

The Role of *Education*

Promoting the Economic & Social Vitality of Rural America



January 2005

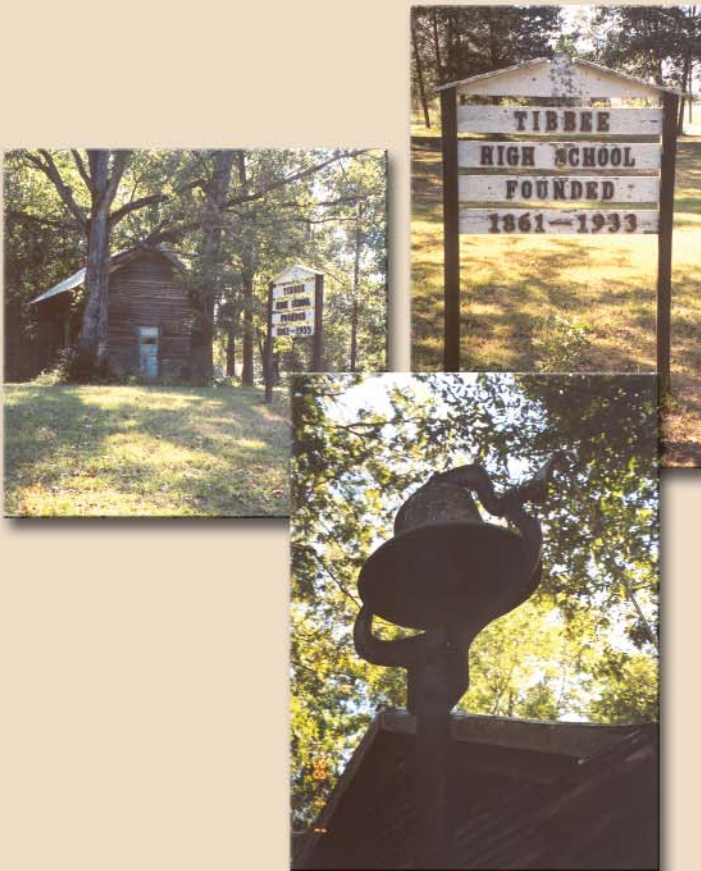
The Role of Education: Promoting the Economic and Social Vitality of Rural America is a special report issued by the Southern Rural Development Center, in partnership with the USDA Economic Research Service and the Rural School and Community Trust.

EDITED BY:

Lionel J. "Bo" Beaulieu
Southern Rural Development Center
Mississippi State University

Robert Gibbs
Economic Research Service
United States Department of Agriculture

ON THE COVER...



Built in 1861, the Tibbee High School building is one of only 12 one-room schoolhouses still standing in the state of Mississippi. It is also one of two schoolhouses listed on the National Register of Historic Places within the state.

Located approximately four miles south of West Point, the building was the focus of an extensive renovation effort during the 1970s by the Vest family, who purchased a house located across the street from the school.

The school's classes ended in 1933 when education officials established a larger, more centralized school system.

Education,
Human Capital
and the Local
Economy

**How the Returns to Education in Rural Areas Vary
across the Nation**

6 ~Stephan Goetz and Anil Rupasingha, Pennsylvania State University

**Does Human Capital Affect Rural Economic Growth?
Evidence from the South**

10 ~David Barkley, Mark Henry and Haizhen Li, Clemson University

Measuring Local Economic Impacts of the Education Sector

16 ~Mike D. Woods, Gerald A. Doeksen, and Cheryl St. Clair,
Oklahoma State University

Importance of Schools to Rural Community Viability

23 ~Tom Lyson, Cornell University

**Bouncing between Disadvantaged Rural School Districts:
The Hidden Problem of Student Transiency**

28 ~Kai Schafft, Pennsylvania State University

**Employer Participation in School-to-Work Programs
in Rural America**

36 ~Gary Green, University of Wisconsin

Links between
Rural Schools
& Communities

Creating
Successful
Rural Schools
and Students

**It's More Than Just Schools:
How Families and Communities Promote Student Achievement**

44 ~Lionel J. Beaulieu, SRDC, & Glenn D. Israel, University of Florida

Preparing Educators to Teach Students in Rural Schools

56 ~Sheryl Lazarus, University of Minnesota

**How Do Rural Schools Fare under a High-Stakes
Testing Regime?**

64 ~Frank Beck, Illinois State University

An Introduction to *Education*

There continues to be considerable discussion regarding the vital roles that good schools and a well-educated population play in promoting sound, local economic and community development activities. Certainly, it is commonsense that quality schools produce good citizens and skilled workers, and that employers are attracted to places having highly-educated labor. Recent federal and state efforts designed to tighten learning standards in our public schools are emblematic of the strong links that are believed to exist between education and a healthy local economy.

Today's rural leaders are becoming increasingly attuned to the fact that high achieving schools and related human capital investment strategies are key ingredients in the promotion of sustainable development at the local level. But, serious challenges often await rural areas that seek to pursue such efforts. As a case in point, if rural schools are successful in producing well-educated students, they run the risk of accelerating the exodus of talented youth to the larger cities that offer higher salaries and other important amenities. Certainly, rural areas can attempt to retain these talented individuals by expanding the availability of better paying, higher quality jobs in the locality. But, in far too many rural places, the necessary infrastructure and fiscal resources needed to create or attract such jobs are simply limited.

In an effort to further expand the knowledge base regarding the connections between rural education and local community well-being, the USDA's Economic Research Service and the Southern Rural Development Center (in partnership with the Rural School and Community Trust) hosted a two-day workshop in Spring 2003. A distinguished group of social scientists, along with practitioners and policy-analysts, delivered and discussed current research being undertaken on a variety of rural education and economic development-related subjects.

Nine of the research articles, presented over the course of this two-day symposium, are highlighted in this important report. Every article, either directly or indirectly, grapples with the rural education and community/economic connection. For sake of simplicity, the articles are divided into three thematic topics: (1) Education, Human Capital and the Local Economy; (2) Links between Rural Schools and Communities; and (3) Creating Successful Rural Schools and Students. We hope the articles are informative and that they stimulate greater interests by the social sciences research community in addressing current and emerging rural education and economic development challenges in rural America.



Education, Human Capital and the Local Economy



HOW THE RETURNS TO EDUCATION IN RURAL AREAS VARY ACROSS THE NATION

Stephan J. Goetz and Anil Rupasingha
Pennsylvania State University

Rural policymakers in particular are concerned about the loss of well-educated workers from their local communities. Known as a “brain drain,” this phenomenon not only deprives local employers of an educated workforce, but it also represents a drain on local resources because the communities that invested in the education of these workers do not reap any returns on that investment. More specifically, while the shares of state and local contributions can vary substantially, local school systems are financed largely through local property taxes. If high school graduates or college graduates leave the local community to work and pay taxes elsewhere, then the community does not derive a benefit from its investment. Any taxes paid, jobs held or other public benefits (and costs) that

Factors Associated with Higher Incomes per Capita:

- A greater percent of adults with a high school degree or beyond
- More middle-aged residents (workers) — up to a point
- Interstate highway access
- More social capital
- Smaller classrooms
- Relatively more workers in the private sector
- More high-technology establishments
- Greater population density
- Natural amenities

are associated with the local graduate who moved away accrue else-

where — and usually in areas that are **not** rural.

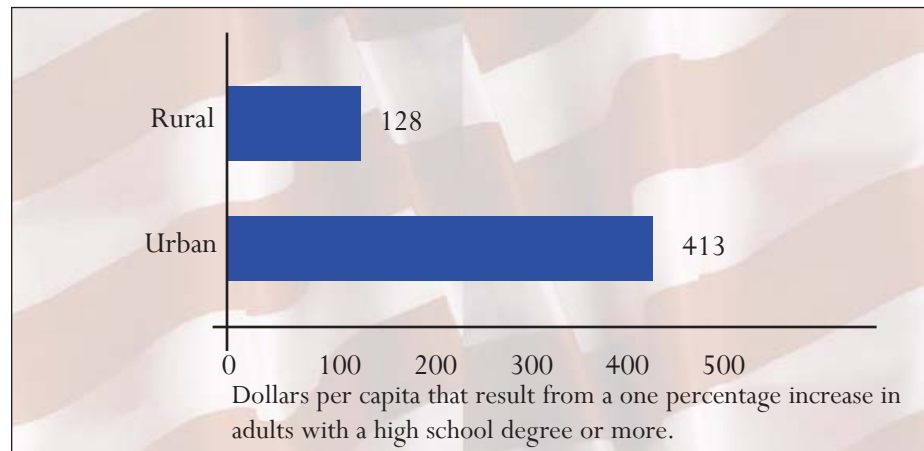
EXPLAINING INCOME DIFFERENCES

A recent study sheds light on the determinants of income per person in U.S. counties, including the effect that education has on incomes [a]. Education is measured as the percent of the adult population (25 years and older) that has a high school or higher degree. Other variables that account for or explain differences in per capita income across counties include the *age of the population*, such that incomes first rise as average age — and experience — of the population increases and then falls off with greater age as senior citizens retire and work less; *interstate highway access*, because better transportation facilities increase opportunities for

economic activity and exchange; *social capital levels*, because the resulting greater amount of trust between individuals also enhances economic activity (by reducing the need for legal and other checks on economic transactions); *classroom size*, because smaller classrooms allow students to have a better educational experience, which pays off in the form of higher earnings later in life (this assumes that the students actually remain in the county in which they attend high school after they graduate); employment in the *private sector* and in the *public sector*, as opposed to self-employment, with more private sector employment leading to higher per capita incomes and public sector employment leading to lower incomes; *high-tech employment* that, as an emerging and skill-intensive sector, pays higher wages; *population density*, both because it raises worker productivity and because workers have to be paid more to put up with congestion costs; and finally, *natural amenities*, which can be associated both with higher incomes (if the demand for workers in high-amenity areas is outstripping the supply of workers) or with lower incomes if workers are willing to accept a smaller paycheck in exchange for the benefit of living in an area with abundant amenities.

Casual surveys reveal that high school graduates often prefer to remain in the communities in which they grew up and went to school. Thus, if they are migrating out of their home areas, they must be doing so for a reason. The migration literature suggests that individuals move

Figure 1: The Returns to Education in Rural and Urban Counties



for economic reasons — primarily expected employment opportunities and earnings potential — as well as for reasons related to quality of life — in particular, pleasant natural and other amenities. This suggests that an important explanation for the brain drain from rural communities is the relative lack of local job opportunities or, more specifically, the lack of jobs that pay enough to provide the individual who has invested in education with a commensurate return on that investment. While this may be obvious, to date no one has actually tried to measure by how much the returns to education in some areas differ from the returns available elsewhere.

RURAL VS. URBAN RETURNS TO EDUCATION

We can derive actual numbers revealing the potential magnitude of the problem by comparing the returns to a high school education (and beyond) in urban areas with the returns available in rural areas. Operationally, we compare what would happen to per capita income in a rural county if the share of high

school (or more) graduates would increase by 1 percentage point with what would happen in an urban county. The result is shown in Figure 1, with the returns to education — measured as an increase in the share of individuals with a high school or higher degree — in rural areas being less than one-third (31 percent) that of urban areas. In other words, a 1 percentage point increase in the share of high school graduates in a typical rural county only raises per capita income (including, implicitly, that of the graduates) in that county by \$128; in an urban county, on the other hand, the income increases by \$413. This gives us some idea of the rather substantial magnitude of the problem involved. While these numbers are relatively small, it is important to remember that they are spread across every man, woman and child in a county.

LOOKING AT INTERACTIONS: HOW THE EFFECT OF EDUCATION CAN BE REINFORCED

To begin to get an idea of why the returns to education are so much

higher in urban than in rural regions, we examined so-called interaction effects between education and other variables. For example, we found that access to an interstate highway actually increased the returns to a high school degree beyond the effect only of the high school degree and interstate access taken separately. We interpret this as indicating that when individuals with more education can get to their places of work more quickly via an interstate, a tangible additional benefit occurs in terms of higher productivity and incomes (holding other relevant factors constant). Because rural areas have fewer interstate highway access points to begin with, they tend to be at a disadvantage on this count. Significantly, we also find that educational attainment offsets the negative effect of larger classroom size on per capita income in urban but not in rural areas.

Relative to rural areas, urban areas on average also get an additional per capita income boost from the interaction between human capital and higher levels of social capital, private

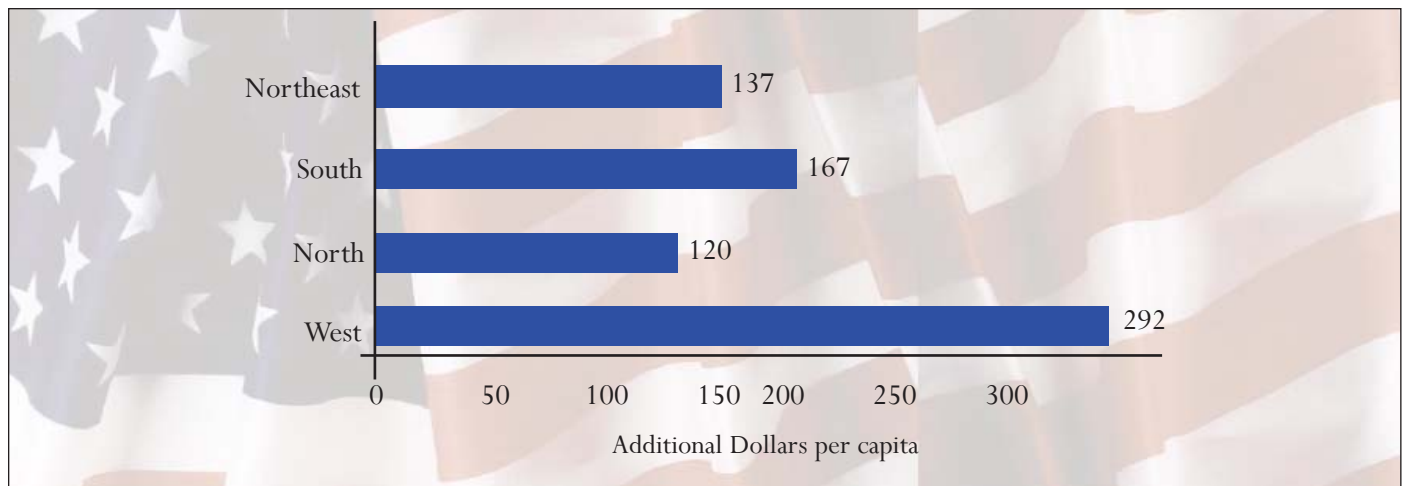
sector jobs, higher population density and natural amenities. The only factor for which rural areas have an advantage over urban areas is in the interaction between high-tech establishments and high school graduate shares: here the interaction effect in rural areas (+9.5) yields a greater increase in per capita income than occurs in all areas combined (+2.1). Of course, rural areas also have fewer high-tech establishments in the first place. But, for those rural areas that do have such establishments, the boost in income from the interaction with education is considerably larger than in urban areas.

We also looked at the effects of interactions in rural areas only. Private sector jobs, amenities and high-tech establishments interact positively with educational attainment to raise rural incomes per capita. However, in rural areas, population density, social capital, classroom size and highway access ramps have no statistical effect in leveraging the impact of educational attainment on income. Rural counties, therefore, suffer in two ways. First, they

have lower population densities to begin with, and second, they would not benefit if they could somehow increase population density. This is important, because information technology and the Internet generally have been pointed to as possible tools for reducing the negative effects of remoteness in some rural communities. The analysis suggests that, at least for now, the disadvantage of low population density and remoteness will be difficult to overcome with IT.

We have a similar result for rural interstate highway access ramps. While the ramps do benefit rural counties by raising per capita incomes, they do not have the additional effect on rural incomes that is associated with the interaction with educational attainment. This gives some indication of the staggering odds or disadvantages that rural areas face in terms of providing those with a high school degree a reasonable return on their investment.

Figure 2: The Returns to Education in the Rural Regions of the United States



DIFFERENCES IN RETURNS BY REGION

We next examine relative returns to education, as measured here, in rural areas of the Northeast, South, Midwest and West U.S. Census regions. The results of this analysis are reported in Figure 2, and they show a striking pattern of high returns in the rural West — nearly twice as high as in any other region. We suspect that this goes a long way in explaining why the West continues to attract so many (primarily young) educated people. The next question is, why is this happening and what, if anything, should be done about it, assuming that something can be done about it?

CONCLUSION

In conclusion, our analysis suggests that rural areas have important disadvantages relative to urban areas in terms of offering workers competitive returns to education, or returns

that are commensurate with the costs incurred by individuals as they pursue their education. Not only do rural areas fail to enjoy the kind of per capita income boost that is associated with interactions between certain variables and educational attainment in urban areas, but in some case there are no interaction benefits in the first place. The only exception is that of high-technology employment, but other studies by the author suggest that rural areas have difficulty attracting such firms. However, if rural areas do manage to attract or spawn high-tech firms, the benefits in terms of raising the returns to education are quite substantial.

In terms of policy recommendations, it is important to note that the brain drain from rural to urban communities creates two kinds of externalities — that is, costs to society that are not borne by those “committing” the brain drain. The first is the

loss of any returns to the local taxpayers’ investment in the high school graduate. The second is the extra cost of urban congestion that arises when a rural resident resettles to a metropolitan area. The key is to find ways to redistribute these costs in order to offset some of the disadvantages that rural areas now face in terms of competing for high school graduates.

ENDNOTE

- a. This policy brief is based on “The Returns to Education in Rural Areas” by S. Goetz and A. Rupasingha, which was prepared for the ERS/SRDC/Rural Education and Community Trust Conference on Promoting the Economic and Social Vitality of Rural America: The Role of Education, held in New Orleans, LA, April 14-15, 2003.



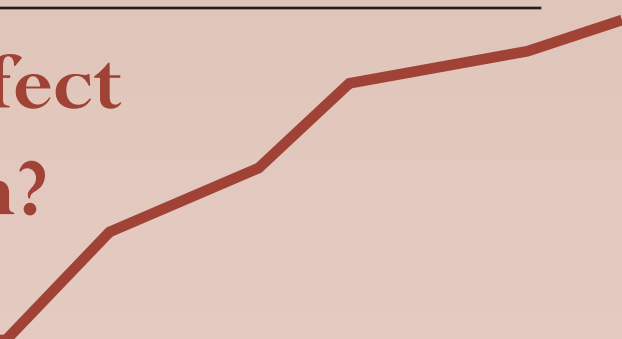
Interested in other areas of policy research?

Take a look at our **SRDC Policy Series** located at:

<http://srdc.msstate.edu/publications/srdcpolicy>

Does Human Capital Affect Rural Economic Growth?

Evidence from the South



David Barkley, Mark Henry and Haizhen Li
Clemson University

Intense international competition and high technology production processes define the New Economy and dictate the occupations and labor skills needed in today's work place. As a result, non-production employment is increasing at the expense of production jobs, and occupational and skill upgrading are occurring within both white- and blue-collar jobs [4, 11]. This upgrading of job skills and educational requirements places non-metropolitan areas at a disadvantage since rural counties generally have lower educational levels among the adult population. For example, in the 15 southern states, the 2000 percentage of the population (25 and older) with at least some college was 34.8 percent for nonmetro counties and 47.4 percent for metro areas. The low level of human capital in rural areas likely contributed to the slow growth of rural economies relative to their metro counterparts. From 1970 to 2000, the Southern nonmetro annual growth rates in real per capita income, population, and employment were 1.7 percent, 0.8 percent, and 1.4 percent, respectively. During the same period

metro growth rates in the South were 1.8 percent for per capita income, 2.0 percent for population, and 3.0 percent for employment.

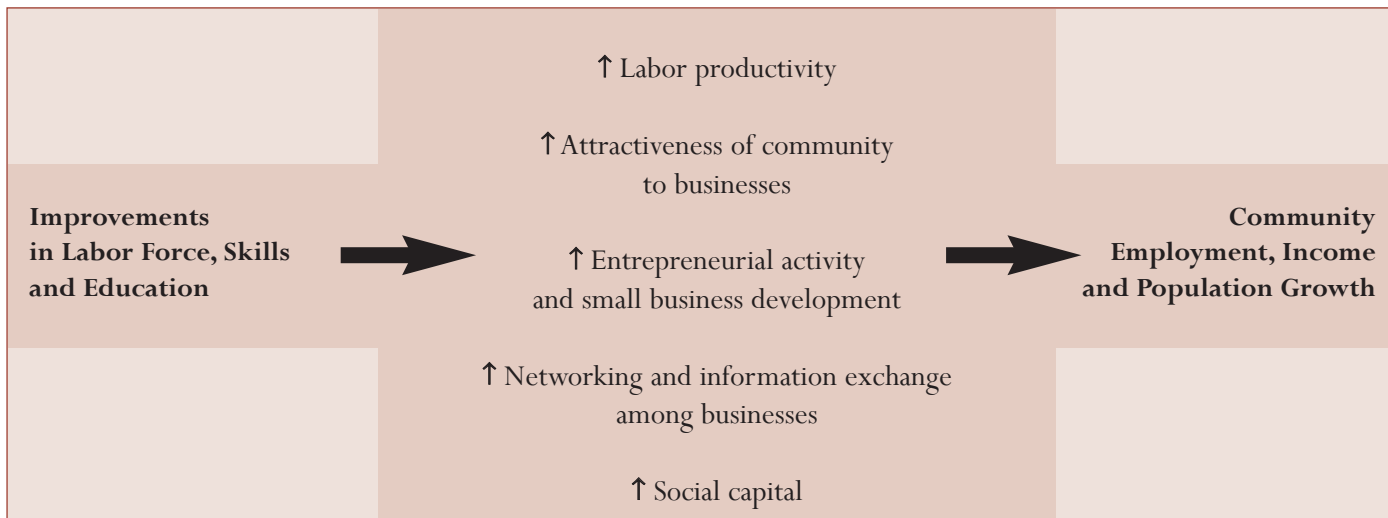
Rural communities view increased educational investments as an important component of their economic development strategy in an economic environment that stresses competitiveness in international markets and adaptability to sophisticated technologies. At the same time, rural communities are sensitive to the "leakage" of human capital investments outside the community as rural residents move to urban areas with better job opportunities. Moreover, investigations of the linkages between improved school quality and local economic development are rare; thus communities have little guidance as to the returns to higher education levels for the adult population. In this report, we summarize our recent findings on the relationship between additional schooling for rural residents and economic growth across rural counties of the South. We start with an overview of the means through which a better educated labor force may facilitate local economic devel-

opment. Next, we summarize the results of our statistical analysis of the association between a more highly educated labor force and county growth rates in employment and per capita income. Our findings reinforce the conventional wisdom that educated labor is critical to future economic development in both urban and rural areas. The economic development returns to education are, however, greater in metro than nonmetro areas.

HOW MIGHT A BETTER EDUCATED LABOR FORCE AFFECT ECONOMIC GROWTH?

A higher level of human capital (as reflected in the share of the adult population with some college) is hypothesized to contribute to more rapid local economic development through a number of channels (Figure 1). First, additional human capital enhances the ability of local businesses to adopt superior technologies and respond to changing economic conditions [3]. Second, a well-educated labor force improves a community's chances of attracting new businesses to the area [1]. Labor force quality is especially important

Figure 1: Potential Contributions of Human Capital Improvements to Local Economic Development



in the attraction of establishments in high technology industries and businesses with significant employment in skilled and technical occupations [2]. Third, entrepreneurial activity and small business development in a community benefit from the availability of skilled people in management, technical, and entry-level positions [12]. A well-educated labor force is a critical component to the economic climate conducive to the development, attraction, and retention of entrepreneurs.

In addition to the direct effects of human capital on firm productivity, a well-educated labor force also facilitates the generation of spillovers or external economies that promote local development [13]. For example, networking and information exchange are critical components of industry cluster development, and the availability of skilled, educated labor facilitates networking and the spread of ideas throughout the cluster [10]. Moreover, a well-educated labor force enhances the level of

social capital in the community [8], and Jan Flora [5: 449] argues that “communities with moderate to high levels of social infrastructure are more likely to have successful, locally-initiated economic development projects than those without.” Finally, Richard Florida [6] proposes that a key to economic growth is the ability to attract and retain members of the “creative class,” individuals with the ability to create new products and businesses and stimulate regional growth. According to Florida [6: 5], an important component of this class is “creative professionals,” individuals with a “high degree of formal education and thus a high level of human capital.”

