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Higher Education No Panacea for Weak Rural Economies

Education is much touted as the most important factor in stimulating employment growth. But the importance of higher education levels has probably been overstated. Other factors also come into play. The mix of local industries, local labor costs, and location can all affect employment growth. When all characteristics of a local economy are considered, education appears less important than some of those other factors.

As a personal development strategy, the value of better education is undeniable. Education has always been one of the best investments for improving one's economic well-being. Those with more schooling generally earn more money, work in better jobs, and are less likely to be unemployed or poor than those with less schooling.

As a national development strategy, education is frequently argued to be one of the most important factors in improving the U.S. economy. An often-heard argument is that the nation must improve the education of its workers by reducing dropout rates and increasing the quality and quantity of educational achievements. Raising the average years of schooling completed by the population, improving the quality of instruction in the schools, and better motivating students and teachers are said to be necessary for the United States to remain competitive in an increasingly competitive global economy.

As a local economic development strategy, however, education alone is not the best answer. Raising the educational credentials of local workers is not a sure bet either to develop local economies or to raise the quality of life in rural areas. Local workers who gain greater skills and training are more likely to leave rural areas for better jobs in the cities. Thus, efforts to enhance the educational resources of rural workers may not benefit the local economy itself.

When we examined the importance of local educational achievements for local employment growth, we found that more and better education often did not contribute to higher growth. In nonmetro areas, patterns of local growth were not significantly related to average schooling levels during either the 1970's, when both the national and nonmetro economies were growing, or the 1980's, when both the national and nonmetro economies were not doing as well.

In contrast, the educational achievements of the local population did help determine where metro employment growth occurred, between 1969 and 1979. During that period, metro areas with high levels of average schooling grew faster than those with lower levels, other things being equal. Between 1979 and 1986, however, the average level of schooling in metro areas had little impact on the rate of local employment growth. But two other measures of local educational attainment—the percentage completing college and high school dropout rates—made important, independent contributions to the local metro growth rate during 1979 to 1986. During both periods, in metro and nonmetro areas alike, the initial mix of jobs in the local economy was a much more important predictor of employment growth than was local educational achievement.

In the 1980's, worker education has taken on a much greater importance. Industrial and occupational shifts in the national economy are resulting in fewer jobs for people with limited education and thinking skills, and more jobs for people with superior analytical and technical abilities. Whether this increased demand for better educated workers extends to all local economies throughout the United States is less clear. The mix of industries and occupations found in local economies does not always match the national industrial and occupational structure. Since jobs vary in their educational requirements, local industrial and occupational structures influence the local demand for education. Local rural economies are more likely to specialize, primarily in resource-based and routine manufacturing industries. And such rural industries generally do not require advanced education of their workers.

Studies of the relationship between education and local employment growth have produced mixed results. One study found a positive association between higher schooling levels and local employment growth between 1977 and 1982 in the nonmetro South, while another found that adult illiteracy, the presence of 4-year colleges and research universities, and the number of scientists, engineers, and technicians living in a county had a positive effect on employment growth in the nonmetro South during 1977-84. Several other studies, by contrast, concluded that higher educational levels made no significant contributions to employment growth rates in local rural economies.

All these studies focused not only on different regions of the country or on different time periods, but, more important, they differed in whether they accounted for other characteristics of the local economy that may be related to local growth. Studies that found a positive effect of education did not...
Increased education does not necessarily improve an area's economic development potential. Other factors, like the local industry mix, are often more important.

control for other local characteristics. Studies that reported no significant relationship between education and local growth took other characteristics of the local economy into account.

Education is Only One Factor Encouraging Local Growth

Local schooling levels may contribute to local job growth. If other things are equal, relocating or expanding firms may choose one area over another because of the educational characteristics of the local population. The definition of an appropriately qualified workforce varies from one industry to another, however.

Many firms in high-tech industries require better educated workers. Thus, the research and development arm of an electronics company seeking a new location may favor an area with a concentration of well-educated, highly skilled workers to meet the company's labor needs. A study of the rapidly growing producer service sector in the Northwest found that employers and managers considered the education system as the single most important factor in determining where their businesses would locate.

