

Life Science Industries Increase Indiana's Personal Income

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A measure of the productivity of an industrial sector is to consider the degree to which it raises the personal income—or standard of living—of a state's residents. Indiana's per capita personal income (PCPI), and the degree to which it lags the national average and the increasingly widening gap, is something of a sore point. Not including the District of Columbia, the state's PCPI ranked 40th in the nation in 2011.

Those wishing to highlight the importance of the life sciences to the Indiana economy would do well to present the “but for the life sciences” scenario as it relates to Indiana's PCPI. The analysis is easy: remove the compensation of the life science industries from the state's total personal income, place on a per capita basis and recast the ranking of PCPI-less-the-life-sciences.

Unfortunately, the data are somewhat uncooperative. The life sciences are a collection of relatively specific (six-digit NAICS) industries across several industries sectors. The Bureau of Economic Analysis, however, only reports compensation by industry at the state level at higher levels of industry aggregation. Just the same, one can make some ballpark estimates of the impact of the life sciences on the state using a couple of three-digit industries that are composed mostly of the life sciences, namely chemical manufacturing—pharmaceuticals and agricultural chemicals are included in this—and miscellaneous manufacturing. True, this method leaves some life science industries uncounted (for example, apparatus manufacturing and research and development in biotechnology) and includes other industries not in the life sciences, like the production of sporting goods. The degree to which there is some evening out given the pluses and minuses is unknown.

For the sake of argument, let's make the heroic assumption that the compensation associated with chemical manufacturing and miscellaneous manufacturing is a good proxy for what the life sciences contribute to personal income.

What are the results? Indiana's PCPI moves from ranking 40th in the country to 42nd in the country for PCPI-less-the-life-sciences (see **Table 1**). That's a profound shift considering that the two life science proxy industries make up only 1.1 percent of the nation's compensation.

Table 1: Change in Indiana's National Rank, 2011

	Rank with the Life Sciences	Rank without the Life Sciences
Per Capita Personal Income	40	42
Per Capita Wages and Salaries	35	41

Source: IBRC, using Bureau of Economic Analysis data

Personal income includes not only wages and salaries, but also dividends, royalties, rental income, etc. If we look at just the wages and salaries portion of personal income, Indiana's drop in the rankings is even more profound. Indiana's per capita wages and salaries ranks 35th (showing that the state is highly dependent on labor income rather than transfer payments, returns to capital or intellectual property compared to other states). Pull out the life science proxy industries and Indiana's rank falls to 41st.

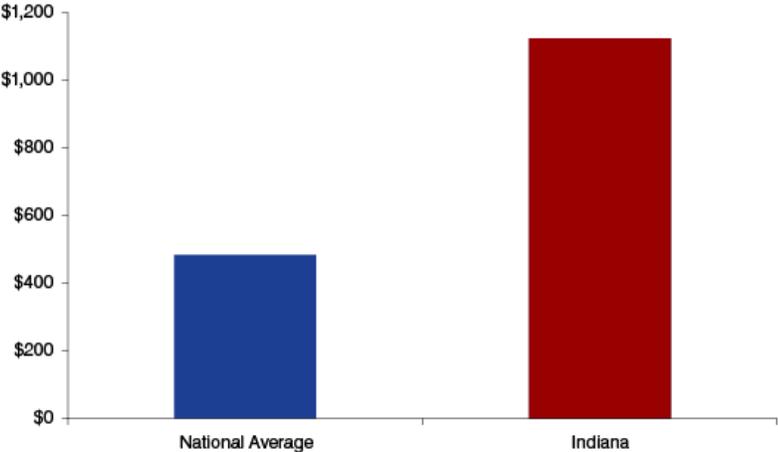
The most telling statistic, however, is the difference in PCPI and PCPI-less-the-life-sciences. Remove the life sciences, and Indiana's personal income per person would drop \$1,124, the second greatest absolute descent in the nation behind New Jersey with a drop of \$1,328. In percentage terms, Indiana's drop is greater at 3.1 percent compared to New Jersey (second in percentage terms at 2.5 percent).