In summary, improvements in the educational attainment of the local labor force create numerous opportunities for future community development. It is not clear, however, which types of communities can best take advantage of these opportunities, or how the community development impacts will be realized in

terms of income, employment, and population change. For example, the dominant economic base in a rural county may affect the ability to translate added human capital into faster county growth-via an enhanced ability to adapt to new technologies, improved learning by doing, etc. Farming counties with large shares of college educated residents might more readily adapt innovations in seed, chemicals, and machinery to generate higher net farm income compared to farm counties with few residents with a college education. On the other hand, the easy adaptation of new technologies and more sophisticated machinery attributable to higher human capital levels may reduce the employment opportunities in farming counties, forcing some people to find jobs somewhere else. Similarly, manufacturing-based counties with more highly educated labor may be attractive locations for high technology manufacturing firms that require skilled workers (the labor pooling

effect). Yet, a high-skill, high-wage labor force likely discourages manufacturing firms that are seeking locations with low labor costs.

INVESTIGATING THE LABOR QUALITY-ECONOMIC DEVELOPMENT RELATIONSHIP

One goal of this project was to estimate the relationship between labor quality in Southern counties in 1980 and measures of county economic growth and development for the period 1980 to 2000. Our measure for the level of human capital in the county is the share of county population aged 25 or older that have attended college. Economic change in the counties is estimated by annual rates of growth in employment, population, and per capita income. The South is defined to include the 15 states of Arkansas, Alabama, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. The general models estimated to identify the role of human capital in economic development are summarized in Table 1. The interested reader may refer to Henry, Barkley, and Li [9] for the results of the statistical analysis.

SUMMARY OF THE FINDINGS

Results of our analysis indicate that county growth rates in per capita income and employment were positively influenced by increases in the initial level of human capital in the county. The increase in per capita income and employment growth

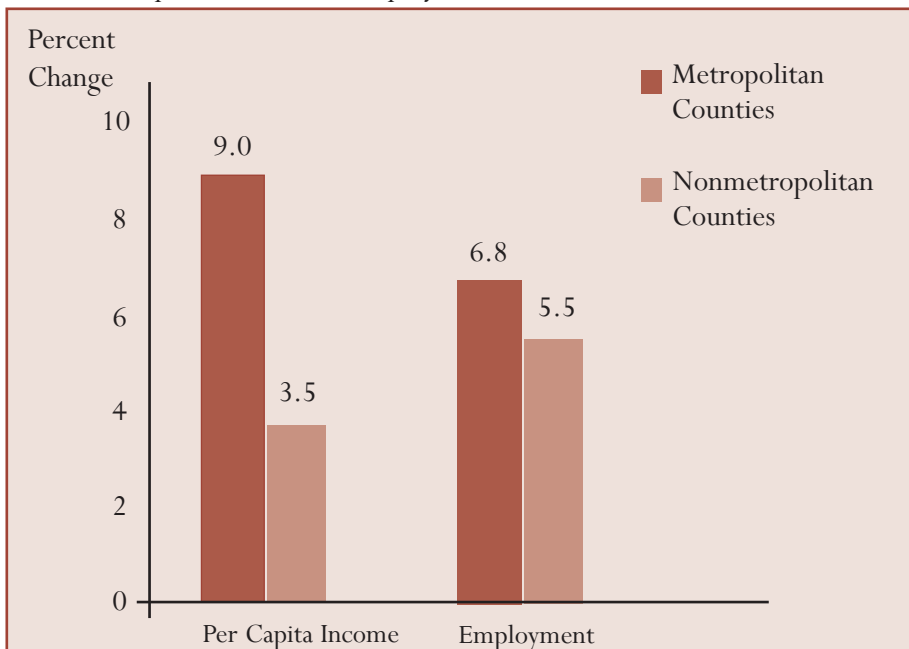
rates was greater in metro than non-metro counties (Figure 2). Specifically, a 5 percentage point increase in adults attending college resulted, on average, in a 3.5 percent increase in the growth rate of per capita income in nonmetro areas and a 9.0 percent increase in the

growth rate in the metro counties. For employment change, the 5 percentage point increase in college attendees contributed to a 5.5 percent increase in the nonmetro employment growth rate and a 6.8 percent increase in the metro employment growth rate. County

Table 1: Models Estimated to Identify Factors that Influence County Economic Growth

Models	Measure of Economic Development	Explanatory Variables
Income	Growth rate of real per capita income in county	<ul style="list-style-type: none"> ■ Real per capita income in previous year in county ■ Growth rate in real per capita income in counties adjacent to county ■ Share of county population 25+ with some college ■ Control variables for county characteristics that may influence income growth (economic base, share of income from transfer payments, change in workforce, change in physical capital, nonmetro designation)
Employment	Growth rate of county employment	<ul style="list-style-type: none"> ■ Employment in county in previous year ■ County land area (square miles) ■ Share of county population 25+ with some college ■ Control variables for county characteristics that may influence employment growth (share of income from transfer payments, change in physical capital, natural amenity level, nonmetro designation)
Population	Growth rate of county population	<ul style="list-style-type: none"> ■ Population in county in previous year ■ County land area (square miles) ■ Share of county population 25+ with some college ■ Control variables for county characteristics that may influence population growth (share of income from transfer payments, change in physical capital, natural amenity level, nonmetro designation)

Figure 2: Percentage Change in the Annual Growth Rates of County Per Capita Income and Employment, Southern Counties



population growth rates, on the other hand, were not significantly related to changes in the county’s level of human capital, regardless of whether the county was classified as metro or nonmetro.

Tables 2 and 3 illustrate the impacts of a hypothetical 5 percentage point increase in the share of county population attending college on county per capita income (Table 2) and employment (Table 3). The mean levels of schooling in 1980 (percentage of adults 25+ with some college) for Southern metro and nonmetro counties were 27.0 percent and 18.7 percent, respectively. A 5 percentage point increase in county schooling levels resulted in hypothetical metro and nonmetro schooling levels of 32.0 percent and 23.7 percent. The hypothetical 5 percent increase in the counties’ educational levels is small, in an absolute sense, yet it represents a

relatively large percentage increase in schooling levels for metro (18.5 percent) and nonmetro (26.7 percent) counties because the base year

levels were low.

The impact of additional human capital was to increase the annual growth rate of real per capita income in metro areas from 1.57 percent to 1.72 percent. At the initial annual growth rate of 1.57 percent, the average metro county would experience real per capita income growth from \$10,763 to \$14,697 from 1980 to 2000. Alternatively, at the higher annual growth rate of 1.72 percent, per capita income would have grown from \$10,763 to \$15,134 over the 20-year period. Thus the 5 percentage point change in adults with some college increased county real per capita income in metro areas by an average of \$436. Similarly, the real per capita income in nonmetro counties would have been \$325 higher if college were attended by 5 per-

Table 2: Impacts of Added Education on County Per Capita Income Growth in the South

Years 1980-2000	Metro	Non-Metro
Mean percentage 25 yrs. or older with some college (1980)	26.95	18.66
Hypothetical increase in schooling (percent)	5.00	5.00
Annual income growth rate, 1980-2000 (percent)	1.57	1.51
Change in income growth rate (percent)	0.15	0.14
New income growth rate (percent)	1.72	1.65
Real per capita income (1980), RCPI	\$10,763	\$8,512
Calculated RPCI (2000), using original growth rate	\$14,697	\$11,487
Calculated RPCI (2000) after HK, using new growth rate	\$15,134	\$11,812
Change in real per capita income	\$436	\$325

Table 3: Impacts of Added Education on County Employment Growth in the South

Years 1980-2000	Metro	Non-Metro
Mean percentage 25 yrs.or older with some college (1970)	26.95	18.66
Hypothetical increase in schooling (percent)	5.00	5.00
Annual employment growth rate, 1980-2000 (percent)	2.76	1.20
Change in employment growth rate (percent)	0.19	0.07
New employment growth rate (percent)	2.95	1.27
Employment 1980 (number of jobs in county)	72,816	9,081
Calculated employment (2000) using original growth rate	125,518	11,527
Calculated employment (2000) using new growth rate	130,202	11,678
Change in employment	4,684	150

cent more of the adult population in the county.

The \$325 increase in mean county per capita income from additional human capital seems, at first, to be rather small. However, the average 2000 population in southern nonmetro counties was approximately 24,700. Thus, the increase in 2000 total income for the average nonmetro county in the South was \$8,027,500 ($\$325 \times 24,700$), and the additional income in the county is realized year after year.

The increase in jobs attributable to added schooling are presented in Table 3. On average, a 5 percentage point increase in adults with some college resulted in 4,684 new jobs in metro areas and 150 additional employees in nonmetro counties. The impact of additional schooling on county employment in nonmetro areas is small (relatively and

absolutely). It is likely that many of the nonmetro residents who attended college had to leave the nonmetro areas to find employment fitting their higher level or more specialized education. Moreover, the higher educated rural workers may be attracted to metro areas by the generally higher wages and salaries available in metro labor markets. Thus, many of the 4,684 new jobs in metro areas may be held by rural workers who commute from their nonmetro residences. The impact of this commuting will be evident in the nonmetro county income but not in the employment numbers.

CONCLUSIONS

Improvements in educational quality and attainment levels are promoted as important components of state and local development policies in the new economy. Our findings for the

South indicate that such a strategy is appropriate for both metro and nonmetro counties. An increase in the share of adults with some college was associated with more rapid employment and per capita income growth rates in metro and nonmetro areas. However, the economic development benefits from higher levels of human capital were greater in metro areas. In nonmetro counties, the principal economic development consequences of more schooling is an increase in county per capita income. The impact of enhanced labor force quality on nonmetro county employment was small.

The limited increase in jobs associated with better educated workers is likely a legacy of the history of rural industrial development. In the past, rural areas were successfully promoted as good locations for businesses seeking a low-skill, low-wage labor market. As a result, rural communities generally are not viewed as the best sites for firms using technologically sophisticated production processes. However, this view of nonmetro labor markets is changing, and job opportunities for the highly educated are becoming more available in rural areas. [11] The key for sustainable economic growth, according to McGranahan and Ghelfi [11: 154], is "...raise the quality of local labor to handle new technologies."

In sum, nonmetro communities must find the means to increase the share of college-educated workers in their labor force. Many of the highly educated in rural areas are natives that attended college locally or

returned home after completing college. [7] Thus, rural communities should seek means to increase college attendance by their residents. Reduced high school drop out rates, increased high school graduation rates, enhanced student preparation for college, and increased college attendance are all critical to improving local labor quality. The alternative to the above for nonmetro communities is a smaller and smaller role in the national and world economies.

REFERENCES

1. Aldrich, L. and L. Kusmin. 1997. "Rural Economic Development: What Makes Rural Communities Grow?" *Agriculture Information Bulletin*. No. 737, USDA.
2. Barfield, M.A. and L.J. Beaulieu. 1999. "The Changing Nature of Work in the South: The Polarization of Tomorrow's Workforce." *Rural Development Issues Impacting the South*. Southern Rural Development Center. Available from <http://srdc.msstate.edu>.
3. Barrow, R.J. 2001. "Human Capital and Growth." *AAEA Papers and Proceedings*, May: 12-17.
4. Berman, E., J. Bound, and Z. Griliches. 1994. "Changes in the Demand for Skilled Labor within U.S. Manufacturing: Evidence from the Annual Survey of Manufacturers." *The Quarterly Journal of Economics*, May: 367-397.
5. Flora, J.L. 1998. "Social Capital and Communities of Place." *Rural Sociology* 63(4):481-506.
6. Florida, R. 2002. *The Rise of the Creative Class: And How Its Transforming Work, Leisure, Community and Everyday Life*. New York: Basic Books.
7. Gibbs, R.M. 1998. "College Completion and Return Migration among Rural Youth." Pp. 61-80. *Rural Education and Training in the New Economy*. Edited by R.M. Gibbs, P.L. Swain, and R. Teixeira. Ames: Iowa State University Press.
8. Glaeser, E.L., D. Laibson, and B. Sacerdote. 2002. "The Economic Approach to Social Capital," *NBER Working Paper No. W7728*, National Bureau of Economic Research. <http://www.NBER.org>.
9. Henry, M.S., D. Barkley and H. Li. 2003. "Education and Nonmetropolitan Economic Development in the South." Paper presented at conference on *Promoting the Economic and Social Vitality of Rural America: The Role of Education*. New Orleans, April 14-15.
10. Kim, Y., D.L. Barkley, and M.S. Henry. 2000. "Industry Characteristics Linked to Establishment Concentrations in Nonmetropolitan Areas." *Journal of Regional Science* 40(2):231-259.
11. McGranahan, D. A. and L.M. Ghelfi. 1998. "Current Trends in the Supply and Demand for Education in Rural and Urban Areas." Pp. 131-171. *Rural Education and Training in the New Economy*. Edited by R. M. Gibbs, P.L. Swain, and R. Teixeira. Ames: Iowa State University Press.
12. National Commission on Entrepreneurship. 2000. "Building Companies, Building Communities: Entrepreneurs and the New Economy." Washington, D.C. Available from <http://www.ncoe.org>.
13. Rauch, J.E. 1993. "Productivity Gains from Geographic Concentration of Human Capital: Evidence from the Cities." *Journal of Urban Economics* 34:380-400.



MEASURING LOCAL ECONOMIC IMPACTS OF THE EDUCATION SECTOR

Mike D. Woods, Gerald A. Doeksen, and Cheryl St. Clair
Oklahoma State University

The delivery of services such as education in rural counties is important to the local economy and quality of life. Not only do these services directly provide a large number of jobs, but they often indirectly produce many other jobs. In many rural counties, the education system is often the largest employer. Given these impacts and the knowledge that education services often affect business and industrial location decisions, this report presents an approach to measure the economic impact of the education sector on the local economy.

Rural schools have recently received a great deal of consideration and attention as part of the consolidation debate. Critics point to low pupil numbers, high costs per pupil, and relatively high administrative costs. Defenders of rural schools note the opportunity for more indi-

vidual attention, success in many small rural schools, and the desires of parents to place children in smaller schools. Rural schools are often the focal point of a small community and the center of much community activity. These rural schools also have a strong connection to the economic health and vitality of the community.

To help local decision-makers understand this connection and its importance, this report will discuss and demonstrate the relationship between the education sector and economic development in Atoka County, OK. Specifically, the report:

- discusses the role the education sector plays in rural development;
- measures the employment, income, retail sales and sales tax impact of the education sector in Atoka County; and
- presents a model for integrat-

ing the education sector and broader community development efforts.

EDUCATION AND RURAL DEVELOPMENT

The nexus between education services and rural development is often overlooked. A strong education system can help attract and maintain business and industry growth. In addition, there are non-educational impacts of the local education sector that may be considered.

BUSINESS AND INDUSTRY GROWTH

Studies [1, 3, 7] have found that quality-of-life (QOL) factors play a dramatic role in business and industry location decisions. Among the most significant of those QOL factors are education and other factors such as health care services. These factors are important for at least two

reasons. First, as noted by a member of the Board of a community economic development corporation [2], quality of life factors such as good health and education services are imperative to industry and business leaders as they select a community in which to locate. Employees and management may resist if they are asked to move into a community with substandard or inconveniently located health and educational services.

Second, when a business or industry makes a location decision, it wants to ensure that the local labor force is productive, and two key factors in productivity are education and good health. Thus, investments in education and health care services can be expected to yield dividends in the form of increased labor productivity.

NON-EDUCATIONAL IMPACTS OF THE EDUCATION SECTOR

The local education sector has as a primary impact the education of youth and students. Several non-educational impacts may be noted as well [6]. Educational institutions also offer a resource for local community development. Active student involvement fosters civic engagement and community participation. Local public schools are a focal point for local politics. Health services, especially for under-served students, are accessed in public schools. Rural communities frequently derive a strong identity and sense of inclusiveness from the local public school. Finally, important economic impacts exist in terms of jobs and

payroll derived from the school. These economic impacts are the focus of this paper. Before describing the local economic impacts of the education and health care sectors, an overview of rural Atoka County's demographics is provided.

COUNTY DEMOGRAPHIC AND ECONOMIC DATA

Population and employment for Atoka County will be illustrated in this section. Atoka County is located in southeastern Oklahoma.

Population data for Atoka County are presented in Table 1. The county population was 12,778 in 1990 according to the U.S. Census Bureau and grew to 13,879 in 2000. The population in the City of Atoka was 3,298 in 1990 and is reported to have decreased to 2,988 by 2000. The population communities of Caney, Stringtown, and Tushka have all increased slightly from 1990 to 2000. The number of residents in rural areas of Atoka County have increased considerably from 8,622 in 1990 to 9,951, according to the

2000 Census. In summary, the population of Atoka County has increased, primarily in the smaller communities and in the unincorporated rural areas. Employment data for Atoka County are presented in Table 2; data are for 2001 from the Bureau of Economic Analysis, Regional Economic Information System. The industry sectors with the largest numerical employment are farms (1,345), retail trade (831), and state and local government (1,323).

THE DIRECT ECONOMIC ACTIVITIES

Employment and payroll wages are important direct economic activities created in Atoka County from the education sector. The sector includes both secondary and primary education and the local technology center.

Atoka County employs a total of 352 full-time equivalent employees in the education sector and has an estimated payroll of \$9,303,413 (Table 3). The primary and second-

Table 1: Population of Atoka County, Oklahoma

Region	1990 Census Population	2000 Census Population
Atoka County	12,778	13,879
Atoka	3,298	2,988
Caney	184	199
Stringtown	366	396
Tushka	256	345
Wardville	52	N/A
Balance of Atoka County	8,622	9,951

N/A: Data not available

Source: U. S. Department of Commerce, Bureau of the Census, 1990 and 2000.

Table 2: 2001 Employment in Atoka County, Oklahoma

Total Employment	6,589
By Type:	
Wage and Salary	3,555
Proprietors	3,034
Farm	1,220
Non-farm	1,814
By Industry:	
Farm	1,345
Non-farm	5,244
Private	3,921
Forestry, Fishing, Related Activities and Other	(D)
Mining	(D)
Utilities	(D)
Construction	370
Manufacturing	389
Wholesale trade	(D)
Retail trade	831
Transportation and Warehousing	273
Information	29
Finance and insurance	170
Real Estate, Rental, and Leasing	63
Professional and Technical Services	106
Management of Companies and Enterprises	0
Administrative and Waste Services	117
Educational Services	(D)
Health Care and Social Assistance	(D)
Arts, Entertainment, and Recreation	58
Accommodation and Food Services	268
Other services, Except Public Administration	592
Government and Government Enterprises	1,323
Federal, Civilian	70
Military	69
State and local	1,184
State	509
Local	675

Source: Bureau of Economic Analysis, Regional Economic Information System.
(D)=Disclosure avoided to protect confidentiality, but amounts are included in totals.

ary schools employ 332 and have a payroll of \$8,659,257. The Technology Center School employs 20 and has a payroll of \$644,156.

The education sector is vitally important as a community employer and important to the community's economy. This sector provides over 5 percent of the county's jobs. As a comparison with other sectors, manufacturing accounts for less than 6 percent of the county's jobs. The education sector and the employees in the education sector purchase a large amount of goods and services from businesses in Atoka County. These impacts are referred to as secondary impacts or benefits to the economy.

The total impact of a change in the economy consists of direct, indirect, and induced impacts. Direct impacts are the changes in the activities of the impacting industry, such as the local school. The impacting business, such as the school, changes its purchases of inputs as a result of the direct impact. This produces an indirect impact in the business sectors. Both the direct and indirect impacts change the flow of dollars to the community's households. The households alter their consumption accordingly. The effect of this change in household consumption upon businesses in a community is referred to as an induced impact.

A measure is needed that yields the effects created by an increase or decrease in economic activity. In economics, this measure is called the multiplier effect. A multiplier is used in this report. An employment multiplier of 3.0 indicates that if one job

Table 3: Direct Economic Activities of the Education Sector in Atoka County

Component	Estimated Full-Time Employees	Estimated Payroll
Secondary and Primary Schools	332	\$8,659,257
Technology Center	20	\$644,156
Education Totals	352	\$9,303,413

Source: Data provided from local survey efforts.

is created by a new industry, 2.0 jobs are created in other sectors due to business (indirect) and household (induced) spending. For further explanations of multipliers including estimating methodology see [4, 8].

SECONDARY IMPACTS OF THE EDUCATION SECTOR ON THE ECONOMY OF ATOKA COUNTY, OKLAHOMA

Employment and income multipliers for Atoka have been estimated by use of the IMPLAN model. It was developed by the U.S. Forestry

Service and allows for development of county multipliers. The employment multiplier for the two education sectors are presented in column 3 in Table 4. The employment multipliers for elementary and secondary schools is 1.56. This indicates that for every 100 jobs created in that sector, 56 jobs additional are created throughout the county due to business (indirect) and household (individual) spending. The income multiplier for the elementary and secondary schools is 1.71 (Table 4, column 6). This indicates that for each dollar

of income created in that sector .71 dollars are created throughout the area due to business (indirect) and household (individual spending). The employment and income multipliers for the technology center are also presented in Table 4.

Applying the employment and income multipliers to both education sectors yields the total impact of the education sector on the Atoka County economy. The total impact on employment is that the education sector directly employs 352 and thus creates 194 secondary jobs for a total of 546 jobs in Atoka County. Likewise for income, the education sector has a payroll of \$9,303,413, which generates a secondary payroll of \$6,283,344, for a total of \$15,586,757.

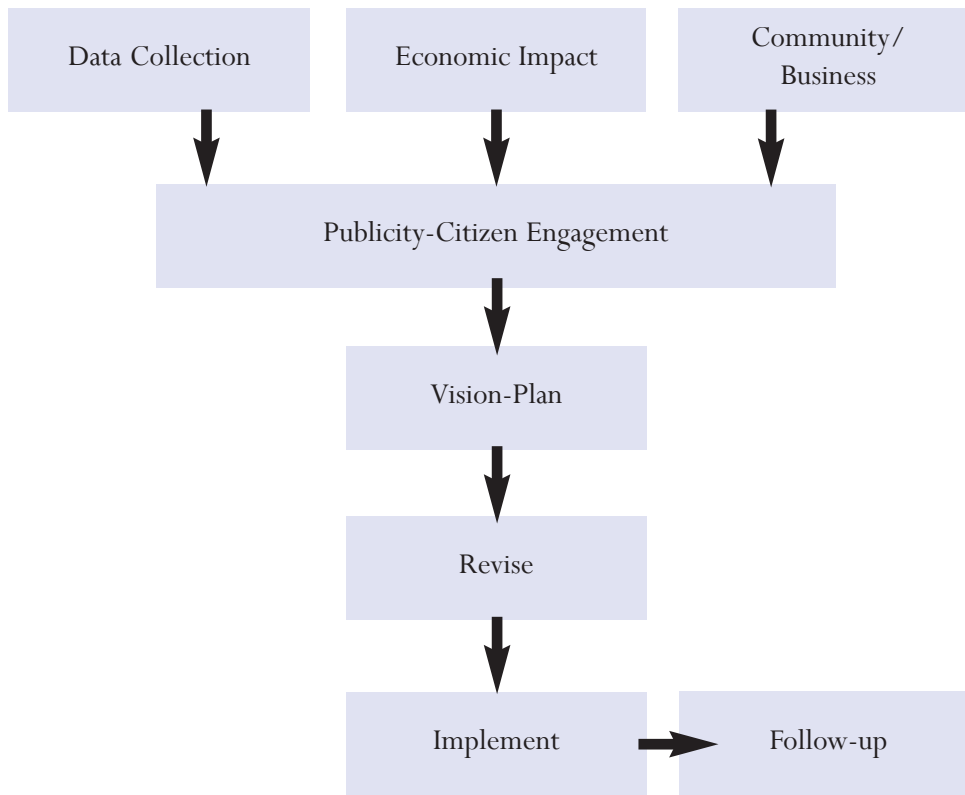
The impact on retail sales and sales tax collection is presented in columns 8 and 9 of Table 4 respectively. The total amount of retail sales generated by the education sector are estimated at \$6,292,373. A

Table 4: Economic Impact of the Education Sector on Employment and Income in Atoka County, Oklahoma

Education Sector	Employment	Multiplier	Total Employment Impact	Income	Multiplier	Total Income Impact	Retail Sales	One-Cent Sales Tax*
Elementary and Secondary Schools	332	1.56	517	8,659,257	1.71	14,807,329	5,977,718	59,777
Technology Center	20	1.43	29	644,156	1.21	779,457	314,655	3,479
TOTALS	352		546	9,303,413		15,586,757	6,292,373	62,923

Source: Column (2) and (5) from local survey efforts; column (3) and (6) from IMPLAN database, see references [5] and [11] Column (4), (7), (8), and (9) calculated.
 *Since the communities in the county have different sales tax rates, the amount of collections generated by a one-cent sales tax is presented.