Firms in routine production and resource extraction industries are likely to find that the same well-educated population is a liability rather than an asset. Less-educated workers are generally cheaper to hire and less likely to be unionized. Thus, a survey of manufacturing firms in rural Wisconsin found that these employers were attracted to areas with large pools of unskilled, less-educated workers rather than a trained, well-educated labor force. And, as motor vehicle production has become more and more routinized, many factories are being relocated to rural areas in the South with cheaper, less-educated, and non-union labor.

Similar contrasts are found among service industries. Consumer service establishments, such as retail stores and fast-food restaurants, typically employ less-educated workers, while those serving the local business community, such as legal services and banking and finance, traditionally hire better educated workers.

Other Factors Include Industry Mix, Cost of Labor, and Location

The local mix of industries may also affect local employment growth. A local economy dominated by rapidly growing industries will tend to grow faster than one dominated by stagnating or declining industries. Local economies in Texas, for example, prospered when demand for domestically produced oil skyrocketed during the oil crisis in the 1970's. The presence of certain types of industries may attract other similar establishments, an example being the rapid growth of the Silicon Valley area in California.

The local industry mix is also closely linked with the characteristics (both educational backgrounds and work experience) of workers in the area. A local economy with a large concentration of high-tech firms will probably require a relatively large concentration of well-educated, technically skilled workers. A local economy that specializes in manufacturing is likely to need a larger supply of experienced machine operators than of trained laboratory technicians.

The cost of the local labor supply is a third major factor that can affect local employment growth. If other factors are equal, employers will prefer areas with cheaper labor. Because, on average, women and younger people tend to earn less than men (who tend to have more work experience), we might expect local economies with larger concentrations of women in the workforce and those with younger populations to grow faster than other areas.

Other characteristics of the local economy that might affect employment growth include population settle-
High levels of schooling in nonmetro areas often do not accompany high growth rates.

Figure 1: Average schooling levels, 1980

Figure 2: Annual average employment growth, 1979-86
Associations between the educational levels in an area and other local characteristics complicate our evaluation of the role of education in local growth. Because these local characteristics are measured at the same initial point in time, we cannot empirically determine whether a good mix of industries is the result or the cause of a well-educated population. A local economy with a favorable mix of fast-growing, high-tech industries and a well-educated population will probably grow more rapidly, but whether such growth is the result of the local industrial mix or the local educational resources, or both is difficult to tell.

Because all of these local characteristics may make significant, independent contributions to local growth and are interrelated, we must examine the impacts of all local characteristics together. Otherwise, we run the risk of combining the separate contributions of all the local characteristics and attributing the consequences to only one factor. For example, by estimating just the association between education and growth, we may err in giving education part of the credit for higher growth that is really due to the local industrial mix. However, by simultaneously estimating the growth effects of education and industry mix, we can evaluate which characteristic makes the more important contribution to local growth.

Establishing the Role of Education in Local Employment Growth

We started with a simple baseline description of the association between local schooling levels and total employment growth in commuting zones (see box, "Defining Local Economies Based on Commuting Patterns"). The maps in figures 1 and 2 show little association between areas with above-average levels of schooling and areas with above average employment growth rates. In 1980, schooling levels tended to be higher in the North and West and low in the Southeast. In contrast, employment growth during the 1980's occurred primarily in the South and along the Atlantic and Pacific coasts.

We then estimated the unique, or net, effects of average years of schooling completed, percentage completing college, and dropout rates on local employment growth using multiple regression analysis. This technique allowed us to control for diversity among commuting zones in terms of the initial industry mix, earnings per job, percentage of local workers who are female, average age of the local population, urbanization, and geographic region of the country. Although we included these control variables because of their potentially important roles in local economies, we do not discuss their independent contributions to local growth, except as they affect our estimation of the relationship between education and local growth.

The estimates indicate that the growth benefits of higher schooling levels in metro commuting zones during the 1970's were 14 times greater than those found in nonmetro commuting zones (fig. 3). In fact, nonmetro commuting zones with a 1-year higher average schooling level grew by a negligible three-tenths of one percentage point faster than did those with lower schooling levels. These findings suggest that the average years of schooling completed was an important factor in metro local growth during the 1970's, but was relatively unimportant in affecting growth in nonmetro economies. Because firms tend to locate research and management activities in metro areas and production activities in nonmetro areas, this finding is not too surprising.

