Demographic Change and the Human Capital Endowment of Rural America

(Issue Brief)

Ruy A. Teixeira

Agriculture and Rural Economy Division
Economic Research Service
1301 NY Avenue, Washington, DC 20005
U.S. Department of Agriculture

May, 1991

Prepared for the conference on "Population Change and the Future of Rural America", Wye Plantation, Maryland, May 30-June 1, 1991.

Demographic Change and the Human Capital Endowment of Rural America

This brief provides an overview of key facts and issues pertaining to demographic change and human capital levels in rural America. No attempt is made to be comprehensive, as the document is intended to stimulate discussion on human capital-related issues, rather than settle them. I divide my overview into four sections: (1) basic facts on human capital levels in rural America and how these levels have been changing over time; (2) the relationship of demographic trends to human capital levels; (3) the relationship of human capital levels to the development prospects of rural areas; and (4) key research issues for the 1990's that emerge from (1)-(3).

What is the Human Capital Endowment of Rural America and How Has It Been Changing over Time?

Human capital levels are generally lower in rural (nonmetro)[1] America than in urban (metro) America. Just how much lower depends on what indicator you look at.

* Differences by median educational attainment level are not large. In 1980, the median education level (population 25 and over) in nonmetro areas was 12.3 years, compared to 12.6 in metro areas (McGranahan, Hession, Hines and Jordan, 1986).

* Differences are somewhat larger when you look at average education levels. In 1980, the average nonmetro education level (population 18-64) was 12.2 years, compared to 12.8 years for metro (McGranahan and Ghelfi, 1991).

* Differences seem largest when looking at categories of educational attainment. In 1980, only 59.5 percent of the nonmetro population (25 and over) had completed high school, compared to 69.1 percent in metro areas.

---

[1] The terms "rural" and "nonmetro", as well as "urban" and "metro", will be used interchangeably.

Similarly, just 11.5 percent had completed college in nonmetro areas, compared to 18 percent in metro areas (McGranahan, et. al., 1986).

Of course, educational attainment levels are just one way of measuring human capital levels--albeit, perhaps the best available way and certainly the easiest. But what do these educational attainment levels really represent in terms of skills acquired? By such a measure, rural human capital levels also appear to lag behind, though the extent of this gap is difficult to guage.

* Data from the National Assessment of Educational Progress (NAEP), show "extreme rural" achievement levels in math and reading lagging the national average and far below levels in "advantaged metropolitan" areas (Snyder, 1987). However, the problematic nature of the geographical categories used in reporting NAEP results--the categories don't even begin to approximate the official definitions of urban/rural or metro/nonmetro--means we must be very cautious indeed in interpreting these figures.

In any event, current levels of rural human capital certainly represent dramatic changes from the past. In fact, by some measures, there has been an astounding convergence of human capital levels between metro and nonmetro areas.

* In 1960, median rural educational attainment (population 25 and over) was only 9.3 years compared to 11.1 in urban areas. The corresponding figures in 1970 were 11.2 and 12.2 and, in 1980, 12.3 and 12.6 (McGranahan et. al., 1986)

But, again, the extent of convergence looks different when you look at different measures. This is most noticeable when looking at categories of educational attainment (data below from McGranahan, et. al., 1986).

* In 1960, about 34.5 percent of the rural population (25 and over) had graduated from high school, compared to 43.7 percent in urban areas, a difference of about 9 percent points. The corresponding figures for 1970 were 45 percent and 55 percent (10 point difference) and, for 1980, 59.5 percent and

69.1 percent (again, 10 point difference). So the gap in high school graduation rates has remained about the same.

* The gap has even widened in terms of college graduation rates. In 1960, just 5.3 percent of the rural population had graduated from college, compared to 8.6 percent in urban areas (a 3 point gap). In 1970, the figures were 7.4 percent rural and 11.9 percent urban (up to a 5 point gap) and, in 1980, 11.5 percent rural and 18 percent urban (increasing the gap to almost 7 points).

Still, whatever the verdict on convergence, the fact remains that levels of human capital in rural America are much, much higher than they were several decades ago--as indeed they are all over the United States. That said, it is important to note that rates of growth in educational attainment levels slowed down in the 1980's and more so in nonmetro than in metro areas (data below from McGranahan and Ghelfi, 1991).

