190	116,430	191,882	232,904	286,500
United States	679,533	854,263	875,477	913,671	1,651,310	2,061,115	2,194,000

Pupils Enrolled, Elementary (in thousands)

	1920	1930	1940	1950	1960	1970	1980
Alabama	543	562	586	556	609	570	522
Florida	243	301	292	353	768	1,016	1,064
Georgia	683	633	612	571	748	800	759
Louisiana	349	377	374	400	542	616	548
Mississippi	531	543	521	447	452	389	360
Tennessee	611	558	540	539	629	649	600
Sixth District	2,960	2,974	2,925	2,866	3,748	4,040	3,853
United States	20,898	21,347	18,832	19,464	27,602	32,574	28,304

Pupils Enrolled, Secondary (in thousands)

	1920	1930	1940	1950	1960	1970	1980
Alabama	58	61	100	124	179	236	243
Florida	23	45	77	97	225	412	532
Georgia	63	81	126	147	201	299	336
Louisiana	42	58	99	84	151	227	245
Mississippi	30	52	73	81	115	146	155
Tennessee	47	70	108	120	182	251	268
Sixth District	263	367	583	653	1,053	1,571	1,779
United States	3,390	4,407	6,601	5,752	8,485	13,300	13,840

Total Pupils Enrolled (in thousands)

	1920	1930	1940	1950	1960	1970	1980
Alabama	601	623	686	680	788	806	765
Florida	266	346	369	450	993	1,428	1,596
Georgia	746	713	738	718	949	1,099	1,095
Louisiana	391	435	473	484	693	843	793
Mississippi	561	595	594	528	567	535	515
Tennessee	658	628	648	659	811	900	868
Sixth District	3,223	3,340	3,508	3,519	4,801	5,611	5,632
United States	24,288	25,678	25,433	25,216	36,087	45,874	52,144

Source: *Statistical Abstract of the United States*, various years.

Table 2. Pupil/Teacher Ratios, Sixth-District States

	1920	1930	1940	1950	1960	1970	1980
Alabama	47.9	36.4	35.4	31.5	27.4	24.1	18.5
Florida	39.0	31.8	28.0	26.5	21.5	22.9	20.4
Georgia	46.9	37.4	32.3	29.5	25.5	25.0	19.4
Louisiana	43.6	35.8	31.9	30.9	23.1	23.8	18.6
Mississippi	46.9	39.3	40.2	33.8	28.7	23.7	19.5
Tennessee	49.6	34.3	32.2	29.7	27.2	25.4	21.0
United States	46.4	36.0	33.4	30.2	25.0	24.1	19.9

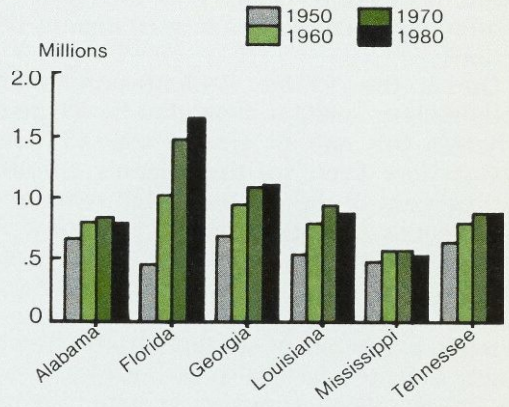
Source: Calculated from Table 1.

with only 9 percent of the District's total, but student enrollments also are lowest there. Thus, in spite of the strong population growth in Florida and Georgia and much less vigorous growth in Mississippi, current pupil-teacher ratios are similar for each District state.

The pupil-teacher ratio is considered a measure of the quality of education. The fewer students per teacher, presumably the more individualized the instruction can be. In both the South and the nation, such ratios have fallen in recent decades. In Mississippi, for example, the pupil-teacher ratio fell from 28.7 in 1960 to 19.5 in 1980. During the past 60 years, the Southeast's average ratio fell from over 46 students per teacher to a current level of 20 (see Table 2). In 1980, District states ranged from a ratio of 18.5 in Alabama to 21 in Tennessee.

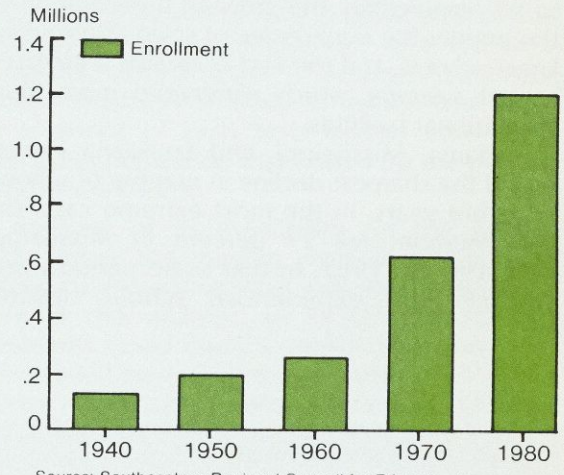
Human Capital. While the population of teachers has continued to increase over the years, student enrollment trends have begun to change course (see Chart 1). Enrollment in secondary schools has started to fall in the South, just as elementary enrollments begin to increase after years of decline. Only Florida maintained its growth in the number of elementary students from 1970 to 1980, largely as a result of significant in-migration. For that 10-year period, District enrollment fell 4.6 percent in elementary schools while rising 13.2 percent in secondary schools. For the nation, however, enrollment during the same period fell 13 percent in elementary schools and rose only 4 percent in secondary schools. (Table 3 shows that private school enrollments declined in both number and share of the total from 1964 to 1978.)

Chart 1. Elementary and Secondary School Enrollment
Sixth-District States



Source: *Statistical Abstract of the United States.*

Chart 2. College Enrollment in Sixth District



Source: Southeastern Regional Council for Education Improvement (Fall 1983).

Within the last half-century, the Southeast's accomplishments in higher education have more closely resembled its accomplishments at the elementary and secondary levels. As recently as 40 years ago, only 119,000 students (less than one percent of the population) were enrolled past secondary school; today District enrollments exceed 1.3 million, or 4 percent of the population as compared with 5 percent at the national level (see Chart 2). Reflecting

the South's lagging educational development in earlier years, growth rates in college enrollments accelerated sharply in the 1960s and continue to exceed rates in most regions of the country.

During the 1970s, student enrollment at southeastern colleges expanded by 59 percent, whereas the rate of growth was 43 percent nationwide. Even so, the region's enrollment (10 percent of the nation's total) remains proportionately smaller than its 13 percent share of the college age population. College enrollments as proportions of total population are higher in other regions. Although the region attracts a number of students from elsewhere, many of its residents also go outside the South to attend college. However, in spite of relatively large gains in recent decades, the Southeast still has a way to go to reach parity with the rest of the country.

Physical Capital. A prominent and important trend has been the general decline in numbers of schools within the region. Three factors appear to be responsible: the growing urbanization of the region, the economies of scale afforded by larger schools, and the end of racially segregated school systems, which eliminated many dual educational facilities.

Alabama, Mississippi, and Louisiana experienced the sharpest decline in number of schools in recent years. In the most extreme case, the total number fell 29 percent in Mississippi from 1969 to 1982. In that same period every District state experienced school closures except Florida, whose rapid economic growth and large population gains led to a 14 percent increase in schools.

Through the first half of the twentieth century, southeastern facilities for higher education were relatively sparse and generally perceived to be of low quality compared with northern colleges. In 1942, for example, the Sixth District counted 188 institutions of higher education, of which 52 percent were in Georgia and Tennessee (see Table 4). At that time even elementary education was thought in some quarters to be of doubtful benefit, and so advanced education was generally considered unnecessary.

Southern state legislatures appeared indifferent toward higher education through the first half of this century. Beginning in the 1950s, however, elevating educational levels became a prime concern as a new generation of political leaders sought to stimulate southern economic growth. The number of educational institutions expanded, often in response to the states' varying paces of population growth. For example, by 1962, Florida had added greatly to its facilities for higher education while the educational emphasis of other southern states remained relatively unchanged. But from 1962 to 1982, every District state except Mississippi sharply increased the number of educational institutions: Alabama by 107 percent; Florida, 63 percent; Georgia, 63 percent; Louisiana, 45 percent; and Tennessee, 70 percent.

In summary, the educational infrastructure of the Southeast has changed significantly in recent years, converging toward national norms. The number of institutions of higher education

Table 3. Private School Enrollments

	Private School Enrollments (in thousands)		Percent of Public School Enrollments	
	1964	1978	1964	1978
Alabama	34	25	4.1	3.3
Florida	99	121	8.6	8
Georgia	30	27	2.9	2.5
Louisiana	162	115	21.2	14.3
Mississippi	22	17	3.8	3.5
Tennessee	36	38	4.2	4.4
Southeast	383	343	7.4	6.2
United States	6900	4058	17	9.8

Source: *Statistical Abstract of the United States.*

Table 4. Number of Institutions of Higher Education

	1942	1952	1962	1972	1982
Alabama	26	26	29	51	68
Florida	14	18	52	64	85
Georgia	50	51	49	61	80
Louisiana	18	20	22	23	32
Mississippi	32	38	44	41	42
Tennessee	48	46	47	62	80
Sixth District	188	199	243	302	379

Source: *Statistical Abstract of the United States.*

Table 5. Results of Scholastic Aptitude Tests

	Numbers Tested		Scores			
			Verbal		Math	
	1971-72	1981-82	1971-72	1981-82	1971-72	1981-82
Alabama	4,404	2,990	419	463	441	501
Florida	21,845	37,879	458	426	483	463
Georgia	33,243	34,226	405	394	429	429
Louisiana	3,958	2,743	456	470	484	505
Mississippi	1,678	845	413	479	438	509
Tennessee	5,200	4,725	479	480	508	519
Southeast	70,328	83,408	438	452	464	488
United States	1,027,001	963,416	453	426	483	467

Source: Southeastern Regional Council for Educational Improvement, *SEIS Data Profiles* (Fall 1983).

doubled between 1942 and 1982. Clearly, numbers of schools alone do not necessarily indicate the quantity or quality of education. Yet in an area such as the Southeast, where accessibility to higher education has been limited in the past, increasing numbers of facilities have provided greater opportunities for the population as a whole to attend college.

The average pupil-teacher ratio in elementary and secondary schools has been halved from over 46 students per teacher in 1920 to 20 by 1982. Although the number of public schools has declined, schools have grown in size and have reaped certain economies of scale in the process. Larger, diverse schools adhering more closely to national standards have become the rule within the region. Thus, current educational infrastructure appears to be superior to its historical counterpart.

Educational Attainment

Available methods for measuring the educational level of the public are controversial. A lack of uniform testing from one area to another is a major problem of current measurement techniques. Scores from tests administered to students are less than satisfactory because of differences between areas in the types of tests used and compositions of groups tested. The Scholastic Aptitude Test administered to senior high school students is one of the most standardized tests available. The average scores are not reliable indicators, however, since varying proportions of students take the tests in each area. Table 5 suggests that score fluctuations from period to period could well be due to changes in the proportions of the total of students tested. Even if average scores are useful indicators of students' educational levels, a snapshot of such tests reveals little about the adult population that makes up the majority of the work force.

Because of its availability for the general population, the median years of school completed is the educational indicator selected for use in this analysis. In 1950, only Florida's residents could claim a median of school years completed equivalent to the nation's (9.6 years). Other southeastern states varied from 7.6 years in Louisiana to 8.4 in Tennessee. By 1980, however, every state in the Southeast had reached a median of at least 12.1 years, in comparison with a national average of 12.5 (see Table 6).

In the past, remarkable educational level differences have existed between the sexes. Only in the last 20 years has the southern male's median years of school completed caught up with the female's. Typically, the male left school earlier, as a result of greater work opportunities or perhaps because of a lower opinion of the value of further education. The loss of a higher proportion of the more educated males through migration to other regions also may

Table 6. Median School Years Completed

	1950	1980
Alabama	7.9	12.1
Florida	9.6	12.4
Georgia	7.8	12.3
Louisiana	7.6	12.3
Mississippi	8.1	12.1
Tennessee	8.4	12.2
United States	9.6	12.5

Source: U. S. Bureau of the Census, *Census of Population: 1940, 1950, 1960, 1970, 1980. Vol. 1: Characteristics of the Population.*

Table 7. Grade Completed as a Percent of the Population

	8 or Less	9-11	12	13-15	16+
Alabama	100	75.6	56.7	25.1	12.6
Florida	100	82.5	67.2	32.0	14.7
Georgia	100	75.9	56.5	28.2	15.3
Louisiana	100	75.6	58.0	26.2	13.4
Mississippi	100	73.4	55.1	26.5	13.0
North Carolina	100	75.9	55.3	27.6	13.4
South Carolina	100	74.7	54.0	27.5	14.2
Tennessee	100	72.4	55.4	23.7	11.9
New England	100	84.7	70.7	34.8	19.3
Mid-Atlantic	100	81.8	66.0	29.9	17.1
East North Central	100	83.2	67.0	29.6	14.5
Pacific	100	86.4	74.2	41.6	19.5
Southeast	100	76.9	59.0	27.9	13.8
United States	100	81.6	66.3	31.9	16.3

Source: National Center for Education Statistics, *Digest of Education Statistics 1982 to 1983-84.*

have been a factor. Educational disparity persisted until the 1960s, when the average educational level of males reached a par with that of females. Since that time, formal educational attainment of the two groups has remained approximately equivalent.

A more precise measure of the population's educational attainment is available from the 1980 Census. For the adult population age 25 or older, Table 7 compares the population of southeastern states by grades of schooling completed. The proportions of population at the various educational levels are similar for most District states. Again, the exception is Florida, whose populace has attained consistently higher educational levels. Over two-thirds of the state's adult residents have completed high school, in contrast to only 54 to 58 percent for the other states.

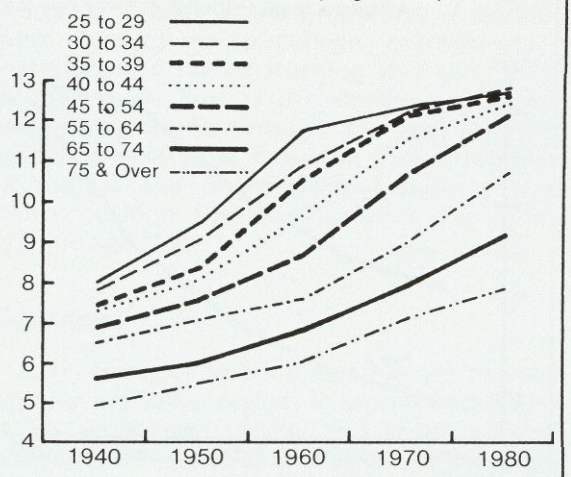
In comparing the Southeast with other regions and the nation, we find smaller proportions of southeastern residents at each educational level. For example, 60 percent of southern adults have completed high school compared with 66 percent for the nation. One interesting point is that southern adults now compare favorably with those of the Mid-Atlantic and East North Central states in the proportion that have completed at least three years of college. Immigration of college-educated individuals from other regions probably has helped elevate the South's position in this comparison.

