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EDUCATION

Educational Performance in Virginia's Rural Schools

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Education provides benefits to individuals as well as to society as a whole. Investment in education and other kinds of human skills improves the productivity of individuals and raises standards of living. Future economic growth and prosperity depend upon our education system to prepare young people to become productive and successful members of society. In recent years, however, it appears that our commitment to education has weakened. Public funds for education seem harder and harder to find, test scores on standardized achievement and college entrance tests steadily decline, and teacher salaries appear to fall further and further behind wages of workers with comparable skills and experience.

Educational performance differs between urban and rural schools. This is partly due to differences in financial resources. Urban areas, because of their generally larger tax base, are more able to provide local funds for education than are most rural areas, where the tax base is generally smaller. Urban schools, because they are larger, are more able to offer a wide range of courses and learning experiences. But spending on education is not the only factor that dictates how well students do in school. Children learn of the value of education from their parents, and the value that parents place on education varies from family to family.

Rural areas face additional challenges. Good local jobs for those with a good education are lacking in many rural communities. Consequently, the best rural students, who are potentially the most productive workers, are siphoned off, further depleting the productivity of the rural workforce. Losing many of the best students can be discouraging to a community: the community may see itself as training productive workers for some *other* community. This may be reflected in a reluctance to provide local funds for education.

A lack of good jobs locally also discourages many students who would prefer to remain in the community from working hard in school, because the payoff to their efforts may not be forthcoming. Those employers who pay higher wages and who require higher skilled workers are reluctant to locate in those areas where productivity is low. As a result, some rural communities are left with only low-skill, low-wage jobs that provide a weak economic base on which to sustain a local economy.

What can be done to improve the academic performance of rural students? Improved performance—and the community revitalization that depends on having an educated workforce—requires not only a rededication to providing a high quality education for rural students, but also on strengthening the economic incentives to encourage working hard in school. Those students who prefer to remain in the rural community need good local jobs that pay reasonable wages. A rural development policy must address both job creation and education if it is to make some progress on solving rural problems.

INTRODUCTION

Reports continue to emerge concluding that students in the United States are under-achieving in school compared to students in other countries. Blame for this under-achievement has been placed on everything from inadequate public funding of education, to weak parental and community support, to children watching too much television. In recent years an additional, potentially very important possibility has surfaced: Some students do not have access to a quality education. In Kentucky, for example, concerns that some school divisions were inadequately funding education led in part to the Kentucky Supreme Court mandating school reforms.

- The issue in many states has been the funding—and by implication, the quality—of education in rural schools as compared to urban schools.¹ The problem in Virginia is documented by the relatively poor showing of rural students on standardized academic achievement tests (Figure 1). In this paper I ask two basic questions: Why do rural students perform less well in school?; and What can be done to improve the academic performance of rural students?

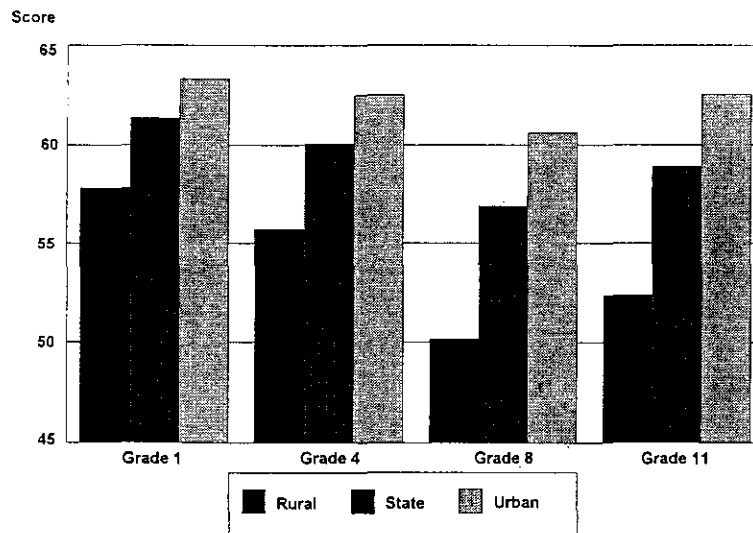


FIGURE 1. Average standardized achievement test scores for Virginia students, 1989-90 (in average percentiles).