A similar pattern in nonmetro commuting zones was found during the 1980's. Once again, higher average schooling levels made no significant contribution to nonmetro employment...
Defining Local Economies Based on Commuting Patterns

Most studies of local growth have used counties to represent local economies. Counties, however, are political units rather than economic units. Economic activities can extend far beyond county boundaries. People frequently live in one county and work or shop in another. A firm may offer employment not only to residents in its own county, but also to residents in neighboring counties. Moreover, to the extent that location decisions are based on the qualifications of the local labor pool, employers may well consider the characteristics of all potential workers within commuting distance. Therefore, in this analysis, we used commuting zones—clusters of counties grouped together on the basis of shared commuting—to represent the area in which the local population lives and works. Out of 763 commuting zones in the 48 contiguous United States, Hawaii, and the District of Columbia, 508 contain no metropolitan areas, and are referred to as nonmetro commuting zones in our analysis. We excluded Alaska because its commuting patterns do not follow the typical pattern of adjacent counties sharing more commuting than nonadjacent counties. (See Tolbert and Killian for additional detail on commuting zones).

There is a sharp contrast between the 1970's and 1980's in metro commuting zones, however. During the 1980's, schooling levels had no significant net effect on local growth in metro areas (fig. 3). This metro pattern is extremely puzzling if the United States is heading toward a "new economy" dominated by jobs demanding higher levels of education. We would have expected local educational levels to be more important in the 1980's than they were in the 1970's. The explanation may be that not all metro jobs require well-educated workers. Many jobs continue to be successfully filled by workers with few skills and little education.

In an attempt to better understand this unexpected finding, we carried out a second set of regressions in which we replaced average years of schooling completed by the local population with (1) the percentage of the local population aged 25 years and older who had completed 4 years or more of college and (2) the percentage of the local civilian population aged 16-21 years who were not in school in 1980 and had not completed high school.

The estimated effects of these two variables on local growth provide some insights into why average schooling levels had only negligible effects on local growth in the 1980's (fig. 4). These new estimates indicated that, other things being equal, metro areas with sizable college-educated populations and metro areas with high dropout rates tended to grow faster than other local economies during the 1980's. Moreover, metro economies with both a large percentage completing college and an abundant supply of young, uneducated workers grew the fastest. Thus, average years of schooling did not significantly affect local metro growth in the 1980's because the local advantages of having a relatively large college-educated population and the local advantages of having a relatively large dropout population canceled each other out. In nonmetro areas, this second analysis supports our earlier findings that education, whether measured by average years of schooling completed or by the percentage completing college and the dropout rate, does not significantly contribute to local growth.

This second analysis may help solve one puzzle, but it raises another: Why did metro areas with higher dropout rates grow faster in the 1980's than metro areas with lower dropout rates? One possible explanation is that some employers continue to seek local economies where the labor pool is relatively undereducated and unorganized. Our estimates of the contributions made by other local characteristics to employment growth support this argument. Higher earnings per job and higher average age of the local population suppressed local employment growth in both metro and nonmetro commuting zones. The share of female workers increased the rate of local growth. All three of these patterns support the argument that areas with cheaper labor continue to be attractive to at least some employers.

A second possible explanation for the positive effect of dropout rates on local employment growth is that young people in expanding local economies may be more likely to drop out of high school in order to work, because more jobs are available. To test this explanation, we included earlier employment growth (1978-79) as a predictor of growth between 1979 and 1986. Even controlling for earlier growth, higher local dropout rates continued to enhance the rate of growth in metro areas during the 1980's. (The results from this and all additional analyses are available from Molly Killian.)

A third possible explanation is that, although highly skilled, better educated workers are required for some jobs, a pool of relatively unskilled workers is needed to meet the needs of the other workers and local businesses, such as washing dishes, delivering packages, vacuuming floors, and caring for children. A regression model that simultaneously examines the relationships between the percentage completing college, dropout rates, and growth in jobs requiring high and low levels of education supports this interpretation.