For the region's population above age 25, distinct gradations of educational attainment exist. The median years of school completed by older citizens is relatively low vis-a-vis younger age groups (see Charts 3a and 3b). For those segments of the population under 45, the medians in 1980 were similar and were approximately equivalent to the national level. This fact is significant, for it means that those individuals most likely to enter new industries or undertake newly created jobs have achieved formal educational levels largely comparable to the national average. In years of formal schooling, at least, the younger portion of the southeastern work force approximates that of other areas of the country.

Related Factors

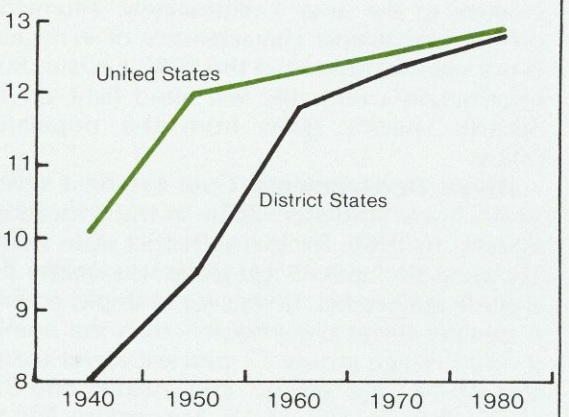
Legacy of the Past. The educational situation in the South today reflects historical developments in the region. The plantation culture common in the nineteenth century fostered a predominantly rural society. Education was regarded as a luxury restricted to members of the upper class, whose sons and daughters frequently attended schools outside the region; relatively little support existed for public education for the masses. But in the last half of the nineteenth century, a growing movement of educational development swept across the country, engulfing the South somewhat belatedly. By the turn of the century, the U.S.

Chart 3a. Median Years School Completed, District Males by Age Group



Source: U. S. Bureau of the Census, *Census of Population: 1940, 1950, 1960, 1970, 1980. Vol. 1: Characteristics of the Population.*

Chart 3b. Median Years School Completed, Males 25 to 29



Source: U. S. Bureau of the Census, *Census of Population: 1940, 1950, 1960,1970, 1980. Vol. 1: Characteristics of the Population.*

literacy rate was estimated at 89 percent while in southern states it ranged from a low of 60 percent in Louisiana to 78 percent in Georgia and Tennessee (see Table 8).

Because of this lag, southeastern states have faced major difficulties in closing the gap between their educational levels and those of the country as a whole. Although in recent years the South has more rapidly improved in several indicators than have other regions, the gains

Table 8. Literacy Rates* of Adults Age 25 & Over (in percent)

	1900	1930	1960	1980
Alabama	65	86	96	98
Florida	77	92	97	99
Georgia	78	90	96	98
Louisiana	60	85	94	98
Mississippi	66	85	95	98
Tennessee	78	92	97	98
United States	89	95	98	99

*Literacy rates shown refer to the basic ability to read and write. Although perhaps more meaningful, functional literacy rates were not used because of the difficulty of defining this term and the lack of historical data.

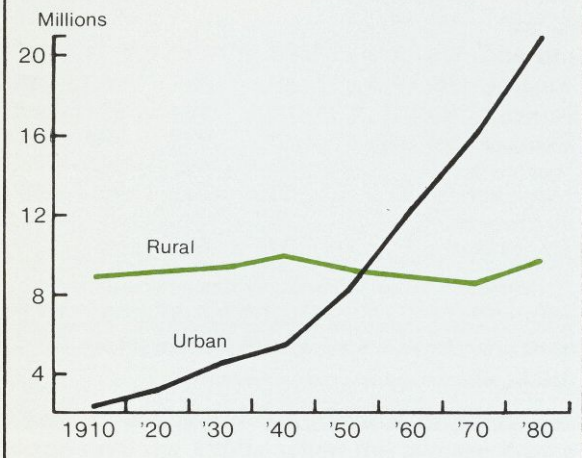
Source: *Statistical Abstract of the United States.*

reflect upward movement from a lower base or starting point. It is likely that a great deal more effort will be required to maintain these relative gains in the future. In-migration from regions with higher educational levels has, no doubt, been a source of some past improvements, but such gains will dwindle as the South's educational level approaches equality with other regions'. At that time, advances will be increasingly dependent upon improvements in educating the resident population.

Urban-Rural Distribution. A major factor in the development of the educational infrastructure has been the distribution of population between the urban and rural sectors (see Chart 4). In the first half of this century, the rural population substantially exceeded the urban population (residents in towns with 2,500 or more people) in every District state except Florida. Not until the 1950s and 1960s did the proportion of the urban population surpass the rural share for most states. Mississippi remains the only southern state with a larger rural than urban population, and even there the two groups are equalizing rapidly.

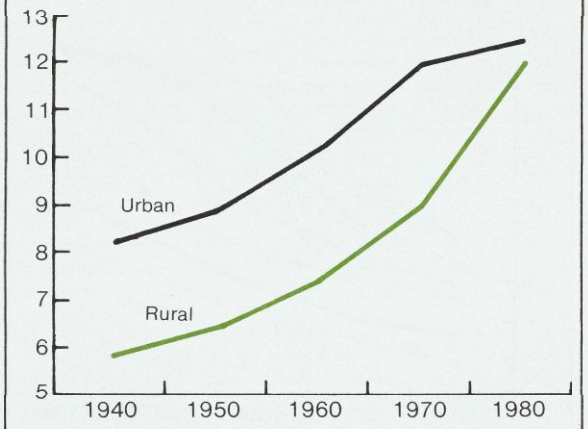
Interestingly, rapid educational gains also accompanied this rural-to-urban population shift. Traditionally in the United States—and especially in the South—a considerable disparity has prevailed between educational levels of urban and rural residents. The levels for the male population in Alabama, shown in Chart 5, are illustrative of the urban-rural relationship for other southern states. Only rather recently have differences begun to narrow. While median

Chart 4. Sixth-District Population



Source: Bureau of the Census, *U. S. Census of Population.*

Chart 5. Median Years School Completed, Alabama Male Population Over Age 25



Source: U. S. Bureau of the Census, *Census of Population: 1940, 1950, 1960, 1970, 1980. Vol 1: Characteristics of the Population.*

years of schooling completed by both groups of males is increasing, the rate of increase in rural education has been considerably sharper since 1970. Some of this rural gain may have occurred because of the speed up in migration of the less well-educated to the cities as well as the reverse flow of former urban dwellers into rural areas surrounding towns and cities. The educational level of both groups is likely to converge before the end of the 1980s.

In-migration also has influenced median educational levels in the South. Because of the flow of retirees into the Southeast, especially Florida, the region's population of residents over 60 years of age exceeds the national average. Approximately 17 percent of the Southeast's population is over 60 compared with 15 percent nationally. This is a considerable change since 1950, when only 11 percent of the region's population was over 60 compared with 12 percent for the nation.

Median educational levels of older population groups probably have been elevated by the influx of retirees. The precise impact on statewide education levels is difficult to ascertain, however, since in-migration is concentrated in certain geographical areas and comprises a diverse mixture of retirees, including both individuals originally from the South and nonsoutherners who have been educated outside the region. Of course, elderly in-migrants are of far less importance to the South's labor force than is the increasing flow of younger workers to the area. Unfortunately, information on the educational characteristics of in-migrants is not yet available from the 1980 Census. Such information eventually will shed light on the South's specific gains from the population influx.

Future Developments. Over the next several years, fewer students will be in the educational system. In 1980, for every District state except Louisiana the under-5 age group was smaller than the 5-9 age bracket. Florida, for example, counted 8 percent fewer pre-schoolers than the number in the 5-9 age group, 17 percent fewer than in the 10-14 age group, and nearly one-third fewer than in the 15-19 age group. For the entire District, the major distinction is the difference between the under-10 age group and the 10-19 age population: the former was 15 percent smaller than the latter at the last census.

However, population projections of the National Planning Association indicate that the 0-4 age group will experience a resurgence of growth until 1990, when a decline will begin once more. Even with this renewed growth, numbers are not projected to reach the level of the current population in the 15-19 age group. Thus, high school enrollments are expected to drop from the present volume and to bulge

again in the 1990s, though still not regaining 1980 levels in either the Southeast or the U.S. Assuming stability in the proportion of students who elect to go to college, enrollments in institutions of higher learning also can be expected to decline as the smaller age groups progress upwards through the system. Some evidence does exist, however, that enrollments of foreign and non-traditional students may partly cushion the decline from the demographic age shift.

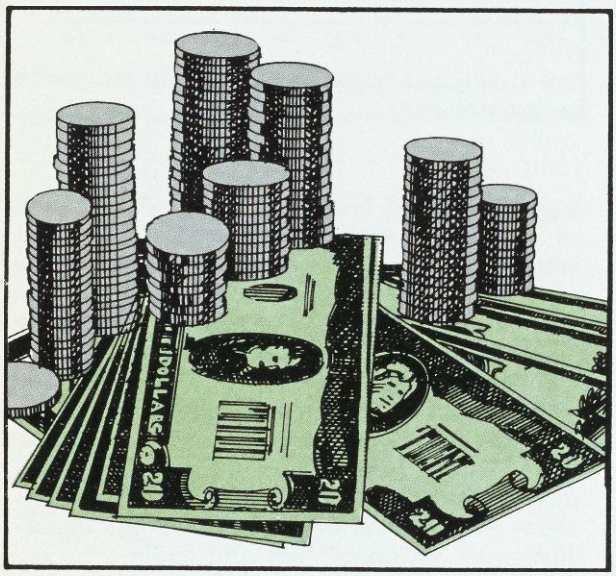
Summary

Even though the Southeast has yet to catch up fully with other regions in terms of education, it has progressed rapidly and improved considerably. Educational attainment of the population as measured by median years of school completed now indicates that the younger groups (under 45 years) have achieved formal schooling levels equivalent to the nation's. Over time, the Southeast seems likely to shed its traditional position of inferiority in the nation and among other regions in the formal educational level of its population. Because this improvement has already occurred within younger groups—those most likely to enter new industries and jobs—the Southeast's work force is becoming competitive with most other regions'. With sufficient resources, effort, and attention devoted to education and with the attraction of residents with above-average education from other regions, the Southeast may look to solid educational achievements in the future.

(The authors wish to thank Joy Lanier for her valuable research assistance.)

Financing Education in the Southeast

Bobbie McCrackin and Gene Sullivan



Southeastern educational expenditures have surged over the past decade, yet have barely outdistanced inflation. However, lower demand as well as financial and other economic constraints seem to underlie this difference. Since the call for higher quality schools is increasing and states have adopted more flexible financing methods, the outlook for convergence seems brighter.

Why does educational financing warrant public consideration? Education, unlike shoes or bread, is in part a public good. Clearly, many of education's benefits accrue only to those individuals obtaining it; however, society as a whole benefits when its population is educated. For example, education in a democratic society helps citizens make more informed social and political choices. These indirect benefits would not be financed if they were left solely to the private sector. Public policy should be concerned with improving the quantity and quality of education because private investment tends to be insufficient in cases where benefits accrue to society at large. Thus, as in the case of such other public goods as roads and airports, public revenues are required to encourage sufficient production of the activity.

Spending on Education

The United States will spend an estimated $127 billion to educate its children in 1984—7.3 percent of the year's projected GNP. Through their legislatures, the states will provide the largest share of these funds ($62 billion), followed by local sources ($57 billion) and the federal government (about $8 billion). The Southeast's share of U.S. educational spending has risen over the last decade, owing to its faster-than-national population growth and the recent emphasis on enhancing the quality of education.

States in the Sixth Federal Reserve District will spend about $13 billion, or 11 percent, of the nation's estimated total spending on primary and secondary education in 1984. Thir-

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teen percent of the nation's school age population resides in District states, which suggests that the Southeast accounts for less than its proportionate share of the nation's education expenditures. The region traditionally has lagged behind the nation in school-related expenditures and despite its rising share of total outlays, progress in closing the gap has been slow.

Table 1 shows that although total expenditures in the Southeast increased almost threefold in the period from 1971 to 1981, the growth was only slightly more rapid than the nation's during the same period. The the Southeast's share of national educational expenditures moved up only moderately, from 9.1 percent in 1971 to 10.6 percent by 1981. However, the Southeast's proportion of the nation's school age population also rose from around 12 percent initially to over 13 percent by the end of the ten-year period.

Because the ratios of students to population vary between regions, expenditures per pupil provide a more meaningful comparison than total expenditures. The Southeast's expenditures per student averaged only 76 percent of the nation's in 1971; that share remained below 80 percent through most of the ensuing decade (see Table 2).

Expenditures per pupil differ widely within the region. Alabama currently spends significantly less per student than other states, largely because increases since 1977 have not kept pace with those in other states in the region (see Chart 1). Florida, whose spending has essentially doubled since 1977, spent nearly twice as much per student in 1982 as Alabama. When the numbers are adjusted for national inflation, however, increases in real expenditures amounted to 22 percent for the Southeast as compared with 17 percent for the nation. The region's more rapid percentage gain primarily reflected its lower starting position. Although the gap in real expenditures was still $200 per pupil in 1981, as it was in 1971, the real per capita spending ratio converged somewhat because real spending increased both nationally and regionally.

It is possible that southeasterners get more for a dollar spent on education than residents elsewhere because of cost-of-living differences. Unfortunately, direct cost-of-living comparisons between the region and the nation are not available. The Consumer Price Index (CPI) compares living costs at various points in time to an index of costs at some base period. The CPI shows changes in prices as a whole and for a variety of specific consumer goods and services including education (see Chart 2). Although the CPI is available for a number of SMSAs as well as for the nation, all these indexes compare costs over time within each area, not between areas. Even if the index in Atlanta had consistently risen faster than the national index, which it has not, it would be difficult to interpret the significance of this disparity without knowing the initial relative price levels in each geographic area. Another problem would be the implicit assumption that, in the case of the Southeast, Atlanta's price index (the only one available for a fairly extensive period of time) is typical of the region's 40 SMSAs.

Although cost-of-living comparisons between states are not available, we were able to determine that teachers' salaries, a major component of educational costs, are 17 percent lower in the Southeast than in the nation. Nonetheless, it is impossible to tell whether this difference reflects cost-of-living or quality differences. That is, on the basis of this information alone

Table 1. Summary of Expenditures for Public Elementary and Secondary Education, United States and Southeast, 1971-1981 (millions of dollars)

Year	United States	Southeast	Southeast/United States
1971	44,424	4,062	9.1
1972	48,514	4,561	9.4
1973	51,905	4,761	9.2
1974	56,970	5,405	9.5
1975	61,629	5,912	9.6
1976	70,829	7,167	10.1
1977	75,014	7,661	10.2
1978	80,844	8,150	10.1
1979	86,712	8,920	10.3
1980	95,962	9,895	10.3
1981	102,484	10,889	10.6

Source: Department of Health, Education, and Welfare, National Center for Education Statistics, *Digest of Education Statistics* (Washington: U. S. Government Printing Office, 1970-1984).

one could infer that southeastern states spend less for schooling because prices are generally lower here and therefore school districts, with proportionately smaller budgets, can purchase an amount of schooling commensurate with other regions. On the other hand, the data also lend themselves to the interpretation that southeastern school budgets are proportionately smaller because the demand for education is lower and consequently teachers' salaries are less than elsewhere. The larger regional differential between teachers' salaries relative to wages generally suggests that lower demand is the preponderant factor. Recent research has indicated that wages in the larger Census Region South are not lower than in other regions when comparable jobs are considered. Indeed, Southern wages, even excluding certain high-wage border areas near Washington, D.C., may be higher than in most other Census Regions when comparisons are drawn on a peer group basis.[1]

Table 2. Education Expenditures Per Pupil* for United States and Southeast, 1971-1981 (in nominal and 1972 dollars)

	Nominal		Real CPI-All Items		
Year	United States	Southeast**	United States	Southeast	Southeast/ United States
1971	1,008	762	818	618	(0.76)
1972	1,091	856	856	672	(0.79)
1973	1,182	888	852	640	(0.75)
1974	1,281	948	823	609	(0.74)
1975	1,413	1,175	859	705	(0.82)
1976	1,699	1,345	972	769	(0.79)
1977	1,816	1,445	973	774	(0.80)
1978	2,002	1,567	984	770	(0.78)
1979	2,210	1,715	958	743	(0.77)
1980	2,494	1,910	962	737	(0.77)
1981	2,701	2,144	957	757	(0.79)

*Based on average daily attendance.
**The states partly or totally included in the Sixth Federal Reserve District.