Figure 1: Strategic Planning for Local Education



one-cent sales tax collection is estimated to generate \$62,923 in revenues.

STRATEGIC APPROACH

The methodology described in this paper lends itself to broader community development efforts. A model for comprehensive community health planning developed in Oklahoma provides one example [9] of this type of broader planning. The planning effort engages the community in assessing community health care needs and identifying gaps. Several products emerge from the process including a survey of citizens’ needs and a local resource directory. The economic impact

report (economic impacts of the health care sector) is a part of the process. The impact report provides one source of information and documents the importance of the health care sector for the local economy.

A similar approach could be used for local education. Figure 1 describes a potential planning model for local education. Data collection could involve an assessment of curricula, test scores, and other relevant student-based information.

Involvement of the community and local businesses could identify expectations and needs of patrons. This information could be collected via survey, focus groups, or public forums. The economic impact study

presented here could be one additional tool utilized in a community-wide visioning effort. Strategic planning at the local level is greatly enhanced by reliable data such as the impact assessment reported here.

SUMMARY

The economic impact of the education sector upon the economy of Atoka County is significant. The sector employs a large number of residents, similar to a large industrial firm. The secondary impact occurring in the community is notable and measures the total impact of the education sector. If the education sector increases or decreases in size, the economic health of the community is greatly affected. For the attraction of industrial firms, businesses, and residents, it is crucial that the area have quality education. Often overlooked is the fact that a prosperous education sector also contributes to the economic health of the community.

The debate over merits and disadvantages of rural school consolidation will continue. Certainly, providing a quality education for all youth with reasonable cost controls will be an important focus. This reports adds additional information to the discussion including a methodology for estimating the economic impact of the local school system in terms of jobs and payroll.

REFERENCES

1. Chirilos, T.N. and G. Nostel. 1985. "Further Evidence on the Economic Effects of Poor Health." *Review of Economics and*

- Statistics* 67(1):61-69.
2. Doeksen, G. A., T. Johnson, and C. Willoughby. 1997. "Measuring the Economic Importance of the Health Sector on a Local Economy: A Brief Literature Review and Procedure to Measure Local Impact." Southern Rural Development Center Publication No. 202. Mississippi State University. Available from <http://srdc.msstate.edu>.
 3. Lyne, J. 1990. "Health Care and Education?: Important QOL Factors, but Who's Accurately Measuring Them?" *Site Selection* 35(5):832-838.
 4. Palmer, C. and E. Siverts. 1985. "Impan Analysis Guide." U.S. Department of Agriculture, Forest Service Land Management Planning Systems Section, Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colorado.
 5. Regional Economic Information System, Bureau of Economic Analysis. 2003. Personal Income and Employment Estimates for All Counties and Metropolitan Areas in the United States. Regional Economic Information System, 1969-2001. Retrieved from <http://www.bea.doc.gov/bea/regional/reis/> (May 2003).
 6. Salant, P. and A. Waller. 1998. "What Difference Do Local Schools Make? A Literature Review and Bibliography." Prepared for Annenberg Rural Trust Policy Program.
 7. Scott. L. C., L. H. Smith, and B. Rungeling. 1997. "Labor Force Participation in Southern Rural Labor Markets." *American Journal of Agricultural Economics* 59(2):266-274.
 8. Siverts, E., C. Palmer, K. Walters, and G. Alward. 1983. "Implan User's Guide." U.S. Department of Agriculture, Forest Service, Systems Application Unit, Land Management Planning, Fort Collins, Colorado.
 9. St. Clair, C., G. Doeksen, S. Ralstin, J. Frye, K. McLeroy, V. Schotty, M. Brown, and D. Baird-Holmes. 1999. "A Guidebook for Community Health Planning," Oklahoma Rural Research and Demonstration Center, Oklahoma State Department of Health, Oklahoma Cooperative Extension Service, University of Oklahoma Health Sciences Center.
 10. U.S. Department of Commerce, Bureau of the Census, 1990 Census. Retrieved from <http://www.census.gov/main/www/cen1990.html> (Revised: January 27, 2003).
 11. U.S. Department of Commerce, Bureau of the Census, Census 2000 Redistricting Data. Retrieved from http://www.census.gov/Press-Release/www/2001/tables/redist_ok.html (March 12, 2001).



Links between Rural Schools and Communities

THE IMPORTANCE OF SCHOOLS TO RURAL COMMUNITY VIABILITY

Thomas A. Lyson
Cornell University

Much of what has been written about the benefits of small rural schools centers on student performance and outcomes. Craig Howley and his colleagues have done yeoman's work debunking the myth that 'bigger is better' when it comes to the optimum size of schools [6, 7]. Indeed, they have gone so far as to say "A school serving [even] 50 students cannot be judged to be "too small" on the basis of any research known to the authors" [9]. According to Huang and Howley [7] "... results have generally pointed to a negative relationship between size and academic achievement. All else held equal, small schools have evident advantages for achievement...". The relationship between school size and achievement has been documented in scores of empirical studies [5].

Despite solid and overwhelming evidence that shows why smaller schools produce more favorable educational outcomes than larger schools, school consolidation has been the bane of rural communities for at least the past 50 years. In 1930 there were more than 130,000 school districts in the United States (and many more individual schools). By 2000, the number of school districts had dwindled to fewer than 15,000. Prior to 1970, school consolidation was driven by a belief that educational quality and efficiency would improve when schools became larger (see Callahan [1] for an examination of the lengths to which school administrators have sacrificed educational goals to the demands of business procedures). Economies of scale and more 'bang for the buck' are two rationales that are still offered by proponents of consolidation today.

While considerable attention has been directed toward understanding the linkages between school size, educational quality, and student performance, a much smaller body of work has focused on the importance of schools to rural community viability. Most of what is known about the social, economic, demographic and political consequences for rural communities that lose their schools come from a handful of case studies [14, 15, 16] and a small handful of surveys [3, 12, 17].

Sell and his colleagues [17] for example, note, "The impact of school consolidation on students is immediate, or nearly so; however, the impacts of consolidation on the respective communities — social and economically — may take place over several years."

WHY SCHOOLS ARE IMPORTANT TO COMMUNITIES

Schools in rural communities play many roles. In addition to providing for basic education, they serve as social and cultural centers. Schools are places for sports, theater, music, and other civic activities. Over 20 years ago, Alan Peshkin [14, 15] showed how vital a school is to the survival of rural communities. He noted that schools serve as symbols of community autonomy, community vitality, community integration, personal control, personal and community tradition, and personal and community identity. According to Peshkin [14], "Viable villages generally contain schools; dying and dead ones either lack them or do not have them for long. The capacity to maintain a school is a continuing indicator of a community's well-being." For many rural communities, the school is not only the social hub of the village, but the school setting also contributes to the sense of survival of adults in the culture.

Rural communities serve as trade and service centers for local populations. They also serve as places that nurture participation in civic and social affairs and as such can be viewed as nodes that anchor people to place. And, as many commenta-

tors have noted, schools, churches, volunteer fire departments, post offices, and other civic institutions serve to solidify and define community boundaries [11].

Of all civic institutions in a village, however, the school serves the broadest constituency. Not only do schools meet the educational needs of a community and may be a source of employment for village residents, the local school also provides social, cultural, and recreational opportunities. It is a place where generations come together and where community identity is forged [10]. As Fuller [5] noted almost 20 years ago, "To close a country school was to destroy an institution that held the little rural community together. It was to wipe out the one building the people of the district had in common and, in fact, to destroy the community."

SCHOOLS IN RURAL VILLAGES IN NEW YORK

Two recent papers [12, 13] have begun to quantify and generalize what a school means to a community. This work has been particularly interested in identifying community-level characteristics associated with the presence or absence of a school. Data was used from the 1980, 1990 and 2000 Census of Population and other secondary data sets and my inquiry has focused on two sets of rural communities: those with populations of 500 or less and those with populations between 501 and 2,500. It is thus hypothesized that the social and economic welfare in all rural communities would be higher in

communities with schools, but that in the smallest villages, which have fewer resources, the school was likely to be especially critical to the social and economic well-being of the community.

The rural communities studied were all incorporated villages in the State of New York. This means that each community had, at a minimum,

Almost all rural villages in New York have a set of commercial establishments, such as retail stores, cafes, gas stations and the like, as well as a set of civic/public establishments, such as village halls, post offices, fire stations and schools.

a mayor, a set of elected trustees, and a village clerk. All of these are paid positions. Most have village halls and post offices. And, as villages, each place is responsible for police and fire protection, public works such as water and sewer systems, and various sorts of planning and zoning activities.

Almost all rural villages in New York have both a set of commercial establishments such as retail stores, cafes, gas stations and the like and a set of civic/public establishments such as village halls, post offices, fire stations, and schools. Larger villages tend to have more private and public establishments than do smaller com-

munities. For example, larger communities will have a broader range of commercial establishments and may have civic institutions such as libraries, public health clinics, municipal swimming pools and skating rinks not found in smaller places.

It is not surprising that larger villages are more likely to have schools than smaller villages. Of the 68 smallest rural communities in New



York in 2000, those with 500 or fewer residents, only 52.9 percent have a school. On the other hand, 84.9 percent of the 218 rural villages in the state with 501 to 2,500 residents have a local school. Among urban communities, those with 2,500 or more residents, almost 90 percent have public schools within their borders. And, of course, the larger the urban place, the more likely it is to have a school. For example, there are no incorporated places in New York with populations of 10,000 or more without a school.

POPULATION CHARACTERISTICS

Despite differences in size and the presence or absence of a school, the demographic profiles of rural villages in New York are remarkably

similar. Most rural villages in New York lost population between 1980 and 1990 and they also lost population between 1990 and 2000.

However, communities with schools generally fared better than communities without schools. For example between 1990 and 2000, half of the smallest rural villages with schools saw their populations grow while only 37.5 percent of the smallest villages without schools grew during this period. Among the larger rural communities, 34.9 percent of the communities with schools experienced a gain in population between 1990 and 2000 compared to 30.0 of the communities without schools.

HOUSING AND INFRASTRUCTURE CHARACTERISTICS

For the smallest rural communities, the presence of a school is associated with appreciably higher housing values compared to similar communities without schools. In 2000, the average value was \$71,397. This is equivalent to the mean value of houses in much larger rural villages. On the other hand, in small rural villages without schools, the average value was \$60,283. In larger rural communities, those with between 501 and 2,500 residents, housing values are higher in villages with schools (mean=\$73,299) than in villages without schools (mean=\$68,027).

Housing stock in the smallest rural communities with schools is somewhat newer than the housing stock in communities without schools. Almost 80 percent of the

houses in villages without schools were built before 1950 compared to less than 70 percent of the houses in small villages with schools. In the larger rural communities, there was no significant difference in the age of housing between places that have schools and those that do not.

Rural villages with schools are more likely to have municipal water systems than those without schools. This finding holds true for the smallest rural communities as well as for larger rural places. For example, 27 of the 36 (75.0 percent) small communities with schools had municipal water in 1980 compared to 20 of the 32 (62.5 percent) communities without schools. Among the larger rural communities, 96.8 percent of those with schools also had municipal water compared to 93.9 percent of the larger rural communities without schools.

Municipal sewer systems are also more prevalent in places with schools than in places without them. Although only 6 (16.7 percent) small rural communities with schools and 6 (18.8 percent) communities without schools had municipal sewer systems in 1980, between 1980 and 1990, 7 of the communities with schools added a sewer system, while only 3 communities without a school added a sewer system.

In general, the physical infrastructure is more developed in villages with schools than in communities that do not have schools. Further, it appears that communities with schools are better able to develop their infrastructures than com-

munities without schools. It may be that because housing values are higher in places with schools, there is a sufficient tax base in these communities to support other municipal services, such as municipal water and sewer systems.

OCCUPATIONAL AND EMPLOYMENT CHARACTERISTICS

Rural communities with schools have proportionately more college graduates than communities without schools. And, although the percentage of college graduates increased for all communities between 1980 and 1990, the percentage of college graduates in villages without schools decreased slightly between 1990 and 2000. During this same period the percentage of college graduates in communities with schools increased. Not only does this suggest a 'brain drain' in communities without schools, but the human capital gap between places with and without schools is widening.

Rural communities with schools, regardless of size, have proportionately more workers in professional occupations than communities without schools. For example, data from the 2000 Census shows that in the smallest rural places with schools, 29.6 percent of the workforce holds professional positions compared to 22.4 percent in communities without schools. Over 30 percent of the workers in the larger rural communities with schools hold upper echelon jobs compared to 28.5 percent of workers in communities without schools. Similar results are evident

Rural communities with schools have proportionately more college graduates than communities without schools.



for 1980 and 1990 as well.

Related to the notion of a civic community, in 2000, 23.6 percent of the workers in the smallest villages with schools and 23.9 percent of the workers in the larger villages with schools, are employed within their villages. Only 10.1 percent of the residents of the smallest rural villages without schools and 13.7 percent of the residents in the larger rural places are employed in their villages.

LESSONS LEARNED

Why is it important to document and quantify what a school means to small rural villages? First, it is important for policy makers, educational administrators, and local citizens to understand that schools are vital to rural communities [5, 12, 13]. The money that might be saved through consolidation could be forfeited in lost taxes, declining property values and lost businesses.

Given the positive attributes associated with schools it is not surprising that when threatened by consolidation, residents in most small rural communities mount vigorous campaigns to keep their schools open [15]. When challenges to school closings move into the legal arena, the results reported here can be used

to begin to quantify some of the social and economic impacts of losing a school might have on community viability. In New York, for example, legislation was recently passed which stipulates that a decision by a Board of Education to close a school in one community and consolidate enrollment in another community must undergo a State Environmental Quality Review (SEQR). The community that loses a school must be compensated for that loss. While school superintendents and Boards of Education may believe they have good reasons for consolidation [2], the SEQR process insures that a village that loses its school and its residents are compensated for their losses.

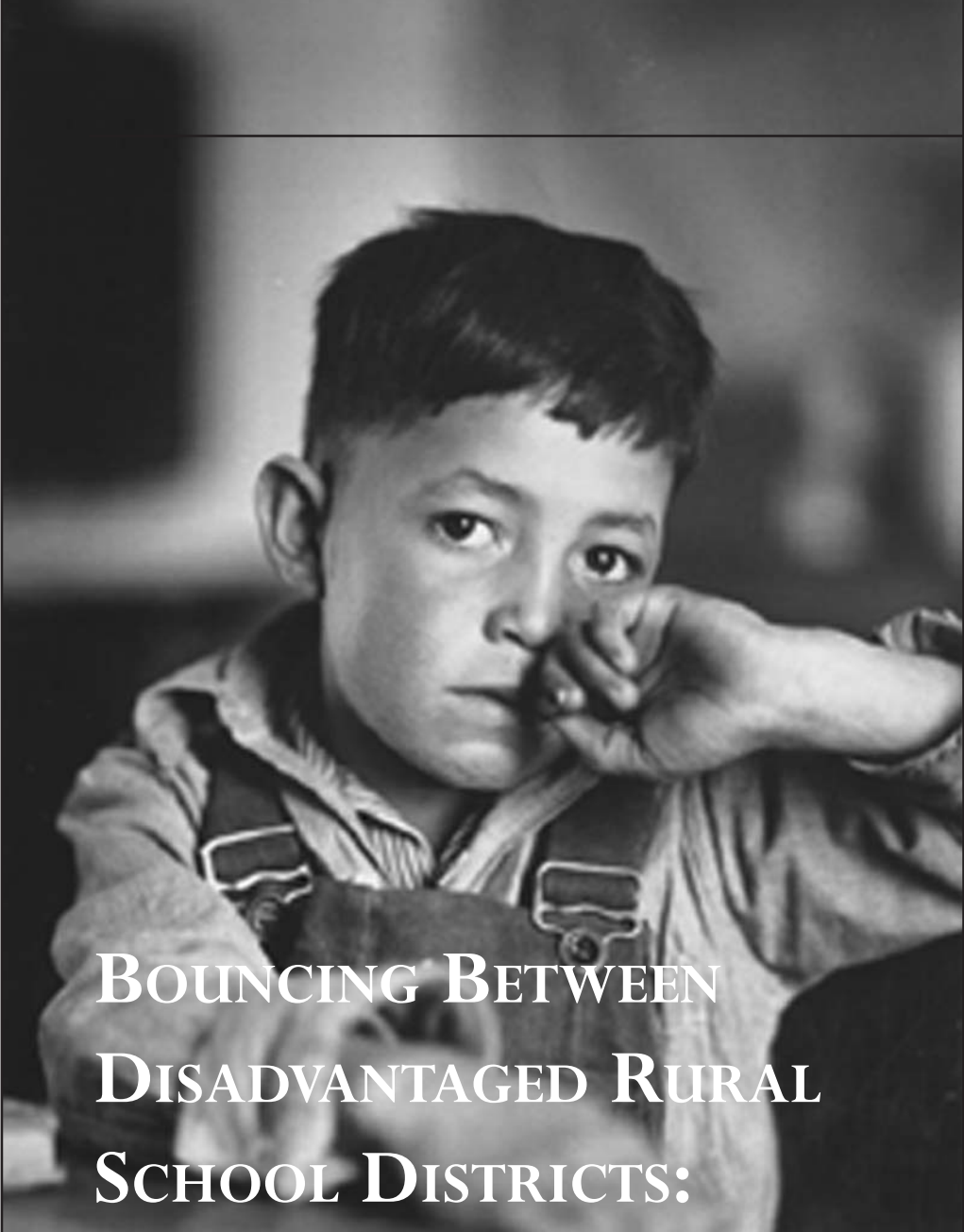
School consolidation is likely to remain a threat to many rural communities in the coming decades. For at least a century, many rural areas in the United States have been marked by a profound depopulation. When the population decreases, rural communities not only lose economically and socially viable populations, but their tax bases, essential services, such as schools, and retail establishments are also diminished. However, there is a body of research which shows that in communities where the citizenry is civically

engaged, local businesses prosper, and that these factors anchor populations to place [8]. In even the smallest rural villages, schools can serve as important markers of social and economic viability and vitality.

REFERENCES

1. Callahan, R.E. 1962. *Education and the Cult of Efficiency*. Chicago: The University of Chicago Press.
2. Cummins, C. 1998. "Strategies Used by Superintendents in Voluntary Consolidation of Rural School Districts." *The Rural Educator* 20(2):1.
3. Dreier, W.H. 1982. "What Happens When the High School Leaves the Community?" Paper presented at the National Conference of People United for Rural Education, Des Moines, IA, February 5-6.
4. Fowler, W. 1992. "What Do We Know about School Size? What Should We Know?" Paper presented at the annual meeting of the American Educational Research Association, San Francisco. (ERIC Document Reproduction Service No. ED 347 675).
5. Fuller, W.E. 1982. *The Old Country School*. Chicago: The University of Chicago Press.
6. Howley, C., and R. Bickel. 1999. "The Matthew Project: National Report." Randolph, VT: The Rural School and Community Trust. (ERIC Document Reproduction Service No. ED 433 174)
7. Huang, G., and C. Howley.

1993. "Mitigating Disadvantage: Effects of Small-Scale Schooling on Student Achievement in Alaska." *Journal of Research in Rural Education* 9(8):137-49.
8. Irwin, M., C. Tolbert and T. Lyson. 1997. "How to Build Strong Home Towns." *American Demographics* 19(2):42-47.
 9. Johnson, J.D., C.B. Howley, and A. A. Howley. 2002. "Size, Excellence and Equity: A Report on Arkansas Schools and Districts." Randolph, VT: The Rural School and Community Trust.
 10. Langdon, P. 2000. "The School Consolidation Plague." *American Enterprise*. 11(1):22.
 11. Loomis, C.P. and J. A. Beegle. 1957. *Rural Sociology, the Strategy of Change*. Englewood Cliffs, NJ: Prentice Hall.
 12. Lyson, T. A. 2002. "What Does a School Mean to a Community? Assessing the Social and Economic Benefits of Schools to Rural Villages in New York." *Journal of Research in Rural Education* 17:131-137.
 13. Lyson, T.A. 2003. "The Importance of Schools to Rural Community Viability." Paper presented at conference on *Promoting the Economic and Social Vitality of Rural America: The Role of Education*. New Orleans, April 14-15.
 14. Peshkin, A. 1978. *Growing Up American: Schooling and the Survival of Community*. Chicago: The University of Chicago Press.
 15. Peshkin, A. 1982. *The Imperfect Union*. Chicago: The University of Chicago Press.
 16. Post, D., and A. Stambach. 1999. "District Consolidation and Rural School Closure: E Pluribus Unum." *Journal of Research in Rural Education* 15:106-117.
 17. Sell, R.S. and F. L. Leistritz. 1996. "Socioeconomic Impacts of School Consolidation on Host and Vacated Communities." *Journal of the Community Development Society* 28:186-205.



BOUNCING BETWEEN DISADVANTAGED RURAL SCHOOL DISTRICTS:

The Hidden & Disturbing Problem of Student Transiency

Kai A. Schafft
Pennsylvania State University

Conventional wisdom tells us that when families move, the change of residence is usually both voluntary and opportunity-related, such as a move towards a better job or a stronger school district. However, the residential movement at the focus of this policy brief, and one of its consequences—student transiency—is largely unplanned and unpredictable. Instead of resulting in greater opportunity, residential mobility associated with student transiency is both symptomatic of, and a causal factor in, household insecurity and broader community economic disadvantage.

While often overlooked by policy audiences, and particularly as it occurs in rural areas, student transiency can have serious academic, fiscal and administrative consequences for students, schools and communities. This brief discusses the relationship between poverty and residential mobility, and the effect on schools, focusing in particular on a recent New York study of transiency in rural schools. As long as broader economic and labor market trends contribute to poverty-driven residential mobility, education policy makers will require a better understanding of student transiency and the programming needed to address this problem. While we can and should build upon existing legislation to provide funding at state and national levels for this group of students, much more needs to be learned about the causes and consequences of this phenomenon.

“The ones that concern me are the families that just drift from rental to rental. We have two or three families in particular that I’m thinking of that just seem to bounce from one neighboring district to the next. It’s a factor of poverty. They pay rent for a while and then they get evicted and they have to move on and rent somewhere else.”

- Superintendent, Northern Upstate New York

“Mostly students are moving within the area. For example, a family just moved into the district from (a nearby district). They weren’t able to pay the rent where they lived and so they moved on into this district. We see that a lot. And then the same thing will happen. They’ll move back out to another district again...”

- Superintendent, Western New York

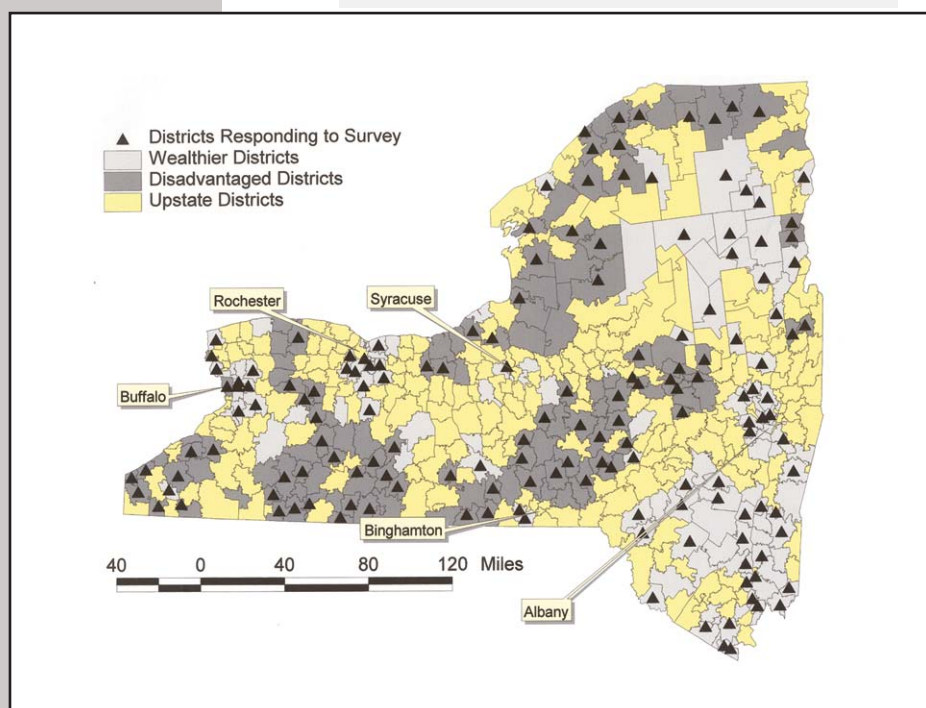
“Most of the community does not recognize (student transiency) as an issue... There is no general awareness, but right now there is no excess. The aid is frozen by the state. To pay for the needs of these kids we will have to go to the local taxpayer. It’s a hard sell to the community at large that we have this unknown group that requires some substantial resources that don’t even exist to most people here but nonetheless are very real to us.”

