New Economy Manufacturing Meets Old Economy Education Policies in the Rural South

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Despite growth in services, manufacturing remains a vital part of the rural South's economic base, responsible for nearly one in every three dollars earned in its private sector. Much of the manufacturing was attracted to the region by low-cost labor and low taxes. But manufacturing is changing, adopting new technologies and management practices and seeking more highly skilled labor. Rural manufacturers in Southern counties high in manufacturing have few complaints about State and local taxes, but these counties also have low revenue per pupil in their school systems. Poor schools are likely to be a barrier to attracting advanced technology manufacturing, limiting the ability of these counties to participate in the New Economy.

We tend to think of our "New Economy" as a services or an "information economy," and to consider manufacturing as part of the "Old Economy," a weak basis for economic growth and development. As Fingleton (p. 67) notes, "It is almost universally accepted that, in the era of the New Economy, it is no longer important for advanced nations such as the United States to maintain a strong manufacturing base. The assumption is that manufacturing has now been superceded by postindustrial services as the main engine of economic progress." For many rural analysts, the question of rural development has become one of attracting a larger share of these New Economy services, recreational services, or services in general. Others argue that manufacturing jobs are low-wage, low-skill jobs that do little to improve economic well-being.

But manufacturing still counts, particularly in the rural South. Despite the growth in services, manufacturing is no less essential to the economic base of the rural South than it was 30 years ago. Manufacturing employs many low-skilled workers, generally providing them with greater pay and more full-time work than other private sector industries, and keeping many out of poverty. Finally, manufacturing has been transforming in ways that make much of it fully part of the New Economy and a substantial contributor to the U.S. gain in productivity.

As part of this transformation, manufacturing has adopted new technologies and management practices, entailing a shift toward more highly skilled workers. It is not manufacturing itself that is not participating in the New Economy, but rather those areas that continue to base their development strategies on attracting Old Economy manufacturing, perpetuating a setting of low-cost labor, low taxes, and poor schools.

Manufacturing Remains Vital to the Economic Base of the Rural South

County employment data from the Bureau of Economic Analysis show a substantial shift from manufacturing to services over the past 30 years. But this shift has been primarily an urban phenomenon (table 1a). The rural South's shift to services has been from agriculture (including forestry, fishing, and agricultural services); manufacturing has maintained most of its share of jobs. As a result, manufacturing's share of jobs was nearly twice as high in the rural South (19 percent) in 1997 as in the urban South (10 percent).

While these employment data suggest the continued importance of manufacturing, they underrepresent its importance in several ways. First, they include part-time and part-year jobs. These jobs are particularly prevalent in private services—and agriculture—and their inclusion inflates the role of these industries. Second, manufacturing jobs generally provide much higher earnings than the services sector, or agriculture. Finally, manufacturing brings money into the community, while only some services in rural areas, most notably recreation and

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Table 1a

Distribution of jobs by region and industry sector

Nearly one in every five jobs in the rural South is a manufacturing job

	Nonmetro			Metro		
Region and sector	1969	1989	1997	1969	1989	1997
			Percent			
South:						
Agriculture	17	10	8	3	2	2
Mining	2	2	1	1	1	1
Manufacturing	23	22	19	18	12	10
Private services	42	51	56	57	68	72
Public sector	16	17	16	21	16	15
Total	100	100	100	100	100	100
Nonsouth:						
Agriculture	15	10	9	2	2	2
Mining	2	2	1	0	0	0
Manufacturing	19	15	14	25	15	12
Private services	46	56	60	57	69	72
Public sector	18	17	15	16	14	13
Total	100	100	100	100	100	100

Source: ERS, based on Bureau of Economic Analysis county data files.

tourism, perform that function. Retail and other services oriented toward local consumers keep money in the community, but without manufacturing, agriculture, or other industries (or a large number of tourists or retirees or other outsiders) bringing money in from the outside, a local services sector will not survive.