With the headquarters of Johnson & Johnson, Merck, Wyeth, and Schering-Plough, to name a few, it should be noted that New Jersey also has a massive chemical industry presence that contributes mightily to their PCPI. New Jersey has almost twice the number of production workers in the chemical industry than Indiana and 2.6 times the number of non-production workers. Those

non-production workers earn, on average, the highest salary for that industry in the nation, almost \$117,000 per annum compared to Indiana's \$85,400. (Indiana's average production worker annual wage exceeds New Jersey by more than \$3,000 a year.) The employment disparity in miscellaneous manufacturing is not nearly as profound. Despite having a considerable disadvantage in employment headcount in the two industries, Indiana's value of shipments exceeds New Jersey's.

The national average for the drop in PCPI that would result from removing the proxy life science industries' compensation is \$484, or about 1.2 percent (see **Figure 1**). In other words, without the life sciences, the PCPI gap between the nation and Indiana would expand by \$640, or, in percentage terms, by another 1.5 percent.

Figure 1: Impact of the Life Science Industry on Per Capita Personal Income, 2011



Source: IBRC, using Bureau of Economic Analysis data

The life sciences are significantly pulling up Indiana's personal income and Hoosiers should be grateful that this state is blessed with such a presence.

The Great Recession's Impact on Frictional Unemployment and the Labor Market

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Frictional unemployment is the time period between jobs when a worker is moving from one job to another. Within the labor market pool, a small segment of employees each quarter switch jobs as an avenue to better their employment situation (higher wages, more growth potential, etc.). This subset of frictional unemployment, as characterized by employees successfully moving quickly between employers, is defined in this article as the transitional unemployment market and provides significant insight into the strength of the labor market.

Rather than a negative, this type of transitional unemployment and cycling of employees can be a signal of a vibrant labor market. This article attempts to separate this segment of the labor market to use it as a barometer for the overall strength of the market. Data from 2002 to 2010 were examined to determine what impact the Great Recession had on the labor market and the transitionally unemployed.

The Long-Term Employed

Examining wage records pulled from the Indiana Workforce Intelligence System (IWIS), groups of the employed were pooled into two groups. The first group examined was the long-term employed. The long-term group consisted of workers that were employed every quarter of the study by the same company. This group consisted of 567,900 employees and their average yearly annual wages are shown in **Table 1**.

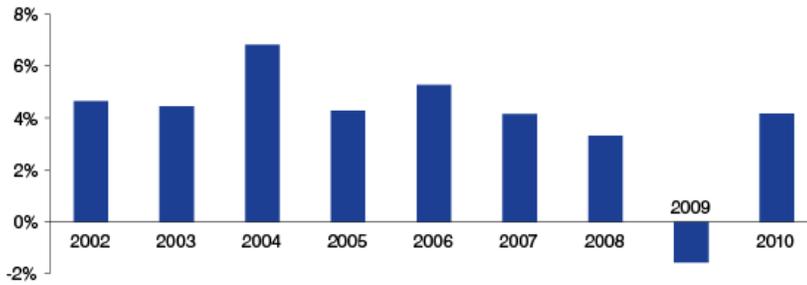
Table 1: Wages for Long-Term Employees, 2002 to 2010

Year	Average Wage
2002	\$42,991
2003	\$44,901
2004	\$47,962
2005	\$50,013
2006	\$52,645
2007	\$54,830
2008	\$56,647
2009	\$55,764
2010	\$58,083
Average Wage of All Years	\$51,537

Source: Indiana Department of Workforce Development, using Indiana Workforce Intelligence System data

Figure 1 shows the average yearly wage growth (in percentage terms). This is likely the result of promotions within the same company or yearly raises (cost-of-living adjustments and performance-based increases). Wage increases of the long-term employed began to slide in 2007. In 2009, in the midst of the Great Recession, salaries of the long-term employed actually decreased 1.6 percent. However, by 2010, the salaries of the long-term employed rebounded and experienced growth in excess of inflation measures.