- Superintendent, Southern Tier

POVERTY AND RESIDENTIAL MOBILITY

While the United States in general is a mobile society, some groups are far more likely to move than others, including renters and people living below the poverty line. Between March 1999 and March 2000 slightly more than 16 percent of the population changed residence. Yet, during that same time period, nearly 33 percent of renters moved, and nearly 28 percent of people living in households below the poverty level moved [7].

Figure 1. Upstate New York School Districts: Student Transiency Study



When families are involved, this movement often results in students changing schools.

A certain amount of student movement is to be expected in any school system. However, some students are disproportionately likely to make multiple moves. A 1994 study by the United States General Accounting Office [8] using data from a nationally representative sample of 15,000 third graders found that about 17 percent had attended three or more schools since kindergarten and therefore could be considered “highly mobile.” These students were also more likely to be academic underachievers. Forty-one percent of mobile third

graders scored below grade level in reading, and about 31 percent scored below grade level in math. In comparison, only 26 percent of stable students (those who attended only one school since kindergarten) tested below grade level in reading, and about 16 percent tested below grade level in math. The study also found that highly mobile third graders were far more likely to repeat a grade than stable students.

Similarly, some schools and school districts are disproportionately likely to experience higher rates of student mobility. Research has shown that student transiency tends to be highest in high poverty and inner city areas. However, chronic residential mobility of limited resource families also occurs in many rural areas. In addition, these schools and the communities they serve may also have the least available resources, both economic and political, to address the needs of low income movers [1, 2].

EXAMINING STUDENT TRANSCIENCY IN RURAL UPSTATE NEW YORK

In order to better understand the incidence and effects of student transiency in rural upstate New York, a study was conducted in the spring of 2002 involving a mail survey of 136 persistently poor upstate school districts, and 141 wealthier, or economically advantaged districts [a]. Survey respondents were either superintendents or district administrators most knowledgeable about the transient student population, including principals, heads of guidance and Special Education coordinators. The survey was coupled with subsequent follow-up telephone interviews in 51 districts, and site visits to 10 of those districts.

There are distinct patterns of wealth and poverty across upstate New York. Disadvantaged districts in the study form a roughly S-shaped swath extending from the northeastern part of the state across the northern Adirondacks, through the St. Lawrence Valley, into the Mohawk Valley and then back westward across the Southern Tier. The wealthier districts are concentrated to the north of New York City, the Adirondack region, and along the metropolitan fringe of Syracuse, Rochester and Buffalo. Figure 1 shows all wealthier and disadvantaged districts, as well as those responding to the survey.

Table 1: Incidence and Consequences of Student Turnover: Disadvantaged and Wealthier Districts Compared

	Disadvantaged ¹	Wealthier ²
Average admission rate	7.2	4.5
Average transfer rate	7.8	4.3
Percentage of respondents stating turnover causes "significant" challenges for the district	19.0	10.3
Percentage of respondents stating newly admitted students generally are of lower economic status than already enrolled students	46.4	28.2

¹ N = 86; ² N = 76

"I think what happens is the affordability. Look at the cost of rental units and the income. Calculate the budget of a single mom working at minimum wage and check the cost of the housing. And if you look at that closely, it's not hard to figure out that this person is headed for financial disaster unless something happens. It's impossible to make those numbers work. The wages available and the housing costs are not compatible. You end up compromising at this point. There are people who are making choices between buying food and buying medicine. Those are hard choices. There are no other resources to offset (this situation) that they are aware of, so we see a lot of those folks in crisis because of expenses that have become uncontrollable. You have a single mother in particular, and we work with a lot of those, ranging from 14 on up. It's very difficult if a car breaks for example. \$200 is a paycheck. That's a hole right there and ultimately unless something happens to offset that somewhere, that person's going to be in trouble. They have to make some hard choices. And generally it'll come down to rent. I see people behind in rent because they've had to pay a utility bill."

- Staff worker in a county housing agency

The data showed highly variable student transiency rates, with some districts reporting annual admission and transfer rates of over 40 percent, while other districts reported virtually no admissions or transfers at all [b]. Admission rates were strongly correlated with transfer rates. Therefore, even districts with high levels of student transiency tended to have only negligible net changes in enrollments from one year to the next.

One of the clearest patterns to emerge from the data is that student turnover disproportionately affects poorer districts [c]. As the data in Table 1 show, the level of turnover in the disadvantaged districts is nearly twice that of wealthier upstate districts. Additionally, disadvantaged districts were almost twice as likely to state that student turnover caused “significant” challenges, and almost half of the respondents from these districts stated that most newly enrolled students were likely to be of lower economic status than already enrolled students. This compares to only 28 percent of respondents from wealthier districts. Regardless of district economic status, however, district personnel from both poorer and wealthier districts consistently characterized the movement of low income students as both high frequency and short distance, using terms like “ping-ponging,” “bouncing,” and “shuffling.”

Interviewed respondents in 45 of 51 districts indicated that low socioeconomic status of students was a major risk factor for high mobility. Administrators consistently reported a core group of disproportionately disadvantaged movers undergoing coerced moves due to a variety of economic and social crises.

Comments like the following were repeated over and over again in the course of interviews. “(The most frequent movers are) low SES, I don’t mean to characterize, but a lot of them (receive extra academic support services). A lot of times I’ll get a Special Ed kid with a lot of needs and the school board will tell me, ‘don’t worry about it — in a couple of weeks they’ll be gone,’ and sure enough 6 weeks later they’ve gone to another district.”

HOUSING AND MOBILITY

Many communities in upstate New York have seen a gradual shrinking of populations as local economies and

job markets tighten. This has gradually led to changes in housing markets and housing stock. As residents leave the area, housing prices drop, and dwellings are converted into rental properties, often managed by absentee landlords. Under these circumstances the quality of housing stock may noticeably deteriorate, leading to increased mobility as households move to escape unacceptable or dangerous living conditions.

Not surprisingly, in 70 percent of districts where interviews were completed, administrators identified housing-related issues as strongly related to mobility. While low cost housing may in some cases initially attract poor families to an area [2], it may also perpetuate a more localized chronic mobility, especially if the housing stock is of marginal quality. One administrator said, “It seems like they’re moving from district to district because of housing... You should see some of the places they’re moving into. A lot of times the housing is in such disrepair! They get into conflicts with landlords because of this and they’ll move on because the housing is so bad.” By contrast, among disadvantaged rural districts with markedly low student turnover, a common characteristic was the relative lack of available housing, particularly among smaller, more isolated districts.

Regardless of the housing quality however, many residents struggle with simple affordability. [6] In much of upstate New York, predominantly low paid service sector work is the only employment available to most people with just a high school diploma. This work often pays minimum wage or only slightly above, leaving households in conditions of chronic economic insecurity.

FISCAL AND ADMINISTRATIVE CONSEQUENCES FOR SCHOOLS

Student transiency can have tremendous fiscal and administrative impacts on school districts as they attempt to service pupils disproportionately in need of special and remedial education. District budgets are prepared for each successive year based on the enrollments and need of the previous year’s student body. Yet, residential mobility of high needs students may place school districts in highly unpredictable planning circumstances. This is particularly true of smaller districts that have less fiscal resources at their disposal in which even small enroll-

Student transiency and the chronic residential mobility of resource limited households is both symptomatic of, and a contributing factor to, community and household disadvantage.



ment changes can have significant fiscal and administrative consequences. A superintendent from a small, rural district with an enrollment of between 600 and 700 students, explained, "There is increased pressure on school budgets. One sixth of our budget is targeted towards special needs kids. This year, we had budgeted \$100,000 for expenses associated with kids we anticipated would move into the district. We figured that we could expect 4 special needs kids to move into the district. We had 10 actually move in and we ended up needing to spend \$250,000 to meet their needs, so we went \$150,000 over our budget. We are a small district, and so this was significant." Fiscal burdens of this type are not easily absorbed.

These kinds of budget over-runs eventually are reflected in local tax levies, which in turn result in raised rents, increasing already existing housing insecurity among low income families. The disturbing consequence is that in the poorest districts where the transiency of high-need and high-cost students is likely to be the most pronounced, mobile students quickly begin to represent a liability to financially strapped school districts.

Transient students represent liabilities to school districts in other regards as well. The 2001 *No Child Left Behind Act* (NCLB) requires states to use testing as a means of holding local school systems accountable for the academic preparation provided to students. This is based on the assumption that student test scores from a given school

reflect the academic preparation that school has been able to provide. However, student transiency complicates this assumption, and in high mobility schools and districts, schools may be held "accountable" for underachieving and at-risk students who have disrupted academic experiences and may have only been in the local school system for comparatively short periods of time. Because of this, NCLB may inadvertently create disincentives for schools to retain mobile, low-achieving students [9] [d].

CONCLUSION

Student transiency and the chronic residential mobility of resource limited households is both symptomatic of, and a contributing factor to, community and household disadvantage. The impacts of student transiency on school districts are serious. In economic decline, many districts in the upstate region have seen gradual enrollment decreases along with shrinking tax bases, leaving districts with dwindling resources. Those districts that face especially high or unpredictable levels of student turnover are placed in circumstances in which they are likely to experience unpredicted budget overruns because of the high percentage of high need students among the most mobile populations.

While national education policy is currently framed by the promise of "leaving no child behind," evidence suggests that transient students are being left behind. As a guidance counselor working within a high transiency district remarked

about his district’s revolving door of students, “No one owns these kids. They have no political or economic power. The chances of reform happening (for them) are certainly less than they might be for other groups. No one speaks on behalf of these kids and they are less likely to advocate on behalf of themselves.” At the very least, this is a compelling reason to further document student transiency, and particularly in rural areas where it has so far received little attention.

First, there is a strong need for the systematic gathering of basic information on mobile students across a range of district types, both urban and rural. This information includes socio-demographic characteristics of mobile students, where students are coming from, where they are going to, the reasons for the movement, the proportion of school moves that are accompanied by residential moves, and whether transiency has increased or decreased over time. Second, research is needed on the impacts on schools and the effects of various school reform measures.

How are school districts differentiated by factors such as size, wealth, and urban proximity differently affected by transiency in terms of its occurrence and impacts? Last, what programming appears to be effective in reducing transiency, or at least mitigating its more negative effects? Similarly, are there school reforms that may have inadvertently increased student mobility, such as the provisions in NCLB allowing for transfers out of so-called “failing”

schools? In the short term, research leading to the institutional recognition of transient students as an identified and targetable student population would increase the chances for devising appropriate programming and garnering resources needed by schools and the communities they serve.

One such programmatic response at the federal level is the McKinney-Vento Homeless Assistance Act reauthorized by NCLB. This Act entitles homeless children to free and appropriate public education, allocating Title I funds to that end. Yet, many transient students at any given time may not technically be homeless by the criteria of McKinney-Vento. Additionally, while McKinney-Vento’s reauthorization expands the definition of homelessness to include a wider range of homeless situations [e], it’s not clear how consistently the Act is implemented and enforced [4].

At the local level, programmatic options for schools may include staff development focused on the needs of mobile students, as well as student “newcomer” programs, and outreach to parents and families. Given that most mobility associated with student transiency is highly localized, increased inter-district collaboration may also be indicated, at the very least in the streamlining of student record-sharing to facilitate placement and programming consistency for mobile students. Collaborative activity could also extend to inter-district youth risk prevention programming and the



While national education policy is currently framed by the promise of ‘leaving no child behind,’ evidence suggests that transient students are being left behind.

development of deeper networks between schools and other local service-providing organizations. This does not imply school consolidation, however, which may only further risk eroding the social and civic resources of rural communities [5]. Schools can take steps to lessen the incidence and severity of student transiency [f]. However, these are not simply issues for schools and school districts, but rather are embedded within communities and broader processes of political and economic change. Any amount of school reform, no matter how sweeping, will not change the basic facts of the economic conditions experienced by so many families in rural New York and elsewhere in the United States. While chronic residential mobility is a problem for families and communities, the real problem is economic insecurity that has been made significantly worse by increased income inequality, changes within labor and housing markets, and the removal of government-provided social supports. Welfare reform's 1996 *Personal Responsibility and Work Opportunities Reconciliation Act* (PRWORA) has put a 5 year cap on aid disbursement, requiring participation in work or work related activities. And yet, minimum wage work without appropriate supports virtually guarantees poverty and insecurity [g]. While the impact has been significant in terms of the number of people moving off welfare, research has indicated that these changes have increased housing insecurity for many households [3].

"Personal responsibility" does

not ensure escape from insecurity and the world of the working poor. Regardless of innovative educational reform, without employment opportunities offering a livable wage, without access to safe and affordable housing, and without functioning social support systems for families in distress, the social insecurity at the root of chronic residential mobility will unquestionably remain.

ENDNOTES

- a. District economic status was assessed by the Combined Wealth Ratio (CWR), a measure of relative district wealth used by the New York State Education Department to determine annual levels of state aid. CWR is calculated as the total local school district income and property wealth divided by the number of local school district students as a ratio of the total income and property wealth in New York state divided by the total number of students in New York state. Disadvantaged districts were identified as those districts whose CWR values fell into the bottom third quantile for all upstate districts each year for between 1991 and 1999, the years for which data were available at the time of the study. Advantaged districts were defined as those whose Combined Wealth Ratio values fell into the top third quantile each year during that time period.
- b. The turnover rate is defined as the number of students entering

a district during the year plus the number exiting (excluding dropouts) as a percentage of the beginning of year enrollment, grades 2-12.

- c. Turnover rates were negatively correlated with district CWR values for the year of the study, and positively correlated with participation in income-eligible free and reduced lunch programming. Correlations were statistically significant at the .01 level (data not shown here).
- d. This was the conclusion of a recent New York Times article ("To Cut Failure Rate, Schools Shed Students" by Tamar Lewin and Jennifer Medina, July 31, 2003: A1, B8) that found under-achieving students were increasingly being counseled or forced to leave New York City public schools in response to the new "accountability" demands for high academic performance.
- e. Legally "homeless" children include those who live in a dwelling that lacks basic services such as electricity or water, who live in temporarily in motels or emergency shelter, parks or public spaces, or who live in temporary arrangements with other families.
- f. See, for example, the articles on school responses in Section III: Reform Strategies, in the special issue of *The Journal of Negro Education* 72(1) dedicated to the topic of student transiency.
- g. The current value of minimum wage in constant dollars is worth about 70 percent of what

it was worth in 1968 [6].

REFERENCES

1. Fitchen, J.M. 1994. "Residential Mobility Among the Rural Poor." *Rural Sociology* 59:416-436.
2. Fitchen, J.M. 1995. "Spatial Redistribution of Poverty through Migration of Poor People to Depressed Rural Communities." *Rural Sociology* 60:181-201.
3. Housing Assistance Council (HAC). 2002. *Taking Stock: Rural People, Poverty, and Housing at the Turn of the 21st Century*. Washington, D.C.: Housing Assistance Council.
4. Julianelle, P.F., and M. Foscarinis. 2003. "Responding to the School Mobility of Children and Youth Experiencing Homelessness: The McKinney-Vento Act and Beyond." *The Journal of Negro Education* 72:39-54.
5. Lyson, T.A. 2002. "What Does a School Mean to a Community? Assessing the Social and Economic Benefits of Schools to Rural Villages in New York." *Journal of Research in Rural Education* 17:131-7.
6. National Low Income Housing Coalition (NLIHC). 2002. *Rental Housing for America's Poor Families: Farther Out of Reach than Ever*. Annual Report, accessed September, 2003 at: www.nlihc.org/oor2002.
7. United States Census Bureau. 2001. "Geographic Mobility: March 1999 to March 2000." Current Population Reports. Washington D.C.: U.S. Government Printing Office.
8. United States General Accounting Office (GAO). 1994. *Elementary School Children: Many Change Schools Frequently, Harming Their Education*. US GAO Report US GAO/HEHS-94-45. Washington D.C.: United States General Accounting Office.
9. Weckstein, P. 2003. "Accountability and Student Mobility Under Title I of the No Child Left Behind Act." *The Journal of Negro Education* 72:117-125.

For more information on rural diversity, read our

Measuring Rural Diversity Policy Series

This series, presented in partnership with the USDA's Economic Research Service, features the current work of researchers on rural conditions such as demographic changes, business trends and local distress.

Recent and upcoming issues can be found at:

<http://srdc.msstate.edu/measuring/series>



EMPLOYER PARTICIPATION IN SCHOOL-TO-WORK PROGRAMS IN RURAL AMERICA

Gary Paul Green
University of Wisconsin

Recent federal policies have attempted to improve the preparation of students for work and the transition from school to work. The 1990 reauthorization of the *Carl D. Perkins Applied Technology and Vocational Education Act* was a significant policy shift in its call for coordination between secondary and postsecondary educational institutions. *The School-to-Work Opportunity Act* (STWOA) of 1994 integrated vocational and academic educational programs for all students, not just targeted populations. School-to-work programs typically include cooperative education/internships and youth apprenticeships. These programs are available in both high schools and community colleges.

Cooperative education involves written arrangements between schools and employers and vocational training and work periods during school time to fulfill the cooperative program. Youth apprenticeships require paid work experience, coordination between school and workplace learning, recognized credentials available at the end of the program, and governance by a broad set of institutional partners.

School-to-work programs provide several advantages. They reduce some of the floundering that young workers often experience as they enter the workforce. Schools can

more easily develop educational programs that meet the needs of regional employers. And, employers can more easily recruit qualified workers.

Although there is considerable interest in school-to-work programs, employer participation is considered a major obstacle, especially in rural areas. This paper first discusses the context for job training in rural labor markets. Next, it reviews the literature on why employers participate in school-to-work programs as well as apprenticeships. Finally, it analyzes data from a recent survey of employers to assess their involvement in these programs.

THE CONTEXT

Rural communities face numerous obstacles in promoting workforce development. Below, these issues are discussed as they relate to the supply of and demand for labor, as well as the institutional structure.

LABOR SUPPLY

Residents in rural areas, on average, have lower levels of formal schooling and training than do urban areas. There is evidence that the gap between urban and rural areas has increased in terms of education, cognitive skills and work experience [7]. In addition, research conducted by the Economic Research Service

found that rural employers provided fewer opportunities for training; more than 60 percent of rural workers do not receive any on-the-job training at all [9].

Returns to human capital are lower in rural areas than they are in urban areas because of the limited potential demand for workers who have more skills and experience. Lower returns on investments in human capital encourage workers to migrate to urban areas where they can earn higher wages. This dynamic relationship between human capital investments and out-migration discourages rural employers from investing in training. These rural employers perceive few benefits, fearing that once trained, workers will leave in search of better jobs.



LABOR DEMAND

Several studies suggest there has been a marked shift nationally in employer demand away from jobs requiring less education to jobs demanding higher levels of skills [4]. This process has been referred to as the skills mismatch. Most of the explanations for this shift emphasize technological advances (especially computer technology) and growing international competition, which has devalued low-skilled work in the United States [3]. Even in the jobs that continue to be filled by low-skilled workers, employers are demanding an increasingly complex set of social skills due to organizational changes and the need to interact with customers. These shifts, however, may be occurring less in rural than in urban areas, in part because employers in rural areas tend to be later in the profit/product cycle than those in urban areas [6]. Innovative and high profit firms are most likely to be located in metropolitan areas where they have better access to producer services, consumer markets and linkages with other firms in their industry.

INSTITUTIONAL FACTORS

Rural labor markets are disadvantaged compared to urban markets in their institutional structure. In many metro areas, intermediaries help match the demand for and supply of labor. For example, temporary firms, unions and community-based organizations are involved in training, recruitment, mentoring and other elements of workforce development. Intermediaries influence

the functioning of local labor markets in several ways. By maintaining strong linkages with employers, they can provide workers with more complete information on vacancies and the specific skills required for positions. Intermediaries can provide more complete information to employers about the productivity of workers. They also can facilitate school-to-work programs by improving the flow of information between employers, workers and

and information flows. Unions also play an important role in employer-provided training, as these unionized firms tend to offer greater opportunities for mobility than do nonunion firms. Unions frequently sponsor apprenticeships and other similar programs.

WHY DO EMPLOYERS PARTICIPATE?

How many employers are involved in school-to-work programs?



training institutions.

Rural communities have fewer labor market intermediaries than do urban areas. Distance and density, and the lack of a critical mass, may explain the differences. Because employers and workers are spread out across a broader region, it is more difficult for intermediaries to function. Another institutional difference is the lack of unions in most rural areas. The lack of unions in many rural areas has an important effect on wages, worker mobility

In 1997, the U.S. Census Bureau conducted a survey of private establishments with 20 or more employees and found that approximately 26 percent were participating in school-to-work partnerships. Large firms and service sector establishments were most likely to participate. In a study of several school-to-work programs, Hughes concludes that recruitment is not the major reason why these programs fail [5]. There is evidence, however, that there are significant turnover problems with

these programs, with employers dropping out after a short period [10].

Bailey, Hughes and Barr examine why employers participate in school-to-work programs by surveying employers participating in five school-to-work programs and employers not participating in these programs in the same labor market area [1]. Several employer characteristics are related to involvement in school-to-work programs. The strongest influence is firm size; large firms are more likely to provide internships. They hypothesize that program officers may turn to large firms first because they can offer more opportunities for students. Employers with interns are more likely to have progressive human resource practices. Their interpretation is that school-to-work programs are part of a larger package of human resource policies that employers use. A critical question is whether employers are motivated to participate in these programs by philanthropic concerns or self-interest. They also find that private for-profit firms are less likely to be involved in school-to-work than are nonprofit and government organizations. They assume that nonprofit organizations are more motivated by philanthropic concerns than for-profit organizations. Bailey, Hughes and Barr conclude that “although the data are certainly open to interpretation, it is hard to argue from this evidence that most firms are participating out of a conviction that participation will advance their business in any direct way” [1: 52].



Large firms
and employers in larger
communities are more
likely to be involved
than are small firms and
those in smaller cities.



There is evidence that employers who become involved in school-to-work programs are generally satisfied with the experience. Employers cite a number of benefits including access to low-cost employees, reduced training and recruitment costs, improved community relations, and higher levels of productivity (compared with recruiting regular entry-level employees). Research suggests, however, there are costs associated with participation in school-to-work programs as well. There are expenses associated with administering the programs and the time of supervisors and mentors who work with the students. In one of the few studies to assess the costs and benefits of these programs for employers, Bassi and Ludwig found significant variation in the benefit/cost ratios [2]. They conclude that among firms that were first to participate, it was unclear that economic benefits were sufficient enough to motivate employers to continue participating in school-to-work programs.

Overall, the evidence suggests that firm size and industry are major

determinants of participation in school-to-work programs. The literature is less clear on whether economic or noneconomic factors influence employer involvement and whether firms will benefit enough in the long run to continue being involved in these programs.

DATA AND METHODS

To examine employer participation in school-to-work programs, the author surveyed businesses operating in nonmetro areas of the United States. The business sample was stratified by both industry (manufacturing and service industries) and the number of employees in the establishment (1-19 employees, 20-99 employees, and 100 or more employees).

Approximately one-half of the sample was manufacturing establishments, and the other half was service establishments. Twenty-five percent of the sample was small (1-19 employees) firms, 35 percent medium-size (20-99 employees) firms, and 50 percent large firms. The respondent for the study was the person in charge of hiring, which

was, in most cases, the personnel manager or human resource director. Only establishments that had hired workers in the past year for a position that did not require a college degree were included in the phone survey. The overall response rate was 57.5 percent.