Source: Department of Health, Education, and Welfare, National Center for Education Statistics, *Digest of Education Statistics* (Washington: U.S. Government Printing Office, 1970-1984).

Sources of Education Funds

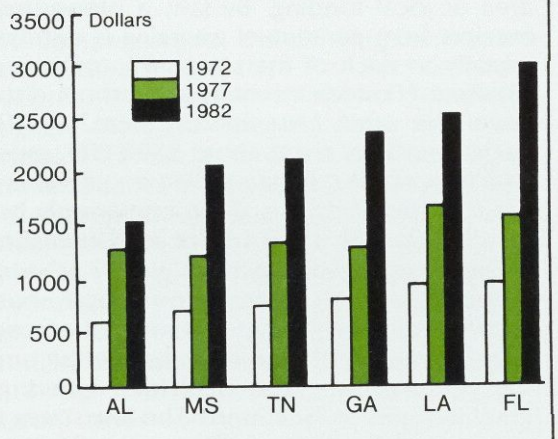
Funds to support education derive from three principal sources: local, state, and federal governments (see Table 3). Property taxes, which contribute most to the pool of local education funds, tend to make up larger portions of school budgets in highly urbanized areas, such as New England, as opposed to more rural areas such as the Plains states, where the population is widely dispersed and in many localities sparse. State education revenues flow from state income, sales, and property taxes, which are part of each state's general fund. Federal monies are allocated to the states based on guidelines written to ensure state compliance with federal legislation and federal court rulings and come mainly from the federal income tax. While state and local funds account for over 90 percent of funding in the nation as a whole, relative contributions of federal, state, and local governments to education vary widely from region to region and within the Southeast.

Education and its financing are functions that the U.S. Constitution generally leaves to the states. The cost of all federal education programs for the states, including the highly publicized busing and school lunch programs, amounts to only about 7 percent of total educational spending in the country. However, because the South was an early target of federal programs to improve educational opportunities for minority groups, the region derives a sharply higher share (13 percent) of its education monies from federal sources. Variations among southeastern states are higher still, with Mississippi obtaining nearly one-fourth of its funds from federal sources compared with 7 percent for Florida (see Table 3). In both the Southeast and the nation, the share of federal funds has declined since 1977. Louisiana experienced the steepest drop in federal funds as the share of local funds increased dramatically.

State revenues, now the largest funds source, have accounted for a growing share of education's support at the national level as well as in both Georgia and Florida, the two most populous southeastern states. In all regional states except Tennessee, the state government source of funds exceeds 50 percent; in Florida and Alabama, the figure is greater than 60 percent.

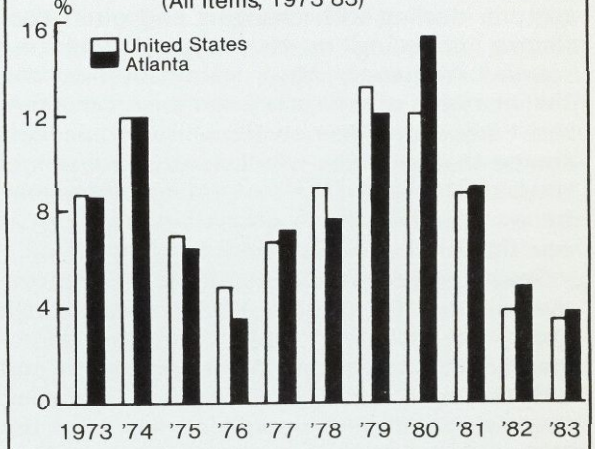
While state funding has accounted for an increased share nationally, the proportion of local funding has been declining since 1977. Nationally, states' shares have risen on average from 40 to 50 percent whereas local shares fell from 51 to 42 percent (see Table 3). The Southeast has been an exception to this pattern of declining local funding because, historically, it has relied less on local funding and because Louisiana's unusually sharp increase in local funding has skewed the regional average. Aided by rising local funding in Tennessee and Mississippi, Louisiana's substantial jump in the use of

Chart 1. Educational Spending Per Elementary and Secondary School Student



Source: NEA Research Memo, *Estimates of School Statistics*, 1972, 1977, and 1982.

Chart 2. Annual Rate of Change in the Consumer Price Index (All Items, 1973-83)



Source: U. S. Department of Labor, Bureau of Labor Statistics, *CPI Detailed Reports*, 1973-1983.

Table 3. Relative Importance of Revenue Sources for Education (in percent)

	Federal			State			Local		
	1972	1977	1982	1972	1977	1982	1972	1977	1982
United States	9	8	7	40	44	50	51	48	42
Southeast	15	14	13	52	56	56	33	30	31
Alabama	19	13	15	57	65	64	23	21	21
Florida	10	10	7	55	52	62	35	38	31
Georgia	14	11	10	49	53	56	38	36	34
Louisiana	14	15	9	55	60	56	31	25	35
Mississippi	27	23	23	49	54	53	24	23	24
Tennessee	16	13	13	43	50	47	40	37	40

Source: National Education Association Research Memo, *Estimates of School Statistics*, 1972, 1977, and 1982.

this source offset the shift to state funds in other regional states.

Methods of Financing Education

Flexibility in methods of financing has helped some state education planners cope with fluctuating student enrollments and uneven tax bases among school districts. Rigidity has handicapped some other states. Traditional financing, whereby a state contributes from its general fund roughly twice the local assessment from property taxes, seems to allow the most flexibility in dealing with changing and often conflicting financing needs. Atypical financing sources frequently have no relation to the shifting needs of education, and they sometimes resist adjustment to new demands. A financing source that provides windfalls to some school districts and very little support to others may be as troublesome to education planners as one that provides insufficient funding overall.

Several states in the region have used innovative methods for financing kindergarten through grade 12 schooling. Lately, with the demographic shift toward an older population and with the trend toward fewer children per family, the region's student population has been declining. In states where funding is based on average daily attendance, the demographic change has meant that schools are receiving less funding at a time when pressures to increase educational quality are growing more intense. Some state education funding systems have been flexible enough to adjust to this evolution, others were overhauled to serve the changing need, and some still are adapting to the new realities.

Florida generates 93 percent of its public school monies internally. Of these, the state's general fund provides 62 percent and local sources 31 percent. Florida is fairly typical of national school funding patterns except in the area of local funding. By law, a proportion of receipts from parimutuel wagering is distributed equally to each of the state's 67 county commissions. (Florida's counties and school districts cover the same geographical areas.) In 1983, each county received about $500,000, most of which went for education. The equal sharing of these funds, of course, disproportionately benefits districts with small school age populations.

Louisiana generates a much greater proportion of public school revenue from local sources than the regional average, primarily because of a law passed by its legislature before the turn of the century. The state is divided into a geographical grid of "sections." The law states that one-sixteenth of the sections should be set aside as income-producing property to support

Table 4. Consumer Price Index for Education and All Items, 1970-1983
(annual percent change ending in December)

Year	All Items		Personal and Education Expenses*
	United States	Atlanta	
1970	5.5	N/A	9.8
1971	3.4	N/A	9.2
1972	3.4	N/A	4.5
1973	8.9	8.2	5.8
1974	12.2	12.2	6.6
1975	7.1	6.6	7.4
1976	4.9	3.5	6.0
1977	6.8	7.3	6.5
1978	9.1	7.8	8.3
1979	13.4	12.3	8.5
1980	12.3	15.7	11.9
1981	8.9	9.2	13.4
1982	3.9	4.9	12.5
1983	3.5	3.8	9.8

*Includes school books and supplies; personal and educational services (largely tuition fees).

N/A - Data not available.

Source: U. S. Bureau of Labor Statistics, *CPI Detailed Report* (Table 5).

local schools. The "16th Section" lands generate income through oil production, leases for farming, fur trapping, and other sources. Those sections with oil production capacity provide a relative bounty of funds to the local school districts.

To compensate for the differing income production capacities of the "16th Section" lands, Louisiana instituted a minimum foundation program that uses money from the state's general fund to assist schools. This program requires that the millage rate on assessed value of real property reach a certain level before a school district receives a full allocation based on its number of students. In addition, parishes may increase sales taxes by 2 percentage points and raise the millage rate on real property up to 70 mills, both at local option.

Although Mississippi also uses the "16th Section" lands concept and a minimum foundation program to finance its public schools, the state administers its land program somewhat differently from Louisiana. Proceeds from the sale of depletable resources such as oil, gas, and minerals are placed in a trust. Only the interest on the capital held in this trust may be spent by local school districts. However, proceeds from the sale of renewable resources from "16th Section" lands may be used by the local districts.

Mississippi's minimum foundation program provides each district's share of public school funding but does not effectively equalize monies allocated by district or by pupil. In fact, if equalization depended on substantial tax increases the process could take longer in Mississippi, where a law prohibits tax hikes in excess of 10 percent.

Georgia supports its public schools with fairly traditional funding methods. Among regional states, only Florida's proportion of education revenues from the federal government is less than Georgia's quite low rate. Both states appropriate education monies from their general funds.

In Georgia, the sources of education funds available to the state and to local governments are set out strictly in the state's constitution. This document designates that property taxes will be virtually the exclusive source of educational funding for the local districts. It reserves the general fund for use by the state. Local option sales taxes for educational funding have been made available by legislation to only eight of 187 school districts. A few Georgia cities allocate dollars raised by municipal water and electricity systems to the local school district, but these are exceptions to the general rule. Georgia's education dollars from the general fund are allocated on the basis of average daily enrollment of students per school district. Under this allocation scheme, districts with low property tax bases, which generate scant local funding, can suffer relative to those with large and fast-growing tax bases. Of course, fast-growing districts frequently experience mushrooming student populations, which can impose a substantial drain even on an expanding tax base.

Alabama is unique among southeastern states in that state funds designated for education, kindergarten through university level, are held in the Education Trust Fund, which is separate from the general fund. Sales and income taxes are the primary sources of monies for the

Education Trust Fund; during the 1983-84 fiscal year, the state experienced a $50 million surplus out of a $1.4 billion education budget. At the local level, the counties must assess a minimum property tax millage rate before school districts get a full share of state funds. Alabama counties assign the revenue from a variety of taxes for education, including gasoline, tobacco, and beer and wine taxes.

Tennessee's Career Ladder promotion and pay incentive program for teachers received national attention when passed in a special legislative session in early 1984. The session passed the enabling legislation and appropriated the funds necessary for the innovative program. The state's resolve to improve its kindergarten through high school education system also can be seen in the 22 percent jump in the education budget from fiscal year 1983-84 to fiscal 1984-85. Education funding comes out of the general fund, which is replenished principally from sales taxes; Tennessee has no state income tax. For local-level education funding, counties may raise sales taxes by a maximum of 50 percent of the state sales tax rate, now set at 5.5 percent. Property taxes provide 66 percent of local education funding, with local option sales taxes contributing the rest.

Financial Burden of Education in the Southeast

Inflexible, outdated funding systems explain in part why some southeastern states have failed to close the educational spending gap vis-a-vis national norms. Several other factors might explain why disparities in educational expenditures persist. These include soaring education costs and a greater financial burden due to lower personal income levels and a larger portion of school age children relative to the population. We found limited support for the argument that enrollments are higher, but other explanations seemed ambiguous or unconvincing on close examination.

One reason expenditure disparities persist and convergence has not been more dramatic is that educational costs have been rising more rapidly than prices in general (see Table 4). For example, after 1981 there was some moderation in education cost increases as well as in the overall rate of inflation, but far less deceleration in the cost of schooling than in other goods and services. Indeed, the CPI slowed from a 12 percent increase in 1980 to 3.5 percent in 1983, while the education cost index continued to rise at nearly double-digit rates. However, one cannot draw the conclusion that such increases necessarily reflect education cost increases spiraling beyond the control of school administrators. They might also represent widespread decisions to increase public and private resources committed to education. In either case, the continuing rapid rise in education costs has been increasingly burdensome for many states and municipalities. However, the burden is self-imposed if educational price increases reflect the public choice to devote more resources to schooling.

Other plausible reasons for the South's ongoing lag in providing education for its populace are per capita incomes in the region that are lower than national averages and larger proportions of school age children relative to the total population. Several states within the region have markedly higher student ratios than the region as a whole (see Table 5). In Mississippi and Louisiana, school age children equaled approximately one-third of the adult population in 1982 as compared with 27 percent for the whole region and the nation. All the other states except Florida exceeded the nation's ratio. Florida's relatively low proportion of children to adults is the reason the region compares favorably with the nation. In all southeastern states as well as the nation, the proportion of school age children has declined by around 10 percent since 1972.

The Southeast has no more school age children per family than the country as a whole, but this statistical similarity is due entirely to Florida's low ratio. In the aggregate the region is equal to the nation, with an average of 60 school children per 100 families. However, Mississippi and Louisiana have higher averages of 70 per 100 families. These numbers are offset by Florida's larger population and lower average of 50 per 100 families (see Table 5). Both measures suggest that the burden of financing education in many southeastern states is greater than in the nation.

Where personal income is low, elevating education expenditures to a par with higher income regions would be burdensome to the

Table 5. Selected Demographic and Financial Information, 1982

	School Age/ Adult Population (percent)			Education Expenditure/ Personal Income (percent)			Education Expenditure/ Personal Income, Excluding Federal Contributions (percent)	Average Number of School Age Children Per Family		
	1972	1977	1982	1972	1977	1982	1982	1972	1977	1982
United States	36	32	27	5.7	5.5	4.8	4.4	0.8	0.7	0.6
Southeast	37	33	27	5.4	5.2	4.5	3.9	0.8	0.7	0.6
Alabama	39	34	30	4.4	5.0	4.7	4.0	0.9	0.7	0.6
Florida	31	27	22	5.1	4.8	3.9	3.6	0.7	0.5	0.5
Georgia	39	35	30	5.4	5.3	4.5	4.0	0.9	0.7	0.6
Louisiana	43	38	32	6.4	5.5	4.6	4.2	1.0	0.8	0.7
Mississippi	42	38	33	6.0	5.4	4.8	3.7	1.0	0.8	0.7
Tennessee	36	32	27	4.9	4.9	4.5	3.9	0.8	0.7	0.6

Sources: Column 1 - U. S. Bureau of the Census, *Current Population Reports*;
Columns 2 and 3 - National Education Association, "Education Expenditures Estimated to Equal Current Revenues," *Estimates of School Statistics, 1972, 1977, 1982*; personal income from: U. S. Bureau of the Census, *Personal Income by Region*;
Column 4 - U. S. Bureau of the Census (uses 1980 household data).

local population. Per capita personal income levels in most southeastern states have yet to converge with national norms despite substantial progress since World War II. Florida, the most notable exception, enjoys near parity with the nation, but other states remain as much as 20 percent below the nation.