* Nationally, average education levels of the labor force (18-64) increased 5 percent in the 1970s, but only 2.2 percent in the 1980s (through 1988).

* And, for young adults (25-34) in the labor force, average education levels actually dropped in the 1980s by .6 percent, compared to an increase of 6.4 percent in the 1970s. Moreover, in nonmetro areas this drop was sharper (1.3 percent) than in metro areas (.5 percent).

* This has contributed to relatively slower overall growth in average education levels (18-64) in nonmetro areas in the 1980's (2.3 percent compared to 2.9 percent in metro areas). In turn, this has slightly widened the gap in average education levels between nonmetro and metro areas (to .7 years, up by .1 years).

* Metro/nonmetro differences in growth rates during the 1980's seem largest when looking at educational categories. For example, college graduates (post graduates excluded) increased by 58.6 percent in metro areas in the 1980's, but only by 22.6 percent in nonmetro areas. This widened the gap in college graduation rates to about 9 percentage points between urban and rural areas (up 2 points).

What is the Relationship of Demographic Trends to Human Capital Levels in Rural America?

As the large baby boom cohorts moved into adulthood, bringing with them much higher levels of educational attainment than previous cohorts, levels of human capital in rural areas rose dramatically. The results of these changes have been summarized above.

What other demographic changes are relevant here? First, of course, the baby boom has now grown up and the following, smaller cohorts are not acquiring as much education as their older counterparts. The net result is a slowdown in the rate of growth of education levels--though average levels will continue to rise for the time being due to the relatively low education levels of those dying and/or leaving the labor force. This is a national trend, affecting both rural and urban areas.

But rural areas seem particularly disadvantaged by trends in the size and age structure of the population. First, nonmetro areas are experiencing substantially lower overall population growth.

* In the 1970's, rural population growth outpaced urban growth (13.5 per thousand per year vs. 10.1). In the 1980-85 period, the situation turned around: urban areas grew faster (11.5 vs. 7.4 for rural areas) (Brown, 1989).

* But the slowdown in nonmetro population growth may have bottomed out in 1986, at .15 percent per year. By 1988, nonmetro population growth rates had edged back up to .48 percent per year. Still, these rates are far below those in metro areas, where rates of increase are now shored up by higher birth rates and lower death rates than nonmetro areas. (Beale and Fuguitt, 1990).

Second, the age structure of nonmetro areas tends to be weighted away from adults in the 20-44 age group. This is a disadvantage since this is the prime working age group and therefore critical to labor force productivity.

* In 1980, 45.6 percent of the labor force (16 and over) in rural areas were 20-

44, compared to 51.9 percent in urban areas. In addition, 17.6 percent of the rural labor force was 65 or older, compared to 14.2 percent in urban areas (Swanson and Butler, 1988).

But, most clearly salient to human capital levels, and not unrelated to the trends described above, are migration patterns. As is well-known, rural areas experienced fairly large net population gains from migration in the 1970's (Fuguitt, Brown and Beale, 1989). Not only that, data from the 1975-78 period suggest these net gains enhanced human capital levels, since net migration was highest among those with some college and lowest among high school dropouts (McGranahan and Ghelfi, 1991). But this situation reversed itself in the 1980's.

* Starting in 1982, rural areas began experiencing net migration losses, reaching the level of 632,000 in the 1985-86 period (Brown, 1989)..

* Net migration rates in 1985-86 were highest among young adults, with the highest rates among those 20-24 (5.54 percent) (Swanson and Butler, 1988).

* There was improvement later in the decade, however, so that net losses for the 1980-88 period were only 22,000 people (Beale and Fuguitt, 1990).

More important than the relatively trivial net population loss was the educational levels of those who left for metro areas. In contrast to the late 1970's, migration of the late 1980's was draining the "best and the brightest" out of rural areas (data below from McGranahan and Ghelfi, 1991).