The models focus on employer and market characteristics, region and community size, and cooperation with other employers. Among the firm characteristics considered are profit/nonprofit status (coded 1=nonprofit), firm size (number of workers), and industry (coded 1=manufacturing). Several workforce characteristics are included: percent unskilled workers (requiring no formal training), percent unionized, percent women, and percent minority.

Osterman argues that in tight labor markets, employers may be more inclined to invest in training as a way to retain good workers [8]. Firms facing difficulty in recruiting also may be more likely to be engaged in school-to-work as a strategy to recruit workers. Two indicators of labor market conditions are included: the number of vacancies in the firm and the difficulty the employer is facing in hiring qualified workers. Employers were asked whether they would say it is very easy, somewhat easy, somewhat difficult, or very difficult to find qualified applicants at the present time. This variable was coded on a four point scale.

The level of competition firms face in their product market may influence involvement in school-to-

work programs. Firms in highly competitive markets may not be in a position to provide formal training because they are forced to keep costs down. Two variables are considered: the level of market competition and foreign competition. Employers were asked how much competition they face in their main market or service area: none, a little, some, or a great deal. Employers were also asked how much foreign competition their organization faces: none, a little, some, or a great deal. Both variables were coded on a four point scale.

The context in which employers are located may influence their involvement in school-to-work programs. Two characteristics that are especially important and influence employers' involvement in school-to-work programs are Census region and community size. Finally, collaboration with other firms is examined. Collaboration may reduce some of the incentives to engage in school-to-work programs. To assess the extent to which employers collaborate with other firms in their training efforts, employers were asked if

they cooperated with firms in their community. These responses were coded as no (0) or yes (1). School-to-work is different from training because the trainees are not employees, but the research suggests that employers anticipate hiring many of the trainees.

DESCRIPTIVE RESULTS

The average establishment had 156 employees (including permanent full and part-time workers, as well as temporary or seasonal employees), with the range between one and 5,700. About one-half of the establishments were branches. Most establishments were nonunion, with only about 10 percent of the establishments having current employees covered by a collective bargaining agreement. Approximately one-half of the average workforce was female, and about 20 percent were of a minority ethnic or racial background. The average firm had five vacancies. Most employers reported that it was difficult to find qualified applicants at the present time. Almost half said it was somewhat difficult, and one-third (29 percent)

Table 1: Employers Currently Involved in School-to-Work Programs and Apprenticeships

Program Type	Percent of Employers
School-to-Work Programs	42.0
Apprenticeship Programs	32.1
Skilled Trades	43.3
Health Care	27.9
Business	14.6
Other	14.1

Table 2: Logistic Regression Analysis of Likelihood that Employer is Currently Involved with School-To-Work Program Apprenticeships

	All Employers	Manufacturing	Service
Firm Size	+	+	+
Percent Union		+	
Percent Women	+		
Percent Minority	-	-	
Difficulty Recruiting	+	+	
West (reference South)	+		+
Midwest (reference South)	+		+
Population	+	+	
Collaborative Training	-	-	-

reported that it was very difficult. More than half the firms reported that they faced a “great deal” of competition in their market or service area. Eleven percent said they faced a great deal of foreign competition, while 58 percent reported no foreign competition.

Approximately 40 percent of the employers reported they were currently involved with a school-to-work program (Table 1). This figure is significantly higher than the Census Bureau found in 1997. Over the past five years, many states have initiated programs, and this may be reflected in the results here. A smaller percentage (32 percent) of the employers indicated they currently offered an apprenticeship program for high school students. Among those firms offering apprenticeships, most were involved in skilled trades or health care programs.

FACTORS INFLUENCING EMPLOYER PARTICIPATION

Overall, several factors are related to employer involvement in school-to-work programs (Table 2). Firm size and the size of the community influence participation. Large firms and employers in larger communities are more likely to be involved than are small firms and those in smaller cities. Employers in the West are much more likely to participate in these programs than employers elsewhere. Firms that have a higher percentage of women and a smaller percentage of minorities are more likely to participate in school-to-work programs.

Because of the rather substantial differences between manufacturing and service firms, separate analyses for manufacturing and service firms were conducted. Overall, the results

look very similar across the two industries. There are a few exceptions. Unionization decreases the likelihood that manufacturing firms are involved in school-to-work programs, but it has no effect on service firms. Similarly, recruitment difficulty is strongly correlated with involvement in these programs for manufacturing firms but not for service firms.

Next, participation in youth apprenticeships is examined (Table 3). In the full model, two variables are strongly related to participation in apprenticeship programs: industry and firm size. Manufacturing and large firms are most likely to participate in the programs. Interestingly, cooperation with other firms in the community has a negative effect on participation in apprenticeship programs.

Again, the analysis was conducted separately for manufacturing and service firms. Recruitment difficulty increases the likelihood of manufacturing firms involvement in apprenticeship programs, while it has no effect for service firms. Cooperation with other firms in the community has a strong negative effect on service firms’ participation in apprenticeship programs, while the relationship is not significant for manufacturers. Given the fact that service firms are more likely to engage in these collaborations with other firms in the community to provide training, this may reduce some of the incentive for apprenticeships because the collaborations are providing the needed training.

CONCLUSIONS AND DISCUSSION

A substantial number of employers in nonmetro areas are involved in school-to-work programs of some sort. Yet, the number of students in these apprenticeship programs is relatively small, and they are concentrated in a few traditional programs (skilled trades and health care). The strongest and most consistent influences on employer involvement in school-to-work programs are firm size and "recruitment difficulty." The issue of firm size is a central problem to almost all forms of employer training, whether it is youth oriented or not. Small firms face much higher costs for training. School-to-work programs may take other resources, such as time, that are prohibitive. Large firms also have more opportunities for school-to-work programs and are more likely to have employees that can supervise these programs. Firms facing hiring difficulties also have an incentive to be involved in school-to-work programs as a means of recruiting workers. This may mean, however, that participation will be influenced by business cycles.

Rural employers face additional obstacles to implementing school-to-work programs. Because of the costs and the need to develop programs of a sufficient size, employers in urban areas may collaborate to achieve economies of scale. This collaboration may be more difficult in rural areas where there are fewer firms with similar training needs. Secondary schools and community colleges in rural areas also have fewer resources to devote to school-

to-work programs.

Employer participation is a key to the success of school-to-work programs. Many of the programs that have been implemented are driven by training institutions and state agencies, with little consideration of why employers would want to participate. The evidence suggests that much more needs to be done to insure continued employer involvement in these programs. Below is a list of possible activities that might facilitate participation:

- promote employer-led programs that identify specific skills and programs that are needed;
- find ways of overcoming problems of density and scale through human resource associations;
- encourage cooperation among school systems to reduce their cost of offering school-to-work and apprenticeship programs; and
- cultivate interactions between unions, temporary employment agencies, and other intermedi-

aries and schools as a way of improving the flow of information in the region.

REFERENCES

1. Bailey, T.R., K. Hughes, and T. Barr. 2000. "Achieving Scale and Quality in School-to-Work Internships: Findings from Two Employer Surveys." *Educational Evaluation and Policy Analysis* 22:41-64.
2. Bassi, L.J., and J. Ludwig. 2000. "School-to-Work Programs in the United States: A Multi-Firm Case Study of Training, Benefits and Costs." *Industrial Labor Relations Review* 53:219-39.
3. Berman, E., J. Bound, and Z. Griliches. 1994. "Changes in the Demand for Skilled Labor within U.S. Manufacturing: Evidence from the Annual Survey of Manufacturers." *Quarterly Journal of Economics* 109:367-397.
4. Holzer, H.J. 1996. *What Employers Want: Job Prospects for Less-Educated Workers*. New York: Russell Sage Foundation.
5. Hughes, K. 1998. *Employer*

Table 3: Logistic Regression Analysis of Likelihood that Employer Currently Offers Apprenticeship Programs

	All Employers	Manufacturing	Service
Manufacturing	+		
Firm Size	+	+	+
Percent Union			+
Difficulty Recruiting	+		
Population	-	-	
Collaborative Training	-		-

- Recruitment is Not the Problem: A Study of School-to-Work Transition Programs* (Working Paper No. 5). New York: Institute on Education and the Economy, Teachers College, Columbia University.
6. Markusen, A.R. 1985. *Profit Cycles, Oligopoly and Regional Development*. Cambridge, MA: The MIT Press.
 7. McGranahan, D.A. 1998. *Local Problems Facing Manufacturers: Results of the ERS Manufacturing Survey*. ERS-736-03. Washington, D.C.: U.S. Department of Agriculture.
 8. Osterman, P. 2001. "Employers in the Low-Wage/Low-Skill Labor Market." Pp. 67-88 in *Low-Wage Workers in the New Economy*, edited by R. Kazis and M.S. Miller. Washington, D.C.: The Urban Institute Press.
 9. Teixeira, R. 1998. *Rural and Urban Manufacturing Workers: Similar Problems, Similar Challenges: Results of the ERS Rural Manufacturing Survey*. ERS-736-02. Washington, D.C.: U.S. Department of Agriculture.
 10. Wieler, S.S. and T.R. Bailey. 1997. "Going to Scale: Employer Participation in School-to-Work Programs at LaGuardia Community College." *Educational Evaluation and Policy Analysis* 19:123-140.

LINKS TO EDUCATION

Projections of Education Statistics to 2012

<http://nces.ed.gov/pubs2002/proj2012/>

National Assessment of Educational Progress: The Nation's Report Card

<http://nces.ed.gov/nationsreportcard/>

Rural Schools Data

<http://nces.ed.gov/surveys/ruraled/>

School District Demographics

<http://nces.ed.gov/surveys/sdds/index.asp>

The Condition of Education

<http://nces.ed.gov/programs/coe/>

International Archive of Educational Data: Data and Surveys

<http://www.icpsr.umich.edu/IAED/studies.html>

Education Commission of the States: No Child Left Behind Database

<http://nclb.ecs.org/nclb/>

Education Week: Quality Counts 2004

<http://www.edweek.org/sreports/qc04/>

Manhattan Institute for Policy Research: Public School Graduation Rates in the United States

http://www.manhattan-institute.org/html/cr_31.htm



It's More than Just Schools:

How Families and Communities Promote Student Achievement

Lionel J. Beaulieu and Glenn D. Israel

Southern Rural Development Center and the University of Florida

Many community practitioners would agree that the long-term prosperity of places is closely linked to two key elements; the ability to promote the educational advancement of young people and the capacity to create local economic opportunities that successfully retain or attract talented, well-educated youth. Devising the right mix of tactics that can effectively promote the educational

success of young people is a continuing challenge for many localities.

As a rule, state and federal policies remain largely focused on schools as the principal vehicle for promoting student achievement. There is no better example of the near singular orientation on schools than the *No Child Left Behind Act of 2001* (NCLB), an ambitious law now in place in the United States [45].

The NCLB notes that current federal

support for elementary and secondary schools is directly tied to their capacity to meet strict performance and accountability goals, particularly standards related to reading and mathematics. In cases where schools consistently fall short of achieving such standards, schools are subject to sanctions and parents are accorded the opportunity to transfer their children to higher performing schools located within their districts.

While dedicated to the improvement of student achievement, federal and state policymakers, local education and community leaders, and parents must recognize one important fact; the academic success of young people is not a singular product of what happens in schools. Rather, families and communities are complementary resources that must be utilized to advance the educational progress of local youth [38]. As Lerner [27] noted nearly a decade ago, public investments in families and community organizations are as important as those dedicated to schools when seeking to promote student achievement.

We focus attention in this report on a set of family, school and community factors that can pay big dividends in advancing the academic performance of students. We document the central features within each of these three environments that can help promote the emergence of social capital, noting that young people embedded in families, schools and communities with high levels of social capital tend to do better in school.

We begin by outlining key ele-

ments that have much to say about how well kids do in school. These include social capital attributes of students' families, schools, and communities. Other important elements are native abilities of students, background characteristics (such as gender and race), and socioeconomic resources found in the home, schools and communities that can influence school success (beyond those linked to social capital). Next, we examine achievement levels of public eighth grade students (as measured by their scores on composite standardized tests) and seek to assess the extent to which their test outcomes are influenced by the factors outlined above. Of special interest are the contributions of social capital measures in shaping test scores, beyond those associated with background, native abilities, and available resources. Finally, we discuss the implications of our findings for guiding education policies that give full recognition to the multi-prong approach needed for improving student achievement.

THE MULTI-FACETED DETERMINANTS OF EDUCATIONAL ACHIEVEMENT

There are at least three major dimensions that can play a central role in promoting educational achievement. We provide a brief overview of each.

INNATE ABILITIES AND BACKGROUND ATTRIBUTES

Over three decades ago, Duncan and his colleagues [14] noted that certain ascribed statuses (such as

race, ethnicity and gender) have bearing on the life chances of individuals. According to Coleman [9], these factors constitute the disadvantages of background. Recent works, such as the volume by Flora et al. [17], suggest that the legacies of gender, race, and ethnicity continue to shape the educational aspirations that parents have for their children, or the expectations that teachers may have for their students.

In addition to background, there are advantages that some students have over others because of their cognitive abilities. For example, gifted students are better positioned to enroll in higher-level courses (e.g., such as advanced math or science courses) that can have an obvious bearing on test scores. Moreover, academic performance in prior grades has much to say regarding the student's success in subsequent grade levels. Inclusion of such measures in our study is helpful in determining how academic success may be linked, in part, to the intrinsic abilities of students.

AVAILABLE RESOURCES THAT EXPAND STUDENT OPPORTUNITIES

The level of resources available to students at home, in their school, or in their community, can "complement, reinforce, and add to their school experiences. Unfavorable conditions at home, school, or in the community may hamper children's ability to learn in school" [46]. Families having sufficient financial resources can provide materials, equipment, and experiences that can contribute to the educational

advancement of their child. As resources available to children in the home increase, the academic performance and school completion rates of these students improve as well [12, 13, 25, 43, 46]. Having a college-educated parent also can be important since it increases the chances that a high value is placed in the home on the educational advancement of that child.

Aside from family resources, the amount of money available to support the educational activities of a school can have in impact on students' learning environment and educational achievement [20, 31, 48]. Such resources affect the quality of school buildings, the availability of equipment, books, and other resources to support instructional activities, and the attraction or retention of teachers [42, 44].

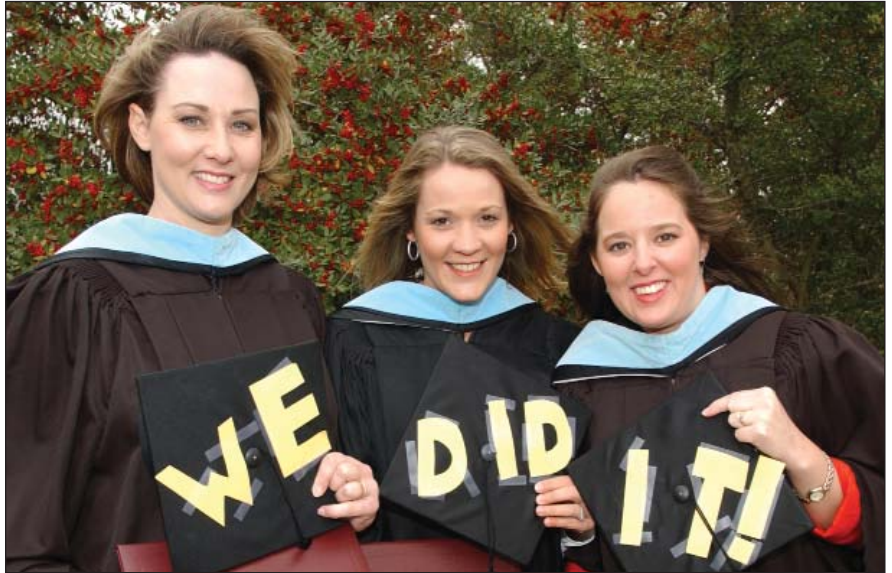
The level of resources available to support schools can be linked to the financial resources that communities are willing or able to dedicate to their schools. Certain localities are large enough or wealthy enough to support a variety of institutions and organizations that help meet most of the daily needs of its residents. Such places also have a sizable number of individuals with extensive experience, knowledge and expertise that can be used to guide local activities or to attract quality jobs. Furthermore, such communities often have greater access to outside resources that can be tapped when needed to deal with an array of community issues [29]. The collection of human, organizational, and institutional resources in a community

shape its capability to get things done, including efforts designed to support the local educational system.

SOCIAL CAPITAL AND STUDENT ACHIEVEMENT

A third major facet impacting student achievement is represented by the nature and level of social capital that might be available to students in their homes, schools, and communities. According to Coleman [10], social capital represents the set of norms, social networks, and relationships between children and their families, schools, and communities that are of value as they grow up. Stockard and Mayberry [42] note that “it involves obligations, behavioral expectations, and trust that develop from strong ties among individuals in a group, channels of information that help people be more informed, and norms of effective sanctions that facilitate and constrain certain actions.”

Smith et al. [40] further elaborate the meaning of social capital by suggesting that it includes both structure and process features. Structure, for example, determines the opportunity for, as well as the frequency and duration of, interpersonal interactions. Process, on the other hand, represents the level of involvement of individuals or institutions in the lives of youth. Both structure and process aspects of social capital can be found in the family, school, and community, and the two work in a complementary fashion.



FAMILY SOCIAL CAPITAL

Two structural characteristics of the family are thought to influence the emergence of social capital: the presence of one or both parents in the home and the number of siblings. Intact families have a positive influence on the academic success of their children since it increases the chances that a parent will engage in interactions with their child [8, 10], while the presence of many siblings can dilute the amount of time that parents can devote to any single child [13].

The process aspects of family social capital are demonstrated by the quality of parents' involvement in the lives of their children. These include parents' nurturing activities, such as helping children with their homework, discussing important school activities with them, and expressing high educational aspirations for them [13, 43]. Process features of family social capital also include constraining activities, such as limiting television viewing, providing adult supervision when the

children return from school, and monitoring homework [30].

SCHOOL SOCIAL CAPITAL

There are key structural components of schools that can affect the quality of social capital that is present in this setting. These include the socioeconomic background of the student population, the characteristics of peers, the nature of the learning climate evident in the school or classroom, and the number of students enrolled in the school [42].

Schools whose students are drawn primarily from high socioeconomic status families, and who interact with high-status peers, are more likely to realize higher achievement [6, 12]. This is due to the fact students attending higher SES schools are more likely to establish friendships with individuals who have good learning skills and high educational aspirations [42]. At the same time, higher status schools are likely to have well established norms and values that place a premium on good academic performance [1], and have

teachers, administrators, parents, community members that support and expect high academic performance [18, 23, 36]. Closely linked to the socioeconomic context of the school is race and ethnicity. Schools comprised mainly of white students are more likely to be drawn from middle-class backgrounds, while those that are more racially and ethnically diverse are more inclined to be from lower socioeconomic status families and neighborhoods [42].

The presence of orderly environments in the school and classroom help students excel since norms of behavior tend to be well articulated and problem behaviors on the part of students are limited [28, 36]. Another potential link to student achievement is school size (that is, the number of students enrolled in a school). To some, larger schools promote achievement since they can offer students a richer set of course offerings, have better trained and qualified teachers, and have a more diverse set of educational support services [3, 19]. Others argue that smaller schools are better because of lower student-teacher ratios, the greater attention by teachers to the needs of their students, the higher rates of participation in school activities, and the lower rates of absenteeism [20, 21, 22, 26, 35, 39, 47].

There are process components of school social capital that help influence student performance. These social capital attributes are represented by the nature of interactions taking place among teachers, students and parents that help facilitate the educational advancement of

these students. Active engagement of teachers and parents in the lives of students within the school setting can prove instrumental in promoting student achievement [23, 26, 36]. Relevant activities include teachers' interest in the welfare of students through positive teacher/student interactions, and efforts to engage students in school programs and activities that help integrate students into the life of the school [16]. Students who perceive teachers as having a caring attitude, and who see these individuals as role models, are more inclined to want to succeed in school [22, 49].

Students whose parents are involved in their school, through parent-teacher organizations and booster groups, perform better in their academic courses [15, 30, 33, 41]. While many activities are nurturing, others serve to constrain undesirable behavior. Thus, parental contact with teachers or school administrators and between teachers and students concerning academic or behavioral concerns can indicate academic difficulties and lower achievement [30]. These contacts can help parents and teachers monitor the student's activities and work as partners to support the child's academic progress.

COMMUNITY SOCIAL CAPITAL

Schools are embedded in communities, and just as classmates, teachers, and parents may influence students' academic progress, so can the communities in which youths reside [42]. We suggest that localities with high community social capital

are marked by extensive civic engagement and patterns of mutual support [34]. Community activeness builds social capital since the network of relationships that develop from past local activities can be tapped whenever new efforts to address educational or other community needs are initiated [34, 51].

There are certain structural features of a community that can boost the creation and accumulation of social capital. These factors include *proximity, stability, and equality* [25, 50]. Proximity increases opportunities for interaction among local residents. Such interactions are necessary for building community bonds among residents. Residents who work and reside in the same locality are better able to remain connected because they have more time available to establish or maintain local ties.

Residential stability also contributes to the emergence of strong links among local people. Communities having a cadre of long-term residents also have ample opportunities to develop relationships that can be used to coordinate community improvement activities and to build community social capital [34]. Residential instability, on the other hand, can disrupt local relationships, thereby reducing the social capital available to community members. Student mobility, captured by frequent moves by students from one school to another, can have negative consequences for the educational progress of children. Such moves tend to disrupt relationships built in each school and community, thus

Table 1: Impact of Social Capital Attributes and Other Factors on Eighth Graders Math/Reading Composite Scores

Major Dimensions Associated with Student Achievement	Level of Impact on Composite Scores
Student Native Abilities and Background	
Student classified as gifted	+ +
Average grades composite	+ + +
Student had Algebra I in Eighth grade	+ +
Student regarded as disruptive in class	-
Student skips, is tardy or absent	-
Student's readiness for class	-
Teacher's rating of student engagement	+
Students' interest in class and future value	NS
Hours doing homework	+ +
Female (vs. male)	-
Hispanic (vs. non-Hispanic)	-
African American (vs. non-African American)	- -
Resources that Support Student Opportunities	
At least one parent attended college (percent)	+
Family income (group mean centered)	+ +
School per pupil expenditures	NS
Socioeconomic capacity of the community	+ +
Family Social Capital	
<i>Structure</i>	
Family structure	
One parent	+
Two parents	NS
Number of siblings	-
<i>Process</i>	
How far parent expects child to go in school	+ + +
How often parents discuss school with child	+ +
Amount of time student spends alone after school	-
How often parents check child's homework	-
How much parents limit TV time	+
School Social Capital	
<i>Structure</i>	
Emphasis on academics	+
Minority percent of enrolled	-
Percent on free and reduced lunch	-
School enrollment	NS
Average student attendance rate	+

hampering the establishment of long-term relationships with individuals in these settings [40].

Finally, *equality* can reduce social divisions that affect the quality of interaction [7]. Insofar as certain racial or ethnic minorities have less access to a locality's resources, such disparities can become the basis for durable cleavages between a community's powerful elites and disadvantaged groups, particularly when local priorities are being determined. When residents feel alienated, participation in local affairs declines and collective action is fragmented. One outcome of high inequality is that less social capital is available to promote collective efforts to improve local education.

The process components of community social capital can be demonstrated by the level of interest and caring that adult members of the community have for the welfare of another person's child, and by the efforts of individuals and organizations to engage children in community programs and activities that make effective use of their time and energy [4, 11, 40]. Moreover, it encompasses programs that involve students in adult-youth relationships through church-based and community-based organizations [4], which allow young people to build strong bonds with adult mentors.

AN OVERVIEW OF OUR METHODOLOGY

Our study is based on data collected for the National Educational Longitudinal Study (NELS), which was initiated in 1988 by the National

Center for Education Statistics. The NELS data were supplemented with items from the School District Data Book (SDDB) and the Common Core of Data (CCD) files so that we could see the effects of key structural characteristics of the counties that encompassed schools that were part of the 1988 NELS study. Voter participation data, secured from the Inter-University Consortium for Political and Social Research, were also included in our study.

We limited our study to public school students because we wanted to assess variations that might exist in tax-supported schools located in different places. We also excluded schools having fewer than 10 students who took part in the NELS study. This strengthened our confidence in the school-level measures that we calculated from the information provided by students' surveys.

Given these criteria, our analysis included 9,199 eighth grade students enrolled in 687 public schools in the United States. We used weights to ensure the representativeness of the various racial and ethnic populations included in this study [24].