While manufacturing's share of jobs in the rural South has slipped over time, its contribution to total earnings (proprietary income, salaries, and wages) in the rural South has remained remarkably constant, at slightly over a quarter of the total (table 1b). While private services increased their share of jobs from 42 percent to 56 percent between 1969 and 1997, their share of earnings increased from 42 percent to only 49 percent. Earnings per job increased over this period by 33 percent in manufacturing (in constant dollars), but only 9 percent in the rest of the private sector (not shown).

The overall importance of manufacturing becomes even clearer if we consider only the private sector: manufacturing was directly responsible for nearly one in every three dollars earned in the rural South's private sector in 1997. This is not to say that it is important everywhere. The prevalence of manufacturing in rural areas varies considerably across Southern States. Manufacturing's contribution to 1997 rural private sector earnings ranged from 13 percent in Florida—which gets most of its money from tourism and retirement—to 44 percent in Tennessee.

Table 1b

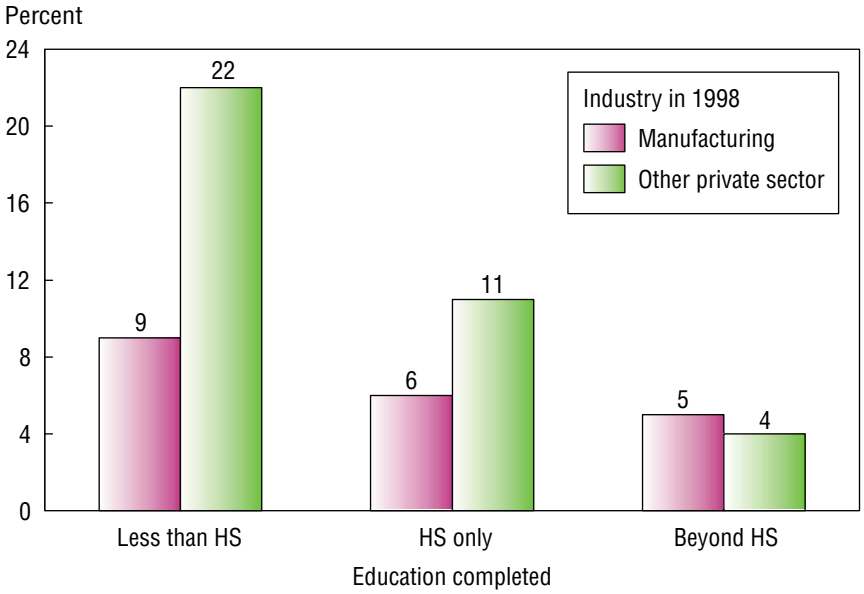
Distribution of earnings by region and industry sector

Despite growth in services, one in every four dollars earned in the rural South comes from manufacturing

	Nonmetro			Metro		
Region and sector	1969	1989	1997	1969	1989	1997
			Percent			
South:						
Agriculture	12	6	5	2	1	1
Mining	3	2	2	1	2	2
Manufacturing	27	28	26	22	17	15
Private services	42	45	49	54	63	67
Public sector	16	18	18	20	17	15
Total	100	100	100	100	100	100
Nonsouth:						
Agriculture	14	7	5	2	1	1
Mining	3	3	3	0	0	0
Manufacturing	24	22	21	30	20	18
Private services	43	49	52	53	63	67
Public sector	17	19	19	15	15	14
Total	100	100	100	100	100	100

Source: ERS, based on Bureau of Economic Analysis county data files.

Figure 1
Family poverty rates for rural Southern workers, ages 18-64, 1998
Manufacturing workers have lower poverty rates than workers in the rest of the private sector



Source: ERS, based on Current Population Survey, March 1999.