Answers are sought by examining these questions from an economic perspective. An economic perspective is useful because the expected economic return to education provides an important incentive to go to school. To understand the economic incentive to go to school it is necessary to identify why people value education as an investment.

¹ The term "urban" includes suburban as well as urban schools. The problems that exist in inner-city schools are masked somewhat because many urban jurisdictions include elements of both urban and the generally more affluent suburban populations.

INVESTMENT CHARACTERISTICS of EDUCATION

The investment value of education is the contribution that education provides to future earnings. While this paper looks narrowly at the contribution of *formal* education on future earnings, the principles are the same for other kinds of investments in the productivity of individuals, such as vocational and on-the-job training. The investment value of education has been recognized by economists since at least the time of Adam Smith, who was a pioneer in the field of economics. In his classic book *The Wealth of Nations*, published in 1776, Smith refers to the "...acquired and useful abilities of all the inhabitants or members of society..." as being important to economic growth. Alfred Marshall, a prominent economist writing at the turn of the Twentieth Century, referred to education as a "national investment," and said that investment in people is the most important type of capital investment. The investment value of education is often what induces students to work hard in school in hopes that their efforts will be rewarded.

Investment in education is similar in many respects to other forms of investment. The individual and society invest time, money, and effort, and they expect productivity to improve and generate greater economic returns. However, several differences exist between education and other investments. First, investment in education has a potential productivity effect over a longer period of time than typical investments. It may take 20 or more years from the time of the initial investment in education until a payoff in the form of increased worker productivity is achieved. Second, ownership of the investment is restricted to the individual, who is free to offer to anyone his or her labor in exchange for wages. This freedom limits the incentive for employers to invest in the education of their employees, as the cost would be borne by the employer while the benefits would accrue to the employee.

THE BENEFITS of INVESTING in EDUCATION

Individuals invest in education for several reasons. First, investment in education usually contributes to increased earnings throughout one's lifetime. Second, with increased education, the individual generally has more skills that are in demand and may therefore have a greater choice of a career. Third, education generally improves one's ability to learn, which allows the individual to adapt to changing technology on the job or to make a smoother transition from one occupation to another. This ability to adapt to changes in the work environment may mean the individual is less susceptible to long periods of unemployment. Other common benefits to the individual include the ability to stay informed through the news media, to understand complex issues faced by society, and to appreciate cultural diversity and the arts. Education also provides the individual with the ability to do various routine tasks, such as balancing a checkbook, understanding written instructions for assembling various household items, or even programming a VCR or microwave oven.

Society as a whole benefits from the education of its citizens. Maintenance of a democratic form of government requires that the citizens have some basic understanding of the functions, goals, and rules of society. Education provides this knowledge and helps maintain stability and prevent anarchy. Furthermore, the ability of an individual to make informed choices in the voting booth impacts all others in society.

Society also benefits from the income-enhancing effects of education. Investment in

education helps lift people out of poverty, and therefore society gains in the form of reduced government expenditures for welfare and other public services. There is also a strong relationship between incarceration and the amount of schooling one has (Figure 2). Investment in education makes people more employable, which reduces the likelihood of criminal behavior and decreases the cost of policing society, administering justice, and maintaining a prison system.