WHAT FACTORS MATTER MOST IN PROMOTING STUDENT ACHIEVEMENT?

Table 1 presents a listing of items available in the NELS database that best captures the major dimensions that we view as important to student achievement. Variables are classified into five major groupings: (1) student native abilities and background characteristics; (2) resources available to support student opportuni-

Table 1: (Continued) Impact of Social Capital Attributes and Other Factors on Eighth Graders Math/Reading Composite Scores

Major Dimensions Associated with Student Achievement	Level of Impact on Composite Score
School Social Capital	
<i>Process</i>	
Talks to teacher outside class	-
Teacher is nurturing to student	-
Number of school organizations involved in	-
Amount that parents contact school	-
Parent involved with other school organizations	+
Amount parents volunteer for PTO	-
Community Social Capital	
<i>Structure</i>	
Residential stability	-
Residential longevity	++
<i>Percent commuting</i>	
Metro core	-
Other metro	-
Nonmetro, adjacent	-
Nonmetro, nonadjacent	NS
Voter participation	+
<i>Process</i>	
Student belongs to religious group	+
Number of nonreligious groups student involved in	-
Number of leadership positions	+
Number of times student has changed schools	-
Parent knows parents of child's friends	NS
How to interpret the table:	
+/- means the item improves/reduces test score by up to 2.99 points; ++ / -- means the item improves/reduces score 3-5.99 points; +++ / --- means the item improves/reduces score by 6 or more points. NS means the item has no significant impact on the score.	

ties; (3) family social capital; (4) school social capital; and (5) community social capital. For this study, achievement is represented by math/reading composite scores of eighth grade students, a measure that is closely aligned with the type of standardized tests now being admin-

istered by states in response to the accountability and performance requirements associated with the *No Child Left Behind Act* of 2001.

Table 1 reveals that a large number of variables are significant predictors of Eighth grade math/reading composite test scores. Of the

student abilities and background variables, the two measures of ability (gifted status and grade point average) and taking Algebra I are especially important. Several measures of student readiness and commitment to school are significant as well. Hours spent doing homework and engagement in the classroom have positive net effects on eighth grade test scores. The magnitude of these effects over the range of possible values is on par with taking Algebra I. Interest in math and English classes are inconsistent, while readiness for class has a negative effect after controlling for other variables. Students rated by their teachers as disruptive and those with poor attendance records score lower on tests. Finally, the disadvantages experienced by minorities (African Americans and Hispanics) and females on our standardized tests remain even after controlling for several important variables in our statistical model.

Consistent with previous status attainment research, results in Table 1 also show that family resources effect educational achievement. For example, children whose mother or father attended college are more likely to have a higher test score. Likewise, test scores tend to be higher among children from higher income families. School resources, as measured by per student expenditures, have little effect on test scores. Community resources (i.e., socioeconomic capacity), however, showed a positive influence on test scores.

In keeping with earlier research on the structural aspect of family

Table 2: Predicted Composite Test Scores of eighth Grade Students Having High and Low Levels of Assets within Each Dimension

Major Dimensions	Strength of the Assets Available to the Student		
	Low Level	High Level	Point Range
Intercept	24.639	24.639	---
Student Native Abilities and Background	- 6.386	23.586	29.972
Resources that Support Student Opportunities	- 4.701	5.587	10.287
Family Social Capital Structure	- 1.350	0.390	1.74
Family Social Capital Process	-2.835	11.769	14.604
School Social Capital Structure	5.859	17.905	12.046
School Social Capital Process	- 3.955	- 2.053	1.902
Community Social Capital Structure	- 3.841	0.117	3.959
Community Social Capital Process	- 0.060	0.291	0.351
Net Effect on Standardized Test Scores	7.370	82.232	74.861

social capital [4, 25, 40], family structure has some impact on test scores. In particular, the presence of one parent in the household is associated with higher composite test scores. This seemingly surprising finding may suggest that single parenthood may not, in and of itself, place children at a disadvantage in terms of educational performance. Rather, it may be the other factors, such as lower family incomes or less opportunities to interact with their children, which may impinge more directly on student achievement. Students with one or more siblings were less likely to do well on the eighth grade tests, a finding that is quite consistent with results from other studies [13].

Family social capital appears important in shaping a child's academic performance. We find that students are more likely to have higher test scores if a parent expresses high expectations for their child

obtaining a college degree (as compared to a high school diploma or not completing high school at all), if they discuss school programs with their parents, if parents place limits on the amount of time that the child was allowed to watch television, if parents don't have to check homework frequently, and their eighth grader spends little or no time alone after school.

The role of school structure in helping young people perform well on tests is significant for some measures, but not for others. For example, the number of students enrolled in the school has no significant bearing on test scores, but the percentage of minority students and those in the free lunch program have significant negative effects. Schools that place emphasis on academic achievement tend to have students who do better on the composite test scores. Higher attendance rates are also associated with higher test scores for

students at those schools.

Regarding the social capital process variables, the frequency of teacher-student conversations outside the classroom negatively affects test scores. This might mean that after accounting for ability and engagement, students who need to talk with teachers outside of class do so to address an academic or behavioral problem. Surprisingly, having teachers who are more nurturing and the degree of involvement in student organizations has a negative effect on test scores, but the impact is smaller than for other variables discussed above.

Several other school social capital variables are significant in explaining test scores. Students whose parents are involved in a parent-teacher organization score lower on the tests, but those whose parents are engaged in other school organizations do better on the tests (though marginally significant). This might reflect a more ritual or passive involvement of parents in the PTOs, as compared to the intensive involvement of parents in such school-based activities as sports or band booster organizations. It is likely that this type of parental involvement fosters student-parent and teacher-parent relationships and helps the student stay engaged in school. On the other hand, in cases where the parent contacts the school, these interactions have negative effects on staying in school. This likely reflects instances where parental contacts are precipitated by the student's disciplinary or academic problems.

Results for community structure

show some modest effects on test scores. Average years in the current home has a positive effect on test scores. Communities having higher residential stability or a higher percentage of commuters also show negative associations with test scores. Three process measures of community social capital are influential on test scores. Involving youths in a religious group has a positive effect, but participating in other youth organizations lowers test scores. Taking on a leadership role in these organizations has a positive effect, which suggests that a more in-depth mentor-protégé relationship is necessary for the student to benefit. The number of times a student has changed schools worked to reduce test scores. Finally, parents knowing the parents of their child's friends is not important after the effects of other variables are taken into account.

Overall, the results in Table 1 show that many social capital variables, coupled with measures of student native abilities/background and access to resources (present in the home, school, and community), have significant effects on eighth grade test scores. More importantly, our findings suggest that these various elements outlined in Table 1 can be additive in much the same way as the Search Institute's asset model for youth development and resiliency [37]. That model says that the accumulation of positive factors (or assets) available to a student improves their chances of being successful in school and in their transition to adulthood.

The variables included in our analysis form a powerful set of predictors when viewed together in shaping students' eighth grade composite test scores. This is evident when one examines Table 2. This information is generated from a regression model that helped us to predict what the composite test scores would be for eighth grade students having the most favorable conditions with regard to their abilities, background, resources, and social capital attributes, versus students having the least assets present within these various dimensions.

The intercept serves as a starting point to predict the test score for eighth grade students and, in the case of our model, this starting point is about 25 points [a]. The remaining data in Table 2 show contributions made by each dimension in explaining student achievement. For example, students with the most favorable set of native abilities and background are likely to experience a net gain of over 23 points in their composite test scores, while eighth graders with limited native capacity and the greatest disadvantages as a result of their background are likely to suffer over a six-point loss in such scores. As the last column of Table 2 reveals, the difference between those with the least and most favorable assets on this dimension is nearly 30 points.

While it is clear that native abilities and background contribute most to the test score outcomes of students, the process elements of family social capital are important in contributing to test score outcomes as well. For example, students living in

families with strong nurturing and monitoring activities are likely to experience nearly a 12 point gain in test scores, versus a decline of 3 points for students living in families where such activities are absent or weak. The specific process attributes of family social capital that have the most dramatic impact are high parental aspirations for their kids in terms of college attendance, and parents taking the time to discuss school-related matters with their children.

With regard to school social capital, the structural components of schools have the most dramatic influence on test scores. Students enrolled in schools with positive structural features experience about a 12-point gain in test scores versus students attending schools with weak structural attributes. Most vital of these school structural features are schools with high rates of daily student attendance, with high priority placed on academics, and with a small percentage of students enrolled in the free/reduced lunch program.

Taken together, the structure and process conditions of the community result in net gain of approximately 4 points for students living in the most favorable community social capital environments. And the community elements that prove most important are places having a high percentage of residents living in their current homes for a long time, that have a high rate of voter participation, and that a high percent of eighth grade students who belong to religious organizations.

AT A GLANCE

The Multi-Dimensional Nature of Student Achievement:

Several factors, working in tandem, have major impacts on student achievement. They include:

- the natural abilities with which a person is born
- the race and ethnic background of the student, and his/her gender
- the level of financial resources invested in by the parents, schools and communities in advancing the educational activities of their children
- the strength of social capital available to young people, especially, the nurturing and monitoring activities provided by parents, school teachers and community members

The Bottom Line: What Impacts Student Achievement?

Based upon a national study of eighth grade public high school students completing standardized reading and mathematics exams, results show:

- Students with the most favorable set of native abilities and background experience a net gain of over 23 points in their composite test scores.
- Eighth graders with limited native capacity and greatest disadvantages in terms of their background suffer over a six point loss in such scores.
- Students living in families with strong nurturing and monitoring activities are likely to experience a 12 point gain in test scores, versus a decline of three points for students living in families where such activities are absent or weak.
- Family social capital features that have the most dramatic impact on student achievement are high parental aspirations for their kids' college attendance and parents taking the time to discuss school-related matters with them.
- Students enrolled in schools with positive structural features (high rates of daily student attendance, high priority placed on academics) experience about a 12-point gain in test scores versus students attending schools with weak structural attributes.

What is most impressive is the collective impact of these various dimension on composite test score performance. As noted in the last row of Table 2, students with the least assets across all dimensions are predicted to have a math/reading composite score of nearly 7.4 points. For students with the strongest set of assets present on these various dimensions, composite scores are estimated to exceed 82 points [b]. It is important to remember that these represent both the

worst and best case scenarios. Nevertheless, they do point to the complexity of factors that impact student achievement, especially beyond the boundaries of the school.

POLICY AND PROGRAM STRATEGIES FOR ENHANCING STUDENT ACHIEVEMENT

A community's long-term economic health rests, in part, on the presence of young people with strong workforce skills and solid educational credentials. There is no

better way for communities to build their human resources than through the educational progress of local youth. Promoting youth educational achievement, however, requires a deliberate effort to build strong linkages among families, schools, and communities.

Our results support the view that youths' academic success stands on a three-legged stool—families, schools and communities. Still, the actions of legislative leaders at the federal and state levels appear to run counter to the ever-expanding evidence that this three-pronged approach is crucial to student academic success. The *No Child Left Behind* legislation is a case in point of the continued reliance by policy makers on schools as the principal avenues for improving student achievement.

Despite the fact that families represent the key environment for promoting the success of young people, little attention is given within education policy circles on ways to build parental capacity to be effective agents for promoting the educational advancement of their children.

What may be worth exploring is the implementation of programs that could build the type of parental competencies that are vital to the creation of social capital within the home. This could include efforts to promote high-quality parent-child interactions, build children's self-confidence, raise their educational aspirations, and curb behaviors that inhibit academic progress. The intent would be to create a home environment where parent-child relation-

ships are strong and where a education is truly valued by parents.

Although community social capital may be less significant in influencing a student's academic achievement, one should not disregard community social capital as a resource for children. Community social capital most likely influences high school students' educational performance through the variety of programs, organizations, and activities available in a locality. By these means, citizens can convey the importance of high educational performance to local children and show a willingness to help students develop the skills necessary to succeed in school and in adulthood.

Without question, the pursuit of school-based solutions for promoting achievement should continue. This should include the nurturing of a school climate where academics is of central importance. Student success on the academic front is not likely to happen, however, without the involvement of families and communities as active partners. Such partnerships are less meaningful if schools limit the roles of parents and community representatives to a "philanthropic" type of engagement [2]. In this type of partnership, schools see parents and communities largely as providers of financial or volunteer resources. What schools should strive to achieve in an "integrative" type of partnership with parents and their local communities, one where the two entities (parents and community groups) actively take part in the educational mission of the schools, who work in tandem

with the schools in the pursuit of educational improvements, and who share in the governance responsibility of these schools. This type of partnership is essential to the emergence of a seamless system of support in the home, school, and community that promote the educational success of local youth.

ENDNOTES

- a. Social capital also can accumulate within any local group or organization, and thus can be used to further the private interests of that group, sometimes to the detriment of other groups in the community (see Flora et al. 2004).
- b. The average score on the composite math/reading test for our entire sample of eighth graders was approximately 48 points.

REFERENCES

1. Alexander, K., and B. Eckland. 1975. "Contextual Effects in the High School Attainment Process." *American Sociological Review* 40(3):402-416.
2. Austin, J.E. 2000. *The Collaboration Challenge: How Nonprofits and Businesses Succeed through Strategic Alliances*. San Francisco: Jossey-Bass Publishers.
3. Ballou, D., and M. Podgursky. 1998. "Rural Teachers and Schools." Pp. 3-21 in *Rural Education and Training in the New Economy: The Myth of the Rural Skills Gap*, edited by R.M. Gibbs, P.L. Swaim, and R. Teixeira.

- Ames: Iowa State Press.
4. Beaulieu, L.J., and G.D. Israel. 1997. "Strengthening Social Capital: The Challenge for Rural Community Sustainability." Pp. 191-223 in *Rural Sustainable Development in America*, edited by I. Audirac. New York: Wiley.
 5. Beaulieu, L.J. and D. Mulkey. 1995. *Investing in People: The Human Capital Needs of Rural America*. Boulder: Westview Press.
 6. Blau, P.M. 1960. "Structural Effects." *American Sociological Review* 25(2):178-93.
 7. Blau, P.M. 1994. *Structural Contexts of Opportunities*. Chicago: University of Chicago Press.
 8. Bogenschneider, K. 1996. "An Ecological Risk/Protective Theory for Building Prevention Programs, Policies, and Community Capacity to Support Youth." *Family Relations* 45:127-38.
 9. Coleman, J.S. 1988. "Social Capital in the Creation of Human Capital." *American Journal of Sociology* 94(Suppl.):95-120.
 10. Coleman, J.S. 1990. *Equality and Achievement in Education*. Boulder: Westview Press.
 11. Coleman, J.S., and T. Hoffer. 1987. *Public and Private High Schools: The Impact of Communities*. New York: Basic Books.
 12. Coleman, J., E. Campbell, C. Hobson, J. McPartland, A. Mood, F. Weinfeld, and R. York. 1966. *Equality of Educational Opportunity*. Washington, D.C.: U.S. Government Printing Office.
 13. Downey, D.B. 1995. "When Bigger is Not Better: Family Size, Parental Resources and Children's Educational Performance." *American Sociological Review* 60:746-61.
 14. Duncan, O.D., D.L Featherman, and B. Duncan. 1972. *Socioeconomic Background and Achievement*. New York: Seminar Press.
 15. Eccles, J.S., and R.D. Harold. 1993. "Parent Involvement during the Early Adolescent Years." *Teachers College Record* 94(3):568-587.
 16. Flinn, J.D., and D.A. Rock. 1997. "Academic Success Among Students at Risk for School Failure." *Journal of Applied Psychology* 82(2):221-34
 17. Flora, C.B., J.L. Flora and S. Fey. 2004. *Rural Communities: Legacy and Change* (2nd edition). Boulder, CO: Westview Press.
 18. Friedkin, N., and J. Necochea. 1988. "School System Size and Performance: A Contingency Perspective." *Educational Evaluation and Policy Analysis* 10(3):237-49.
 19. Greenberg, E.J., and R. Teixeira. 1998. "Educational Achievement in Rural Schools." Pp. 23-39 in *Rural Education and Training in the New Economy: the Myth of the Rural Skills Gap*, edited by R.M. Gibbs, P.L. Swaim, and R. Teixeira. Ames: Iowa State University Press.
 20. Greenwald, R., L.V. Hedges, and R.D. Laine. 1996. "The Effect of School Resources on Student Achievement." *Review of Educational Research* 66(3):361-96.
 21. Gregory, T.B., and G. R. Smith. 1987. *High Schools as Communities: The Small School Reconsidered*. Bloomington, IN: Phi Delta Kappa Educational Foundation.
 22. Hobbs, D. 1995. "Capacity-Building: Reexamining the Role of the Rural School." Pp. 259-84 in *Investing in People: The Human Capital Needs of Rural America*, edited by L.J. Beaulieu and D. Mulkey. Boulder: Westview Press.
 23. Hoffer, T., A. Greeley, and J. Coleman. 1987. "Catholic High School Effects on Achievement Growth." In E. Haertel, T. James, and H. Levin (Eds.), *Comparing Public and Private Schools, Vol. 2, School Achievement*. New York: Falmer.
 24. Ingels, S.J., L.A. Scott, J.R. Taylor, J. Owings, and P. Quinn. 1998. *National Education Longitudinal Study of 1988 (NELS:88) Base Year through Second Follow-Up: Final Methodology Report*. U.S. Department of Education, National Center for Education Statistics. Working Paper No. 98-06 (May).
 25. Israel, G.D., L.J. Beaulieu and G. Hartless. 2001. "The Influence of Family and Community Social Capital on Educational Achievement." *Rural Sociology* 66(1):43-68.
 26. Lee, V.F., and J.B. Smith. 1996. "Collective Responsibility for Learning and Its Effect on Gains in Achievement for Early

- Secondary Students.” *American Journal of Education* 104:103-47.
27. Lerner, R.M. 1995. *America's Youth in Crisis: Challenges and Options for Programs and Policies*. Thousand Oaks: Sage.
28. Lightfoot, S.L. 1983. *Worlds Apart: Relationships Between Families and Schools*. New York: Basic Books.
29. Luloff, A.E., and K. Wilkinson. 1979. “Participation in the National Flood Insurance Program: A Study of Community Activeness.” *Rural Sociology* 44:137-52.
30. McNeal, R.B., Jr. 1999. “Parental Involvement as Social Capital: Differential Effectiveness on Science Achievement, Truancy and Dropping Out.” *Social Forces* 78(1):117-44.
31. Mortimore, P., P. Sammons, L. Stoll, D. Lewis, and R. Ecob. 1988. *School Matters*. Berkeley: University of California Press.
32. Noddings, N. 1988. “Schools Face Crisis in Caring.” *Education Week* 8(December 7):32.
33. Parcel, T.L., and M.J. Dufur. 2001. “Capital at Home and at School: Effects on Student Achievement.” *Social Forces* 79(3):881-911.
34. Putnam, R.D. 2000. *Bowling Alone: The Collapse and Revival of American Community*. New York: Simon & Schuster.
35. Rossi, R. and S. Daughert. 1996. “How Safe Are the Public Schools: What Do Teachers Say?” Issue Brief (NCES-96-842). Washington, D.C.: National Center for Education Statistics.
36. Rutter, M., B. Maughan, P. Mortimore, and J. Ouston. 1979. *Fifteen Thousand Hours: Secondary Schools and Their Effects on Children*. Cambridge, MA: Harvard University Press.
37. Scales, P.C., and E.C. Roehlkepartain. 2003. “Boosting Student Achievement.” *Search Institute Insights & Evidence* 1(1):1-10.
38. Schorr, L.B. 1988. *Within Our Reach: Breaking the Cycle of Disadvantage*. Garden City: Anchor Press/Doubleday.
39. Sher, J.P. 1988. *Class Dismissed: Examining Nebraska's Rural Education Debate*. Hildreth, NE: Nebraska Rural Community Schools Association.
40. Smith, M.H., L.J. Beaulieu, and A. Seraphine. 1995. “Social Capital, Place of Residence and College Attendance.” *Rural Sociology* 60:363-80.
41. Stevenson, D.L., and D.P. Baker. 1987. “The Family-School Relations and the Child's School Performance.” *Child Development*. 58: 1348-57.
42. Stockard, J., and M. Mayberry. 1992. *Effective Educational Environments*. Newbury Park, CA: Corwin.
43. Teachman, J.D., K. Paasch and K. Carver. 1997. “Social Capital and the Generation of Human Capital.” *Social Forces* 75(4):1343-1359.
44. Turner, R., G. Camilli, R. Kroc and J. Hoover. 1986. “Policy Strategies, Teacher Salary Incentive and Student Achievement: An Exploratory Model.” *Educational Researcher* 15 (3):5-11.
45. U.S. Department of Education. 2002. *No Child Left Behind: A Desktop Reference*. Washington, D.C.: Office of Elementary and Secondary Education (September).
46. U.S. Department of Education. 2003. *The Condition of Education 2003*. National Center for Education Statistics. NCES 2003-067. Washington, D.C. (June).
47. Walberg, H., and W. Fowler. 1987. “Expenditure and Size Efficiencies of Public School Districts.” *Educational Researcher* 16(7):5-13.
48. Wenglinsky, H. 1997. “How Money Matters: The Effect of School District Spending on Academic Achievement.” *Sociology of Education* 70(3):221-237.
49. Werner, E., and R. Smith. 1989. *Vulnerable but Invincible: A Longitudinal Study of Resilient Children and Youth*. New York: Adams, Bannister, and Cox.
50. Wilkinson, K.P. 1991. *The Community in Rural America*. Westport, CT: Greenwood.
51. Zekeri, A.A., K.P. Wilkinson, and C.R. Humphrey. 1994. “Past Activeness, Solidarity and Local Development Efforts.” *Rural Sociology* 59:216-235.

Preparing Educators to Teach Students in Rural Schools

A+

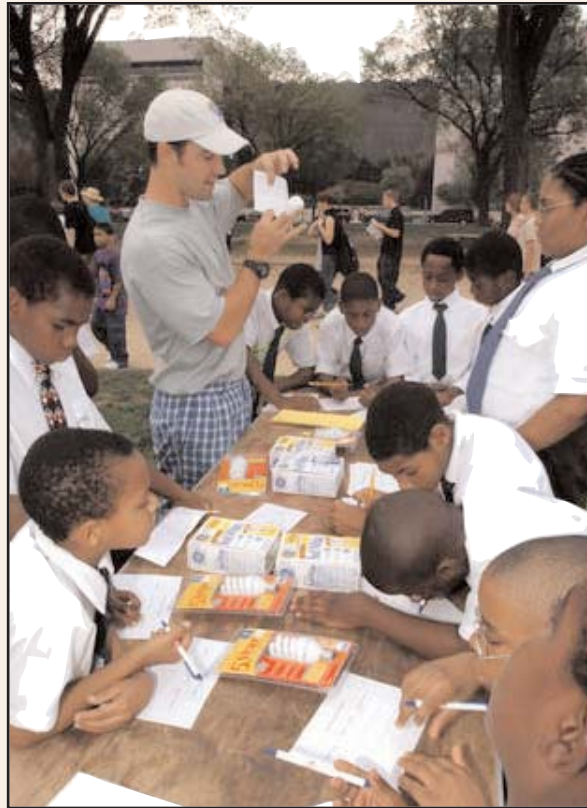
Sheryl Lazarus

University of Minnesota

INTRODUCTION

According to the United States Department of Education [15], teacher quality is more closely related to student achievement than other factors, including class size and per pupil expenditures. Schools located in sparsely populated areas, however, often find it difficult to recruit and retain highly qualified teachers. Few teacher preparation programs are specifically designed to prepare teachers for the challenges of rural areas.

Several pieces of recent federal legislation that are primarily focused on the needs of urban schools have sought to improve teacher quality, while the unique needs of rural schools have largely been ignored. The *No Child Left Behind Act* of 2001 (NCLB) requires that all teachers be “highly qualified” by 2006 [16]. Rural educators often receive waivers that permit them to teach outside of their field of licensure, but NCLB will no longer permit that option. Another piece of federal legislation, the 1998 reauthorization of Title II of the Higher Education Act, requires institutions of higher education and



alternative-certification programs that receive federal aid to develop standards for teachers, to set requirements for initial certification, and to report this information on a “report card” that can be used to evaluate the quality of their teacher training program. Title II defines highly qualified teachers as those who have state certification and solid content knowledge [17].