Table 5 compares each state's spending for public elementary and secondary schools with personal income. Using this measure, we found support for the widely held view that the South has not made the "tax effort" to finance education that other regions have. Mississippi is the only southeastern state for which the percentage of personal income devoted to education rivals the national norm. Alabama comes in a close second, with its percentage only fractionally lower than the national average. However, this measure of educational support is misleading, since in 1982 almost one-quarter of Mississippi's educational spending was derived from federal sources and 15 percent of Alabama's total came from Washington. Every other state except Florida was more dependent on federal funds than the national average of 7 percent (see Table 3). Discounting federal funding, southeastern expenditures for education as a proportion of personal income are consistently lower relative to the nation (see Table 5). Whether this lower effort reflects a lack of ability and thus a greater burden, or simply unwillingness because of different "tastes" for education is unclear. That is, we cannot determine whether these ratios reflect the lower income level, which typically reduces purchases of most nonessential goods and services, or whether they reflect social choices determined by southeastern states' historical preferences to consume less education than other regions.

Table 5 also shows that the proportion of personal income devoted to education has been declining both nationally and regionally. This change is not surprising in view of federal cutbacks for education spending and declining school enrollments as the postwar baby-boom generation matures.

Prospects for Future Financing

As the baby-boom children pass through the school system and enrollments fall, school districts could find themselves with more money to spend on fewer students. In areas where property tax revenues account for a significant portion of school funds, this would be most noticeable. But in areas where funding is proportional to student attendance, which is frequently the case as an increasing share of financing is obtained from state general funds, educational financing will decline unless allocation formulas are adjusted. However, declining

school enrollments also suggest less pressure on school systems' capital budgets to expand physical facilities.

Southeastern schools still have a long way to go before reaching the national average in financing for education. School officials can ill afford to lose funding if they hope to maintain progress in upgrading the region's educational quality. The growing belief that education plays a vital role in economic development seems likely to strengthen support for increased educational funding among leadership groups throughout the Southeast. The rising numbers of parents who have reached much higher educational levels than their forebears are likely to demand even better educational opportunities for their children. The combination of these potentially influential forces suggests that ways will be found at least to maintain, if not increase, the funds provided for public schooling.

Summary and Conclusions

The Southeast's educational expenditures lag behind the nation's on both a proportional and a per pupil basis. Although growth has been rapid during the past decade, expenditures have increased only moderately faster than the rate of inflation. On a constant dollar basis, the spending gap between the Southeast and nation has remained at about $200 per pupil during the past decade, although the percentage difference narrowed from 26 percent to around 20 percent. Comparisons of cost-of-living differentials can be interpreted to suggest that at least part of the Southeast's lower educational expenditures reflect social choices to commit fewer resources to education, rather than entirely reflecting ability to purchase more education for fewer dollars because of its lower labor and other costs.

The financial burden of education is somewhat more severe in most southeastern states than in the nation as a whole. The major reasons for the relatively greater burden include a larger number of students in proportion to the adult population and lower per capita incomes. A greater share of federal funds for education than other states receive helps lessen this burden in Mississippi and Alabama.

The relative shares of funds for public education from local, state, and federal governments have been changing. Federal and local financial support has been declining, relatively speaking, but local funding has declined less in the Southeast than nationally. State governments are now the major source of education funds, although proportions vary markedly among southeastern states. A variety of methods are used to generate funds for education, but general sales and income taxes are playing a growing role in this process.

If states can devise ways to maintain an undiminished flow of funds to support education in the face of diminishing school enrollments, opportunities for improving the quality of education will increase in the years ahead. However, if funds are cut as enrollments decline, progress will be difficult, if not impossible, to attain. Growing public support for education and the rising educational level of the Southeast's adult population would seem to indicate that the future demand for education will be sufficient to give a dramatic boost to the priority of school funding throughout the region.

(Charlie Carter and Joel Parker contributed to this article.)

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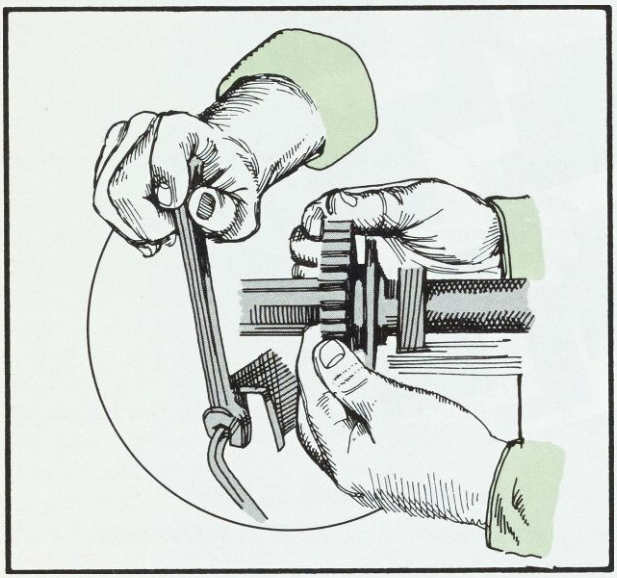
[1]William E. Cullison, "Equalizing Regional Differences in Wages: A Study of Wages and Migration in the South and Other Regions," *Economic Review* (Federal Reserve Bank of Richmond), vol. 70 (May-June 1984), pp. 20-33.

The Southeast's Occupational Employment Outlook

William J. Kahley



While regional employment is expected to advance swiftly over the next decade, the mix of jobs likely will differ little from today's. Anticipated changes in job training requirements suggest that southeastern states will have to boost their education spending, but numerous employment opportunities will be available even for workers with limited education.

Headlong growth of new technologies, increased global economic interdependency, and national economic recessions have combined in recent years to heighten concerns about future employment opportunities in numerous blue- and white-collar occupations. For example, there seems to be a growing fear that an army of steel-collar robots will displace welders and other blue-collar workers in our traditional "smokestack" industries. Numerous white-collar jobs also are perceived to be in jeopardy as word processors erase typing pool jobs and as expanding computer graphics capabilities eliminate the need for drafters. Many believe that a substantial refocusing of our educational systems is necessary in order to prepare for these changes in the workplace.

Fear of job loss because of structural economic change has deep historical roots. In eighteenth-century England, the Luddites smashed new textile looms that appeared to threaten their jobs. Similar fears have troubled American workers since the spread of railroads in the nineteenth century and the later proliferation of automobiles and airplanes. For some workers, such as wagonmakers and blacksmiths, job changes had to be made. High unemployment, caused by economic recession or depression, often speeded up these structural employment adjustments. Fortunately, our historical experience has been that the actual decline of wagonmaking and blacksmithing jobs was more than offset by the expansion of jobs for these workers as automobile welders and engine mechanics.

To help gauge the impact of future occupational employment changes in the fast-growing economies of the Southeast, occupational employ-

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ment projections from public and private sector sources were gathered and analyzed. No strong evidence emerged that the broad job mix will change dramatically over the next 10 years. This finding indicates a likelihood that regional states' educational systems are adequate to prepare workers for tomorrow's jobs. However, the job mix outlook is sufficiently hazy to merit continued monitoring by government policymakers, educational system planners, and individuals selecting an occupation. We are fortunate in having a wealth of useful and improving job mix information that can help us plan for the future.

Forecasting the Worker Profile

One of life's most important decisions is selecting a career or occupation. Information about career opportunities in forthcoming years is valuable in helping today's youth prepare for their future in the workplace. Businesses and communities also want to plan, and knowledge about the likely job market structure can assist their efforts. From the perspective of public institutions and policymakers, insights about the likely future worker profile can be crucial. Government policymakers, who will be called upon to help provide retraining programs for displaced workers, need to know which occupations are likely to grow or decline. Moreover, the clearer our picture of the future labor market, the better our educational system can prepare workers for tomorrow's jobs.

Envisioning the worker profile of the future requires forecasting both the supply of available workers suitable for different jobs and the availability of jobs, including the characteristics or skills they entail. Relative potential shortages or surpluses of workers and jobs can then be analyzed and manpower planning actions taken to help insure a generally balanced growth of skills and requirements in the labor market. Unfortunately, our ability to foresee the impact of future changes in technology and other factors that influence the supply of and demand for workers and jobs is limited, particularly as our time horizon is lengthened and as we attempt more detailed analyses. These uncertainties necessarily cloud any set of projections, and warn us to maintain a careful watch for changes in the labor market outlook.[1]

From a regional perspective, some projections of the future labor market are available that facilitate a broad understanding of the changing shape of the southeastern economy over time. These projections, from state and national statistical agencies and private-sector forecasting services, provide tentative answers to such important questions as: How fast are jobs expected to grow in the Southeast compared with the nation? How will the employment growth influence the types of jobs that are created? Does the expected changing occupational pattern suggest an unusual departure from recent historical experience in manpower planning requirements? Answers to these questions, although imprecise, can assist in planning labor supply programs to meet future employment needs, or in changing labor supplies to create new employment opportunities in the region.

BLS National Labor Market Projections

The U.S. Department of Labor's Bureau of Labor Statistics (BLS) is the major source of information about national labor market developments. Besides providing historical data, the BLS prepares biennial projections covering: (1) the labor force, (2) aggregate economic performance, (3) industry final demand and total

industry production, (4) industry employment levels, and (5) occupational employment by industry. The current BLS projection covers the national job outlook through 1995.[2]

BLS projection procedures for each of the five areas are separate but related. The BLS system is an extremely sophisticated and substantial undertaking. Briefly, its procedures include the development of projections concerning:

- the labor force
- gross national product (GNP)
- disaggregation of GNP into major sectors of demand such as consumption and investment
- distribution of sectoral demands into detailed industry output
- calculation of total industrial production in conjunction with a projected input-output table
- estimation of industry employment through use of projected industry productivity
- projection of an industry-occupation matrix for each industry to calculate employment by occupation.

The BLS makes several employment and occupation projections based on alternative assumptions about fiscal and monetary policy and other factors that generate alternative economic scenarios. It utilizes a large-scale macroeconometric model of the U.S. economy, as well as similarly detailed input-output and industry-occupation matrices and Bureau of the Census population projections based on trends in birth, death, and migration rates.

What do these projections foresee as the major expected developments in the occupational structure nationally? For one thing, they project that white-collar jobs, led by the growth of professional and technical workers, will increase faster than any other group if aggregate economic activity and industry demand patterns follow the bureau's moderate growth path. Faster-than-average increases for nonwhite-collar workers are expected only for service workers and blue-collar craft workers, while other blue-collar jobs should grow at a below-average pace and farming occupations will decline. These changes would boost the share of total employment accounted for by professional and technical workers as well as service workers, according to the BLS. On the other hand, the employment shares of operatives, laborers, and farm occupations are expected to decline. ("Operatives" includes a wide range of jobs, from assembling goods in factories to driving trucks and operating certain types of machinery.)

Some of these changes would continue trends that have persisted over the past few decades, but others would represent major departures from long-term trends. For example, for decades professional/technical and service jobs have been growing faster than total employment while operative and labor jobs have been growing slower. The BLS believes farm occupations will decline more slowly than in the past, but that the drop still will be large. The projected average growth rate of clerical jobs represents a slowdown from faster-than-average growth over the past 20 years.[3]

These BLS projections of major trends are likely to prove fairly close to reality. The BLS itself analyzes its past projections for accuracy. Its 10-year-old projections for 1980 were on target for professional and service occupations, the two fastest growing occupational groups in the 1970s, and correctly identified these workers and clerical employees as the three fastest-growing groups. BLS projections also were reasonably accurate for all but administrative and nonfarm laborer occupations (which the bureau underestimated) and operative occupations (which were overestimated). In general, the BLS has in the past been more successful in identifying employment growth than employment declines.[4] But recent improvements in its occupational outlook program offer encouragement that the current BLS projections will be even more reliable than earlier ones.

Regional Labor Market Projections

Technological change, variations in industrial growth and occupational staffing patterns, and other factors with a significant impact cause occupations to expand at different rates in the Southeast than nationwide. To find out how the region's broad occupational structure is likely to change compared with the nation's, we used long-term forecasts of state employment levels by industry generated by Data Resources, Incorporated (DRI). Similar projections also are available from state agencies in the Sixth District.

For each of the six states in the Sixth District and for the nation, we projected major occupational groups by applying DRI's projected industry employment data to the BLS national industry occupation matrix. For example, the projected employment in Alabama's apparel industry was

applied to the corresponding national occupational employment pattern (relative number of operatives, managers, professionals, and so on). After similar calculations of the expected occupational staffing of employment in other Alabama industries, we derived total employment in the state's major occupational groups from aggregation across all industries for the projected year. Regional totals are aggregations across the six states.

The resulting occupational employment projections for Sixth-District states and the nation indicate patterns of change in the region's broad occupational structure similar to those projected to occur nationally between 1982 and 1995.[5] The three fastest growing occupations nationally and regionally are professional/technical, managers/officials, and sales workers (Table 1). The three occupations that will add the most workers both regionally and nationally are professional/technical, service, and clerical workers.[6]

Several important observations emerge from inspecting these national and regional projections. One is that the occupational outlook for both areas in the coming years is similar to what it has been over the past decade. For example, professional, service, and clerical jobs posted the fastest growth and added the most jobs in the 1970s. Generally, the continuing shift of jobs out of farming and slow growth of operative and labor occupations contrasts sharply with the quick expansion of white-collar and service occupations, and represents an important trend nationally and regionally.

The BLS expects service-producing industries, including transportation, communications, public utilities, trade, finance, insurance, real estate, other services, and government, to account for nearly three out of four of all the new jobs nationally between 1982 and 1995. Various miscellaneous business service industries are expected to pace employment growth within the service-producing sector. Medical care, business and professional services, hotels, personal services, and nonprofit organizations are projected to account for one-third of all the new jobs created in the 1982-1995 period, especially boosting professional, service, and clerical jobs. These industries and occupations will grow especially fast in the Southeast, fueled by continued population migration to the region and above-average economic growth of the southeastern economy, including its important tourism industry.

What's more, the Southeast is generally expected to grow at a substantially faster pace than the nation through 1995. In 1982, the Southeast accounted for 12.7 percent of all U.S. non-agricultural employment. This share should rise to 13.2 percent in 1995 as a result of the region's relatively rapid growth. Sixth-District states are expected to account for over 15 percent of the new jobs created nationally in the 1982-85 period.

Table 1. Worker Profile Changes Nationally and Regionally, 1982-1995*

	Distribution				Net Change 1982-1995		Percent Change 1982-1995	
	United States		Southeast					
	1982	1995	1982	1995	U.S.	S.E.	U.S.	S.E.
Professional, technical, and related workers	16.4	17.1	14.7	15.4	4,408.5	587.6	30	35
Managers, officials, and proprietors	8.4	9.0	8.7	9.4	2,582.2	393.1	34	40
Salesworkers	6.4	6.5	6.6	6.8	1,533.2	254.3	27	34
Clerical workers	20.4	20.1	20.7	20.4	4,160.0	644.1	23	27
Craft and related workers	11.0	11.2	12.0	12.2	2,636.3	426.0	27	31
Operatives	13.6	12.6	13.7	12.1	1,906.5	217.4	16	14
Laborers, except farm	6.1	5.8	6.9	6.6	998.0	190.2	18	24
Service workers	16.7	16.8	16.5	17.0	3,732.1	621.6	25	33

*Wage and salary employment in non-agricultural establishments.