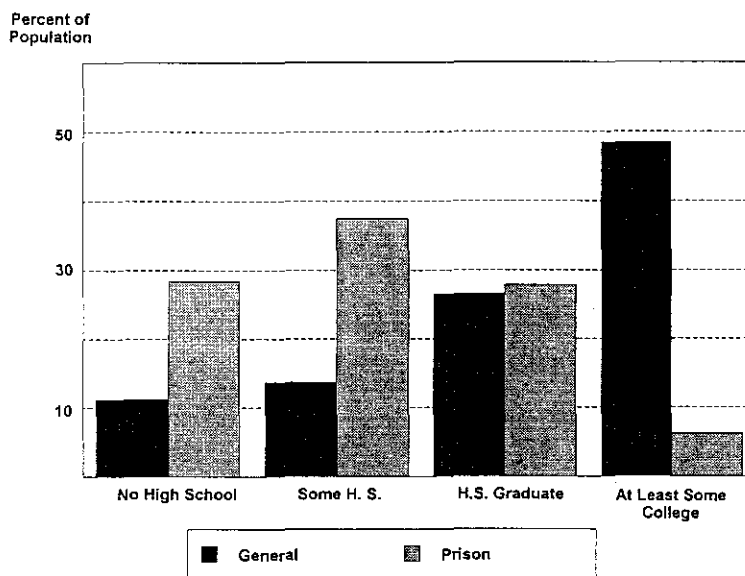


FIGURE 2. Virginia's general and prison populations by amount of education.

Sources: Virginia Department of Corrections; U.S. Census Bureau, 1990 *Census of Population*.

Employment-related benefits of education occur as a by-product of the production process. Skilled workers are better able than less-skilled workers to coordinate their individual tasks with the overall production process. Skilled workers, therefore, improve the productivity of those around them. In addition, educated workers are more likely to generate ideas that lead to lower production costs, and they tend to make a larger contribution to group problem-solving processes.

RURAL EDUCATION in VIRGINIA

The importance of education in economic terms provides a context to examine specific issues regarding rural education in Virginia. Both the economic viability of rural communities and the quality of life of those residing in rural areas will, it would appear, be closely related to the educational achievement of rural citizens.

Paying for Education

Education funding has generated much controversy in Virginia and other states in recent years. Public schooling in Virginia has four major funding sources: local revenues; allocations to localities of funds from one percent of the state retail sales tax; basic state aid, appropriated from general state revenues; and federal and state categorical grants. In the 1988-89 school year, local revenues accounted for 48 percent of total revenues, the local

allocation of the sales tax provided 10 percent, basic state aid provided 24 percent, and federal and state categorical assistance provided 18 percent of total funding (McDowell *et al.*). Figure 3 shows the total amount spent per student on education by school division in Virginia in the 1989-90 school year.

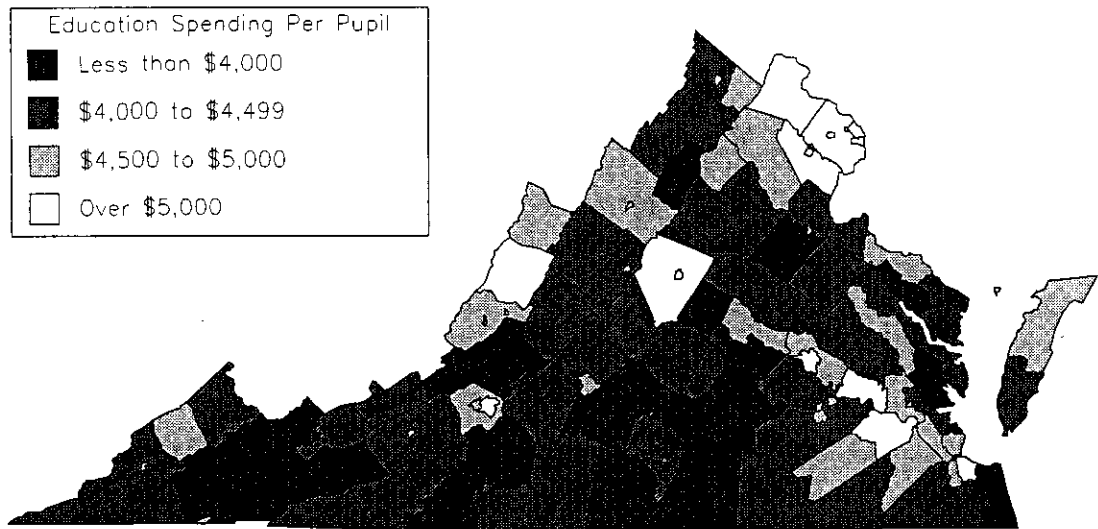


FIGURE 3. Expenditures on education in Virginia, 1989-90 school year.