Growth Effects of Education Often Overstated

This analysis suggests that the role of education in local employment growth is less straightforward than most previous studies have suggested. In contrast to studies that found a positive relationship between education and local growth, we conclude that average schooling levels were relatively unimportant factors in determining local employment growth in nonmetro areas during both the 1970's and 1980's and in metro areas during the 1980's. For policymakers to make sense of these conflicting results, several differences between our analysis and earlier analyses must be addressed.

First, the earlier studies examined only nonmetro counties in the South. We evaluated the consequences of schooling levels for growth in commuting zones throughout the country, accounting for regional differences. Second, our analysis took into account other characteristics such as the initial job mix, the cost of labor, and
location of the local economy that are also related to local growth.

To assess how critical it is to take region and local characteristics into account, we re-estimated the association between average schooling levels and employment growth without taking the other characteristics of commuting zones into account. If we failed to consider the initial job mix, higher schooling levels appeared to significantly benefit employment growth in both metro and nonmetro commuting zones in both the 1970’s and 1980’s. We also estimated the models, with and without our measure of the local industrial mix, just for commuting zones in the South. We found that in the South in the 1980’s, without accounting for the initial mix of jobs, average schooling levels appeared to make strong, positive contributions to local growth; but when we controlled for the job mix, higher average schooling levels had no significant independent benefit. The disparity between our findings that average schooling levels had only trivial effects on local growth during the 1980’s and earlier findings that "education and economic development go hand in hand" suggests that other factors, especially the local industrial mix, were critically important to the process of local growth.

Education is Not the Most Important Factor for Local Employment Growth

In both metro and nonmetro commuting zones in the 1970’s and the 1980’s, the initial mix of local industries and how well these industries performed at the national level were more important determinants of local growth than were local educational levels. For many employers, therefore, the kinds of specific job skills and relevant work experiences of the local labor force may be more important than simply the average number of years of school completed by the local population.

Nevertheless, education does affect local employment growth, at least in metro areas. In the 1970’s, local metro economies with better educated populations tended to grow faster than others, other factors being equal. However, for a metro economy in the 1980’s to have benefited from improved educational credentials, the improvement must have been made in the percentage of the population completing college. Having an average schooling level of 12 years rather than 11 years apparently meant few additional jobs for metro economies in the 1980’s. Moreover, for local economies without the resources to produce such an improvement in local schooling levels, our findings indicate that even in the new economy of the 1980’s, some employers were still attracted by a supply of cheap, unorganized labor, as indicated by the positive effect of dropout rates on local metro employment growth.

Several qualifications to these findings are critical. First, employment growth is not the same as economic and social development. Our analysis focuses only on changes in the numbers of jobs, not on changes in the quality of jobs. Many of the new jobs created in areas with high dropout rates may not be good jobs. For example, a study of nonmetro counties in the South that grew rapidly due to tourism found that most new jobs in these areas were seasonal, with low wages and few, if any, benefits.

Second, our analysis focused only on the contributions made by the existing stock of educational resources in a local economy. Another side of the issue is the role of current investments in local educational systems, such as per-pupil expenditures, on local economic growth. For example, the positive effect that a higher percentage of people completing college had on local metro growth probably means that good-quality local schools will become more necessary to attract and retain well-educated workers with children. College-educated parents may be unwilling to raise their families in areas with mediocre local schools and high dropout rates. Without good, comprehensive data on the quality of local school systems, however, we cannot examine this dimension of the complicated relationship between educational resources and local employment growth.

Last, our analysis extends only to 1986. During the middle of this period, in 1982-83, the national economy was experiencing one of its worst recessions in decades. By 1986, most metro economies were showing significant signs of recovery. Recovery in nonmetro areas, however, was considerably slower, and the overall nonmetro unemployment rates did not fall to their pre-recession levels until 1989. It is possible then that an analysis that extends through the end of the decade might produce somewhat different results.

The negligible effects of local schooling levels on employment growth in nonmetro areas are somewhat discouraging for rural policymakers. Unless the quality of job opportunities is improved in rural economies, the best and the brightest rural workers will continue to move to the cities in search of better employment.

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