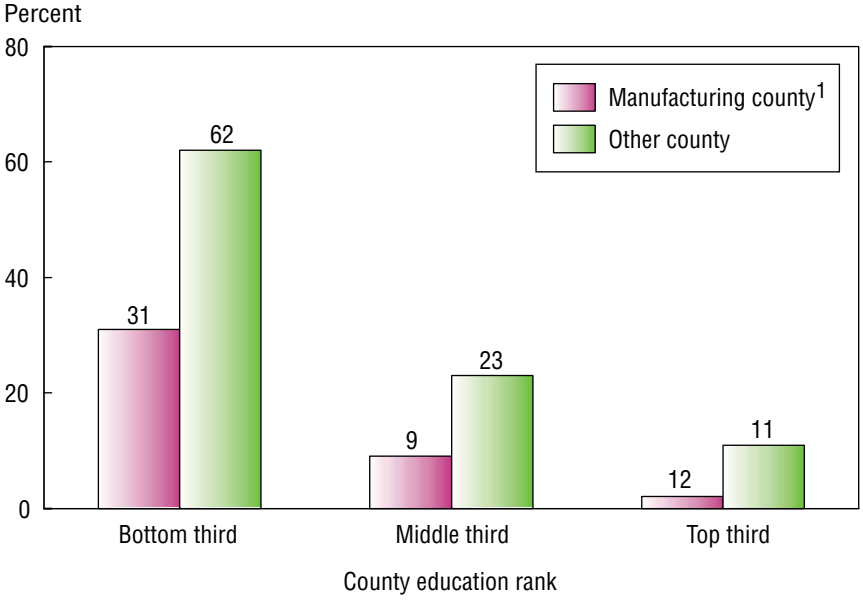
Manufacturing Is Associated With Lower Poverty for People and Places

Historically, manufacturing has hired more than its share of less skilled workers, paid them relatively well, and reduced their likelihood of poverty. Among workers (ages 18-64) without a high school degree, 9 percent of those that worked primarily or completely in manufacturing in 1998 lived below the poverty line that year (fig. 1). In contrast, the poverty rate was 22 percent for those working primarily in other private sector industries. Similar differences are found for high school graduates, but the overall rates of poverty are considerably lower.

The contrast between manufacturing and other workers increased during the 1990's. Among rural manufacturing workers, poverty rates declined substantially. For those lacking a high school degree, the rate fell from 15 percent in 1989 to 9 percent in 1998. But poverty rates declined by less than 1 percentage point (from 23 to 22 percent) among similarly skilled workers in the rest of the private sector, despite an increase in the proportion working full-time full-year. These statistics reflect an inflation-adjusted increase of nearly 7 percent in manufacturing earnings per job in 1989-97 in the rural South, compared with no overall earnings change for other private sector jobs.

Similar striking differences are found when counties are compared (fig. 2). Low-education counties—those ranked in the bottom third of all rural Southern counties in 1990 high school completion rates for young adults (ages 25-44)—were much less likely to have extreme poverty in 1995 when manufacturing comprised at least 20 percent of

Figure 2
Rural Southern counties with high poverty (over 25 percent), 1995
Counties with substantial manufacturing are less likely to have high poverty rates



[1]See "Definitions" for description of measures and sources.
Source: ERS, based on Bureau of the Census data files.

Definitions

Rural South

The South defined here (and by the Southern Rural Development Center) includes: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia. "Rural" areas are those outside of metropolitan areas, equivalent to nonmetropolitan.

County education thirds

Based on the most recent available data, the 1990 Census of Population, county education levels were measured as the percent of the young adult population (ages 25-44) who reported that they were high school graduates (or had an equivalent diploma). The 955 counties or county equivalents were divided into three equal size groups: (1) under 71 percent graduates (bottom third), (2) 71 to 76 percent (middle third), and (3) over 76 percent (top third). The average high school completion rates for the respective groups were 65 percent, 74 percent, and 81 percent. The average for the top third in the rural South was still well below the average for the rest of the rural United States (87 percent).

Manufacturing county

A county where manufacturing comprised at least 20 percent of total jobs in 1995 was classified as a manufacturing county. The Bureau of Economic Analysis county data files (1997) were used for the calculation.

all jobs in the county than when there was less manufacturing (see "Definitions"). This was even true of counties with higher levels of education.

These patterns strongly suggest that the strategy of chasing manufacturing jobs has succeeded in lifting many rural Southern areas out of severe poverty and providing well-paying if not always pleasant jobs to the less skilled rural workforce. About 45 percent of the counties in each of the two lowest education categories were manufacturing counties. About 29 percent of the counties in the highest education group were manufacturing counties.