State revenues are allocated to public education based on a basic aid formula that is designed to account for differences in the ability of local school divisions to fund education. Those school divisions that have a weaker economic base on which to raise local revenues receive more state aid than those divisions with a stronger economic base. Figure 4 shows the proportion of funds for education that are generated locally. A comparison of Figure 4 with Figure 5, which shows personal income by county, indicates that those school divisions whose local revenues provide only a small portion of total funds for education tend to have lower incomes, and are therefore less able to fund education.

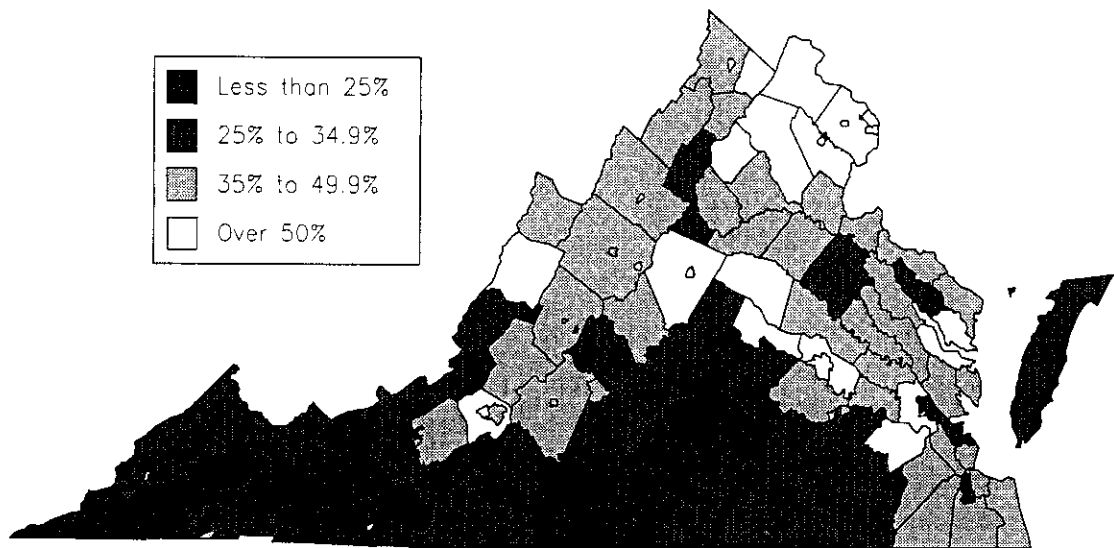


FIGURE 4. Proportion of revenues for education that were locally generated, 1989-90 school year.

