

About the Authors

Emily J. Wornell, PhD, is a research assistant professor in the Indiana Communities Institute at Ball State University, working with CBER and the Rural Policy Research Institute (RUPRI). Her research interests lie at the intersection of policy and research, including inequality and population change in rural communities. Wornell earned a doctorate in rural sociology and demography at The Pennsylvania State University and holds certificates in survey methodology and teaching.

Michael J. Hicks, PhD, is director of Ball State CBER and the George & Frances Ball distinguished professor of economics in the Miller College of Business. His research interest is in state and local public finance and the effect of public policy on the location, composition, and size of economic activity. Hicks earned doctoral and master's degrees from the University of Tennessee and a bachelor's degree from Virginia Military Institute. He is a retired Army Reserve infantryman.

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Center for Business and Economic Research

2000 W. University Ave. Muncie, IN 47306-0360 765-285-5926 | cber@bsu.edu bsu.edu/cber | cberdata.org

Fiscal, Economic, & Social Effects of Immigration in the Hoosier State

May 13, 2019

Center for Business and Economic Research, Ball State University

- Emily J. Wornell, PhD, research assistant professor, RUPRI Center for State Policy, Indiana Communities Institute
- Michael J. Hicks, PhD, director and George & Frances Ball distinguished professor of economics, Miller College of Business

Tags: #Immigration #Migration and Population Change #Placemaking



This study details the current realities and implications of immigration in Indiana as a whole, including effects on demographics, education, wealth and poverty, employment, and the labor market.



Conexus Indiana 111 Monument Circle, Suite 1800, Indianapolis, IN 46204 317-638-2107 | conexusindiana.com

Produced for Conexus Indiana by the Ball State University Center for Business and Economic Research.



Executive Summary

Immigration into the United States has long followed a pattern of successive waves of immigrants following early immigrants into particular communities. In the 1990s, this patterned shifted dramatically as immigrant spread across the nation, moving to places with less recent experience with international immigration.

Using publicly available data, we examine the consequences of this immigration shift in Indiana, and outline the demographic, social, and economic patterns and changes of immigration to the state over the past century and a half. Specifically, we look general population trends, educational attainment, safety net use, assimilation, and labor market impacts as they relate to immigration.

Key Findings

In terms of general population trends, we find that the foreign-born population of Indiana is not yet back to the level the state experienced from the Civil War through World War I. As late as the early 1990s, immigration into Indiana occurred at about one-third the rate it had 100 years earlier. Although immigration is low in historical context, it has been rising since 1990, but even this increase may be starting to level off. Importantly, immigrant population growth is helping to stabilize the dangerous trend of declining population in 19 Indiana counties, particularly in rural counties. **Statewide, a full 25 percent of the population growth Indiana experienced between 2000-2015 was due to increasing immigration.**

There are a number of popular conceptions regarding immigration that this study proves inaccurate. Notably, immigrants do continue to assimilate much as expected, which is in direct contravention of most popular opinions on the matter. Additionally, there is evidence that **not only are immigrants in Indiana actually better-educated than the incumbent population of the state, their rates of educational attainment are increasing while rates remain relatively static for native-born Hoosiers.**

Based on our analysis, it is clear that **immigration into Indiana, including unauthorized immigrants, is a net benefit to the state and should be welcomed in every county and municipality.** At the same time, we acknowledge that there may be costs to some locations and populations. The most likely costs are in public services, costs of education, and in changes to labor market supply across the state.

The very large literature on public service use by immigrants is, in our judgement, very conclusive. This research finds that **immigrants are net contributors to the nation and state's social welfare and public assistance programs.** Not only do immigrants, including unauthorized workers, pay into the public service system through income, payroll, sales, and property taxes, they tend use fewer services than the native-born population, and receive less benefit when they do use services.