This is not to say that manufacturing has been a cure for poverty. The average 1995 poverty rate was over 20 percent even in the manufacturing counties. Family structure, adjacency to a metropolitan area, race, ethnicity, and a number of other factors are also related to county poverty rates in low-education counties.

New Economy Manufacturing Differs From Old Economy Manufacturing

Globalization and new technologies are changing the nature of manufacturing, the types of workers manufacturers seek, and the locations they prefer. Aside from production based on agricultural and forest products, manufacturing has historically been attracted to the rural South because of its low labor costs and low taxes. The manufacturing that shifted to the South tended to involve routine production processes and was epitomized by textiles and apparel industries. Labor skills were not an issue for most of these manufacturers: they were competing on the basis of labor, land, and tax costs.

In the 1970's, manufacturing expanded rapidly across all county education groups in the rural South, at a much faster rate than in the rest of rural America (table 2). In the 1980's, when manufacturing was confronted by stiff competition from abroad and many were arguing that U.S. manufacturing was not

Table 2

Change in manufacturing jobs by region and county education level

Low-education areas had the greatest gain in manufacturing in the 1980's, but lost in the 1990's

Region and county education[1]	1969-79	1979-89	1989-97
		Percent	
Rural South	22.8	3.4	1.1
Bottom third	23.5	8.4	-3.5
Middle third	22.4	3.8	0.1
Top third	23.0	0.0	5.1
Other rural U.S.	13.1	-2.1	8.1
Urban U.S.	1.9	-8.8	-5.0

[1]County groups based on proportion of young adults (ages 25-44) with at least a high school degree (see "Definitions").

Source: ERS, based on Bureau of Economic Analysis county data files.

globally competitive, it was the lowest education areas that gained manufacturing jobs. Manufacturers in or relocating to the rural South were continuing to compete on the basis of low labor and land costs.

In the 1990's, the picture changed dramatically. Manufacturing jobs continued to shift out of urban areas, but to areas of higher education in the rural South and to the rest of the rural United States. Several factors appear to have been behind this shift.

First, jobs in textiles and apparel were sharply reduced nationally in the 1990's due to both enhanced global competition and, especially with textiles, technological change. Textile jobs declined by about 14 percent between 1989 and 1997 and apparel jobs by about 23 percent. Low-education counties (see "Definitions") have specialized in these two industries. In 1989, they accounted for over 40 percent of the manufacturing jobs in low-education counties in the rural South. Textiles and apparel were much less important in the rural South's high-education counties (21 percent of manufacturing jobs) and almost insignificant in rural areas outside the South (5 percent) in 1989.

But this is not a full explanation for the changes in the location of manufacturing growth and decline between the 1980's and 1990's. Textiles and apparel also declined nationally in 1979-89, each by about 18 percent. Yet manufacturing grew in the low-education counties over that period, at a faster rate than in the rest of the rural South. More generally, national changes in individual manufacturing industries do little to explain why low-education areas gained manufacturing jobs in the 1980's but lost them in the 1990's.

An alternative explanation for the change in locational trends between the two decades is that low-education counties lost their previous attractiveness to manufacturers because of a pervasive change in competitive strategies in U.S. manufacturing. In the face of the internationalization of markets during the past decade, many manufacturers not shifting production overseas began to adopt a wide range of new technologies and management practices in order to increase efficiency and compete on the basis of quality rather than quantity. In general, this strategy has succeeded. Nationally, manufacturing employment dropped by about 5 percent between 1989 and 1999, but production was up by 44 percent.

These new practices and microprocessor-based technologies, together with the shift of more labor-intensive industries overseas, have boosted manufacturing productivity nationally, but they have also redefined skills required in manufacturing. First, this involved a shift in the types of jobs. The number of machine operators, fabricators, and laborers in manufacturing declined by 13 percent in 1989-99, but the number of professionals (engineers, researchers, lawyers, and others) rose by the same percentage (Ilg and Haugen).