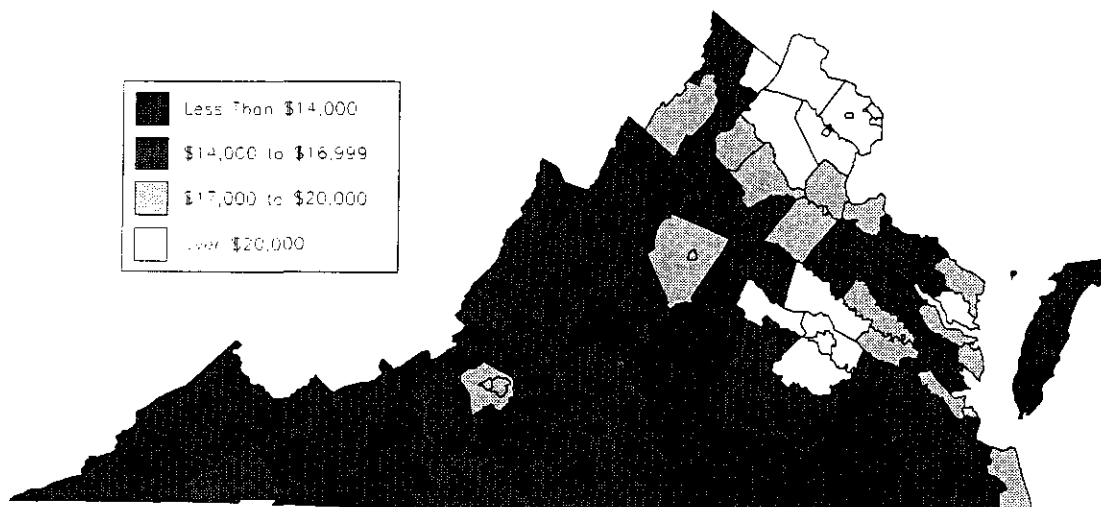


FIGURE 5. Per capita income in Virginia counties, 1989.

Research by the Rural Economic Analysis Program (REAP) at Virginia Tech has shown that the disparity in total spending for primary and secondary education in Virginia is due primarily to differences in locally generated revenues. Even though state funds are appropriated to equalize total expenditures for education, spending on the 20 percent of students in the best-financed school divisions in the state is still roughly twice that spent on the 20 percent of students in those school divisions with the lowest levels of funding.

The current formula used by the state to allocate basic aid to localities evaluates a locality's ability to pay for education on the basis of real estate values, taxable retail sales, and personal income. The REAP research suggests that the measure used by the state—the local composite index, or LCI—is not representative of local ability to pay. The researchers conclude that a basic aid formula based on discretionary income—that portion of personal, taxable income available after paying for necessities—would more accurately reflect the local ability to pay for education.

But, regardless of local ability to raise revenue, local taxpayers are reluctant to spend money on public schools if the taxpayers believe that the schools' graduates will become productive members of some *other* community instead of providing economic returns locally. If a student graduates and then moves to some other community to work, this other community enjoys the economic benefits of that person's productivity through the person's contribution to local economic activity and an increase in the tax base. Because a larger proportion of young people in rural areas typically do leave, rural taxpayers are likely to be even more reluctant to pay for education. On the other hand, those areas (typically metropolitan areas) that attract educated individuals get a "free ride." These communities gain from the individual's contribution to local economic activity without having paid the cost of educating that individual. This is a good economic argument for funding education at a higher level of government than the local level.

But can the blame for the disparity in educational performance in rural areas be placed solely on funding differences? Admittedly, it is difficult to believe that schools with the money to provide, for example, a large library with contemporary works, modern lab equipment and computers, and highly trained teachers with small class sizes do not offer a better education than schools that must struggle to fund even the most basic of activities. Nevertheless, the disparity in spending for education does not totally explain differences in educational performance. We must look to other influences, and the following sections discuss some of these influences.

Education and Parental Influences

The school environment is important, but the single most important influence on how an individual will perform in school is the family. Not only do children inherit innate ability from their parents, but the type of lifestyle the parents lead has a major impact on their children's values and attitudes.

Lifestyle characteristics such as occupation, income, and years of education are often collectively referred to as socioeconomic status. Numerous studies have linked socioeconomic status with academic achievement. W. W. Charters, a researcher in the field of education, states that this link

...has been so consistently confirmed by research that it now can be regarded as an empirical law...Social class position predicts grades, achievement and intelligence test scores, retention at grade level, course failures, truancy, suspensions from school, high school drop-outs, plans for college attendance and total amount of formal schooling (Charters, pp. 739-40).