* In the 1986-89 period, the loss of the college-educated population in nonmetro areas averaged 2 percent per year. This compares to a loss of .9 percent per year for those with some college, a loss of .3 percent per year for high school graduates and a net gain of .2 percent per year for high school dropouts.

* While it is difficult to assess the impact of this "brain drain" on rural areas, if

these education-specific migration rates obtained in just 5 of the 8 years between 1980 and 1988, this would be enough, in and of itself, to account for slower growth in average education levels in rural areas.

Why have the highly educated been leaving rural areas? The answer here is probably quite simple: they get paid more in metro areas. Earnings models show the following (data below from McGranahan and Ghelfi, 1991).

* In 1979, men aged 25-34 earned about 10 percent more in metro than in nonmetro areas, regardless of educational level. By 1987, this gap had grown to almost 20 percent for high school graduates and over 30 percent for those with education beyond college.

* Earnings for highly educated workers actually fell in rural areas during the 1980's (though they fell farther for less educated workers). But, in urban areas, earnings of the highly-educated made positive gains during this period.

How Important Are Human Capital Levels to Rural Areas?

Obviously, human capital levels are of some importance to rural America. But how much importance? This is not clear, despite the claims of some who see higher rural educational levels as a panacea for rural problems.

In fact, there are a number of grounds for questioning the efficacy of more education as a strategy for rural development. To begin with, rural areas, as outlined in the beginning of this paper, have upgraded human capital levels dramatically from their very low levels of 30 years ago (when the median rural resident had only a 9th grade education). But the 1980's have seen a troubling divergence of economic outcomes between metro and nonmetro areas, despite this enriched stock of rural human capital. This divergence includes slower employment growth, higher

unemployment, relative and absolute earnings deterioration, higher levels of underemployment, relative decline in nonmetro per capita income and higher poverty rates (Lichter, 1991).

Can all this really be due to the fact that, despite dramatic growth in absolute terms, rural educational levels still lag urban levels? This seems implausible given other indicators like the relative decline in nonmetro returns to education and the outmigration of a substantial percentage of the better educated nonmetro population to metro areas. Such indicators speak to a relative lack of demand for highly educated workers in rural areas in the 1980's.

In fact, skill demand was quite weak in rural areas in the 1980's, both relative to urban areas and relative to nonmetro trends in the 1970's. This was true no matter what measure of job skill requirements was used (i.e., educational levels of job incumbents or job skill ratings taken from the Dictionary of Occupational Titles (DOT)) (data below from Teixeira and Mishel, forthcoming).

* In the 1970s, the decade of the "rural turnaround", rural growth rates in skill requirements of jobs were very close to those in urban areas. In fact, in some cases the skill growth rates in rural areas are even a little bit higher. For example, verbal aptitude and general educational development (GED)--both are DOT measures--grew at ten year rates of, respectively, 2.31 percent and 2.26 percent in rural areas, compared to 1.90 and 1.93 percent in urban areas. Similarly, average years of education required grew at a ten year rate of 1.56 percent in rural areas in the 1970s, compared to 1.22 percent growth in urban areas.

* In the 1980's, rural areas experienced a tremendous slowdown in skill level growth--rates only about one-third of those in the previous decade--in contrast to urban areas where skill growth slowed down only slightly. For example, growth in handling data skills (DOT measure) in rural areas fell from a ten year rate of 3.70 percent in the 1970s to 1.17 percent in the 1980s, verbal aptitude growth from 2.31 percent to .86 percent and GED growth from 2.26 percent to

just .76 percent. For these same indicators, the skill growth rates in urban areas declined only slightly between the two decades: from 4.01 percent to 3.49 percent; from 1.90 to 1.71 percent; and from 1.93 to 1.57 percent, respectively.

Nor do the optimistic scenarios of a skills explosion in the economy, due to rapid movement into a high skill economy in the 1990's, presage high skill demand in rural areas (pace Workforce 2000, Johnston and Packer, 1987). Even under an optimistic assumption of equal occupational growth rates across rural and urban areas, rural areas are projected to emulate their poor performance of the 1980's.

* In the 1990's, verbal aptitude is projected to rise at a 10 year rate of .89 percent in rural areas (compared to .86 percent in the 1980s) and GED at a rate of .84 percent (compared to .76 percent). Other skill measures show a similar pattern (Teixeira and Mishel, forthcoming).