Second, the types of people hired for production jobs shifted toward more highly skilled workers. According to Current Population Survey data, the number of manufacturing production workers (ages 18-64) without a high school degree fell by 26 percent nationally between 1989 and 1998, while the number with schooling beyond a high school degree rose by 46 percent. To some extent, this reflected overall improvements in the educational levels of the U.S. labor force. But the overall improvements were much smaller than in the manufacturing sector. For the working age population (ages 18-64), the number of high school dropouts fell by only 5 percent while the number with schooling beyond high school rose by 27 percent. Manufacturing has shifted its hiring strategies for production workers and is claiming a higher proportion of more highly skilled workers in the labor force.

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This change affected the rural South as well. The proportion of production workers without a high school degree fell from 33 percent in 1989 to 23 percent in 1998, while the proportion with education beyond high school rose from 13 percent to 22 percent. Among the working age population as a whole, the proportion in the rural South without a high school degree fell only from 26 percent to 22 percent.

Accompanying this shift in hiring has been a substantial increase in training. In the 1996 ERS Rural Manufacturing Survey, nearly three out of every four manufacturers in both rural and urban areas reported that they had increased formal training for production workers over the previous 3 years (Gale and others). The primary reason given

was "a heightened concern about product quality."

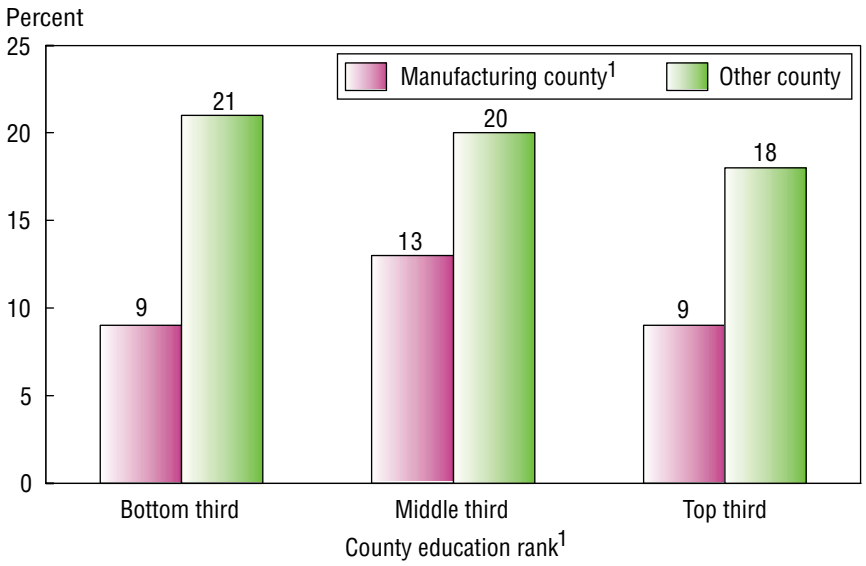
This change in competitive strategy did not involve all manufacturers everywhere. Data from the manufacturing survey show that manufacturers in low-education counties in general had adopted fewer new technologies than manufacturers elsewhere, even when manufacturing type and plant characteristics were taken into account (McGranahan). Lack of labor skills is the central problem, at least according to those manufacturers in low-education counties that have managed to adopt a high number of new technologies and practices. But there are also manufacturers who continue to pursue a low-skill, low-wage approach or chose low-education counties for other reasons.

Although low-education counties lost manufacturing jobs overall, 47 percent of these counties actually gained jobs during 1989-97 and 51 percent lost jobs. Counties gaining jobs had 24 percent more manufacturing jobs in 1997 than in 1989, but the gain was more than offset by losses in the other counties. These statistics reflect the considerable flux in manufacturing jobs through the births and deaths of firms, the shifting of employment among plants in multilocational firms, and firm expansion and contraction. This flux creates the means through which manufacturing moves from one location to another, with labor mix a major factor behind the shifts in location (Dumais, Ellison, and Glaeser). The general shifts in employment described above are consistent with a rising demand for skills. These general shifts show that, while attracting manufacturing to low-education areas is not impossible, the likelihood has shrunk and the incentives may now have to be greater.