Figure 1: Percent Change in Wages for Long-Term Employees, 2002 to 2010



Source: Indiana Department of Workforce Development, using Indiana Workforce Intelligence System data

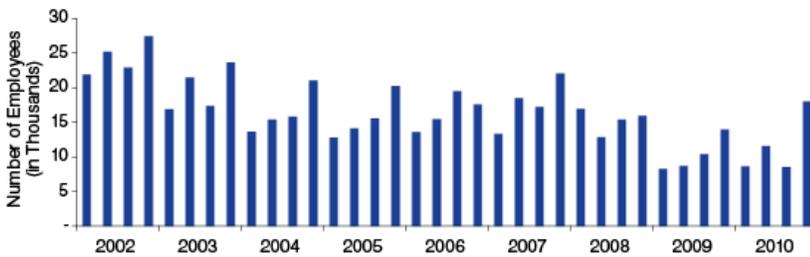
Transitional Employees

The long-term employed were compared to the transitionally unemployed. One indication of a healthy labor market (from the employee perspective) is the ability to take one's skills and find better employment. In a vibrant market with low unemployment, employees will voluntarily separate from a company if they have better opportunities or prospects elsewhere. On a quarterly basis, this group is called the transitional group. The transitional group have employment and, either at the behest of the company or voluntarily, separate only to find employment again in a rapid fashion due to their skills or experience. This group does not include the long-term unemployed or the structurally unemployed. The increase in long-term unemployed or structural unemployment is clearly a sign of a weak labor market. This study is limited to the short-term transitionally unemployed in an effort to see the wage impact of this group.

The transitional group consists of the employed in the marketplace that changed employers in the specified quarter. Attempts were taken to remove those records of individuals obtaining second jobs or other anomalies that might negatively influence the results (employees bouncing between the same employers repeatedly). The total number of transitional group by quarter and yearly totals are provided.

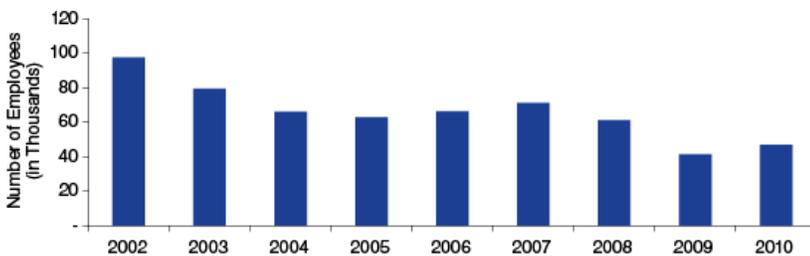
Figure 2 illustrates that the fourth quarter of 2007 marked the beginning of a decrease in the volume of transition employees. The incentive for switching employers decreased and employees valued longer-term employment during the recession years (see **Figure 3**). The reduction of incentive for movement between employers for the short-term unemployed should also be evident in relative wages.

Figure 2: Number of Transitional Employees by Quarter, 2002 to 2010



Source: Indiana Department of Workforce Development, using Indiana Workforce Intelligence System data

Figure 3: Annual Number of Transitional Employees, 2002 to 2010



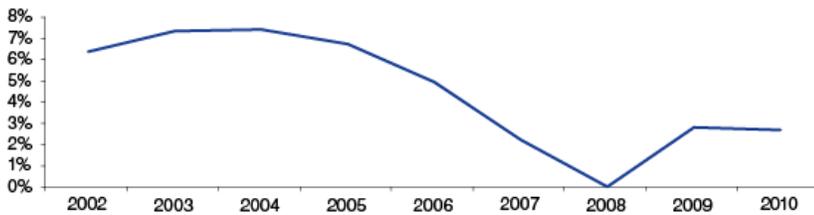
Source: Indiana Department of Workforce Development, using Indiana Workforce Intelligence System data

In a healthy labor market, the expectation is that employees make short-term movements between employers if it is in their best financial interest. Given that no information was available about the specific date within the quarter of transition between employers, the wages of the transition quarter were not included. For specific transitional employees, the four quarters of wages

prior to the transition quarter were summed and used as the annual salary of the employee prior to the new job. Likewise, the four quarters of wages after the transition quarter were summed and used as the annual salary of the employee in the new position.