The issue for schooling costs is not as clear, which prompted us to perform new analysis to test whether high or growing levels of immigrant students (defined as ELL students) effected overall student performance. **We find no evidence, across several model specifications, of correlation (much less causal effect) of ELL rates on the student performance.**

The final potential local effect is that of labor supply and demand changes. In our model of immigration and wages in Indiana, we examine the effect of immigration on worker wages 2002-2016—a period of rapid growth in immigration. We find that the growth of immigration during this period had no impact on incumbent worker wages, and only a modest impact on the wages of new hires. Specifically, workers with a high school diploma or less saw modest declines in wages—\$48 and \$69 per month for less than high school and high school graduates respectively—due to increased competition. **Workers with some college or a college degree or higher experienced no negative effect of immigration.**

In fact, our model of labor demand shows the population growth effects of immigration caused very small increases in wages (less than \$5 per month) for workers with a high school degree or less, but better-educated workers (some college or bachelor's degree or higher) experienced labor demand wage increases from immigration resulting in more than \$278 and \$414 per month, respectively. All of these wage effects, positive and negative, dissipate for incumbent workers (those who have been working at the same firm for more than 90 days). These results are generally similar to studies by other prominent scholars, and point to **a small negative effect of immigration on workers with lower levels of educational attainment, and a larger positive effect for those with higher levels of education.**

We end here by noting that immigration has a long and overwhelmingly successful history in the United States. Currently, we are experiencing a rising rate of immigration that follows a long, steady decline of immigration into Indiana. **Immigration to our state is fiscally and educationally important, and likely marks an environment of increasing economic opportunity for new workers.** Moreover, immigrants are helping to stabilize shrinking populations in rural communities throughout the state, and may represent the best chance for population growth in these communities in the foreseeable future.

Overall, we find that immigration, regardless of authorization status, is an important source of fiscal, economic, and demographic health for Indiana's future.

Introduction

Historically, and almost universally, immigration has followed set patterns. One such patterns is that people tend to follow established networks when they immigrate. This is why certain regions, states, or cities become known as major hubs for particular immigrant groups: Chinese and Japanese in the Pacific Northwest, Cubans in Florida, Somalis in Minneapolis. The reasons for this are clear. The first wave of immigrants help to establish the path that others can follow—how to physically move from one place to another, and who can help with that process along the way. Moreover, people want to live near those they view as similar to themselves—who speak the same language, celebrate the same holidays, come from the same culture. Once immigrants from a particular city or community have established themselves in a new receiving community, it is easier for other immigrants to follow their lead. This is simply how immigration is understood to work—in networks. Historically, that has meant that immigrants have been concentrated in a few states, namely: California, Texas, New York, New Jersey, Florida, and Illinois. Collectively, these states are called "traditional immigrant destinations."

About 30 years ago, however, something shifted. For a variety of reasons, immigrants—particularly those from Mexico and Latin America—began to disperse more widely throughout the entire country. Quite rapidly, cities and small towns in the South and Midwest saw major booms in their immigrant populations. These communities, cities, counties, and states that have experienced large increases in their immigrant populations since the 1990s are called "new immigrant destinations"—Indiana is one such state.

This report will detail the current realities and implications of immigration in Indiana as a whole, including topics like demographics, education, wealth and poverty, employment, and the labor market. We have also created brief fact sheets for each Indiana Economic Growth Region (workforce development zones). These fact sheets are intended to give a snap shot of how the foreign-born population is changing at these various geographies, as well as the benefits and challenges they represent. We hope this information may be useful to community leaders moving forward.

Data and Methodology

Unless otherwise indicated, the data used in this report is from the 2012/2016 five-year estimates of the American Community Survey (ACS).^[1] ACS data are commonly used in analysis of the sociological and economic topics addressed in this report both because of the regularity and length of their collection, and because they provide a national snapshot of a variety of important issues. Similar to the US Decennial Census, the goal of the ACS (which is administered by the US Census Bureau) is to reflect the demographic landscape of the US and a given point in time. That means that efforts are made to include immigrants of all types, including both authorized and unauthorized immigrants. It is estimated that the ACS does actually capture the vast majority of the unauthorized population. That said, there is likely an undercount of unauthorized immigrants in Indiana that ranges from 7.5-12.1 percent, depending on which source you cite (American Immigration Council, 2017; Pew Research Center, 2016). Unless

otherwise indicated, the data and graphs represented here are a replication of ACS data.