Why are socioeconomic status and academic achievement so closely linked? Some social psychologists claim that the way in which parents raise their children is partially a function of socioeconomic status. For example, parents in higher-skilled occupations tend to stress the value of independence and the freedom to pursue opportunities as they see fit. Workers in lower-skilled occupations tend to stress manual skills and the importance of conformity. Parents in higher-skilled occupations tend to be more verbal, and studies show that mothers pass this ability on to their children through more verbal interaction with their children. The development of verbal skills is important for achievement in the classroom. Children of parents in lower-skilled occupations tend not to have these skills, and therefore do less well in school. By most measurable criteria rural people in Virginia tend to have lower socioeconomic status than their urban counterparts, and rural employment tends to be dominated by low-skill jobs such as routine production jobs in manufacturing, agriculture, mining, and logging. These circumstances may say much about why urban students outperform rural students.

Migration Patterns and Locational Self-Selection

Migration patterns have a profound impact on the composition of rural populations. Over the past century, a steady migration from rural to urban and suburban communities has occurred. Consequently, those who reside in rural areas are more likely to be long-time residents. A recent study by the Center for Survey Research at Virginia Tech found that 67 percent of residents who live in counties designated by the U.S. Census Bureau as metropolitan were born outside Virginia, while only 31 percent of residents in rural counties were born outside Virginia. This implies that metropolitan areas in Virginia attract newcomers while rural areas do not.

Are there differences between those rural people who leave and those who stay? The concept of *locational self-selection* suggests that there are. Those rural people who choose not to leave may place less emphasis on material well-being than on living a rural lifestyle, preferring to accept lower quality employment and perhaps periods of unemployment to remain in the local community. The rural resident may also consider the costs of urban living—congestion, crime, pollution, etc.—to be too high to justify living in an urban setting. Because children tend to adopt their parents' values and attitudes, rural children will likely hold similar values with respect to location as do their parents.

The decision to move, or not move, away from the rural community may therefore say something about the attitudes and values that one has about education. In communities with limited economic opportunity, parents may be more likely to place a low value on education, because the local economic returns to education are low, and parents would therefore be less likely to provide positive encouragement to their children to do well in school. Further, a collective low valuation of education among the citizenry is likely to be reflected in a weak commitment to funding education at the local level, and this leads to lower quality educational offerings in the community and lower overall student achievement.

Employment Opportunities

Individuals form perceptions of the value that education provides in terms of access to employment opportunities. In those communities where unemployment and underemployment are high, or where many jobs require relatively little education, there is little incentive for those who prefer to remain in the rural community to obtain education. This is because the perceived payoff to the time and effort required to get educated is small. Conversely, those who prefer to leave have a greater incentive to do well in school so that they can compete successfully in labor markets elsewhere.

A recent study by Broomhall examined this issue. The study used survey data of high-school-aged seniors from four rural school divisions in Virginia and Kentucky. The findings showed that those students who considered local job opportunities to be poor and who did well in school were also more willing to move. These results support the premise that one's perception of local employment opportunities influences school performance. The results also showed that one's perception of local employment opportunities influences the value placed on education. This means that those students who are more likely to move away after they finish their education do better in school than those who are likely to stay.

IMPLICATIONS for RURAL DEVELOPMENT POLICY

As we have seen, education provides benefits both to individuals and to society. Because society benefits from education, society provides public education through high school and provides assistance for post-secondary education. Although education policy is mandated at the state and federal level, a large portion of the cost of education is borne locally. In those communities losing their young people to other communities, out-migration creates a disincentive to support public education. We have also seen that a variety of factors other than expenditures on education influence academic performance. Parents have a very important impact on how well their children perform in school. Quality and availability of local employment opportunities also influence performance in school.