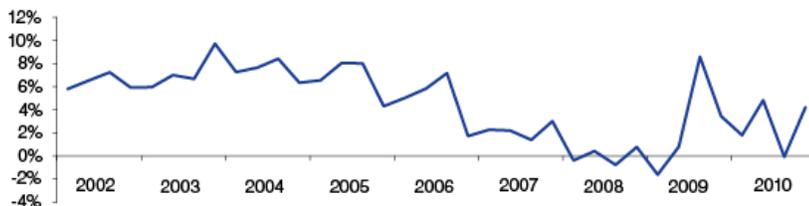
As indicated by **Figure 4**, transitional employees witnessed wage gains in excess of 6 percent in 2002 through most of 2005. The incentive for the short-term unemployed to seek employment with another firm was an average 6 percent gain in wages. However, the benefits of moving between employers began to soften in late 2005 and a significant drop was seen during the third quarter of 2006 (see **Figure 5**). In some quarters between 2008 and 2009, the benefits of switching became negative. Since the second quarter of 2009, the labor market for the transitional employees has recovered somewhat, but the post-recession labor market remains well below pre-recession levels.

Figure 4: Annual Change in Wages for Transitional Employees, 2002 to 2010



Source: Indiana Department of Workforce Development, using Indiana Workforce Intelligence System data

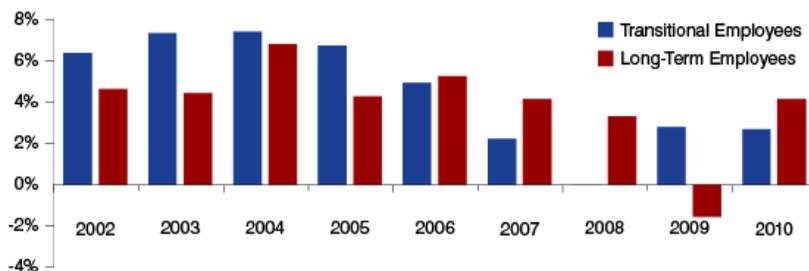
Figure 5: Quarterly Change in Wages for Transitional Employees, 2002 to 2010



Source: Indiana Department of Workforce Development, using Indiana Workforce Intelligence System data

Figure 6 illustrates the wage changes of the long-term employed and transitional employees side by side. In the pre-recession years of 2002 to 2005, the best avenue for individuals to achieve higher wage growth was through leveraging the employee’s skills in the labor market to command a better salary. However, this dynamic changed in 2006 when the transitional unemployment markets weakened. An overall sign of labor market weakness could have been observed as early as the later quarters of 2005, but the third quarter of 2006 showed significant problems in the labor market. From 2006 through 2008, the labor market was weak, and those employees that were able to hold onto positions with employers achieved higher wage growth. With the start of the recovery in 2009, the results of the labor market have varied.

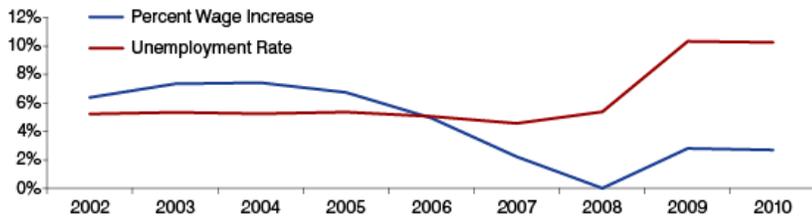
Figure 6: Wage Change Comparison, 2002 to 2010



Source: Indiana Department of Workforce Development, using Indiana Workforce Intelligence System data

The signals of the transitional labor market significantly preceded other labor market indicators such as the unemployment rate. The transitional labor market indicated potential problems as early as 2005, while the unemployment rate did not begin significant climbs until 2008 (see **Figure 7**).

Figure 7: Transitional Employee Wage Change Compared to Total Unemployment Rate, 2002 to 2010



Source: Indiana Department of Workforce Development, using Indiana Workforce Intelligence System data

Note: Data are quarterly averages.

Conclusion

The transitional unemployment market provides significant insight into the strength of the labor market. Weakness in the transitional market in the latter half of 2005 signaled problems in the labor market. A clear negative signal in the third quarter of 2006 indicated a lack of vibrancy in the labor market and might have foreshadowed larger potential problems in the broader economy. These negative signals preceded other indicators traditionally used from the labor market.

However, while very effective in determining changes in the labor market, the ability to use the transitional unemployment market as a leading indicator or forecasting tool is severely limited. Current methods require several quarters of post-transition wage data collection. Additionally, each quarter of wage data is lagged in collection and processing by at least six months, and there are currently no methods to gather real-time access to these data.

