



Educational Attainment and the Rural Indiana Economy

Introduction

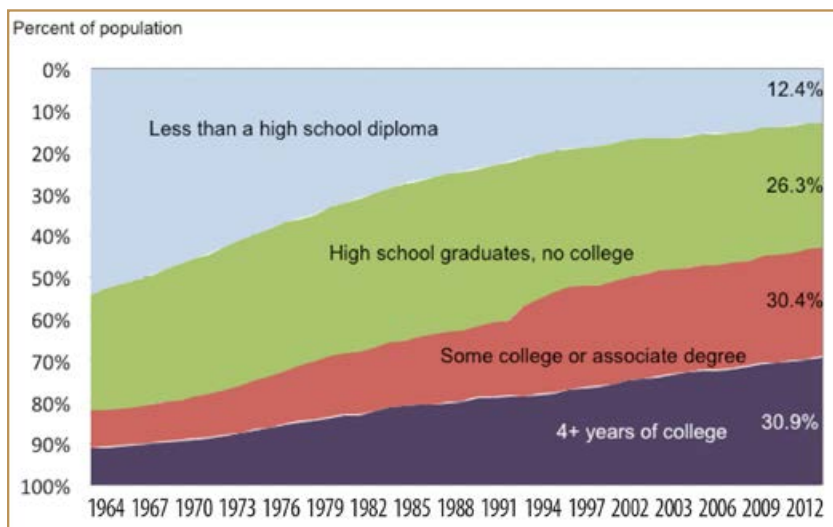
Educational attainment plays an important role in individuals' economic success: increased levels of schooling are typically associated with higher chances of having a job and earning a higher salary (Borjas, 2009). By implication, the well-being of a community hinges on whether or not its population is highly educated, and communities with poorly educated residents are disadvantaged in terms of their income and investment opportunities (Camp and Ayres, 2013).

This article compares educational attainment levels for rural and urban areas in Indiana. First, we explore general trends in U.S. educational attainment. We continue by comparing these trends with educational attainment levels in rural and urban Indiana, focusing on the prevalence of educational deprivation in rural parts of the state (see box, page 3). Finally, we discuss the implications of this educational deprivation, with an emphasis on its relationship with employment and income.

Trends in Educational Attainment

Educational attainment levels in the United States have increased substantially over the last century. As shown in Figure 1, between 1964 and 2012 the American population changed from being overwhelmingly poorly educated into a population that is well or even highly educated. In 1964, more than

Figure 1. Percent of the U.S. Population Aged 25 and Over by Educational Attainment, 1964 to 2012



Source: 1964 to 2002 March Current Population Survey, 2003 to 2012 Annual Social and Economic Supplement to the Current Population Survey (noninstitutionalized population, excluding members of the Armed Forces living in barracks).

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The Rural Indiana Issues Series

Audience: Local and state leaders who work with rural communities.

Purpose: To find data about issues of concern in rural communities and to interpret these data in meaningful ways to aid in decision-making.

Method: U.S. Census data analyzed across the county groupings—rural, rural/mixed, urban.

Potential Topics: Demographic changes, business development, health, health care, local government, taxes, education, agriculture, natural resources, leadership development, etc.

Outcome: Better, more informed decisions by rural decision-makers.

Table 1. Indiana's Educational Deprivation, 1970 and 2010*

	Year	% adults with a 4-year college degree or more	% adults without a high school diploma	Educational Deprivation
Indiana	1970	8.3	47.1	1.8
	2010	22.7	13.4	4.3
US	1970	10.7	47.7	
	2010	28.2	14.6	

* The 1970 figures are taken from the U.S. Census Bureau 1970 Census of Population. The 2010 figures refer to the 2007 to 2011 average of the American Community Surveys.

Table 2. Educational Deprivation in Rural, Rural-Mixed, and Urban Indiana, 1970 and 2010*

	Year	% adults with a 4-year college degree or more	% adults without a high school diploma	Educational Deprivation
Rural	1970	5.0	51.4	9.4
	2010	13.4	15.4	15.6
Rural-Mixed	1970	6.5	47.9	4.4
	2010	18.2	14.3	9.7
Urban	1970	9.9	45.6	-1.3
	2010	27.1	12.7	-0.8

* The 1970 figures are taken from the U.S. Census Bureau 1970 Census of Population. The 2010 figures refer to the 2007 to 2011 average of the American Community Surveys.

half of Americans over the age of 25 did not have a high school diploma. By 2012, only a small minority of about 12 percent did not complete high school. This change has been accompanied by increases in higher levels of educational attainment, including a remarkable jump in the share of residents who have completed a four-year college degree. In 1964, only 9.1 percent had completed a college education. Today, college-educated residents account for almost a third of the population.

Where Does Indiana Stand?

Rising levels of educational attainment are also observed in Indiana, with college degree attainment levels jumping up from only 8 percent in 1970 to their current level of almost 23 percent (U.S. Census Bureau).