The economic vitality of most rural communities—indeed most any community—rests on the productivity of the local work force. As we have seen there are strong economic incentives for the best students, and therefore the more productive workers, to leave rural areas. Those rural residents who choose not to leave, or who leave and return, typically settle for a lower standard of living to do so. Those who prefer to remain in the rural community may have little economic incentive to get educated, and such people are therefore less likely to place a high value on education, because they do not see education as helping them achieve their goals in life. Parents who do not want their children to leave

after completion of their children's education have an incentive not to push their children to become educated, because doing so provides the child with the skills and knowledge to be successful elsewhere.

If a community collectively maintains these attitudes, it becomes difficult to support the funding required to provide a quality education. With a primarily low-skilled work force, and with a variety of other locational factors working against rural communities, it should be no surprise that most of the better paying jobs tend to be located in metropolitan areas rather than rural areas.

How can we improve our investment in rural people? The evidence suggests that money alone will not suffice. Other factors have a major influence on how well students do in school. While little can be done about the direct influence of the family, aside from improving socioeconomic conditions in the home, strategies may be employed to improve the perception of the payoff to education. Improving the educational performance of rural students requires improving the incentives that encourage students to perform. A comprehensive program to begin discussing occupational opportunities at an early age would broaden the perception of available occupational choices, thereby raising career aspirations and school performance. These kinds of efforts could be more effective, and would certainly be cheaper, than trying to improve socioeconomic conditions in the home.

Raising student occupational expectations is an important goal, but if the jobs are all outside of the rural area, the pattern will continue: The best students will leave, and the students who stay will have little incentive to perform. It is unrealistic to expect those students who prefer not to leave their community to work harder in school when the community has little to offer the educated individual who stays there. A commitment to create good jobs paying reasonable wages in rural areas would improve students' perceptions of the likelihood of getting a job locally, and create an incentive for those who prefer not to leave to perform better in school.

Increased public funds for education are necessary for several reasons: to increase the quality of education to which students have access; to bring greater rewards to teaching—in both wages and professional esteem—and thereby to draw more highly qualified people into the field of education; and to demonstrate that the community and society value education (a message that is crucial to having students committed to education). But more money alone will not solve all our education problems. Improvements in rural educational performance will depend not only on improved funding to increase access to educational resources but also on clearer incentives for rural students to take advantage of education.

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SUGGESTIONS for FURTHER READING

The Economics of Education

- Becker, Gary S. *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*. Chicago and London: The University of Chicago Press, 1975.

Becker won the 1992 Nobel Prize in Economics, primarily for his contribution to the development of the theory of human capital. Becker's work has provided the foundation for numerous studies on a variety of topics such as the economics of education, marriage, and optimal family size. This book provides the theoretical framework for many of these analyses. Becker presents empirical findings on the impact of alternative types of learning on earnings, and on the rates of return to high school and college educations. The data indicate that private returns to education have increased steadily over time. The theoretical discussion in the first part is quite technical, but the discussion of the findings should be readable for noneconomists.

- Schultz, Theodore W. "Investment in Human Capital." *American Economic Review*, 51(1) (March 1961): 1-17.

Schultz, like Becker, also earned the Nobel Prize in Economics, primarily for his work on human capital theory. This paper, which is Schultz's presidential address to the American Economic Association, discusses the relationship of human capital investment to economic growth. Schultz concludes with a discussion of the social and policy implications of

- 10 investment in human capital. The nontechnical nature of this paper makes it highly readable for noneconomists.

Weisbrod, Burton A. *External Benefits of Education*. Princeton, New Jersey: Princeton University Press, 1964.

The author raises a number of important points regarding the social benefits of education. He focuses attention on the problems that exist because the cost of education is borne locally while the benefits may accrue elsewhere. He concludes that these inefficiencies lead to under-investment in education.

Access to Education

Coleman, James S., et al. *Equality of Educational Opportunity*. U.S. Department of Health, Education, and Welfare, U.S. Government Printing Office, Washington, D.C., 1966.