Figure 3

Manufacturers in rural South reporting State and local taxes as a major problem for their competitiveness

Taxes are less likely to be a burden in manufacturing counties



[1]See "Definitions" for description of measures.
Source: 1996 ERS Rural Manufacturing Survey.

Poor Local Schools May Hinder the Transition From Old Economy to New Economy Manufacturing

Manufacturers have historically been drawn to the rural South not only by the low cost of labor and land, but by low taxes. Education is a major beneficiary of tax revenues—about one-third of combined State and local budgets are devoted to education (including higher education). In the past, local educational revenues and expenditures may not have been much concern for rural manufacturers in the South—competitive strategies were based more on labor costs than labor skills.

We do not have data available on actual tax rates, but survey data can tell us where tax burdens were most often felt to be heavy. Manufacturers in the 1996 ERS Rural Manufacturing Survey were asked a series of questions about local barriers to their competitiveness (see Gale and others). Next to the quality of available labor, State and local taxes were cited most frequently as a major problem by rural manufacturers (McGranahan). State and local taxes were cited less often in the rural South (14 percent) than in other rural areas (28 percent) or urban areas (31 percent).

Within the rural South, manufacturers in manufacturing counties cited State and local taxes as a major problem about half as often as manufacturers in counties with relatively little manufacturing (fig. 3). This suggests that manufacturing has tended to locate where effective tax rates are low and/or that the presence of manufacturing has tended to reduce local taxes.

Figure 4

Average 1996 county, State, and local revenue per pupil in rural Southern counties relative to the rest of rural United States

School revenues per pupil are low in manufacturing counties

[1] See "Definitions" for description of measures and sources.
Source: National Center for Education Statistics Common Core of Data files, 1996.

Associated with the lower reporting of taxes as a major problem in manufacturing counties is a lower per-pupil revenue from State and local sources in their county school system(s) (fig. 4). The same pattern is found for school expenditures per pupil. While the correspondence between school finances and school quality is not necessarily tight—there are good schools with few resources and poor schools with plentiful resources—it does appear that the very strategies that helped create a strong manufacturing base in the past may undermine success in the current context of new technology and globalization.

The bases of competition in manufacturing have shifted away from lower labor and land costs toward greater production efficiency and quality product. So, areas with low labor costs and low taxes have lost much of their attractiveness, at least where labor skills are low. Unless State and local policies toward schools are changed, these areas are likely to fall increasingly behind.

Are these State policies or local policies that lie behind the low level of school funding in manufacturing counties? Education finance policies (as well as industrial recruitment programs) are set at both the State and local levels. (The Federal Government contributed an average of only 7 percent of public school revenues across States in 1995, while the remainder was evenly split between State and local sources.) Multivariate analysis controlling for differences across States suggests that the low school revenues per pupil in manufacturing counties are not the result of manufacturers' direct influence on the local school revenues (and expenditures)—or the movement of manufacturing to particular counties within States. The analysis shows that revenue differences largely reflect differences across States. That is, school systems tend to have fewer resources per pupil in States with a relatively high proportion of manufacturing counties than in States with fewer manufacturing counties. Within States, factors such as the size of the school system influence expenditures, but the presence of manufacturing does not.

Low-Education Counties Have Fewer Public Colleges

Raising workforce skills requires more than improvements in local schools; it also means training the existing workforce. This falls not to local school systems, but to private vendors, colleges, and, increasingly, community colleges. In many States, community colleges have explicit responsibility for promoting local development, particularly in rural areas (Rosenfeld).

But low-education counties are much less likely than middle- and, especially, high-education counties to have colleges, making it difficult for skill upgrading in these counties (fig. 5). Within the bottom two education groups, manufacturing counties are twice as likely as others to have colleges. But in the low-education counties, this only brings the proportion with colleges up to 14 percent.

Low-education counties have so few colleges in part because they tend to be more rural than higher education counties, and colleges tend to be located in counties with large population centers. But multivariate analyses controlling for the

Early County, Georgia. Photo courtesy John B. Cromartie.