However, this increase is far from enough to catch up with the national level. Indiana's share of highly educated adults is not only smaller than the national share, but the gap has been increasing over the last 40 years (Waldorf, 2006). The resulting educational deprivation is only tempered by a slightly smaller share of Hoosiers without a high school degree compared to the national share. As Table 1 shows, Indiana's educational deprivation more than doubled between 1970 and 2010.

Deeper analysis reveals that educational deprivation affects rural and urban Indiana differently. Table 2 shows the educational deprivation scores for rural, rural-mixed, and urban counties in Indiana. (For details on the classification of Indiana's 92 counties into rural, rural-mixed, and urban categories, see Ayres, Waldorf, and McKendree, 2012.)

Rural Indiana has the worst educational deprivation. Only 13.4% of rural residents had a college degree in 2010 (Table 2). The share of rural residents without a high school degree had decreased substantially since 1970, but it was still higher than the national

share. Thus, rural Indiana is doubly disadvantaged by not keeping pace with the national trend of reducing the share of very poorly educated people and by failing to increase the share of highly educated people to the national average. Moreover, the differences with the national averages are huge and have increased since 1970. As a result, the educational deprivation score in rural Indiana is high and rising. Educational deprivation in rural-mixed counties is less severe, but still worse than the Indiana average. And, just as in rural Indiana, educational deprivation in rural-mixed Indiana has increased over time.

The situation looks quite different in urban Indiana. Both in 1970 and 2010, urban Indiana had a slightly lower share of college-educated adults than the nation as a whole, but fared more favorably than the nation with respect to the percentage of residents without a high school degree. As a result, there is no educational deprivation in urban Indiana (with educational deprivation scores slightly below zero), and the discrepancy between educational deprivation in rural Indiana and educational deprivation in urban Indiana has been increasing over time.

Inside Rural Indiana

Data in Table 2 indicate that rural Indiana has a very high level of educational deprivation, substantially higher than rural-mixed and urban Indiana. But these data do not tell the whole story, because educational deprivation varies a lot across rural counties. Table 3 (page 3) presents a ranking by educational deprivation of Indiana's 42 rural counties. LaGrange County has by far the highest level of deprivation, at 42.7. This is likely due to the county's large number of Amish inhabitants. All but one rural county experiences educational deprivation above the state average of 4.3. The exception is Brown County, at 2.2, which has a disproportionately high share of well-educated retirees.

Educational Deprivation

We define a region as educationally deprived (Waldorf, 2008) if it has:

- A smaller percentage of college-degree holders, and
- A larger percentage of residents without a high school degree than the U.S. as a whole.

In this article we measure the severity of educational deprivation by comparing the regional percentages with the national percentages.

For example, we assigned Indiana an educational deprivation score of 4.3 in 2010 (Table 1). This is obtained in three steps:

- Calculate the difference between the U.S. and Indiana percentages of college degree holders: $28.2\% - 22.7\% = 5.5\%$ points
- Calculate the difference between Indiana’s percentage and U.S. percentage of residents without high school degrees: $13.4\% - 14.6\% = -1.2\%$ points.
- Add the differences: $5.5 + (-1.2) = 4.3$

The higher the score, the more severe the educational deprivation.

For example, in the graph below, the 2010 educational deprivation scores are higher than those of 1970, indicating that educational deprivation has worsened in Indiana compared to 40 years ago.

A negative score indicates that the region is not educationally deprived but has a better educational status than the U.S. as a whole.

For example, urban Indiana had negative scores both in 1970 and 2010 and is thus not educationally deprived.

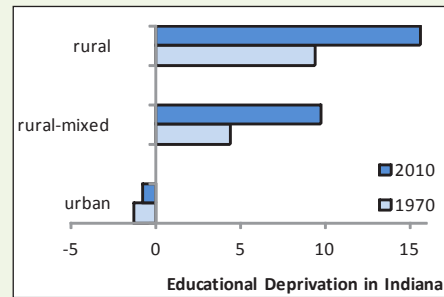


Table 3. Ranking of Rural IN Counties by Educational Deprivation (2010)

Rank	Rural County	Educational Deprivation	Rank	Rural County	Educational Deprivation
1	LaGrange	42.7	22	Sullivan	14.3
2	Switzerland	27.2	23	Rush	13.5
3	Washington	24.6	24	Pulaski	13.1
4	Starke	23.0	25	Ripley	12.7
5	Owen	22.8	26	Spencer	12.5
6	Perry	22.6	27	Franklin	12.0
7	Martin	21.9	28	Vermillion	12.0
8	Orange	21.7	29	Jasper	11.8
9	Jennings	21.4	30	Clay	11.7
10	Crawford	20.0	31	Harrison	11.3
11	Jay	19.5	32	Putnam	11.0
12	Pike	19.4	33	White	10.7
13	Fountain	19.0	34	Union	10.5
14	Parke	18.9	35	Carroll	10.2
15	Newton	18.7	36	Wells	10.0
16	Ohio	18.2	37	Gibson	9.8
17	Warren	18.1	38	Benton	9.3
18	Greene	17.8	39	Tipton	9.2
19	Randolph	17.1	40	Whitley	7.4
20	Blackford	16.7	41	Posey	4.4
21	Fulton	14.4	42	Brown	2.2

Source: Authors' calculations based on data of the U.S. Census Bureau, 2007-2011 American Community Survey.