This policy brief will:

- Review the teacher preparation process in the United States with a particular emphasis on the impact of NCLB on rural schools;
- Use data from the state of Minnesota to analyze how various teacher characteristics impact student achievement in rural and nonrural schools; and
- Provide suggestions for policy consideration.

TEACHER PREPARATION PROGRAMS AND STANDARDS

Each state has established standards for licensing teachers, with many states having reciprocity agreements that recognize the licenses of teachers trained in other states. Teacher preparation programs have traditionally used course-based models that required aspiring teachers to pass a certain sequence of courses in particular content areas in order to become eligible for licensure. The number of courses required and the content of those courses varied between states. In some preparation programs prospective teachers have had relatively few practicum opportunities prior to licensure [14].

Teacher quality has become a national policy issue in recent years. The debate has often focused on teacher quality in urban schools, but teacher quality is also an important rural education issue. The traditional course-based model provided aspiring teachers with an understanding of pedagogical theories and methods, but often provided little training that would prepare beginning educators to successfully teach in rural settings. For example, teachers in small rural schools often must teach a number of different courses that span several subjects. Carlsen and Monk [3] found that rural science and mathematics teachers often had less subject-matter coursework than their nonrural peers.

COMPETENCY-BASED LICENSURE MODELS

As a result of concern about teacher quality and teacher shortages, many states have recently implemented teacher licensure standards that use competency-based or performance-based models. The state standards for teacher preparation and licensure are often aligned with model standards set by national organizations. The Interstate New Teacher Assessment and Support Consortium (INTASC) [4] and The National Council for the Accreditation of Teacher Education (NCATE) [13] are two organizations that have developed standards for teacher preparation [a]. Licensure standards can be used to measure whether aspiring teachers trained in either traditional programs or through alternative certification pro-

grams have needed skills and knowledge, but the needs of rural schools are not usually specifically addressed in these policies [9].

Twenty-four states have linked student academic content and achievement standards with teacher preparation standards as a way to ensure that beginning teachers have the skills and knowledge needed to create a high-quality learning environment [15]. Academic content standards articulate the skills and knowledge that students in a state are required to have. See Figure 1 for a schematic chart that shows the relationship between student standards and teacher preparation.

LICENSURE EXAMINATIONS

Licensure tests are designed to measure the skills, abilities, and knowledge needed by entry-level teachers and generally are aligned with the teacher-preparation standards in a state (Figure 1). Statewide

assessment systems are a key component of the standards-based teacher certification process. According to the United States Secretary of Education’s 2002 annual report on teacher quality, Meeting the Highly Qualified Teachers Challenge [15:vii], “beginning Fall 2002, all new elementary school teachers will have to pass tests in subject knowledge and teaching skills in math, reading, and writing, while new middle and high school teachers must pass rigorous subject-matter tests or have the equivalent of an undergraduate major, graduate degree or advanced certification in their respective fields.”

The tests are usually taken either near the midpoint of a preservice teachers’ academic preparation program or near program completion. The Praxis I and the Praxis II, developed by the Educational Testing Service, are the most commonly used licensure tests, though some

Figure 1. Alignment between Student Academic Content Standards and Teacher Preparation Standards

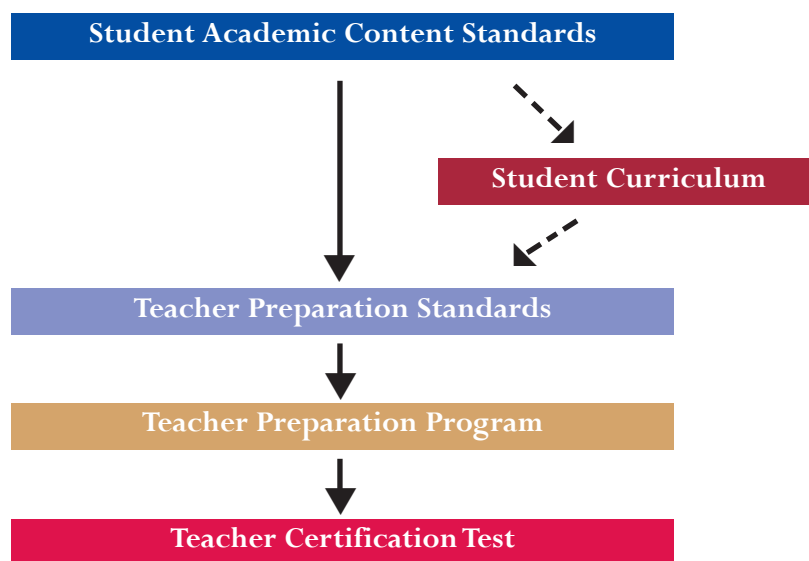
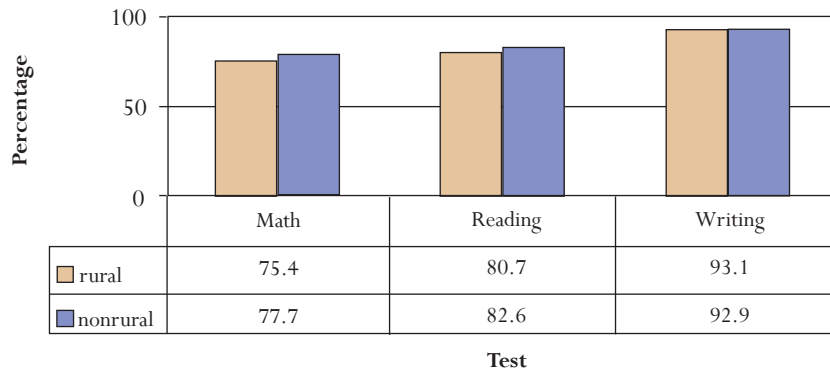


Figure 2: Percentage of Students who Passed the Minnesota Basic Skills Test in Rural and Nonrural School Districts, 2001-2002 School Year.



states have designed their own assessments [5]. Passing scores are established by each state and not by the test publisher, which can make it difficult to determine how well beginning teachers are prepared if a state sets the passing level very low [8, 11].

Policymakers may be less likely to micro-manage teacher education programs when a state has a licensing examination [6]. Teacher preparation institutions are motivated to align their training programs with the material expected to be covered on licensure examinations, so that their students will do well on the licensure examination.

ALTERNATIVE CERTIFICATION

As a result of teacher shortages, many states have implemented alternative certification programs to get teachers into the classroom quickly, but a tension exists between ensuring that there are enough teachers and ensuring teacher quality. Alternate teacher certification routes have the potential to prepare individuals in remote locations to become teachers without requiring them to

travel to distant locations for extended periods of time. Alternate routes to licensure generally assume that if a prospective teacher has subject-area knowledge as represented by a bachelors degree in a content area, then student teaching and pedagogical coursework can be compacted into a very short time period. Distance education programs are one way that aspiring teachers may be able to receive needed instruction to qualify for alternative certification. Alternative certification programs often rely heavily on the results of licensure examinations to determine which licensure candi-

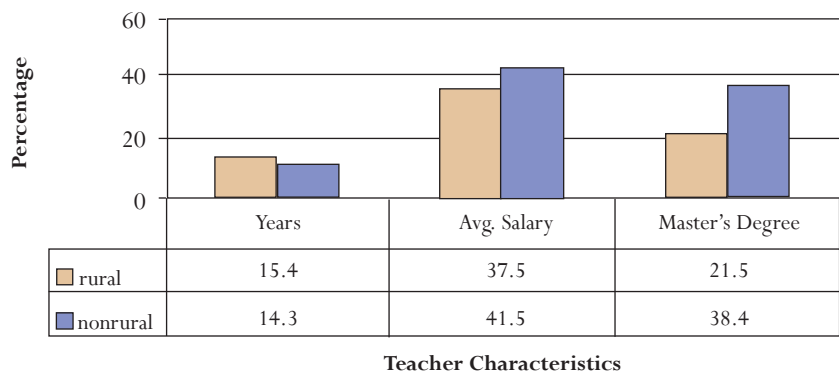
dates are qualified.

Research is just beginning to be published that analyzes the quality of alternative-route certified teachers- and none of these studies has focused exclusively on the quality of alternatively certified rural teachers. Darling-Hammond, Wise, and Klein [6] found that alternative-route certified teachers were very unevenly prepared to teach with some program graduates doing quite well, while others lacked needed skills. In spite of possible limitations, alternative certification programs probably will continue to expand in the future and may provide an important way for prospective teachers in sparsely populated areas to become credentialed.

CAREER LADDERS

Alternate certification programs that quickly get prospective teachers into the classroom have blurred the distinction between student teachers and first-year teachers. Many states have designed tiered licensure systems that have a career continuum with teachers progressing from

Figure 3: Selected Minnesota Teacher Characteristics, Rural and Nonrural School Districts, 2001-2002 School Year.



“novice teacher” to “fully-certified teacher” to “master teacher.” Some states require school districts to have induction programs that are designed to provide novice teachers with support and mentoring from a master teacher. A goal of induction programs is to reduce the high turnover rate of new teachers. The mentoring teacher also has the opportunity to continue to learn new skills and grow as an educational professional [1]. An experienced teacher in a rural school who mentors a new teacher can provide training and support that will assist the new educator in becoming a highly skilled rural educator.

THE CASE OF MINNESOTA

The impact of teacher training and experience on student achievement was analyzed for both rural and nonrural Minnesota school districts to compare how teacher qualifications affected student performance. Minnesota was selected for this study because it has a large rural population with 21 percent of all students attending a rural school [12].

Minnesota has one of the most rigorous teacher licensure processes in the United States, but permits teachers without full certification to teach due to teacher shortages. In small rural schools many teachers teach courses in several subject areas

without full certification in all the subject fields. Only 15 newly certified urban teachers—and no rural teachers, were credentialed through alternative certification programs in Minnesota in 2001; however, teachers with waivers were widely used in both rural and urban school districts [17]. The term “waiver” within the context of this paper can be defined as an emergency permit or out-of-field authorization that permits a teacher without full certification to teach in a public school.

METHOD

This study analyzed whether student achievement, various student demographic characteristics, and

Figure 4: The Impact of Selected Demographic and Teacher Characteristics on Student Achievement on the Minnesota Basic Skills Test, 2002.

Characteristic	Student Achievement on the Minnesota Basic Skills Test		
	Math	Reading	Writing
<i>Demographic Characteristics:</i>			
Higher percentage of students receiving free/reduced lunch	↓	↓	↓
Higher percentage of students of color in district	↓	↓	↓
School district located in a rural area	↑	↑	- - - -
<i>Teacher Characteristics:</i>			
Higher average number of years of teacher experience in district	↓	↓	- - - -
Higher average salary of teachers in district	↑	↑	- - - -
Higher percentage of teachers in district with a masters degree	- - - -	- - - -	- - - -
Higher percentage of teachers in district without full licensure	- - - -	- - - -	- - - -

Key: ↑ = Statistically significant higher percentage of students pass test

↓ = Statistically significant lower percentage of students pass test

- - - - = Does not significantly affect student performance

various teacher characteristics differed between rural and nonrural school districts. The study also used regression analysis to examine how various teacher characteristics impacted student achievement for rural and nonrural school districts.

This study used student achievement and teacher characteristic data for all 331 Minnesota school districts with secondary students. Two hundred and eight of the districts were classified as rural, while 123 districts were nonrural. These data were obtained from the Minnesota Department of Education for the 2001-2002 school year. All of the data used were school and district-level data.

District-level data is an appropriate level of analysis for educational policy research because school boards and policymakers need district-level information about how alterable policy variables can transform education to improve student performance [10]. Most of the rural school districts in this study had only a single secondary school or had one middle school and one high school, so rural school-level data for a particular grade was often identical to district-level data.

For each school district, the results of the Minnesota Basic Skills Tests (MBST) were used as a measure of student achievement. The MBST are considered the exit examinations in the state with math, reading, and writing tests administered. The math and reading tests were administered to eighth grade students, while the writing test was given to students in tenth grade dur-

ing the 2001-02 school year. In Minnesota state-wide assessments were also administered to students in third and fifth grades during the 2001-2002 school year, but the results from those grades were not included in this study, because the MBST provides a better overall assessment of how the educational process in the various school districts impacts student learning than an elementary assessment.



RESULTS

Differences between various student and teacher characteristics in rural and nonrural school districts are discussed in this section. The impact of various teacher characteristics on student achievement is then analyzed.

The percentage of students who receive free/reduced price lunches is commonly used as a measure of poverty. Rural students were significantly more likely to live in poverty than their nonrural counterparts. Almost 34 percent of the students in the rural school districts were economically disadvantaged, as meas-

ured by qualifying for free/reduced lunches, while 21 percent of the students in the nonrural districts economically disadvantaged [b]. Ninety-one percent of both rural students and nonrural students were White, while the students of color were split between a number of racial and ethnic groups including Black, Asian, Native American, and Hispanic.

As shown in Figure 2, rural students did significantly less well in mathematics as measured by the MBST than their more urban counterparts. The mean pass rate in rural school districts was 75.4, while it was 77.7 in nonrural districts. More than 80 percent of both rural and nonrural students passed the reading test, while more than 92 percent of all students passed the writing test.

There were statistically significant differences between rural and nonrural school districts for all the teacher characteristics analyzed in this study (Figure 3). Teachers in rural schools had a mean of 15.4 years of experience, whereas their nonrural peers had 14.3 years of experience. The typical rural teacher earned about \$4,000 less per year than his/her nonrural counterpart. Even though rural teachers were more experienced, they were less likely to have received a master's degree. About 21 percent of rural teachers had masters' degrees while more than 38 percent of nonrural teachers had the degree. Nine percent of rural teachers were teaching out of their field of licensure or under an emergency permit, compared to 5.2 percent of the nonrural teachers.

Multiple regression was used to analyze the relative contribution of the four teacher characteristic variables to student achievement in math, reading and writing. Student demographic variables and a ruralness variable were also included to control for other factors that may have affected student achievement. As shown on Figure 4, passing rates on all three tests fell as the percentage of students qualifying for free/reduced lunch increased. The higher the percentage of students of color in a school, the lower the passing rate of students who passed the math, reading, and writing tests. Pupils in rural districts passed at a higher rate than nonrural districts [c].

As shown in Figure 4, teacher salary levels were positively related to student achievement on both the mathematics and reading tests. Surprisingly, a separate variable for teacher experience was negatively related to the percentage of students who passed the mathematics and reading tests. For example, for every additional year of experience, the percentage of students who passed the math test decreased by 0.46 percent [d].

The percentage of teachers not fully credentialed to teach all their courses and the percentage of teachers with masters degrees had little impact on student achievement on any of the tests. Overall student achievement on the writing test was very high, but none of the teacher variables had a significant effect on student achievement on the writing test.

POLICY IMPLICATIONS

This study provides evidence that various teacher characteristics can impact student achievement. States across the United States have begun to make changes in their teacher credentialing process to better prepare educators who know how to teach to standards, but these changes have often not considered the unique needs of rural schools. Three policy considerations will be discussed in detail below.

1. Permit rural schools to use teachers who are not fully credentialed. Even though rural teachers are less likely to be fully credentialed than their more urban counterparts, the use of teachers with waivers had almost no impact on student achievement. Ballou and Podgursky [2] assert that the high quality of the “social environment” of rural schools can compensate for the lack of teacher training. The requirement of the No Child Left Behind Act of 2001 that all teachers must be fully certified for all areas that they teach by 2006, may be placing an unnecessary burden on rural schools.

2. Provide professional development opportunities for rural teachers to ensure that both new and experienced teachers know how to use instructional strategies that promote student achievement. The average number of years of teacher experience in a school district had a statistically significant negative effect on student achievement on both the math and reading tests. Maybe less experienced teachers have more energy and enthusiasm so they are better able to provide instruction

that improves student performance. Perhaps, however, more experienced teachers have not kept their skills up to date so they do not know the most current techniques for increasing student achievement. An analogy could be drawn with the medical field, where the argument has been made that outcomes tend to be better when a patient has a younger doctor who knows the latest techniques (i.e., older physicians often do not keep up with current research) [7]. Further research is needed to determine why years of teacher experience had a negative impact on student achievement.

Rural school districts may need to provide teachers with additional professional development opportunities that will help them keep up with emerging knowledge about teaching and student learning. Specialized programs for rural educators are also needed that will provide educators with the content knowledge needed to effectively teach several subject areas. Some of these professional development opportunities may take the form of distance education programs that offer professional development and/or teacher credentialing while enhancing program accessibility for both prospective and practicing teachers in isolated rural areas. Innovative distance education could be provided in a variety of ways, including the use of Internet and web-based materials, interactive television, computer conferencing, and multi-media modules.

3. Review state and national teacher licensure standards to ensure that the standards require all teach-

ers, both rural and nonrural, to have the skills, knowledge, and dispositions needed to effectively teach the next generation of youth. Policy-makers in the past have often ignored the unique skills that rural teachers need to effectively teach students in sparsely populated areas. Many skills needed by rural educators, such as the ability to use experiential learning techniques and to differentiate instruction, are also skills that high-quality nonrural teachers should be able to use. Now is the time to review teacher licensure standards and certification processes to ensure that state policies are thoughtfully designed to ensure that teachers, both in rural areas and nonrural areas, are prepared to effectively teach all students.

ENDNOTES

- a. Additional information about INTASC can be found on the Council of Chief State School Officers (CCSSO) website: http://www.ccsso.org/projects/Interstate_New_Teacher_Assessment_and_Support_Consortium/. The National Council for Accreditation of Teacher Education website is at: <http://www.ncate.org>.
- b. The difference between the percentage of students in rural and nonrural school districts qualifying for free/reduced lunches was statistically significant at the $p < .01$ level.
- c. The percentage of students of color in a school district and the percentage of students qualify-

ing for free/reduced were both statistically significant at the $p < .01$ level on all three tests.

Ruralness was statistically significant at the $p < .05$ level on the math and reading tests.

- d. Years of teacher experience was statistically significant at the $p < .01$ level for both the reading and math tests. Teacher salary was statistically significant at the $p < .01$ level on the reading test and the $p < .05$ level on the math test.

REFERENCES

1. Berliner, D.C. and M. Scherer. 2001. "Improving the Quality of the Teaching Force." *Educational Leadership* 58(8):6-10.
2. Ballou, D. and M. Podgursky. 1998. "Rural Teachers and Schools." Pp. 3-21 in *Rural Education and Training in the New Economy: The Myth of the Rural Skills Gap*, edited by R.M. Gibbs, P.L. Swaim, and R. Teixeira, Ames IA: Iowa State University Press.
3. Carlsen, W.S. and D.H. Monk. 1992. "Differences between Rural and Nonrural Secondary Science Teachers: Evidence from the Longitudinal Study of American Youth." *Journal of Research in Rural Education* 8(2):1-10.
4. Council of Chief State School Officers. 2003. *Interstate New Teacher Assessment and Support Consortium*. Retrieved August 22, 2003, from http://www.ccsso.org/projects/Interstate_New_Teacher_Assessment_and_Support_Consortium/.
5. Council of Chief State School Officers. 2000. *Key State Education Policies on K-12 Education: 2000*. Washington, D.C.: Author.
6. Darling-Hammond, L., E. Wise, and S.P. Klein. 1995. *A License to Teach: Building a Profession for 21st Century Schools*. Boulder CO: Westview Press.
7. Helliker, K. 2002. "Taking Control—How to Pick a Doctor: Here's Rule No. 1—The Younger the Better." *Wall Street Journal*, P. R9. (November 11).
8. Huang, S., Y. Yi, and K. Haycock. 2002. *Interpret with Caution: The First State Title II Reports on the Quality of Teacher Preparation*. Washington, D.C.: Education Trust. Retrieved July 12, 2002, from <http://www.edtrust.org>.
9. Ludlow, B.L. 1998. "Preparing Special Education Personnel for Rural Schools: Current Practices and Future Direction." *Journal of Research in Rural Education* 14(2):57-75.
10. Moreau, R. 1987. "District Size, Teacher Qualifications and Pupil Performance in Maine School Districts." *Research in Rural Education*, 4(2): 95-99.
11. Nagel, G. and P. Peterson. 2001. "Why Competency Tests Miss the Mark." *Educational Leadership* 58(8):46-48.
12. National Center for Education Statistics. 2000. *Common Core of Data, 1997-98*. Washington,

- D.C.: Author.
13. National Council for Accreditation of Teacher Education. 2003. NCATE. Retrieved August 22, 2003, from <http://www.ncate.org/>.
14. Tom, A.R. 1997. *Redesigning Teacher Education*. Albany NY: State University of New York Press.
15. U.S. Department of Education. 2002. *Meeting the Highly Qualified Teachers Challenge: The Secretary's Annual Report on Teacher Quality*. Washington, D.C.: Office of Postsecondary Education, Office of Policy Planning and Innovation. Retrieved August 21, 2002, from <http://www.title2.org/SecReptHTML/index.html>.
16. U.S. Department of Education. 2002. *No Child Left Behind*. Retrieved February 3, 2003, from <http://www.ed.gov/offices/OESE/esea>.
17. U.S. Department of Education. 2002. *Title II*. Retrieved May 25, 2003, from <http://www.title2.org>.

ERS offers *Rural Education at a Glance*

Rural Education At A Glance

Rural Americans today have attained historically high levels of education. In 2000, nearly one in six rural adults had a 4-year college degree, about twice the share of a generation ago. (Over 40 percent have completed at least 1 year of college.) However, rural education still lags urban levels, and large regional and racial differences persist. The South, for instance, with a third of the Nation's rural population, is home to half of all rural adults who have not completed high school. Rural Hispanics and Blacks are half as likely as non-Hispanic Whites to complete college and at least twice as likely to lack a high school diploma.

The skill requirements of rural jobs continue to rise along with education levels. Although less educated rural adults fared well in the 1990s due to the robust economic expansion, their prospects are uncertain. Many rural jobs historically held by workers with limited education have been lost to changes in production technology, overseas competition, and changing consumer demand. Prospective employers are increasingly attracted to areas offering a concentration of well-educated and skilled workers, just as better educated youth and adults are still drawn to places—often in cities—that offer better jobs with higher salaries. Although investments in education are not a panacea for places struggling to attract jobs and residents, they can be an important part of a broader economic development strategy.

USDA's Economic Research Service (ERS) analyzes the ongoing changes in rural areas and assesses Federal, State, and local strategies to enhance economic opportunity and quality of life for rural Americans. This publication provides the latest information on the education-related characteristics of rural workers (age 25 and older) and counties.

High school completion rates, 2000 (adults 25 and older)

92% or more (blue)
 80-91% (dark blue)
 70-79% (medium blue)
 60-69% (light blue)
 50-59% (yellow)
 40-49% (orange)
 30-39% (red)
 20-29% (dark red)
 10-19% (brown)
 0-9% (black)

United States Department of Agriculture
Economic Research Service

Rural Development Research Report Number 98
November 2003

This report from the Economic Research Service provides a snapshot of the education characteristics of rural America based on the 2000 Census and other federal data sources.

Rural Education at a Glance contains the latest information on rural-urban education trends in the 1990s, racial and ethnic differences in educational attainment, the effect of education on rural employment and earnings, and the persistence of low-education regions in the rural South and Southwest.

Download the report at:
<http://www.ers.usda.gov/publications/rdr98/> or request a free printed copy by sending an email to rgibbs@ers.usda.gov.

How do Rural Schools Fare Under a High-Stakes Testing Regime?

Frank D. Beck

Illinois State University

Some argue that rural schools are better than their more urban counterparts, others argue the opposite. On the negative side, scholars point to the disadvantage suffered by rural places, including higher levels of inequality, physical and social isolation, residential turnover, limited economic opportunity, and fewer educational resources [3, 9, 19, 20, 26]. More positively, it is claimed that the small size, educational culture, level of training and experience of teachers, and the safe and orderly climate of rural schools are to their advantage [4, 11, 12, 13, 24]. The debate about rural schools' performance is heightened by state and national use of standardized tests to promote accountability at the teacher, school, district, and state levels. Under a regime of high stakes testing as present in Illinois, other states, and as proffered by *No Child Left Behind*, it is important to think about how schools and their students might be affected by this trend toward education by accountability. This article will pay particular attention to why rural schools may not perform well on standardized tests and, in turn, how an accountability system based on those same tests

poses a disadvantage to rural schools. The article will also discuss the faults of high stakes testing overall.