Exploring Hoosier Minority Groups: Indiana's Black Population

RACHEL STRANGE

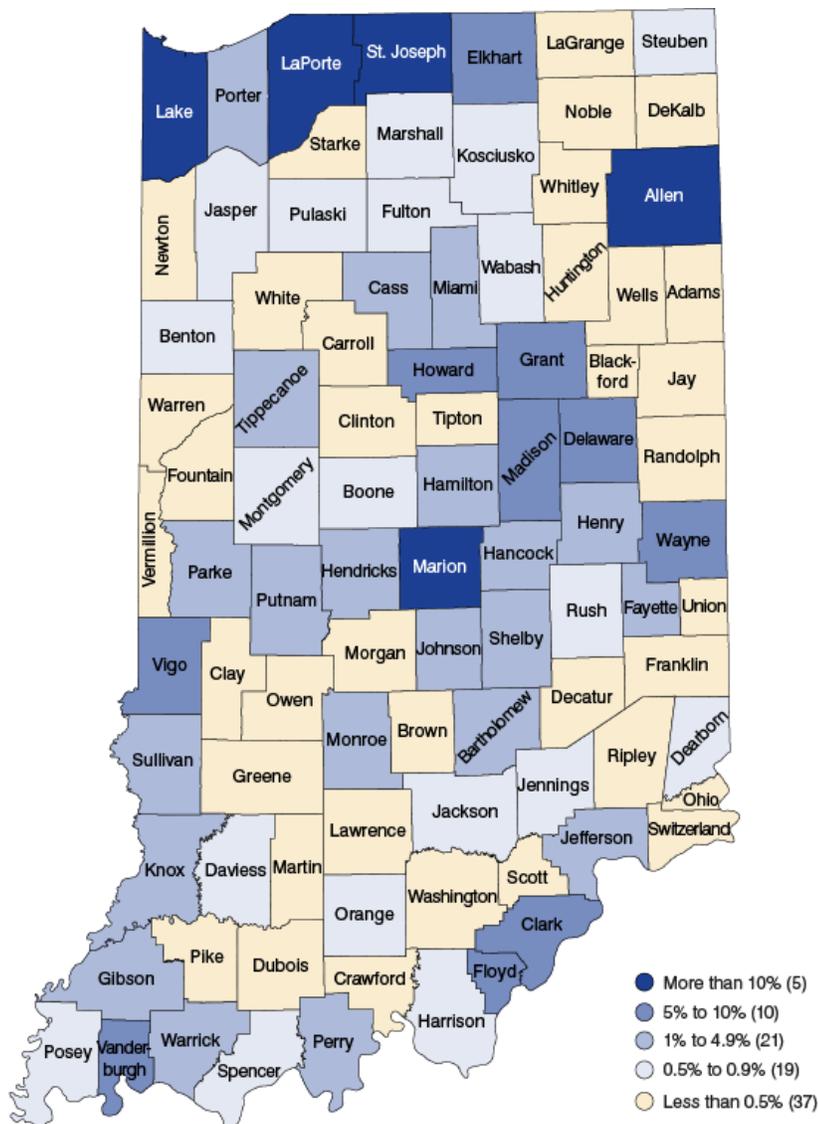
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Indiana's population has become increasingly diverse in terms of race and origin. Results from the latest census count for 2010 provide us with a rich set of information from which to gain insight into our population diversity. This article will be the first of four *InContext* articles to provide demographic snapshots of our minority population. As the state's largest minority group, blacks or African Americans comprised 9.1 percent of Indiana's population in 2010 and will be the focus of our first snapshot. The overview that follows focuses on population, household formation, income and education.

Population

591,397 Hoosiers reported black as their only race ("black alone" in Census Bureau lingo) in 2010. While every Indiana county includes some black residents, 62 percent of the state's black population resides in just two counties—Marion and Lake. Within these two counties, blacks comprise more than 25 percent of the total population (see **Figure 1**).