Sources: Data Resources, Incorporated and the Federal Reserve Bank of Atlanta.

Above-average growth of jobs and population has characterized the Southeast in recent decades. Florida's population increase has paced the region's growth, with the bulk of its gain from population migration, particularly of retirees. But all of the District states registered population growth rates that exceeded the nation's in the 1970s and, according to the Census Bureau, Mississippi was the only regional state that failed to gain from migration in the 1975-80 period. The bureau expects Florida's population to continue to boom, enabling the region's population to grow twice as fast as the nation's; however, it anticipates that Alabama and Mississippi will grow at below-average rates.

Some significant differences remain between the region's and the nation's occupational growth patterns. In terms of relative occupational growth rankings, services should expand more rapidly than craft occupations in the region, but not so in the nation. Moreover, the rankings of absolute job increases by occupation vary somewhat. In contrast to the nation, the region's clerical and service job increases outrank professional job increases, and sales jobs increase more than operative occupations. These contrasts are attributable to relative differences in the mix of industrial growth. The Southeast is growing relatively rapidly in services and trade industries that employ white-collar workers rather than craft workers or operatives.[7] Although professional and technical occupations are underrepresented in this region and are projected to remain low compared with the nation, the expected languid growth of operative jobs here may alter the perception of the region as a producer of jobs in branch plants of low-wage industries. (The growth rate of jobs for operatives is the only occupational category projected to be higher for the nation than for the region.)

The faster overall growth of employment in the Southeast versus the nation and the relative occupational growth differences between the two combine to shift the relative concentration of occupational employment in the Southeast. The region reported a higher percentage of its work force employed in managerial, sales, clerical, craft, and labor occupations in 1982 than did the nation as a whole, implying a regional concentration in these occupations. By 1995, the concentration in sales workers should rise slightly, while that in operative occupations should disappear (Table 2). The region's below average employment of service workers in 1982 also is expected to reverse by 1995, causing a slight concentration by that time.

Table 2. Regional Occupational Concentrations 1982 and 1995*

	1982	1995
Professional, technical, and related workers	.90	.90
Managers, officials, and proprietors	1.04	1.04
Sales workers	1.02	1.04
Clerical workers	1.02	1.02
Craft and related workers	1.09	1.08
Operatives	1.00	.95
Laborers, except farm	1.14	1.15
Service workers	.99	1.02

*Concentration refers to the relative importance of employment in an occupational group in the region relative to that group's importance nationally. A number greater than one indicates that employment in an occupation accounts for a higher share of regional employment than it does nationally. The concentration number is the ratio of the share of regional employment in a particular occupation to that occupation's share of national employment.

Source: Federal Reserve Bank of Atlanta.

Broad Structural Change within the Region

Changes in the occupational structure of the entire region mask even greater shifts at the state level. For example, the Southeast's faster overall growth of jobs is attributable to above-average growth in Florida, Georgia, and Louisiana (Table 3). Employment in Florida should grow two-thirds faster than employment nationally, and account for nearly half of all the jobs created in the region in the 1982-1995 period. The net effects of the shifts in regional states' overall employment growth and industry mix can be summarized by examining changes in their occupational concentration in the 1982-1995 period (Table 4).

The general decline in the relative importance of operatives in the Southeast's occupational mix is caused by reduced operative employment in such areas as Tennessee's leather industry, mining in Louisiana, and food processing across the region. Moreover, the number of operatives in the regionally important textile and apparel industries is expected to grow only slowly in the next several years. These trends contribute to expectations of a slight overall decline in the

Table 3. Employment Growth in the Southeastern States, 1982-1995

	Non-Agricultural Employment 1982	1995	Absolute Change 1982-1995	Average Annual Growth
Alabama	1,314.9	1,549.9	235.0	1.4
Florida	3,762.4	5,306.7	1,544.3	3.2
Georgia	2,201.6	2,856.4	654.8	2.3
Louisiana	1,614.2	2,086.6	472.4	2.2
Mississippi	793.1	916.5	123.4	1.2
Tennessee	1,688.5	1,983.3	294.8	1.3
Southeast	11,374.7	14,699.4	3,324.7	2.2
United States	89,638.0	111,400.0	21,800.0	1.9

Sources: Data Resources, Incorporated and the Federal Reserve Bank of Atlanta.

Table 4. State Occupational Concentrations, 1982 and 1995

Occupation	Alabama 1982	1995	Florida 1982	1995	Georgia 1982	1995	Louisiana 1982	1995	Mississippi 1982	1995	Tennessee 1982	1995
Professional, technical, and related workers	.87	.86	.95	.94	.84	.86	.90	.88	.86	.86	.89	.90
Managers, officials, and proprietors	1.00	.99	1.08	1.08	1.02	1.01	1.06	1.07	1.00	1.00	1.01	1.00
Sales workers	.90	.90	1.14	1.14	1.02	1.07	.98	.99	.90	.90	.97	.96
Clerical workers	.97	.95	1.08	1.07	1.00	1.01	1.01	.99	.96	.94	.97	.97
Craft and related workers	1.12	1.14	1.02	1.01	1.07	1.02	1.22	1.30	1.12	1.11	1.08	1.07
Operatives	1.23	1.26	.75	.72	1.15	1.08	.90	.81	1.23	1.25	1.22	1.16
Laborers, except farm	1.20	1.21	1.07	1.06	1.17	1.14	1.19	1.25	1.21	1.24	1.12	1.21
Service workers	.92	.92	1.08	1.09	.96	1.00	.98	.99	.93	.94	.92	.95

Source: Federal Reserve Bank of Atlanta.

importance of manufacturing in the region compared with the nation. On the other hand, the small increase in concentration of sales and service occupations reflects the growing importance of diverse trade and service industries in serving the region's expanding market. The absolute number of farm workers is declining both nationally and regionally, as growing mechanization in agriculture continues to reduce the need for manual labor.

Despite the region's relative decline in the importance of operative jobs, both Alabama and Mississippi are slated to increase their already high concentration of workers in these occupations. The reason is that manufacturing job advances in these states are the highest in the region compared with overall employment growth, and operative occupations account for nearly four out of ten manufacturing jobs. (In addition, some of the job gains represent recovery from the severe dropoff in manufacturing activity in these states during the 1981-1982 recession.)

Another major interstate difference is that laboring occupations should increase in relative importance in Louisiana and Tennesee but decline in Georgia. Georgia's outlook also is unusual in that the relative importance of sales and service occupations is expected to increase substantially more than in other states, perhaps reflecting Atlanta's key role as the region's commercial and distribution center. Nevertheless, Florida should continue to have the highest concentration of sales and service workers among Sixth-District states. Georgia also is expecting a decline in its relative concentration of craft workers while Louisiana's concentration, already high, should

increase substantially. Increased laborer and craft employment in Louisiana appears to be associated primarily with expected expansion of its energy sector and port-related activity.

Detailed Occupational Changes

Employment growth rate differences among broad occupational groups in the region translate into even greater variation in the job growth of detailed occupations, both nationally and regionally. For the nation, detailed outlook information for approximately 200 occupations is described in the BLS's *Handbook* and other publications. Analogous outlooks for regional states are provided by State Occupational Information Coordinating Committees (SOICC) in the District.[8] (See Appendix.)

The BLS expects the national economy to generate about 25.6 million additional jobs between 1982 and 1995, of which nearly half will be in only 40 of the 1,700 occupations for which projections were made. Generally, occupations that will account for the most additional jobs are already large, each employing more than 250,000 workers in 1982. The 20 occupations with the largest job growth are shown in Table 5. Laborers, including farm workers, constitute the only major occupational group missing from the list of occupations with the largest job growth; six of the listed occupations are for service workers and four are professional/technical occupations. An important generalization about the numerically large occupational increases, also reflected in this incomplete listing, is that employment in jobs requiring a college degree or specialized technical training is likely to increase significantly, but so are many jobs that require no education or training beyond the high school level.

Occupations with the largest growth in number of jobs generally are not the occupations growing at the quickest rate (Table 5). Electrical and electronic technicians, computer operators, programmers and systems analysts, and electrical engineers are the only occupations among the 20 fastest growing that are also among the 40 occupations with the largest job growth. The fastest growing occupations tend to be in the computer, engineering, or health fields and require postsecondary schooling.

Occupations that are expected to decline come from all of the major occupational groups except sales workers. It is anticipated that the 20 most rapidly declining occupations will lose 903,000 jobs, with about 60 percent of those jobs accounted for by private household workers, farm workers, and farm owners and tenants. The decrease in college and university faculty jobs accounts for one out of eight lost jobs in the twenty most rapidly declining occupations, fully 11 percent of such jobs held in 1982. The projected decline in college teaching jobs, posts that require the highest educational attainment, is attributable to sagging college enrollments following the education of the baby-boom generation. Several of the other declining occupations on the list have been affected adversely by technological change. For example, advances in communications equipment are lessening the demand for telephone operators, typesetters, and compositors.

Many of the jobs that are expected to show the largest growth nationally also are expected to provide a large share of regional jobs. Building custodians—janitors, porters, and cleaners—top the list of occupations with the most significant growth both nationally and regionally. Other occupations with the largest national growth, such as cashiers, secretaries, office and sales clerks, waiters, and waitresses, also are among the occupations with the greatest expected job growth in southeastern states.

Despite a similar overall pattern, the regional job outlook for particular occupations in some instances differs significantly from the national outlook. Among the major differences are the region's less favorable outlooks for registered nurses, kindergarten and elementary teachers, automotive mechanics, computer programmers, operators and systems analysts, and electrical engineers and technicians. The region's outlook is more favorable for fast-food restaurant workers, typists, and bookkeepers.

The less favorable outlook for registered nurses and elementary schoolteachers may seem surprising in light of the Southeast's above-average population growth. For registered nurses, even Florida, with its growing elderly population in need of relatively more health care, projects a lower share of new nursing jobs in this decade than is projected for the nation in the 1982-1995 period. However, it appears that southeastern states rely more heavily on licensed practical nurses (LPNs) than on registered nurses.[9] LPNs, as well as nurses aids, are expected to grow faster regionally than nationally in the coming years.

Alabama is the only Sixth-District state that expects its elementary schoolteachers to account for a higher share of employment growth than nationally, while Tennessee expects its number to decline. The Census Bureau expects the nationwide drop in the elementary school population to reverse by the mid-1980s, improving the job prospects for kindergarten and elementary schoolteachers, both nationally and regionally. However, among regional states, the National Planning Association expects only Florida to register faster growth of the elementary school age population than the nation in the 1985-1995 period.

It might seem that the policy implication of these changes for the region's educational planners is that the lessening of relative population pressure will abet their efforts to improve the quality of elementary education in their states. However, the difference between the regional and national growth rates of the elementary school age population is small. Moreover, the region's secondary school age population will drop proportionately less than nationally through the end of this decade, when it will begin again to expand at about the same rate nationally and regionally. Also, employment of college teachers in the Southeast is expected to rise in the 1980s, while the college and university faculty is projected to decline by 15 percent nationally in the 1982-1995 period. These trends suggest an increased relative burden on the region's educational system.

Some of the region's other major differences in particular outlooks are in line with expected relative developments among industries, regionally and nationally. In the region's trade and services industries, for example, above-average growth is anticipated, promising above-average increases in typing and bookkeeping jobs and in employment at fast-food establishments. The reasons for projected below-average relative increases in computer-related jobs are less obvious, however. Part of the difference undoubtedly results from the dissimilar time periods used for the projections. An especially high employment trend for these occupations would favor their contribution to overall growth more for the lengthier and later national projection period.

Within the region, particular state outlooks for some jobs diverge dramatically from regional-national differences. As mentioned, Tennessee expects the number of elementary schoolteachers to decline in the remaining years of this decade. The state's employment of carpenters also is projected to decline in the eighties, in contrast to relatively large growth elsewhere in the District and in the nation. The projection for Tennessee is that construction craft workers will see the slowest growth rate of any cluster of craft worker occupations, perhaps because of an anticipated slowdown in population growth.

In some instances, regional states project employment growth for an occupation for which a decline is expected nationally. College teachers offer one example and roustabouts (deck hands or waterfront laborers) are another. A 33 percent increase in roustabout employment is looked for in Louisiana and a 48 percent rise in Mississippi, whereas nationally the number of roustabouts is expected to decline 14 percent by 1995. A possible reason for this divergence is the concentration of shipping at "load centers." Some examples of relatively large employment growth in individual states but low growth nationally include sewing machine operators in Alabama and welders and flamecutters in Louisiana.

Policy Implications and Conclusions

Changes in regional employment by occupation may require significant adjustments to the educational system if it is to prepare tomorrow's workers adequately. Increased claims are made on the system when continued population and income growth heighten demand for goods and services, causing greater need for trained workers. An additional regional burden may be associated with the southeastern states' desire to improve the relative performances of their educational systems. Finally, differences in the occupational growth mix between the region and nation may require spending relatively more or less on education compared with the nation, depending upon the educational requirements of particular jobs.

What can be said about these issues based on the employment changes that have been discussed? The projected faster growth of regional than national employment in the years ahead suggests that the Southeast's education expenditure likely will account for a growing share of national spending on schools. However, expanding job opportunities in the region also are attracting

Table 5. Major National Occupational Changes, 1982-1995

Twenty Occupations with Largest Job Growth

Occupation	Change in total employment (in thousands)	Percent of total job growth	Percent change
Building custodians	779	3.0	27.5
Cashiers	744	2.9	47.4
Secretaries	719	2.8	29.5
General clerks, office	696	2.7	29.6
Sales clerks	685	2.7	23.5
Nurses, registered	642	2.5	48.9
Waiters and waitresses	562	2.2	33.8
Teachers, kindergarten and elementary	511	2.0	37.4
Truck drivers	425	1.7	26.5
Nursing aides and orderlies	423	1.7	34.8
Sales representatives, technical	386	1.5	29.3
Accountants and auditors	344	1.3	40.2
Automotive mechanics	324	1.3	38.3
Supervisors of blue-collar workers	319	1.2	26.6
Kitchen helpers	305	1.2	35.9
Guards and doorkeepers	300	1.2	47.3
Food preparation and service workers, fast food restaurants	297	1.2	36.7
Managers, store	292	1.1	30.1
Carpenters	247	1.0	28.6
Electrical and electronic technicians	222	.9	60.7

Twenty Fastest Growing Occupations

Occupation	Percent growth in employment
Computer service technicians	96.8
Legal assistants	94.3
Computer systems analysts	85.3
Computer programmers	76.9
Computer operators	75.8
Physical therapy assistants	67.8

Computer operators	67.8
Physical therapy assistants	65.3
Electrical engineers	63.9
Civil engineering technicians	63.5
Peripheral EDP equipment operators	62.2
Insurance clerks, medical	60.7
Electrical and electronic technicians	59.8
Occupational therapists	58.6
Surveyor helpers	54.1
Credit clerks, banking and insurance	53.6
Physical therapists	52.5
Employment interviewers	52.1
Mechanical engineers	51.6
Mechanical engineering technicians	50.3
Compression and injection mold machine operators, plastics	

Twenty Most Rapidly Declining Occupations

Occupation	Percent decline in employment
Railroad conductors	−32.0
Shoemaking machine operatives	−30.2
Aircraft structure assemblers	−21.0
Central telephone office operators	−20.0
Taxi drivers	−18.9
Postal clerks	−17.9
Private household workers	−16.9
Farm laborers	−15.9
College and university faculty	−15.0
Roustabouts	−14.4
Postmasters and mail superintendents	−13.8
Rotary drill operator helpers	−11.6
Graduate assistants	−11.2
Data entry operators	−10.6
Railroad brake operators	− 9.8
Fallers and buckers	− 8.7
Stenographers	− 7.4
Farm owners and tenants	− 7.3
Typesetters and compositors	− 7.3
Butchers and meatcutters	− 6.3

Source: Bureau of Labor Statistics.

trained workers from elsewhere, somewhat mitigating the need for training workers locally.[10] Even so, the pattern of local growth of population and income translates into a need to boost spending on education relative to the nation. Both the school age population and personal income are expected to rise at above-average rates over the next ten years.