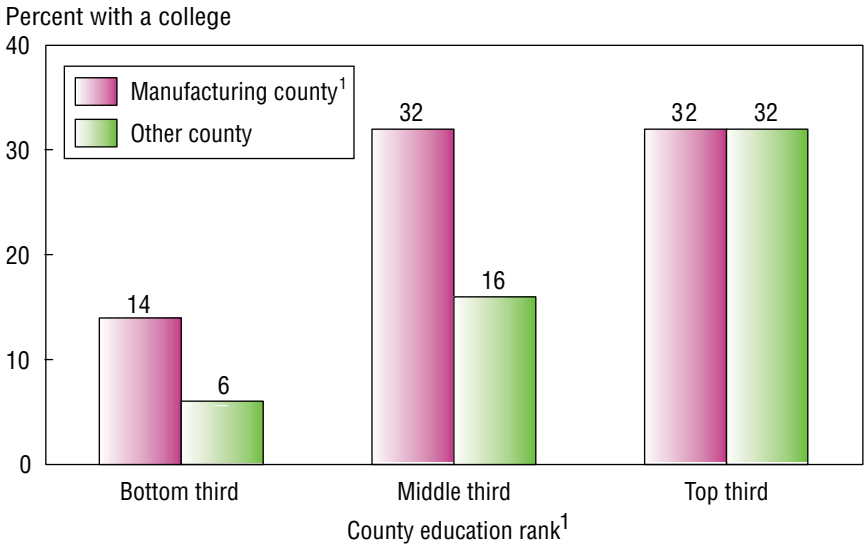
presence of cities (over 10,000 people) and towns (2,500 to 10,000) in a county suggest that only about a quarter of the difference between high- and low-education counties can be ascribed to differences in rurality. It is also true that the presence of a college with its professional staff is likely to elevate county educational levels somewhat, sometimes enough to reclassify a "low-education" county. So, more otherwise low-education counties may have colleges than the figure suggests. Still, low-education areas are underserved with respect to both public schools and colleges.

Low-education areas currently have one remaining strong advantage: a relative surplus of labor in a nationally tight labor market. But to fully benefit from this advantage, schools must be improved and training programs made available so that manufacturers (and others) seeking new locations will find these areas attractive. Without these improvements, low-education areas will continue to lose jobs to overseas locations.

Figure 5

Counties in rural South with public 2- or 4-year colleges in 1994

Counties with low education levels are less likely to have public colleges



[1]See "Definitions" for description of measures and sources.
Source: National Center for Education Statistics data files.

Conclusions

Manufacturing remains an important part of the economic base of the rural South. Nearly a third of private sector earnings came from manufacturing in 1997. This manufacturing base was built largely on low taxes and, especially, low labor costs. The manufacturing that grew in the rural South over the past decades relied on routine production and required relatively few skills.

As a development strategy, the pursuit of manufacturing appears to have worked in many ways. Many low-education counties have a strong manufacturing base, with manufacturing comprising 20 percent or more of the jobs in nearly half the counties. Low-skill workers are much less likely to have family incomes below the poverty line when they have manufacturing jobs than when they have other jobs. And counties with low education levels are less likely to have severe poverty when they have substantial manufacturing. While manufacturers in low-education manufacturing counties appear to benefit from low State and local taxes, a corollary of low taxes is low funding of public schools and the likelihood of a perpetually low-skilled labor force. This was not a problem for local development when manufacturers were seeking largely unskilled labor.

This pattern has clearly become less viable in the New Economy. Competition on the basis of low wages has become less feasible with the globalization of markets, and some production has shifted to countries where wages are much lower than in the rural South. Apparel is a striking case in point. New technologies and management practices have made U.S. manufacturing more competitive, but they require more highly skilled workers. They have raised the educational credentials of the production workers and increased training. Low-education areas of the rural South have lost much of their attraction.

This is not to say that all manufacturing will leave. Many counties in the rural South depend on food processing and wood products industries, which tend to be tied to the location of their inputs. Some manufacturers may find ways to organize production so that unskilled workers can be involved in creating high-quality products. There are also alternatives to manufacturing: prisons, casinos, warehousing. But there seems to be little to lose and everything to gain by increasing education and training in the low-education areas of the South. RA

For Further Reading . . .

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