This report, which was requested by Congress in the Civil Rights Act of 1964, provides a comprehensive review of regional and racial differences in access to educational resources. The report includes a study of school- and home-environment influences on student achievement. The authors conclude that the primary factor determining achievement in school is differences in socioeconomic factors, not differences in school quality. The findings helped influence a number of researchers to examine the mechanisms by which the family environment influences attitudes toward education and occupational choice.

Hanushek, Eric A. "The Impact of Differential Expenditures on School Performance." *Educational Researcher*, May 1989: 45-51.

The author summarizes the information available to date on the relationship between educational expenditures and educational performance. The author concludes that the data show no strong or systematic relationship between expenditures and student performance.

McDowell, George, Carlos Elías, and Paul Driscoll. *Paying for Schooling in Virginia: A Citizen's Guide to School Finance*. Virginia Cooperative Extension Publication 448-206/REAP R007, Virginia Tech, Blacksburg, 1992.

This report discusses the disparity in per pupil spending for education in Virginia. The researchers found that the major source of funding disparity is in the amount of locally generated revenues for education, and that some poor school divisions actually spend a higher proportion of discretionary income on education than do wealthier divisions. The researchers conclude that the current basic aid formula designed to equalize spending among school divisions is inadequate, and that a formula based on discretionary income would be more representative of a community's ability to pay for education.

Factors that Influence Academic Achievement

Bluestone, Barry, William M. Murphy, and Mary Stevenson. *Low Wages and the Working Poor*. Policy Papers in Human Resources and Industrial Relations 22, Institute of Labor and Industrial Relations, University of Michigan and Wayne State University, 1973.

This book examines the plight of the working poor. The authors present a detailed investigation of the low-wage workforce and the determinants of low-wage employment. Much of the book focusses on the relationship between education and employment, and examines the employment aspect by both occupation and industry.

Bowles, Samuel, and Herbert Gintis. *Schooling in Capitalist America*. New York: Basic Books, Inc., 1976.

The authors take a much different view of the process of education, arguing that the structure of education and school policies reinforce socioeconomic differences and perpetuate inequality.

Broomhall, David, and Thomas G. Johnson. *Community and Family Influences on Educational Performance in Appalachian Communities*. SRDC No. 161, Southern Rural Development Center, Mississippi State, Mississippi, 1992.

This study examines the incentive structures in some rural communities that either encourage or discourage educational achievement. The authors identify factors that influence the value that youths place on education, including one's willingness to move and the perception of local employment opportunities. The authors, using a survey of high school aged youths and their parents, examine how the value one places on education influences academic performance and educational and occupational aspirations.

Otto, Luther B. "Family Influences on Youth's Occupational Aspirations and Achievements." *Adolescents in Families*, ed. Geoffrey K. Leigh and Gary W. Peterson, pp. 226-55. Cincinnati: Southwestern Publishing Co., 1986.

The author discusses the manner in which parents influence the attitudes, values, and beliefs of their children with regard to educational and occupational choice.

Plunkett, H. Dudley, and Mary Jean Bowman. *Elites and Change in the Kentucky Mountains*. Lexington: University of Kentucky Press, 1973.

The authors examine the attitudes that individuals from higher-status occupations have regarding modernization, rural development, and education in eastern Kentucky. These people were chosen for the study because it was believed that they have the ability to influence the attitudes of others in the community. The results indicate that those individuals who hold "elite" positions in the community perceive that the quality of public education is satisfactory, and that there is little sentiment for changing the existing structure of education.

Smith, Eldon D. "Reflections on Human Resources in the Strategy of Economic Development." *Review of Regional Studies*, 19(1) (Winter 1989): 13-22.

Smith contends that the type of labor required by local employers influences the value that individuals in the community place on education. He asserts that employers who require primarily low-wage, low-skill workers have a vested interest in maintaining an inferior education system, because such a system increases the supply of unskilled labor from which to draw. Smith also argues that educated individuals, through their generally higher social and economic standing in the community, "demonstrate" to others that education is important.



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