Further food for thought is provided by estimates of the relationship between educational levels and local economic growth in rural areas. The relationship is, to say the least, ambiguous.

* Killian and Parker (1991) were not able to find a significant effect of local educational levels on employment growth in rural areas in either the 1970's or 1980's.

* Other estimations do find significant effects of local educational levels on earnings growth and, in some instances, on employment growth. But the reasons why educational levels are so inconsistent in their local economic effects remain mysterious.

Key Research Issues for the 1990's

Several gaps in our current knowledge of demographic change, human capital and rural America emerge from this review. I would highlight the following.

(1) How does the content of rural education--that is, the level of cognitive skills actually acquired--differ from that in urban areas? At the moment, our knowledge of this issue is very sketchy indeed.

(2) We could afford to know more about the actual causal mechanisms underlying the outmigration of the highly educated to metro areas (or the lack of inmigration of the highly educated to nonmetro areas). We can make some general inferences, but more detailed understanding is necessary if we hope to address the problem in the 1990's (and it is unarguably a critical problem).

(3) How do local educational levels--i.e., the quality level of available workers--really affect economic growth in rural areas? Right now, our understanding of this is murky, at best. Given the faith many have in education as a veritable "growth machine" for rural areas, this is a surprising--and embarassing--gap in our knowledge. But there it is.

(4) Most critically, what are the roots of weak demand in rural areas? If, in fact, rural areas are not primarily hobbled by their relative lack of human capital--and I tend to believe this is so--what are they hobbled by? Where do the deficits truly lie? What really keeps the high growth sectors of the economy away from rural areas? Lack of infrastructure? Lack of critical mass? "Rurality"? If we cannot answer this question--and then address it in a policy sense--the prospects for rural areas look dim.

References

Beale, C.L. and G.V. Fuguitt. 1990. "Decade of Pessimistic Nonmetro Population Trends Ends on an Optimistic Note." Rural Development Perspectives 6:3 (June-September).

Brown, D.L. 1989. "Demographic Trends Relevant to Education in Nonmetropolitan America." in J.D. Stern, ed., Rural Education: The Changing Landscape, Washington, DC: U.S. Department of Education.

Fuguitt, G.V., D.L. Brown and C.L. Beale. 1989. Rural and Small Town America. New York: Russell Sage Foundation.

Johnston, W.B. and A.E. Packer. 1987. Workforce 2000: Work and Workers for the 21st Century. Indianapolis, IN: Hudson Institute.

Killian, M.S. and T.S. Parker. 1991. "Higher Education No Panacea for Weak Rural Economies." Rural Development Perspectives 7:1 (October-January).

McGranahan, D.A. and L.M. Ghelfi. 1991. "The Education Crisis and Rural Stagnation in the 1980's." In Education and Rural Development: Rural Strategies for the 1990's, edited by R.W. Long. Washington, DC: Economic Research Service, U.S. Department of Agriculture.

McGranahan, D.A., J.C. Hession, F.K. Hines and M.F. Jordan. 1986. Social and Economic Characteristics of the Population in Metro and Nonmetro Counties, 1970-1980. Washington, DC: U.S. Department of Agriculture, Economic Research Service.

Mishel, L.R. and R.A. Teixeira. 1991. "The Myth of the Coming Labor Shortage: Jobs, Skills and Incomes of America's Workforce 2000." Washington, DC: Economic Policy Institute.

Snyder, T.D. 1987. Digest of Educational Statistics. Washington, DC: U.S. Department of Education.

Swanson, L.L. and M.A. Butler. 1988. "Human Resource Base of Rural Economies." in Brown, D.L., J.N. Reid, H. Bluestone, D.A. McGranahan and S.M. Mazie, eds., Rural Economic Development in the 1980's: Prospects for the Future, Washington, DC: U.S. Department of Agriculture, Economic Research Service.

Teixeira, R.A. and L.R. Mishel. Forthcoming. "Rural Workforce 2000: Skill Upgrading and the Rural Economy, 1970-2000." Rural Development Perspectives.