An additional note on terminology used in this report is warranted. The movement of population across international borders is called immigration, and those who cross international boarders are called immigrants, regardless of their type of visa or naturalization status. We use the term 'unauthorized immigrant' to discuss those who have entered the United States without legal authorization, either intentionally or not. We chose this term to avoid the politicization of terms such as 'illegal immigrant' and 'undocumented immigrant.'

1. The American Community Survey (ACS) is a publicly available data source, available at https://factfinder.census.gov



History and Current Rates of Immigration in Indiana

Despite its classification as a "new destination," immigration in Indiana is not entirely new. Until the 1990s the majority of immigrants to Indiana came from Europe: Germany, specifically. The peak of immigration in Indiana was 1860, when immigrants totaled 8.8 percent of the population. From the mid-1800s until 1990, Indiana—as most of the rest of country—experienced a slow, steady decline in immigration, with the exception of a bump right before World War I, as seen in *Figure 1*. After a rapid 20-year increase in immigration, foreign-born population rates have started to level off and remain slightly below 5 percent of the total population.

The dramatic shift in the origin regions of immigrants in Indiana can be seen in *Figure 2*. In 1990, over 85 percent of the foreign-born population came from regions outside Latin America and Asia, primarily from Europe. Only 10 years later, however, nearly 70 percent came from either Latin America (42 percent) or Asia (27 percent), while only 32 percent came from all other regions combined. Today, the rate of immigrants coming from Latin America has essentially leveled off, but immigrants coming from Asia continues to increase and those from other regions continues to decline.

Currently, Mexico is the dominant sending country (31.6 percent), followed by India (9.1 percent), and China (7.9 percent). The Philippines and Myanmar round out the top five sending countries, with 3.3 percent and 2.9 percent respectively. As with anything, however, this breakdown varies by geography. We discuss the geographic variation briefly, in the individual fact sheets. Still, immigration from Latin America represents the largest international movement in the state. Indeed, between 2000-2015, a full 14 percent of Indiana's total growth was immigration from Latin America. Another 11 percent was immigration from Asia.

Figure 1. Foreign-Born Hoosiers, 1850-2015 Source: US Census Bureau American Community Survey Note: * 2015 population is ACS estimate



Figure 2. Indiana's Foreign-Born Population by Region of Birth, 1990-2015

Source: US Census Bureau American Community Survey Note: * 2015 population is ACS estimate



These demographic shifts do not impact the entire state uniformly, however, and looking exclusively at statewide rates not only belies the incredible diversity within Indiana, but it also obscures the varying challenges and opportunities facing counties and communities across the state. The growth in immigration is particularly impactful and noticeable in Indiana's counties that have been experiencing population decline over the last several decades.

As shown in *Table 1*, between 1990-2016, 17 counties saw total population loss while at the same time experiencing an increase in their immigrant population. Another two counties (bolded in the *Table 1*) would have had population loss if it weren't for immigration. Of these 19 counties, 15 are rural counties. Indeed, **immigration may represent the greatest potential for future population growth in rural Indiana for the foreseeable future.**

Table 1. Total and Foreign-Born PopulationChange in Selected Indiana Counties, 1990 & 2016

Source: US Census Bureau American Community Survey Note: All net population growth in Clinton and Pike counties is due to growth of the foreign-born population