If educational policymakers in the region want their school systems to catch up with the national average school performance, even more local spending per student may be needed. An analysis of how much additional spending would be required to upgrade southeastern educational systems is beyond the scope of this study. However, the additional burden of increased spending on education would be eased somewhat if, as expected, personal income in the region grows at an above-average rate.

To evaluate the impact on educational systems of expected differences in the occupational employment growth mix, we calculated a crude summary index of the amount of education required per additional expected worker for regional states and the nation. The index was constructed by attaching an educational weight, on a scale of 1 to 5, to each of the 40 largest occupational increases for the nation. For example, occupations requiring the least amount of formal education, such as janitors and trade helpers, were given a weight of 1. At the other extreme, those occupations that required post-graduate training or education, such as physicians, were given a weight of 5. The expected increases in the occupations were then multiplied by the educational weights and summed for regional states and the nation.[11]

Comparison of these per worker indexes for the states, the region, and the nation suggests that fewer years of education per new worker will be needed in the Southeast than nationally. Within the region, Florida and Georgia workers will call for the most education, but intra-regional differences are slight relative to state index differences from the national index value.[12]

Although fewer years of education per worker may be required in the Southeast than in the nation, future growth still is likely to continue the region's per capita income convergence toward the national average. To evaluate the impact on personal income per capita of the region's occupational employment mix, weighted average hourly wage rates were calculated for southeastern states and the nation.[13] All of the southeastern states are projected to have lower weighted average hourly wage rates (per new worker) than the nation, with the regional average falling 40 cents short of the $5.15 national average. However, except for Florida, the expected ratio of each state's wage rate to the nation's is higher than its 1983 ratio of per capita personal income to the nation's.[14] In 1983, the region's per capita personal income was 88 percent of the nation's, while its expected average hourly wage rate is 92 percent of the anticipated national average. Thus, the projections used in this study suggest a continuation of above-average growth of the region's average income.

Unfortunately, it is not possible to determine whether the occupational employment outlook discussed in this study portends a future surplus or shortage of workers with particular skills in the region. Nationally, a decline in the number of labor force entrants is occurring following absorption of the baby-boom generation. Some argue that a growing shortage of low-skill labor will result from this demographic shift. If so, the employment prospects for numerous unskilled workers in the region will brighten.

The unknown magnitude of future migration flows into the region contributes to the difficulty of foreseeing potential shortages or surpluses of different types of workers. However, the movement of workers into the region has helped fill worker shortages in the past, and it is likely that migration of workers into the region will continue to make up for local shortages of workers in the years ahead.

Several major conclusions emerge from this study of changing employment patterns. One is that, while employment in the region is expected to grow at an above-average pace, the resulting pattern of occupational employment is not expected to change substantially in this decade. Moreover, local changes are expected largely to mirror national trends in the major occupational categories. Although comparisons at a detailed occupational level are less certain, there is some evidence that these relative changes will not be overly burdensome for the region's educational system. This is not to say, however, that an effort to alter the occupational distribution of regional workers through increased spending on education will not prove laborious. If public policymakers wish to change the region's occupational outlook, to render it more "high tech," for example, a

substantial additional investment in education may be required. Moreover, it appears that national trends are quite strong, suggesting that educational policy changes made today will have little influence in the years immediately ahead.

All in all, our findings suggest that manpower planning policies focusing on providing basic skills to help individuals adjust to near-term shifts in labor markets make good sense. Meanwhile, additional study concerning the costs and benefits of alternative long-range policies, now in progress in regional states, also seem justified.

(David Avery provided extensive and valuable assistance in making the necessary computer calculations of the figures in this article.)

NOTES

[1]There is an important distinction between forecasts and projections. An employment projection is a numerical statement about future growth, worked out under a specific set of assumptions concerning the factors that affect employment. A forecast is similar to a projection, but implies that the author or user believes that a particular projection indicates the most likely growth. Thus, all forecasts are projections, but not all projections are forecasts.

[2]BLS's outlook is discussed in five articles in its *Monthly Labor Review* (November 1983). A major product of BLS research on employment in occupations that is extremely valuable for use in vocational guidance in its *Occupational Outlook Handbook*. The biennial *Handbook* presents detailed current information and job prospects covering about 200 occupations. For these occupations, the *Handbook* discusses job duties, working conditions, level and places of employment, education and training requirements, advancement possibilities, job outlook, earnings, other occupations that require similar aptitudes, interests, or training, and sources of additional information.

[3]Beginning with statistics from the 1980 Census, the government is using a whole new system for classifying occupations. Unfortunately, it is extremely difficult to analyze occupational structure changes because occupations have been grouped much differently than in the past. For a good discussion of the changes, see M. F. Riche, "The Blue-Collar Blues," *American Demographics*, vol. 5 (November 1983), pp. 20-23.

[4]See M. L. Carey and K. Kasunic, "Evaluating the Projections of Occupational Employment," *Monthly Labor Review*, vol. 105 (July 1982), pp. 22-30 for a detailed discussion of the accuracy of BLS projections.

[5]It might be argued that by applying the national industry occupational matrix to projected state industry employment, we are forcing changes in the region's occupational mix to conform to the pattern of change that occurs nationally. To an extent, of course, this is true. But the region's occupational mix depends on its industry employment mix as well as its industry staffing patterns, and the region's industry mix in 1982 and 1995 differs substantially from the nation's.

Unfortunately, it is not possible to calculate the separate impacts of these two determinants of occupational patterns from available data. However, we have determined that, in 1982, differences in the regional-national industry mix caused the region to have 200,000 and professional and technical workers, and 175,000 more craft workers and laborers, than it would have had with the same industry mix as the nation. With the same industry mix as the nation in 1995, the region would have 270,000 more professional and technical workers, 145,000 more operatives, and 220,000 fewer craft workers and laborers. Thus, the industry-mix effect is an important factor in determining the region's occupational employment pattern. See also note 7.

[6]The comparisons made here are between DRI projections of the national and regional work forces. If we compare the DRI national projections to the BLS national projections slight differences are indicated. DRI is less optimistic about clerical, operative, and farm occupations than BLS and is more optimistic about the growth of managers and officials. As a consequence, the relative growth rankings of the two projections are somewhat different. However, they are generally in agreement and their rankings of absolute job changes are identical.

[7]It is important to emphasize that our occupational projections utilize a national industry-occupation matrix. If individual statewide matrices were used, the resulting occupational changes could vary from those reported because of differences in national and state industry staffing patterns. For our purpose, however, the national matrix is preferred because the BLS adjusted the cells in the projected matrix to account for expected changes in industry staffing patterns due to technological change, product mix shifts, and other factors that influence the industry-occupation mix. We expect that these changes will help move industry staffing patterns in the region toward national staffing patterns.

[8]For BLS publications, see note 2. A National Occupational Information Coordinating Committee (NOICC) was created by Congress as a part of the Educational Amendments Act of 1976 and modified by additional legislation in subsequent years. Each state is required to have an SOICC composed of four state agencies. Typically, a state's Board of Education, Employment Security Agency, Job Training Coordinating Council, and Vocational Services agency constitute its SOICC. Goals of a state SOICC include: development and utilzation of an occupational information system; improved communication and coordination; provision of career information to youth and adults seeking career changes; and training those who use occupational information.

[9]See B. H. McCrackin, "Dynamics of Growth and Change in the Health-Care Industry," *Economic Review* (Federal Reserve Bank of Atlanta), vol. 67 (October 1984), pp. 32-42.

[10]See W. J. Kahley, "Migration: Changing Faces of the South," *Economic Review* (Federal Reserve Bank of Atlanta), vol. 67 (June 1982), pp. 32-42, for a discussion of the impacts of migration on the region.

[11]The educational weights were derived from the discussion of the educational requirements of different occupations in BLS's *Occupational Outlook Handbook*. The weighting scale is as follows: 1 = primary education, 2 = secondary education, 3 = post-secondary or technical, 4 = college education, 5 = graduate education.

[12]The indexes are crude and only suggestive as a summary measure. That is because we calculated the index on the basis of occupational education requirements for the 40 fastest growing occupations for the nation, and the time periods for the state and national projections are not the same. Results of the index are, however, consistent with the relative growth patterns of several occupations discussed earlier.

[13]The weighted average hourly wage was calculated by multiplying the amount of job growth expected for each of the 40 occupations showing the largest growth in the years ahead by the associated occupational wage rates in Florida in 1982, summing them, and then dividing by the total job growth for these occupations.

[14]One factor that helps explain Florida's exception is the importance of retirees there. In Florida, the per capita personal income of retirees is higher than for the entire state population. Thus, including their above-average state incomes would raise Florida's expected per capita income based on worker wage rates, bringing it closer to the national norm.

Appendix

State Occupational Employment Projections, 1980-1990

Occupational employment projections are available from each Sixth-District state's SOICC for the 1980-1990 period. The table below summarizes the industry employment changes, by major occupational category, that each state expects in this decade. All of the states also prepare detailed occupational outlooks that are available to the public.

Despite several major differences between these state projections and the BLS and DRI projections of occupational employment, the state projections resemble the others in that professional/technical, clerical, and service occupations are expected to provide the most jobs in the coming years (see Table below).

One obvious factor in the differences between the state and DRI projections is the time period over which they are made. The state projections cover the 1980-1990 period compared with DRI's 1982-1995 projection period. Another major difference between the two is that the state projections use industry-occupation matrices based on actual historical industry staffing patterns for the individual states. We applied the BLS projected national industry staffing pattern to DRI's industry employment projections for each state to calculate state occupational distributions. A third major difference between the projections is that the economic and technological assumptions underlying them may differ substantially.

The accuracy of occupational projections obviously depends upon the accuracy of the associated assumptions of industry employment growth. In this instance, differences in assumptions render the states' projections of overall employment growth relatively optimistic compared with DRI's. Relative to employment

Employment by Major Occupational Category

Occupational Distribution	Alabama 1980	Alabama 1990	Florida 1980	Florida 1990
Professional, technical, and related workers	16.6	17.3	16.3	16.9
Managers, officials, and proprietors	7.3	7.3	9.1	9.
Sales workers	5.6	5.6	7.3	6.8
Clerical workers	17.4	17.8	21.6	22.
Craft and related workers	13.7	13.0	11.3	10.5
Operatives	18.8	18.2	10.9	10.2
Laborers, except farm	7.8	7.6	6.5	6.2
Service workers	12.8	13.7	17.1	18.9
Employment (in millions)	1.4	1.6	3.5	5.2
Percent Change		17		49

Sources: State Department of Labor and the Federal Reserve Bank of Atlanta.

Alabama
Chief, Research and Statistics
Department of Industrial Relations
Industrial Relations Building, Room 427
649 Monroe St., Montgomery, AL 36130
(205) 832-5263

Director, Alabama Occupational
Information Coordinating Committee
First Southern Towers, Suite 402
100 Commerce Street
Montgomery, AL 36130
(205) 832-5737

Florida
Director, Research and Analysis, Division
of Labor and Employment Security
Coldwell Building, Tallahassee, FL 32301
(904) 488-1048

Director, Florida Occupational Information
Coordinating Committee
124 W. Jefferson Street
Tallahassee, FL 32301
(904) 224-3660

Georgia
Director, Labor Information Systems
Department of Labor
254 Washington Street, S. W.
Atlanta, GA 30334
(404) 656-3177

Executive Director, Georgia Occupation
Information Coordinating Committee
501 Pulliam Street, S. W., Room 339
Atlanta, GA 30312
(404) 656-3117

growth rates in the 1970-1980 period, Georgia is the only state whose projection for this decade is lower than the employment growth rate projected by DRI. Among states, Florida and Louisiana appear to be the most optimistic: their projected 1980-1990 employment growth is closest to that registered in the 1970s, a period when maturing baby boomers pushed employment growth to a historical peak. (Of course, one also could argue that DRI's projections are more pessimistic than the states'. In DRI's view, the nation's employment growth in this decade will be closer to its 1970s rate than will be employment growth in the region.)

Compared with DRI's projections, those broad occupational groups the states collectively expect to grow the fastest are operative, clerical, and service jobs. In fact, the states project that operative jobs will increase at nearly twice the annual rate projected by DRI, while they expect clerical and service jobs to grow more than 60 percent faster than does DRI. Florida and Louisiana account for the bulk of the job increases in the faster-growth scenario projected by the states.

Although the states expect operative employment to grow more rapidly than does DRI, operatives' share of the region's employment is seen to decline over the decade. The relatively quick growth anticipated by the states for clerical jobs leads to a slight increase in clerical employment's share, while the very rapid service worker growth causes that category's share to soar. In effect, regional states expect to capture a larger share of the service worker group, which is growing at an above-average pace nationally.

State sources of additional labor market and career information in the Southeast are given below.