Earlier studies show a strong association of school level outcomes with the socioeconomic characteristics of schools [16]. Factors beyond individual school or district control, such as the percent of students who are poor, the percent who are black, and the residential mobility of the students' families explain up to 80 percent of the variability in average test scores among schools. In this case, is it really fair to hold teachers and administrators responsible for aspects of students lives they cannot change? Moreover, is a test that provides only a one-time snap shot adequate for measuring school performance? Yet there is a reason to believe that schools end up sanctioned or rewarded more for their wealth or lack thereof than they are by actual student-learning, improvement over time, or performance indicators that control for the socioeconomic characteristics of their students.

THE CASE OF ILLINOIS

The state began testing reading, mathematics, science, social studies,

and writing in 1993 under the Illinois Goals Assessment Program (IGAP). The Illinois Learning Standards Achievement Test (ISAT) is the revised version of the IGAP, matched to the newly adopted Illinois Learning Standards. The current ISAT contains more complex or difficult subject matter—a greater challenge for students and teachers, especially if accompanied by high-stakes consequences.

Illinois places schools on an Academic Early Warning List if less than 50 percent of their students meet or exceed state standards on the ISAT for two years in a row. From that point, if a school does not make adequate yearly progress, they earn a space on the Academic Watch List. The latter is accompanied by increased state oversight including "...authority to approve or disapprove all actions of the board of education that pertain to implementation of the revised School Improvement Plan (SIP)." Though created locally, the SIP is "...submitted to the State Superintendent for approval" [8]. High performing schools (i.e., exceeding state standards) will receive relief from selected mandates and become eligible for

other grant monies. The State Board also publicly recognizes such schools with reports to the media and postings on the State Board of Education’s website.

Employing the 2000 data for all Illinois junior high schools, Figure 1 clearly shows that Chicago schools fare poorly under this designation system. Ninety percent of its school were eligible for the warning list that year. Schools in the metropolitan areas other than Chicago or in the suburbs are more likely to meet or exceed standards than not. Fully three-fourths of suburban junior high schools in the “collar counties” outside Chicago are safe from sanction and earning accolades. Sixty percent of the schools in non-metro areas but proximate to one are also safe. However, only 46.3 percent of

the 158 such schools in rural areas that are farther from a metro county are safe. In 2000, 53.9 percent of these schools were eligible for the Academic Early Warning List, the first step toward the watch list, sanctions, and increased state control. Why is it that outside Chicago the most rural and isolated places are struggling the most to reach these standards?

RACE AND CLASS CORRELATES

This report is in no way implying that rural or inner-city schools are failing the ISAT of their own accord. There are reasons why schools “succeed” or “fail,” reasons beyond the control of teachers and administrators. Though school designations should be free of race and class bias [6], the Illinois system,

whether intentional or not, acts to reward some schools and punish others primarily on the basis of their racial and socioeconomic composition. The designation system in Illinois punishes poor, inner-city, minority schools as well as poor rural schools while rewarding rich, white, suburban schools. Designations also label as “bad teachers” many dedicated professionals who happen to, or even enjoy, working in contexts that make it exceedingly difficult to reach the state defined “meets or exceeds” category. Following is an examination of why this is so.

First, Table 1 provides some statistics for schools in “downstate” Illinois (outside the Chicago metro area) as they are designated by the state system. The designations serve

Figure 1: Percent of Schools by Designation Category and Rural-Urban Location

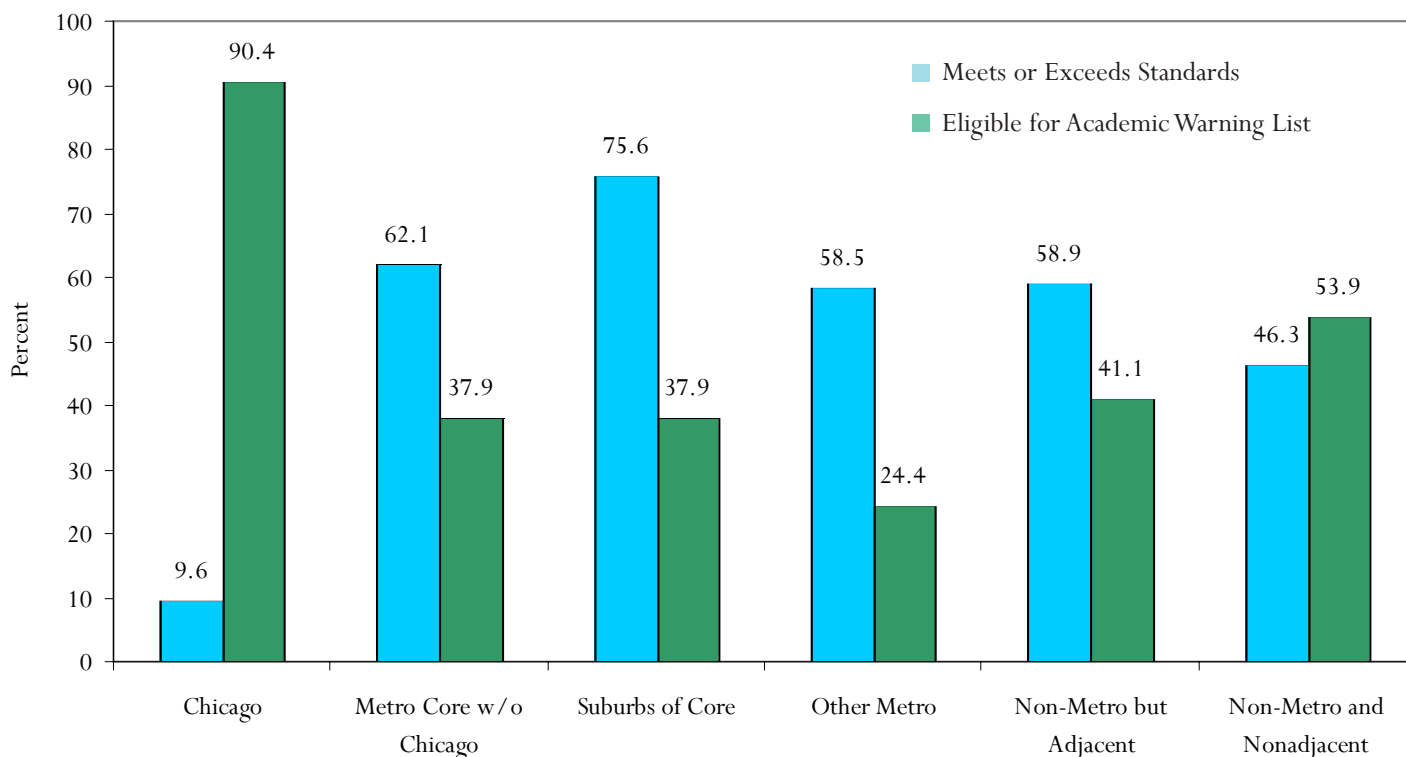
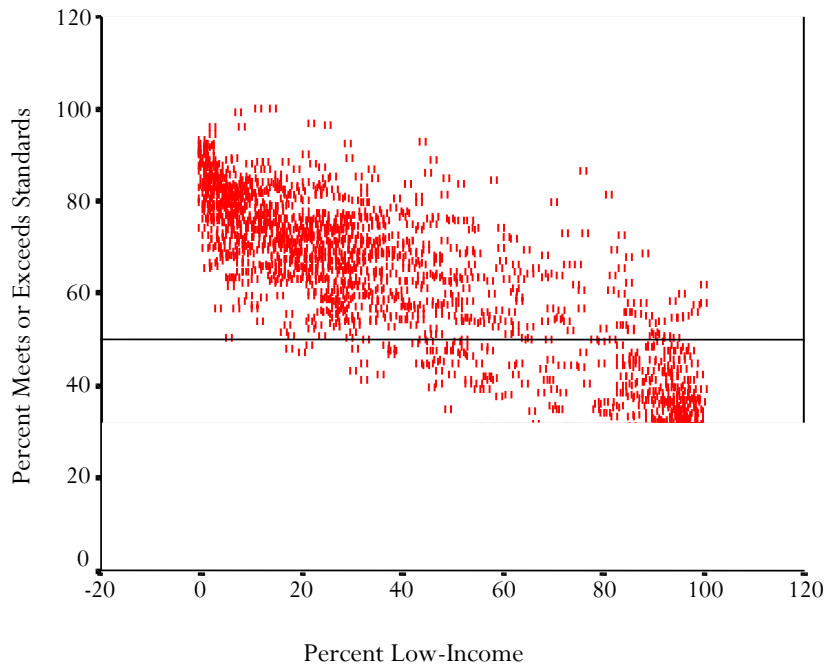


Figure 2: Relationship between Poverty and School Performance on ISAT



as little more than proxies for the racial and socioeconomic composition of the schools. On average, 22.5 percent of the students were poor in schools that met or exceeded standards compared to 61.3 percent for the schools eligible for the Academic Early Warning List. Similarly, on average, 4.1 percent of the students in schools in the meets or exceeds category were black, compared to 39.2 percent for the academic warning category. Similar patterns play

out for percent Latino, the mobility or turnover rate of the student body, and percent with limited English proficiency. Finally, and maybe most importantly, schools in the upper designation draw on tax bases with assessed property values more than 1.5 times those of schools in the lower category. It should be noted that while these values are for the rural and partially urban portions of the state, the disparities (i.e., inequities) are vastly greater

between Chicago and its suburbs. The further evidence provided by Figure 2 is quite compelling. The association between percent of the students who are poor and school performance is strongly negative. As poverty rates increase school test performance declines. The horizontal line is the 50 percent mark for deciding if a school could be placed on the warning list or not. For the state as a whole, fully 73 percent of the difference in school performance is due to the poverty rate alone. The sloped line indicates the strong inverse relationship—as poverty rates increase, school test scores drop. While this association is strongest in Chicago and other metro areas of the state, it is strong for rural Illinois as well—double that of the suburbs. Other variables (i.e., percent minority, the mobility rate, and tax base) are also highly related to performance. Further, when all these factors are held constant, rural schools perform better than suburban and urban schools. That is, if you compare rural, suburban, and urban schools with the same income level and property values, rural schools would have the

Table 1. School/Community Characteristics by Designation Ranks for Downstate Illinois by Percentage Meeting or Exceeding State Standards.

Label	% Low Income	% Black	% Turnover	% Latino	EAVPP
Meets or Exceeds (>50%)	22.5	4.1	13.2	2.9	\$99,344
Eligible for Academic Warning List (<50%)	61.3	39.2	26.4	16.9	\$62,918

Note:
 ISAT = Illinois Standards Achievement Test
 LEP = Limited English proficient.
 EAVPP = Equalized Assessed Evaluation of Property

highest test scores. The isolated, smaller, schools nowhere near metro areas would be outperforming all other categories.

Given the relationship between socioeconomic characteristics and school performance, one can only wonder as to why Illinois and the federal government are holding schools and districts accountable for test scores when the driving force for performance is beyond their control. The next section describes consequences of Illinois' system that other states and the rural communities within them should note.

THE IMPACT OF HIGH-STAKES TESTING

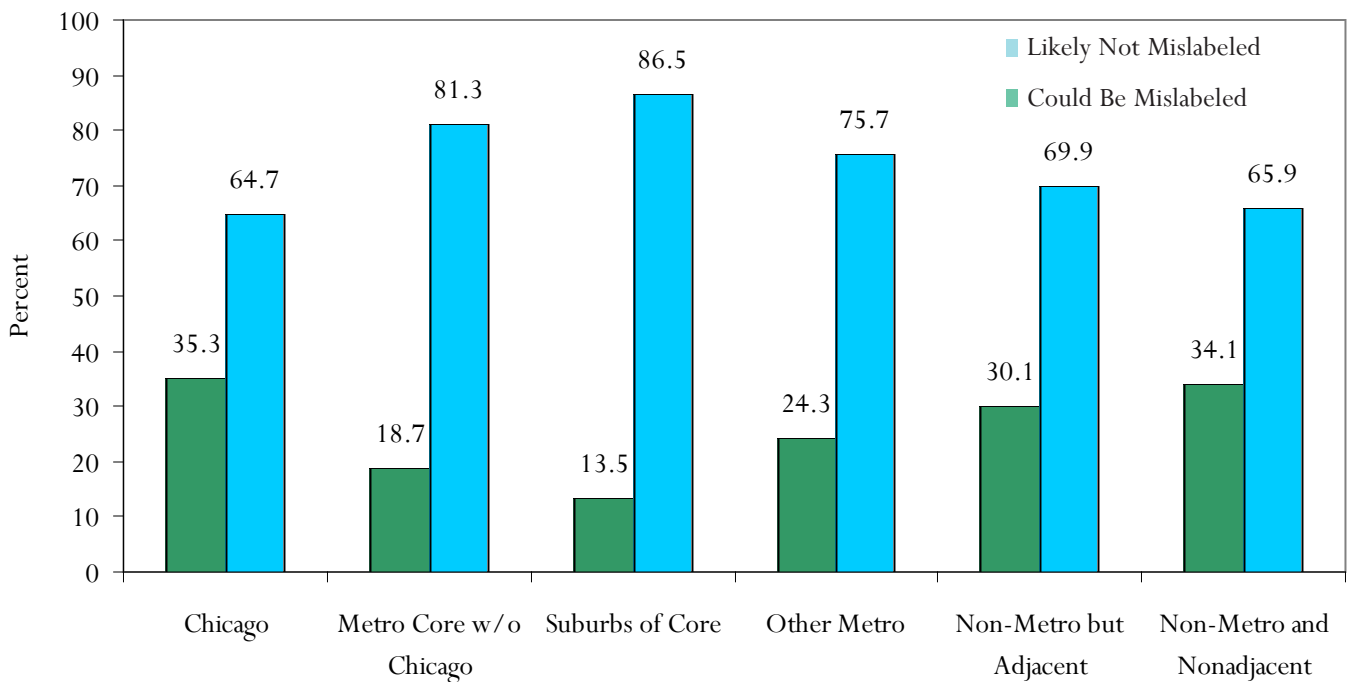
As Rau, Shelley and Beck [16] and Baker [1] so adeptly put it, schools are to serve multiple functions, only one of which is to prepare young people for productive

careers or, further, post-secondary education. Other functions include the provision of "...an emotionally secure and healthy environment and a sense of belonging..." [16]. Schools should become second "homes," comfortable places to learn. Additionally, schools are to educate future citizens with all the critical thinking, writing, public speaking, and argumentation skills necessary for active public life. However, even if we think like the Illinois Board of Education and the framers of *No Child Left Behind* that tend to view schools as firms producing goods consumable by and of benefit to society, the standard test and designation categories employed by Illinois and relied upon by *No Child Left Behind* may have difficulty attaining that goal. The policy will encourage many schools, particularly low-income and minority schools to

overemphasize testing. As evidenced by Rau, Shelley, and Beck [16], if high-stakes testing continues:

- Schools will place too much importance on tests. Many elementary students become extremely anxious while taking exams [5,10,15,23,25] and schools will consider retention of kindergarteners until they can test well. [14,23,18].
- After testing, teachers find it hard to refocus learning separate from the rote memorization engaged in for the test [22]. For those states in which testing occurs at the end of the year (as in Illinois), teachers lose instruction time, thus increasing the summer setback [17]. This is particularly problematic for poor and minority students who suffer most from the summer vacation and need

Figure 3: Percent of Schools that May Be Mislabeled by Rural-Urban Location



to rehash covered material. Teaching to the test becomes highly probable and problematic [7,10,21,23].

- Other stakeholders with interest in test score outcomes (e.g., realtors and homeowners with no school age children) will enter the discussion of school improvement, again with more interest in test score outcomes than true education and learning.
- Teachers will be judged more on test results than on student learning. Good teachers and good students in failing schools will be labeled as incompetent. The system co-opts the work of educators across the state who, over two years, developed the Illinois Learning Standards the ISAT is supposed to assess.

RANDOM VARIATION AWARDS

Assuming the tests do not adversely penalize poor schools, assuming they do not adversely affect the multi-faceted educational mission of schools, and assuming none of the negative outcomes bulleted above occur, there is still one more problem—mislabeling. Using the one time snap shot of school performance that Illinois does could lead to schools that are actually succeeding being labeled as “in need of assistance” and vice versa. Since tests in each subject are taken at one time and measured by one assessment technique (i.e., bubbling in answers on an objective test), there is much variation within a school, and small-

er, more rural schools are likely to have greater variation around their average.

Using the same data which contains information on variance within schools, confidence intervals can be constructed around each school’s score; it can then be determined if the range contained the 50 percent cut-off point for the lower category. Figure 3, therefore, presents the likelihood that schools are being labeled correctly or possibly being mislabeled by the 2000 ISAT and accompanying designation system. To interpret, 64.7 percent of Chicago’s schools are likely being labeled as “Meets or Exceeds” or eligible for the Academic Early Warning List correctly. The remainder, 35.3 percent, are placed in a category, yet their score is close enough to the magic 50 percent cut-off point, or their students are quite variable in test taking ability, such that we cannot be 95 percent confident that they are categorized correctly. This means that a significant portion of Chicago’s schools are either being sanctioned when they should not be or awarded the “meets or exceeds” label when they could be on the warning list.

Those schools in the suburban areas around Chicago, outside Cook County, are the most likely to be labeled correctly. Remember that these are the same wealthy, largely white schools that were less likely to be considered for the warning list, and mostly on the basis of their wealth. So, they benefit on two counts—rewarded for their race and class composition and in such a way

that few of their schools are near the cut-off and likely to be mislabeled. As we move away from the suburbs or smaller metro areas, the percent of schools that might be mislabeled increases. Thirty-four percent of the schools in non-metro areas that are not adjacent to a metro area (i.e., the most isolated places) may be mislabeled. Further, these are the same schools that were more likely than not to be placed on the warning list to begin with (53.9 percent v. 46.3 percent, respectively; see Figure 1). Of those non-metro and non-adjacent schools on the warning list (81 schools), we can only be confident that 41 percent (or 33 of them) are labeled correctly. Forty-eight schools in this circumstance are labeled as “failing” when this might not be true. On a number of accounts, the designation system adversely affects rural schools. Also see Coladarci’s work on NCLB [2] for another example of how confidence intervals indicate the unreliable nature of high-stakes testing and commensurate labels.

REMEDIES

To address the concerns raised above, the following changes to Illinois’ testing and school designation system are proposed:

- Do not judge school performance on tests taken for a single year. Assess gains over time using trend analysis or moving averages. For example, Kentucky is often pointed to as a state that examines the progress of schools overtime, adopting a 20 year window for

schools to reach proficiency.

- Do not place high-stakes designation systems on top of assessments of school performance; this hurts the multi-faceted nature of education and even jeopardizes the school as firm mentality currently governing educational oversight.
- Take stock of the socioeconomic characteristics of a school's students, families, neighborhoods, and communities in the assessment of performance. Reward schools on the basis of performance instead of wealth and composition; to do otherwise raises the question of whether the designation system is in violation of civil rights law.
- Be aware that labels can be real in their consequences. The definition of schools as failing may be erroneous yet a self-fulfilling prophecy that is only true in its consequences.

REFERENCES

1. Baker, P.J. 1991. "Metaphors of Mindful Engagement and a Vision of Better Schools." *Educational Leadership* 48:32-35.
2. Coladarci, T. 2003. *Gallup Goes to School: The Importance of Confidence Intervals for Evaluating 'Adequate Yearly Progress' in Small Schools*. Washington, D.C.: Rural School and Community Trust. Retrieved from <http://www.ruraledu.org>.
3. College Entrance Examination Board. 1995. *Profile of SAT and Achievement Test Takers, Various Years*. Washington, DC: College Entrance Examination Board.
4. Fan, X., and M. J. Chen. 1999. "Academic Achievement of Rural School Students: A Multi-year Comparison with Their Peers in Suburban and Urban Schools." *Journal of Research in Rural Education*. 15(1): 31-46.
5. Fleege, P., R. Charlesworth, D. C. Burts, and C. Hart. 1992. "Stress Begins in Kindergarten: A Look at Behavior During Standardized Testing." *Journal of Research in Childhood Education* 7:20-26.
6. Gruskey, T., and E. Kifer. 1990. "Ranking School Districts on the Basis of Statewide Test Results: Is it Meaningful or Misleading?" *Educational Measurement: Issues and Practice* 9(9):11-16.
7. Herman, J.L. and S. Golan. 1993. "The Effects of Standardized Testing on Teaching and Schools." *Educational Measurement: Issues and Practice* 12:20-25, 41-42.
8. Illinois State Board of Education. Retrieved from <http://www.isbe.net/news/>.
9. Israel, G., L. Beaulieu, and G. Hartless. 2001. "The Influence of Family and Community Social Capital on Educational Achievement." *Rural Sociology* 66(1):43-68.
10. Jones, G., B. Jones, B. Hardin, L. Chapman, T. Yarbough, and M. Davis. 1999. "The Impact of High-stakes Testing on Teachers and Students in North Carolina." *Phi Delta Kappan*, 81(3), 199-203.
11. Langdon, P. 2000. "Students Do Better in Small Schools: So Why Have We Been Making Schools Bigger?" *The American Enterprise* 11(1):22-25.
12. Lee, J. 2001. "Interstate Variations in Rural Student Achievement and Schooling Conditions." (ERIC Document Reproduction Service No. ED 1.331/2: EDO-RC-01-5).
13. Lee, J., and W.G. McIntire. 1999. "Understanding Rural Student Achievement: Identifying Instructional and Organizational Differences Between Rural and Non-rural Schools." Paper presented at the annual meeting of the American Educational Research Association (AERA), Montreal, Canada. (ERIC Document Reproduction Service No. ED 430 755).
14. Madaus, G.F. and M. Clarke. 1998. *The Adverse Impact of High-Stakes Testing on Minority Students: Evidence for 100 Years of Test Data*. Boston: National Board of Educational Testing and Public Policy.
15. Nolen, S.B., T.M. Malady, and N.S. Hass. 1992. "Uses and Abuses of Achievement Test Scores." *Educational Measurement: Issues and Practice*. 11: 9-15.
16. Rau, W.C., N.M. Shelley, and F.D. Beck. 2001. "The Dark Engine of Illinois Education: A Sociological Critique of a "Well-crafted (Testing) Machine." *Educational Policy* 15(3):404 - 431.

17. Riordan, C. 1997. *Equality and Achievement: An Introduction to the Sociology of Education*. New York: Longman.
18. Roderick, M., J. Nagaoka, J. Bacon, and J.Q. Easton. 2000. *Update: Ending Social Promotion, Passing, Retention, and Achievement Trends Among Promoted and Retained Students, 1995-1999*. Chicago: Consortium on Chicago School Research.
19. Roscigno, V.J., and M.L. Crowley. 2001. "Rurality, Institutional Disadvantage and Achievement/Attainment." *Rural Sociology* 66(3):268-293.
20. Schafft, K.A. 2003. "Low Income Student Transiency and its Effects on Schools and School Districts in Upstate New York." Paper presented at conference on *Promoting the Economic and Social Vitality of Rural America: The Role of Education*. New Orleans, April 14-15.
21. Sheppard, L.A. 1991. "Will National Tests Improve Student Learning?" *Phi Delta Kappan* 72(3):232-238.
22. Smith, B. A. 1998. *It's About Time: Opportunities to Learn in Chicago's Elementary Schools*. Chicago: Consortium on Chicago School Research.
23. Smith, M.L. 1991. "Unintended Consequences of External Testing in Elementary Schools." *Educational Measurement: Issues and Practice* 10:7-11.
24. Stern, J.D. (ed.). 1994. *The Condition of Education in Rural Schools*. Washington, D.C.: U.S. Department of Education, Office of Educational Research and Improvement, (ERIC Document Reproduction Service No. ED 371 935).
25. Turner, B., D.C. Beidel, S. Hughes, and M.W. Turner. 1993. "Test Anxiety in African-American School Children." *School Psychology Quarterly* 8:140-152.
26. U.S. Department of Education. 1992. *National Assessment of Educational Progress*. Washington, D.C.: National Center for Educational Statistics.

The Role of Education: Promoting the Economic and Social Vitality of Rural America is
a publication of the Southern Rural Development Center, P.O. Box 9656,
Mississippi State, MS 39762.



SRDC Editorial and Design Staff

Emily E. Shaw, *Program Manager*

Jeremy S. Robbins, *Editorial Assistant*

Special thanks to:

Michelle Yankee

Haley Bragg

Michelle Winchester

<http://srdc.msstate.edu>

SOUTHERN
RURAL
DEVELOPMENT
CENTER