		Total Population		Foreigr	Foreign-Born Population		
IN County	Rural/ Urban	1990 Total	2016 Total	Change 1990- 2016	1990 Foreign	2016 Foreign	Change 1990- 2016
Benton	R	9,441	8,709	-732	44	175	+131
Blackford	R	14,067	12,364	-1,703	41	149	+108
Cass	R	38,413	38,324	-89	246	3,359	+3,113
Clinton	R	30,974	32,692	1,718	142	2,258	+2,116
Delaware	U	119,659	116,463	-3,196	1,355	2,353	+998
Fayette	R	26,015	23,608	-2,407	152	159	+7
Fountain	R	17,808	16,741	-1,067	67	259	+192
Grant	R	74,169	68,269	-5,900	579	1,057	+478
Jay	R	21,512	21,196	-316	78	260	+182
Knox	R	39,884	37,956	-1,928	286	505	+219
Madison	U	130,669	129,862	-807	914	2,387	+1,473
Martin	R	10,369	10,218	-151	47	54	+7
Pike	R	12,509	12,554	+45	40	173	+133
Posey	R	25,968	25,527	-441	69	144	+75
Randolph	R	27,148	25,403	-1,745	126	386	+260
Rush	R	18,129	16,873	-1,256	42	179	+137
Tipton	R	16,119	15,447	-672	66	220	+154
Wabash	R	35,069	32,177	-2,892	284	387	+103
Wayne	R	71,951	67,423	-4,528	450	1,504	+1,054

Immigration may represent the greatest potential for future population growth in rural Indiana for the foreseeable future.





Immigration and Assimilation

An often-used trope in the current immigration debate is that immigrants today, particularly those from Latin America, are not assimilating into the American mainstream like they did the in the past. This view likely comes from an increased visibility of non-English language use, which continues to be a flashpoint for discrimination and aggression due to the aforementioned changes in the migration streams. To understand whether this lack of assimilation argument is true, however, we must first understand what is meant by assimilation.

The process of assimilation was first described by Gordon in 1964, who used the term "assimilation" to describe how immigrants integrate into the US by adopting American culture and characteristics. There is strong criticism of this view of assimilation, however, and many scholars point out that assimilation is not a one-way street. While immigrants are changing and adapting to the US, their presence also fundamentally changes the cultural, linguistic, social, and economic environment of the US. Some may criticize the notion of there being an American culture into which immigrants can assimilate. Rather, they point out, there are many cultures, and these groups of people-be they ethnic, racial, or geographically categorizedhave very different histories, trajectories, and experiences in the United States. Gordon was describing the well-known image of the American Melting Pot, wherein people from all over the world blend and mix to make one homogenous America; critics of this view describe a salad bowl, where each individual culture, history, and language are needed to make the salad what it is, but each retain their distinct identity. Despite these very valid criticisms, most immigration scholars would tend to agree that there are four main areas of assimilation-socioeconomic, residential concentration or segregation, language, and relational-and that assimilation is considered to be progressing if there is mobility between the first and second generation, meaning that the second generation has better outcomes than the first on these four measures (Gordon, 1964; Waters and Jiménez, 2005). The process of assimilation is considered completed when the immigrant group

achieves outcomes that are virtually the same as non-immigrant groups (Gordon, 1964; Waters and Jiménez, 2005).

This concept of "generation"

is also important for understanding assimilation, and how current immigrants are different than earlier immigrants. As *Table 2* shows, the "first generation" constitutes the immigrants themselves—the people who were born in another country and made the journey to the United States. This genera-

tion is the least integrated into

Table 2. Explanation of Immigrant Generations

First generation	Foreign-born, immigrated to new country directly
Second generation	Native-born, has at least one foreign-born parent
Third generation	Native-born, has at least one foreign-born grandparent

US culture and society, retaining much of their linguistic, cultural, and religious practices (Gordon, 1964). The children of those initial immigrants are considered the second generation—they were born in the US and have at least one foreign-born parent. Theoretically they are somewhere in between their parent's culture and mainstream American culture (Gordon, 1964; Waters and Jiménez, 2005). By all early accounts, the third generation—the grandchildren of the original migrants—is essentially fully integrated into American culture, and their outcomes on these four measures are indistinguishable from any other native-born person (Gordon, 1964). This is, of course, a vast simplification of the "generation" issue, and exactly what these terms mean and who gets classified as which generation and for what reason has been the subject of much sociological debate over the intervening 50 years since Gordon's first publication (Alba and Nee, 2003; Portes and Rumbaut, 2005; Smith, 2003; Green, 2006).