	Georgia		Louisiana		Mississippi		Tennessee		Southeast	
	1980	1990	1980	1990	1980	1990	1980	1990	1980	1990
	14.7	15.2	15.9	15.8	14.8	15.2	14.4	14.4	15.6	15.8
	8.0	8.2	8.0	7.9	9.6	9.7	9.4	9.5	8.6	8.7
	6.1	6.2	6.4	6.2	5.3	5.6	6.4	6.5	6.4	6.4
	19.7	20.1	18.5	18.4	14.9	15.6	17.4	17.8	19.1	19.6
	11.6	11.5	13.6	13.5	12.6	12.3	13.3	12.9	12.4	11.9
	15.7	14.7	14.5	13.8	18.1	17.4	18.7	18.0	14.9	13.8
	10.1	9.4	8.5	8.3	8.5	8.0	7.2	7.0	7.9	7.5
	14.1	14.6	14.6	16.2	16.2	16.1	13.1	13.9	15.1	16.3
	2.2	2.6	1.6	2.2	.8	1.0	1.9	2.2	11.4	14.8
		20		38		19		15		30

Louisiana
Chief, Research and Statistics
Department of Labor, P. O. Box 44094
Capital Station, Baton Rouge, LA 70804
(504) 342-3141

Director, Louisiana State Occupational
Information Coordinating Committee
1000 Science Highway
Baton Rouge, LA 70802
(504) 342-5149

Mississippi
Chief, Research and Statistics
Employment Security Commission
P. O. Box 1699, Jackson, MS 39205
(601) 961-7424

SOICC Director
Vocational Technical Education
P. O. Box 771
Jackson, MS 39205
(601) 359-3412

Tennessee
Chief, Research and Statistics
Department of Employment Security
519 Cordell Hull Building
436 Sixth Avenue, North
Nashville, TN 37219
(615) 741-2284

Director, Tennessee Occupational
Information Coordinating Committee
512 Cordell Hull Building
436 Sixth Avenue, North
Nashville, TN 37219
(615) 741-6451

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FINANCE

$ millions	AUG 1984	JUL 1984	AUG 1983	ANN. % CHG.		AUG 1984	JUL 1984	AUG 1983	ANN. % CHG.
UNITED STATES									
Commercial Bank Deposits	1,388,132	1,380,285	1,278,239	+ 9	Savings & Loans**				
Demand	305,958	314,145	302,296	+ 1	Total Deposits	682,453	674,283	603,973	+ 13
NOW	90,674	88,727	80,677	+ 12	NOW	20,582	19,726	17,634	+ 17
Savings	355,986	358,985	344,083	+ 3	Savings	166,929	170,786	186,131	- 10
Time	670,766	659,099	584,147	+ 15	Time	497,490	485,829	403,469	+ 23
Credit Union Deposits	53,366	52,992	61,029	- 13		JUL	JUN	JUL	
Share Drafts	5,762	5,526	5,448	+ 6	Mortgages Outstanding	572,336	563,375	494,930	+ 16
Savings & Time	47,445	47,262	49,885	- 5	Mortgage Commitments	47,383	47,754	33,099	+ 43
SOUTHEAST									
Commercial Bank Deposits	158,738	157,576	144,606	+ 10	Savings & Loans				
Demand	35,892	36,320	35,353	+ 2	Total Deposits	90,159	89,229	N.A.	
NOW	11,624	11,417	10,325	+ 13	NOW	3,257	3,084	N.A.	
Savings	40,855	40,802	38,025	+ 7	Savings	21,022	21,307	N.A.	
Time	74,127	73,113	64,261	+ 15	Time	66,317	65,182	N.A.	
Credit Union Deposits	6,203	6,202	5,859	+ 6		JUL	JUN	JUL	
Share Drafts	559	541	480	+ 16	Mortgages Outstanding	71,799	70,986	65,600	+ 9
Savings & Time	5,507	5,493	4,982	+ 11	Mortgage Commitments	5,544	5,424	4,700	+ 18
ALABAMA									
Commercial Bank Deposits	16,507	16,455	15,162	+ 9	Savings & Loans**				
Demand	3,759	3,712	3,687	+ 2	Total Deposits	5,517	5,436	5,080	+ 9
NOW	1,035	1,021	915	+ 13	NOW	169	158	138	+ 22
Savings	3,297	3,322	3,152	+ 5	Savings	880	877	886	- 1
Time	8,939	8,851	7,898	+ 13	Time	4,506	4,441	4,119	+ 9
Credit Union Deposits	971	974	904	+ 7		JUL	JUN	JUL	
Share Drafts	99	97	84	+ 18	Mortgages Outstanding	4,190	4,165	3,669	+ 14
Savings & Time	851	843	775	+ 10	Mortgage Commitments	288	222	216	+ 33
FLORIDA									
Commercial Bank Deposits	55,909	55,623	50,344	+ 11	Savings & Loans**				
Demand	12,610	12,792	12,449	+ 1	Total Deposits	57,948	57,272	54,540	+ 6
NOW	4,794	4,724	4,305	+ 11	NOW	2,283	2,155	2,076	+ 10
Savings	19,210	19,195	17,278	+ 11	Savings	14,460	14,687	16,728	- 14
Time	20,511	20,161	17,243	+ 19	Time	41,282	40,425	36,179	+ 14
Credit Union Deposits	2,729	2,721	2,547	+ 7		JUL	JUN	JUL	
Share Drafts	279	272	240	+ 16	Mortgages Outstanding	42,426	41,759	38,991	+ 9
Savings & Time	2,307	2,295	1,997	+ 16	Mortgage Commitments	3,560	3,386	3,240	+ 10
GEORGIA									
Commercial Bank Deposits	24,372	24,103	20,798	+ 17	Savings & Loans				
Demand	7,190	7,356	6,779	+ 6	Total Deposits	8,064	8,013	7,751	+ 4
NOW	1,537	1,506	1,366	+ 13	NOW	283	266	216	+ 31
Savings	5,653	5,499	4,684	+ 21	Savings	1,794	1,787	1,808	- 1
Time	11,080	10,993	9,018	+ 23	Time	6,117	6,075	5,885	+ 4
Credit Union Deposits	1,305	1,303	1,329	- 2		JUL	JUN	JUL	
Share Drafts	88	82	70	+ 26	Mortgages Outstanding	8,908	8,798	8,075	+ 10
Savings & Time	1,217	1,213	1,192	+ 2	Mortgage Commitments	553	489	472	+ 17
LOUISIANA									
Commercial Bank Deposits	26,134	25,881	24,872	+ 5	Savings & Loans**				
Demand	5,633	5,689	5,837	- 3	Total Deposits	9,605	9,539	8,351	+ 15
NOW	1,527	1,502	1,367	+ 12	NOW	244	236	173	+ 41
Savings	5,511	5,533	5,357	+ 3	Savings	2,218	2,275	2,218	- 8
Time	13,946	13,687	12,817	+ 9	Time	7,273	7,150	5,865	+ 24
Credit Union Deposits	213	211	196	+ 9		JUL	JUN	JUL	
Share Drafts	24	23	23	+ 4	Mortgages Outstanding	8,857	8,766	7,143	+ 24
Savings & Time	209	207	191	+ 9	Mortgage Commitments	600	724	511	+ 17
MISSISSIPPI									
Commercial Bank Deposits	12,195	12,147	11,503	+ 6	Savings & Loans				
Demand	2,361	2,343	2,388	- 1	Total Deposits	2,029	2,031	N.A.	
NOW	849	837	793	+ 7	NOW	81	78	N.A.	
Savings	2,355	2,402	2,450	- 4	Savings	388	388	N.A.	
Time	6,947	6,880	6,152	+ 13	Time	1,590	1,596	N.A.	
Credit Union Deposits	*	*	*			JUL	JUN	JUL	
Share Drafts	*	*	*		Mortgages Outstanding	2,004	2,059	2,003	+ 0
Savings & Time	*	*	*		Mortgage Commitments	190	223	46	+313
TENNESSEE									
Commercial Bank Deposits	23,621	23,367	21,927	+ 8	Savings & Loans**				
Demand	4,339	4,428	4,213	+ 3	Total Deposits	6,996	6,938	N.A.	
NOW	1,882	1,827	1,579	+ 19	NOW	197	191	N.A.	
Savings	4,829	4,851	5,104	- 5	Savings	1,282	1,293	N.A.	
Time	12,704	12,541	11,133	+ 14	Time	5,549	5,495	N.A.	
Credit Union Deposits	985	993	883	+ 12		JUL	JUN	JUL	
Share Drafts	69	67	63	+ 10	Mortgages Outstanding	5,414	5,439	5,719	- 5
Savings & Time	923	935	827	+ 12	Mortgage Commitments	352	380	215	+ 64

Notes: All deposit data are extracted from the Federal Reserve Report of Transaction Accounts, other Deposits and Vault Cash (FR2900), and are reported for the average of the week ending the 1st Wednesday of the month. This data, reported by institutions with over $15 million in deposits as of December 31, 1979, represents 95% of deposits in the six state area. The major differences between this report and the "call report" are size, the treatment of interbank deposits, and the treatment of float. The data generated from the Report of Transaction Accounts is for banks over $15 million in deposits as of December 31, 1979. The total deposit data generated from the Report of Transaction Accounts eliminates interbank deposits by reporting the net of deposits "due to" and "due from" other depository institutions. The Report of Transaction Accounts subtracts cash items in process of collection from demand deposits, while the call report does not. Savings and loan mortgage data are from the Federal Home Loan Bank Board Selected Balance Sheet Data. The Southeast data represent the total of the six states. Subcategories were chosen on a selective basis and do not add to total.

* = Fewer than four institutions reporting.

** = S&L deposits subject to revisions due to reporting changes.

N.A. = not comparable with previous data at this time.

CONSTRUCTION

	AUG 1984	JUL 1984	AUG 1983	ANN % CHG		AUG 1984	JUL 1984	AUG 1983	ANN % CHG
12-month Cumulative Rate									
UNITED STATES									
Nonresidential Building Permits - $ Mil.					Residential Building Permits				
Total Nonresidential	59,147	58,587	47,986	+ 23	Value - $ Mil.	74,573	74,834	60,878	+ 22
Industrial Bldgs.	8,013	7,730	5,108	+ 57	Residential Permits - Thous.				
Offices	14,315	14,014	11,929	+ 20	Single-family units	912.5	920.1	825.7	+ 11
Stores	8,945	8,883	6,179	+ 45	Multi-family units	760.0	764.1	630.2	+ 21
Hospitals	1,897	1,865	1,861	+ 2	Total Building Permits				
Schools	867	891	882	- 2	Value - $ Mil.	133,720	133,421	108,864	+ 23
SOUTHEAST									
Nonresidential Building Permits - $ Mil.					Residential Building Permits				
Total Nonresidential	9,060	8,972	7,454	+ 22	Value - $ Mil.	14,145	14,195	11,026	+ 28
Industrial Bldgs.	890	897	645	+ 38	Residential Permits - Thous.				
Offices	2,067	2,015	1,774	+ 17	Single-family units	188.7	190.7	169.7	+ 11
Stores	1,781	1,741	1,129	+ 58	Multi-family units	179.3	180.6	136.3	+ 32
Hospitals	450	474	443	+ 2	Total Building Permits				
Schools	114	116	168	- 32	Value - $ Mil.	23,204	23,166	18,406	+ 26
ALABAMA									
Nonresidential Building Permits - $ Mil.					Residential Building Permits				
Total Nonresidential	755	736	425	+ 78	Value - $ Mil.	472	478	386	+ 22
Industrial Bldgs.	185	184	29	+538	Residential Permits - Thous.				
Offices	97	80	55	+ 76	Single-family units	8.1	8.2	7.7	+ 5
Stores	127	111	78	+ 63	Multi-family units	8.2	8.2	7.0	+ 17
Hospitals	16	13	29	- 45	Total Building Permits				
Schools	5	6	9	- 44	Value - $ Mil.	1,227	1,214	812	+ 51
FLORIDA									
Nonresidential Building Permits - $ Mil.					Residential Building Permits				
Total Nonresidential	4,449	4,362	3,743	+ 19	Value - $ Mil.	8,242	8,300	6,334	+ 30
Industrial Bldgs.	428	428	337	+ 27	Residential Permits - Thous.				
Offices	987	933	838	+ 18	Single-family units	103.7	104.4	89.0	+ 17
Stores	1,012	995	621	+ 63	Multi-family units	98.5	99.7	76.2	+ 29
Hospitals	186	218	287	- 35	Total Building Permits				
Schools	46	45	52	- 12	Value - $ Mil.	12,692	12,662	10,077	+ 26
GEORGIA									
Nonresidential Building Permits - $ Mil.					Residential Building Permits				
Total Nonresidential	1,623	1,608	1,186	+ 37	Value - $ Mil.	2,769	2,733	2,172	+ 27
Industrial Bldgs.	151	168	163	- 7	Residential Permits - Thous.				
Offices	525	517	342	+ 54	Single-family units	42.9	43.4	39.0	+ 10
Stores	245	236	124	+ 98	Multi-family units	28.7	27.7	22.3	+ 29
Hospitals	62	62	25	+148	Total Building Permits				
Schools	14	17	27	- 48	Value - $ Mil.	4,393	4,341	3,358	+ 31
LOUISIANA									
Nonresidential Building Permits - $ Mil.					Residential Building Permits				
Total Nonresidential	1,178	1,184	1,162	+ 1	Value - $ Mil.	1,151	1,170	976	+ 18
Industrial Bldgs.	30	29	54	- 44	Residential Permits - Thous.				
Offices	283	307	402	- 30	Single-family units	15.0	15.5	16.6	- 10
Stores	208	204	123	+ 69	Multi-family units	17.0	17.5	13.7	+ 24
Hospitals	154	148	54	+185	Total Building Permits				
Schools	41	41	63	- 35	Value - $ Mil.	2,328	2,353	2,138	+ 9
MISSISSIPPI									
Nonresidential Building Permits - $ Mil.					Residential Building Permits				
Total Nonresidential	233	246	186	+ 25	Value - $ Mil.	396	383	260	+ 52
Industrial Bldgs.	15	14	6	+150	Residential Permits - Thous.				
Offices	28	27	16	+ 75	Single-family units	5.6	5.5	4.5	+ 24
Stores	49	51	36	+ 36	Multi-family units	6.5	6.1	3.0	+117
Hospitals	12	13	18	- 33	Total Building Permits				
Schools	2	1	8	- 75	Value - $ Mil.	628	629	445	+ 41
TENNESSEE									
Nonresidential Building Permits - $ Mil.					Residential Building Permits				
Total Nonresidential	822	836	752	+ 9	Value - $ Mil.	1,115	1,131	898	+ 24
Industrial Bldgs.	81	74	56	+ 45	Residential Permits - Thous.				
Offices	147	151	121	+ 21	Single-family units	13.4	13.7	12.9	+ 4
Stores	140	144	147	- 5	Multi-family units	20.4	21.4	14.1	+ 45
Hospitals	20	20	30	- 33	Total Building Permits				
Schools	6	6	9	- 33	Value - $ Mil.	1,936	1,967	1,576	+ 23

NOTES:
Data supplied by the U. S. Bureau of the Census, Housing Units Authorized By Building Permits and Public Contracts, C-40. Nonresidential data excludes the cost of construction for publicly owned buildings. The southeast data represent the total of the six states. The annual percent change calculation is based on the most recent month over prior year. Publication of F. W. Dodge construction contracts has been discontinued.