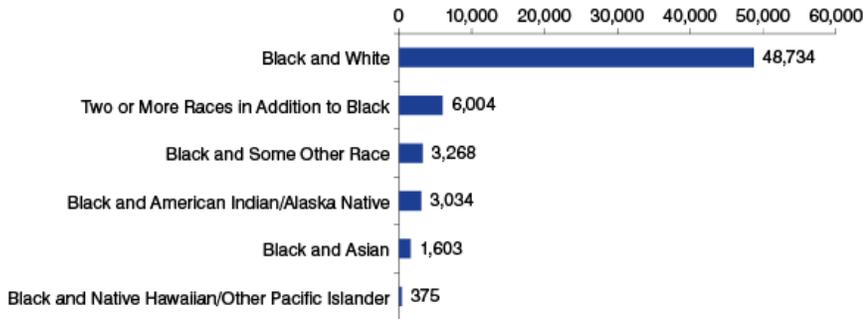
Figure 1: Blacks as a Percent of Total Population, 2010



Source: IBRC, using Census 2010 data

All statistics in this article are for the black alone population, but it is worth noting that an additional 63,018 Hoosiers report having some black ancestry in combination with another race (see **Figure 2**). While the black alone population makes up 9.1 percent of Indiana's total population, those who specified their race as black alone or black in combination with another race account for 10.1 percent of the total population.

Figure 2: Indiana Multiracial Population Reporting Race as Black in Combination with Another Race, 2010

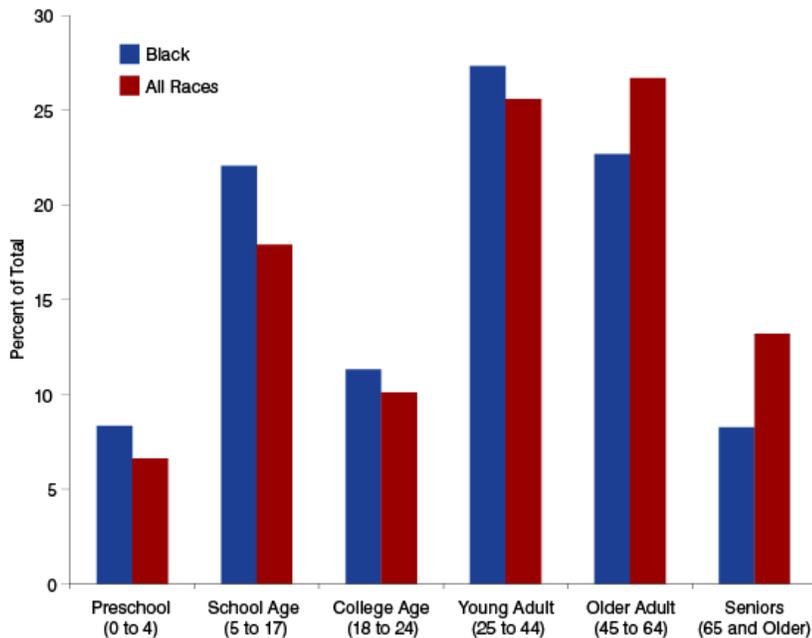


Source: IBRC, using Census 2010 data

Since 2000, Indiana's black population has grown by 16 percent—an increase of 81,363 people. This increase was seen across the state (in fact, 20 counties saw their black population more than double), and only 13 of the state's 92 counties saw declines in their black population.

In addition, the black population is younger than the state's population overall (see **Figure 3**). The median age for blacks is 30.7 years, compared to 37.1 for the overall population.