What Are the Implications?

Highly educated workers have higher-paying jobs (Ryan and Siebens, 2012) and are less likely to be unemployed than workers with little education (Borjas, 2009). Not surprisingly, then, educationally deprived regions are often associated with poor economic performance, especially with respect to wages and unemployment (Marre, 2011).

To explore this relationship in rural Indiana, we rank the 42 rural counties on the basis of educational deprivation, unemployment rate, and median earnings. Table 4 presents the five best-performing rural counties in Indiana. As anticipated, the overall best performers are among the least educationally deprived. In terms of educational deprivation, all five best-performers are in the top half of rural counties, and Posey, Gibson, and Tipton counties are even in the top 10. Additionally, unemployment rates of all top performers are below average, and their median earnings are above average. Interestingly, three of the top-five performers—Posey, Gibson, and Spencer—are located in the southwestern corner of Indiana in the economic region around Evansville.

The five worst-performing rural Indiana counties are listed in Table 5. These counties have above average unemployment, and below average median earnings, and their educational deprivation scores are among the lowest in the state. While the worst performing county—Starke County—is in the northwestern portion of the state, the remaining four are located in Southern Indiana.

Conclusion

From an educational attainment perspective, Indiana’s rural and rural/mixed counties are severely lagging behind urban counties. Compared to urban residents, a larger percentage of rural residents do not have a high school diploma, and a greater fraction of rural residents do not have a college degree. In fact, in urban Indiana, the share of people with at least a four-year degree is roughly twice as high as in rural Indiana. Finally, data reveal that economic conditions are worst in counties with the most severe educational deprivation.

Rural Indiana communities stand to gain by reversing these trends. Bolstering educational attainment levels can result in improvements to rural economies through a number of mechanisms. For one, rural counties with better-educated residents tend to have more high-knowledge occupations. These occupations are becoming increasingly important determinants of economic growth (Henderson and Abraham 2004). This suggests that educational attainment increases can be a catalyst for improvements to rural economies.

Furthermore, increased levels of education can result in growth by improving the capacity of local entrepreneurs. Generally, entrepreneurs in rural areas have relatively lower levels of education and therefore lack the technical proficiency to get high growth out of their enterprises (Henderson, 2002). A more entrepreneurial environment could also induce in-migration or retention of highly educated individuals who would otherwise leave to find employment in urban areas (Camp and Ayres, 2013).

With improvements to these and other employment conditions, the economic outlook for rural counties would brighten considerably. Hence, policymakers looking to improve economic conditions in rural Indiana would do well to focus their attention on educational attainment.

Table 4. Best-Performing Rural Counties (2010)

Overall Rank*	County	Educational Deprivation	Rank	Unemployment Rate (rural average: 8.9%)	Rank	Median Earnings (rural average: \$27,282)	Rank
1	Posey	4.4	2	7.1%	5	\$31,188	1
2	Gibson	9.8	6	6.9%	3	\$29,111	9
3	Franklin	12.0	16	6.4%	1	\$30,465	2
4	Spencer	12.5	17	6.6%	2	\$30,018	3
5	Tipton	9.2	4	7.1%	6	\$27,404	18

* Based on the average of the educational deprivation rank, unemployment rank and median earnings rank.
Source: Authors’ calculations based on data from the U.S. Census Bureau, 2007-2011 American Community Survey.

Table 5. Worst-Performing Rural Counties (2010)

Overall Rank	County	Educational Deprivation	Rank	Unemployment Rate (rural average: 8.9%)	Rank	Median Earnings (rural average: \$27,282)	Rank
38	Crawford	20.0	33	9.4%	32	\$25,047	39
39	Jennings	21.4	34	14.3%	42	\$26,239	30
40	Orange	21.7	35	11.7%	39	\$25,434	36
41	Washington	24.6	40	9.8%	36	\$25,462	35
42	Starke	23.0	39	13.6%	41	\$24,415	41

Source: U.S. Census Bureau, 2007-2011 American Community Survey.

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Kevin Camp is a graduate research assistant and Brigitte Waldorf is a professor in the Department of Agricultural Economics at Purdue University. Her expertise is in demography, and she has written about a variety of population issues in Indiana, including immigrants, educational attainment, and poverty.

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