GENERAL

	LATEST DATA	CURR. PERIOD	PREV. PERIOD	YEAR AGO	ANN. % CHG.
UNITED STATES					
Personal Income ($bil. - SAAR)	1Q	2,910.0	2,824.2	2,647.2	+10
Taxable Sales - $bil.		N.A.	N.A.	N.A.	
Plane Pass. Arr. 000's		N.A.	N.A.	N.A.	
Petroleum Prod. (thous.)	SEP	8,819.7	8,781.2	8,680.1	+ 2
Consumer Price Index 1967=100	SEP	314.5	313.0	301.8	+ 4
Kilowatt Hours - mils.	JUL	202.1	189.1	193.6	+ 4
SOUTHEAST					
Personal Income ($bil. - SAAR)	1Q	350.6	341.9	318.8	+10
Taxable Sales - $ bil.		N.A.	N.A.	N.A.	
Plane Pass. Arr. 000's	JUL	4,730.7	4,669.3	4,310.1	+10
Petroleum Prod. (thous.)	SEP	1,480.0	1,482.5	1,400.0	+ 6
Consumer Price Index 1967=100		N.A.	N.A.	N.A.	
Kilowatt Hours - mils.	JUL	29.5	31.2	32.4	- 9
ALABAMA					
Personal Income ($bil. - SAAR)	1Q	38.0	37.7	35.2	+ 8
Taxable Sales - $ bil.		N.A.	N.A.	N.A.	
Plane Pass. Arr. 000's	JUL	120.0	122.8	116.6	+ 3
Petroleum Prod. (thous.)	SEP	52.0	52.0	52.0	0
Consumer Price Index 1967=100		N.A.	N.A.	N.A.	
Kilowatt Hours - mils.	JUL	4.6	4.2	4.0	+15
FLORIDA					
Personal Income ($bil. - SAAR)	1Q	132.4	128.8	118.7	+12
Taxable Sales - $ bil.	SEP	81.5	80.7	71.4	+14
Plane Pass. Arr. 000's	JUL	2,352.9	2,198.7	2,083.3	+13
Petroleum Prod. (thous.)	SEP	39.0	40.0	57.0	-32
Consumer Price Index - Miami Nov. 1977 = 100		**SEPT** 167.9	**AUG** 167.0	**SEPT** 162.9	+ 3
Kilowatt Hours - mils.	JUL	9.5	8.6	9.3	+ 2
GEORGIA					
Personal Income ($bil. - SAAR)	1Q	62.8	61.0	56.7	+11
Taxable Sales - $ bil.		N.A.	N.A.	N.A.	
Plane Pass. Arr. 000's	JUL	1,710.5	1,788.8	1,641.8	+ 4
Petroleum Prod. (thous.)		N.A.	N.A.	N.A.	
Consumer Price Index - Atlanta 1967 = 100		**AUG** 315.9	**JUN** 314.0	**AUG** 303.9	+ 4
Kilowatt Hours - mils.	JUL	5.5	5.2	5.5	0
LOUISIANA					
Personal Income ($bil. - SAAR)	1Q	48.5	47.3	45.6	+ 6
Taxable Sales - $ bil.		N.A.	N.A.	N.A.	
Plane Pass. Arr. 000's	JUL	341.1	345.5	276.1	+24
Petroleum Prod. (thous.)	SEP	1,299.0	1,300.0	1,207.0	+ 8
Consumer Price Index 1967 = 100		N.A.	N.A.	N.A.	
Kilowatt Hours - mils.	JUL	5.8	5.2	5.3	+ 9
MISSISSIPPI					
Personal Income ($bil. - SAAR)	1Q	22.3	21.8	20.2	+10
Taxable Sales - $ bil.		N.A.	N.A.	N.A.	
Plane Pass. Arr. 000's	JUL	36.9	37.3	37.5	- 2
Petroleum Prod. (thous.)	SEP	90.0	90.5	84.0	+ 7
Consumer Price Index 1967 = 100		N.A.	N.A.	N.A.	
Kilowatt Hours - mils.	JUL	2.5	2.2	2.3	+ 9
TENNESSEE					
Personal Income ($bil. - SAAR)	1Q	46.6	45.3	42.4	+10
Taxable Sales - $ bil.		N.A.	N.A.	N.A.	
Plane Pass. Arr. 000's	JUL	169.3	176.2	154.8	+ 9
Petroleum Prod. (thous.)	SEP	N.A.	N.A.	N.A.	
Consumer Price Index 1967 = 100		N.A.	N.A.	N.A.	
Kilowatt Hours - mils.	JUL	6.2	5.8	6.0	+ 3

	SEPT 1984	AUG 1984	SEPT 1983	ANN. % CHG.
UNITED STATES				
Agriculture				
Prices Rec'd by Farmers Index (1977=100)	139	143	136	+ 2
Broiler Placements (thous.)	80,932	84,353	77,027	+ 5
Calf Prices ($ per cwt.)	57.80	59.10	56.10	+ 3
Broiler Prices (¢ per lb.)	32.1	30.6	33.8	- 5
Soybean Prices ($ per bu.)	6.03	6.50	8.28	-27
Broiler Feed Cost ($ per ton)	221	225	240	- 8
SOUTHEAST				
Agriculture				
Prices Rec'd by Farmers Index (1977=100)	138	143	122	+13
Broiler Placements (thous.)	31,357	31,059	29,386	+ 7
Calf Prices ($ per cwt.)	54.19	56.10	52.35	+ 4
Broiler Prices (¢ per lb.)	31.7	28.9	31.0	+ 2
Soybean Prices ($ per bu.)	6.16	6.59	8.43	-27
Broiler Feed Cost ($ per ton)	220	224	229	- 4
ALABAMA				
Agriculture				
Farm Cash Receipts - $ mil. (Dates: JUN, JUN)	982	-	936	+ 5
Broiler Placements (thous.)	10,656	10,720	10,011	+ 6
Calf Prices ($ per cwt.)	54.50	55.00	52.20	+ 4
Broiler Prices (¢ per lb.)	31.0	28.0	29.5	+ 5
Soybean Prices ($ per bu.)	6.25	6.53	8.45	-26
Broiler Feed Cost ($ per ton)	210	220	240	-13
FLORIDA				
Agriculture				
Farm Cash Receipts - $ mil. (Dates: JUN, JUN)	2,786	-	2,891	- 4
Broiler Placements (thous.)	1,866	1,852	1,882	- 1
Calf Prices ($ per cwt.)	59.00	59.60	55.90	+ 6
Broiler Prices (¢ per lb.)	31.0	29.0	30.0	+ 3
Soybean Prices ($ per bu.)	6.25	6.53	8.45	-26
Broiler Feed Cost ($ per ton)	240	245	250	- 4
GEORGIA				
Agriculture				
Farm Cash Receipts - $ mil. (Dates: JUN, JUN)	1,379	-	1,297	+ 6
Broiler Placements (thous.)	12,576	13,130	11,719	+ 7
Calf Prices ($ per cwt.)	49.70	51.50	48.60	+ 2
Broiler Prices (¢ per lb.)	31.0	28.0	30.5	+ 2
Soybean Prices ($ per bu.)	6.25	6.55	7.82	-20
Broiler Feed Cost ($ per ton)	255	245	220	+16
LOUISIANA				
Agriculture				
Farm Cash Receipts - $ mil. (Dates: JUN, JUN)	576	-	568	+ 1
Broiler Placements (thous.)	N.A.	N.A.	N.A.	
Calf Prices ($ per cwt.)	56.00	56.30	54.40	+ 3
Broiler Prices (¢ per lb.)	33.0	31.0	34.0	- 3
Soybean Prices ($ per bu.)	6.09	6.79	8.22	-26
Broiler Feed Cost ($ per ton)	260	265	280	- 7
MISSISSIPPI				
Agriculture				
Farm Cash Receipts - $ mil. (Dates: JUN, JUN)	832	-	923	-10
Broiler Placements (thous.)	6,259	6,358	6,024	+ 4
Calf Prices ($ per cwt.)	52.80	57.30	52.60	+ 0
Broiler Prices (¢ per lb.)	34.0	31.5	33.5	+ 1
Soybean Prices ($ per bu.)	6.07	6.47	8.64	-30
Broiler Feed Cost ($ per ton)	159	178	210	-24
TENNESSEE				
Agriculture				
Farm Cash Receipts - $ mil. (Dates: JUN, JUN)	754	-	800	- 6
Broiler Placements (thous.)	N.A.	N.A.	N.A.	
Calf Prices ($ per cwt.)	52.80	55.30	50.30	+ 5
Broiler Prices (¢ per lb.)	30.5	29.5	32.0	- 5
Soybean Prices ($ per bu.)	6.24	6.59	8.74	-29
Broiler Feed Cost ($ per ton)	200	200	215	- 7

Notes:
Personal Income data supplied by U. S. Department of Commerce. Taxable Sales are reported as a 12-month cumulative total. Plane Passenger Arrivals are collected from 26 airports. Petroleum Production data supplied by U. S. Bureau of Mines. Consumer Price Index data supplied by Bureau of Labor Statistics. Agriculture data supplied by U. S. Department of Agriculture. Farm Cash Receipts data are reported as cumulative for the calendar year through the month shown. Broiler placements are an average weekly rate. The Southeast data represent the total of the six states. N.A. = not available. The annual percent change calculation is based on most recent data over prior year. R = revised.

EMPLOYMENT

	AUG 1984	JUL 1984	AUG 1983	ANN. % CHG.		AUG 1984	JUL 1984	AUG 1983	ANN. % CHG.
UNITED STATES									
Civilian Labor Force - thous.	115,076	116,198	113,578	+ 1	Nonfarm Employment- thous.	94,486	94,236	89,842	+ 5
Total Employed - thous.	106,694	107,484	103,167	+ 3	Manufacturing	19,862	19,658	18,715	+ 6
Total Unemployed - thous.	8,382	8,714	10,411	-19	Construction	4,671	4,615	4,269	+ 9
Unemployment Rate - % SA	7.5	7.5	9.5		Trade	21,998	21,901	21,035	+ 5
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	15,079	15,218	14,964	+ 1
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	20,877	20,872	19,943	+ 5
Mfg. Avg. Wkly. Hours	40.3	40.3	40.2	+ 0	Fin., Ins., & Real Est.	5,773	5,758	5,574	+ 4
Mfg. Avg. Wkly. Earn. - $	368	370	353	+ 4	Trans. Com. & Pub. Util.	5,200	5,193	4,382	+19
SOUTHEAST									
Civilian Labor Force - thous.	15,033	15,037	14,781	+ 2	Nonfarm Employment- thous.	12,040	12,021	11,491	+ 5
Total Employed - thous.	13,855	13,788	13,354	+ 4	Manufacturing	2,285	2,259	2,187	+ 4
Total Unemployed - thous.	1,179	1,249	1,428	-17	Construction	749	749	677	+11
Unemployment Rate - % SA	8.1	8.1	9.7		Trade	2,955	2,947	2,797	+ 6
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	2,077	2,095	2,054	+ 1
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	2,437	2,435	2,336	+ 4
Mfg. Avg. Wkly. Hours	41.0	40.7	40.6	+ 1	Fin., Ins., & Real Est.	706	704	672	+ 5
Mfg. Avg. Wkly. Earn. - $	329	326	310	+ 6	Trans. Com. & Pub. Util.	705	704	644	+ 9
ALABAMA									
Civilian Labor Force - thous.	1,785	1,797	1,771	+ 1	Nonfarm Employment- thous.	1,353	1,348	1,324	+ 2
Total Employed - thous.	1,590	1,585	1,546	+ 3	Manufacturing	351	345	345	+ 2
Total Unemployed - thous.	195	213	225	-13	Construction	67	67	63	+ 6
Unemployment Rate - % SA	11.2	11.2	12.9		Trade	285	282	273	+ 4
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	282	288	285	- 1
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	219	219	220	- 0
Mfg. Avg. Wkly. Hours	41.2	40.8	40.9	+ 1	Fin., Ins., & Real Est.	62	62	60	+ 3
Mfg. Avg. Wkly. Earn. - $	332	329	310	+ 7	Trans. Com. & Pub. Util.	72	72	65	+11
FLORIDA									
Civilian Labor Force - thous.	5,166	5,162	5,084	+ 2	Nonfarm Employment- thous.	4,084	4,079	3,829	+ 7
Total Employed - thous.	4,846	4,811	4,666	+ 4	Manufacturing	499	495	465	+ 7
Total Unemployed - thous.	320	351	418	-23	Construction	311	311	272	+14
Unemployment Rate - % SA	6.3	7.0	8.4		Trade	1,105	1,105	1,039	+ 6
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	609	612	584	+ 4
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	1,009	1,007	961	+ 5
Mfg. Avg. Wkly. Hours	40.7	40.9	40.4	+ 1	Fin., Ins., & Real Est.	311	309	289	+ 8
Mfg. Avg. Wkly. Earn. - $	313	313	295	+ 6	Trans. Com. & Pub. Util.	230	230	208	+11
GEORGIA									
Civilian Labor Force - thous.	2,821	2,819	2,732	+ 3	Nonfarm Employment- thous.	2,427	2,408	2,275	+ 7
Total Employed - thous.	2,655	2,638	2,535	+ 5	Manufacturing	541	532	513	+ 5
Total Unemployed - thous.	166	181	198	-16	Construction	142	140	117	+21
Unemployment Rate - % SA	6.1	6.3	7.4		Trade	603	599	553	+ 9
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	417	417	422	- 1
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	431	428	401	+ 7
Mfg. Avg. Wkly. Hours	41.3	40.8	41.2	+ 0	Fin., Ins., & Real Est.	130	129	123	+ 6
Mfg. Avg. Wkly. Earn. - $	313	308	290	+ 8	Trans. Com. & Pub. Util.	155	154	140	+11
LOUISIANA									
Civilian Labor Force - thous.	1,964	1,955	1,928	+ 2	Nonfarm Employment- thous.	1,569	1,573	1,553	+ 1
Total Employed - thous.	1,782	1,771	1,703	+ 5	Manufacturing	183	182	179	+ 2
Total Unemployed - thous.	183	184	225	-19	Construction	112	114	117	- 4
Unemployment Rate - % SA	9.4	9.1	11.8		Trade	375	377	372	+ 1
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	311	312	308	+ 1
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	309	310	304	+ 2
Mfg. Avg. Wkly. Hours	41.5	41.4	39.5	+ 5	Fin., Ins., & Real Est.	84	84	84	0
Mfg. Avg. Wkly. Earn. - $	420	420	389	+ 8	Trans. Com. & Pub. Util.	117	116	112	+ 4
MISSISSIPPI									
Civilian Labor Force - thous.	1,085	1,080	1,066	+ 2	Nonfarm Employment- thous.	793	795	782	+ 1
Total Employed - thous.	964	962	936	+ 3	Manufacturing	211	210	208	+ 1
Total Unemployed - thous.	121	118	130	- 7	Construction	34	33	35	- 3
Unemployment Rate - % SA	11.3	10.3	12.4		Trade	171	170	166	+ 3
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	171	173	171	0
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	124	126	122	+ 2
Mfg. Avg. Wkly. Hours	40.7	39.9	40.5	+ 0	Fin., Ins., & Real Est.	35	35	34	+ 3
Mfg. Avg. Wkly. Earn. - $	281	274	270	+ 4	Trans. Com. & Pub. Util.	39	39	37	+ 5
TENNESSEE									
Civilian Labor Force - thous.	2,212	2,224	2,200	+ 1	Nonfarm Employment- thous.	1,814	1,818	1,728	+ 5
Total Employed - thous.	2,018	2,021	1,968	+ 3	Manufacturing	500	495	477	+ 5
Total Unemployed - thous.	194	202	232	-16	Construction	83	84	73	+14
Unemployment Rate - % SA	9.4	8.6	11.2		Trade	416	414	394	+ 6
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	287	293	284	+ 1
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	345	345	328	+ 5
Mfg. Avg. Wkly. Hours	40.7	40.5	40.8	- 0	Fin., Ins., & Real Est.	84	85	82	+ 2
Mfg. Avg. Wkly. Earn. - $	314	315	307	+ 2	Trans. Com. & Pub. Util.	92	93	82	+12

Notes: All labor force data are from Bureau of Labor Statistics reports supplied by state agencies.
Only the unemployment rate data are seasonally adjusted.
The Southeast data represent the total of the six states.
The annual percent change calculation is based on the most recent data over prior year.

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