Figure 3: Indiana Age Distribution, 2010



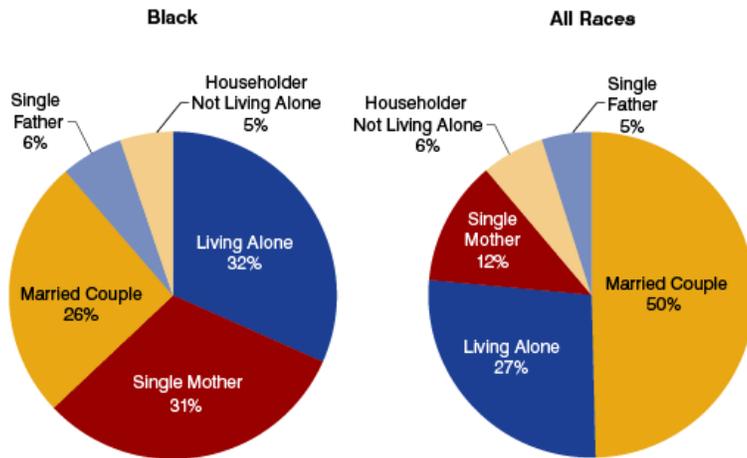
Source: IBRC, using Census 2010 data

Households

Census 2010 reports 220,246 black households in the state. (When it comes to race at the household level, the household is characterized based on the race of the primary householder.) Those living alone comprise 32 percent of all black households followed by “female householders with no husband present.” For the sake of convenience, we refer to these as single mothers; however, one must keep in mind that this does not necessarily mean there are no other adults in the household and it can include cohabiting couples.¹ Meanwhile, just over a quarter of black households are comprised of married couples—significantly less than

the overall proportion of 50 percent for the state as a whole (see **Figure 4**).

Figure 4: Indiana Households by Type, 2010



Note: The single-mother category is “female householder, no husband present” and the single-father category is “male householder, no wife present.”
Source: IBRC, using Census 2010 data

58 percent of the black population lives in rented units, relative to 28 percent of the total population (see **Table 1**).

Table 1: Indiana Homeownership, 2010

	Black	All Races
Owned with a mortgage or a loan	36%	57%
Owned free and clear	7%	16%
Renter occupied	58%	28%

Note: These percentages are based on the population in occupied housing units.
Source: IBRC, using Census 2010 data

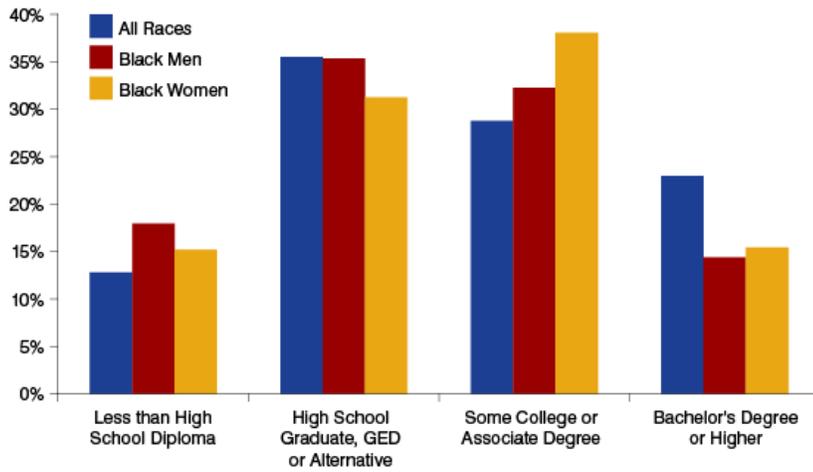
Income and Educational Attainment

Since Census 2010 did not collect any economic data, we must turn to the 2011 American Community Survey (ACS) for this information. Per capita income in 2011 was \$16,501 for Indiana’s black population, compared to \$23,524 for the overall population. Meanwhile, the median household income for Indiana’s black households was \$28,485—nearly \$18,000 less than the median for all households in the state (\$46,438).

The Indiana black poverty rate was 34 percent according to the ACS, compared to 16 percent for the overall population.

Figure 5 shows educational attainment for the black population broken down by gender. It is worth noting that while a lower percentage of Indiana’s black population has a bachelor’s degree or higher, 54 percent of black women have either some college experience or a college degree—a number on par with women of all races.

Figure 5: Indiana’s Adult Educational Attainment, 2011



Note: Educational attainment statistics are calculated for those age 25 and older.

Source: IBRC, using American Community Survey data

Learn More

To access more data about Indiana's black population, visit American FactFinder from the U.S. Census Bureau at <http://factfinder2.census.gov>, which contains data from both Census 2010 and the latest American Community Survey.

Notes

1. Data for specific races are unavailable, but for all races combined, 20 percent of Indiana's single-mother households and 48 percent of single-father households include an unmarried partner. See Rachel Justis, "Where Are the Kids? Indiana Households with Children," *InContext*, September-October 2011, www.incontext.indiana.edu/2011/sept-oct/article2.asp.