The primary theories of assimilation were largely based on the experience of early waves of immigration—waves dominated by relatively low socioeconomic immigrants from Southern and Eastern Europe (Waters and Jiménez, 2005). The characteristics of recent immigrants, however, are more diverse in terms of their socioeconomic background, level of human capital, and country of origin than were earlier waves in immigrants. Despite this, Waters and Jiménez find that "most careful sociological research

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This dynamic may give the appearance that immigrant generations are not assimilating, but research shows that they are on virtually every measure.

supports the notion that immigrants [today] are being successfully incorporated into American society" in their 2015 comprehensive review of the immigrant assimilation literature.

On the whole educational attainment and outcomes for second and third generation students strongly indicate positive immigrant assimilation (Waters and Jiménez, 2015), although this does vary some by the immigrant and comparison groups under consideration. For example, second generation children tend to be better behaved in school, complete more homework assignments, get better grades, and finish at higher rates than do their native counterparts (Portes and Rumbaut, 2001; Farely and Alba, 2002; Hirchman, 2001). Educational attainment is particularly important for socioeconomic assimilation because human capital is a major predictor of occupation and income. Similar findings are reported for the other three measures of assimilation. Assimilation is progressing much as would be expected, although—and importantly—the specifics depend on the immigrant and comparison groups being considered.

Despite this evidence, there are important differences in today's immigration context than previous waves of immigration, and those differences can make identifying assimilation and generation more difficult, particularly for the lay-person relying on their personal experience rather than aggregate data.

One of the major tenants of assimilation theory is that, once fully integrated, immigrants will be nearly indistinguishable from individuals whose families have been in the US for many more generations (Gordon, 1964). As many scholars have pointed out, however, the process of assimilation for current immigrants occurs within a fundamentally different cultural and social context than it did for earlier immigrants (Waters and Jimenez, 2005; Alba, 1990).

Due to the restrictive immigration policies and declining economic opportunity in the United States marked by the beginning of the Great Depression, European migration of the 1800 and early 1900s was restricted to a specific time in history. The United States saw very large numbers of immigrants coming from Southern and Eastern Europe, but that wave did not last a particularly long time. Alternatively, current immigration trends, particularly that from



Mexico, have been on going, to varying degrees of intensity, for over 100 years (Alba, 1990; Ochoa, 2004). This "continual replenishment" both makes it difficult to measure assimilation over generation (Waters and Jimenez, 2005), and also has a direct impact on the identity of Mexican Americas, which may act to keep them somewhat separated from mainstream American culture in a way that earlier immigrants did not experience.

Why might "continual replenishment" affect our understanding of generation and identification of assimilation over time? In earlier waves of immigration, generation was very clear. Immigrants often married other immigrants, so their children were clearly second-generation Americans, and their grandchildren were clearly third-generation. While this remains true for some current immigrant groups, for others—like those from Mexico and Latin America—many generations of immigrants means that a firstgeneration immigrant may marry someone whose family has been in the United States since the annexation of Texas in 1845. What generation, then, should their children be considered? Or their grandchildren? How should these generations be viewed, measured, and understood in relation to assimilation and integration?

This generational question is also closely related to linguistic and cultural identity. Because earlier waves of immigration were temporally confined, people speaking their native language and participating in traditional cultural practices continued to dwindle over time. In a continual replenishment environment, there are always new immigrants speaking their native language and practicing traditional customs. This not only continues to expose native-born, non-immigrants to foreign languages and customs, but it allows those languages and customs to continue in use over subsequent generations. Both of these effects may give the appearance that immigrants are not assimilating, but research shows that they are on virtually every measure.

Figure 3. Educational Attainment of Native-Born and Foreign-Born Hoosiers, 2016

Source: US Census Bureau American Community Survey



Figure 4. Educational Attainment of Foreign-Born Hoosiers, Age 25+, by Arrival Period

Source: US Census Bureau American Community Survey





Figure 5. Educational Attainment of Native-Born Hoosiers, Age 25+, 2010 & 2016

Source: US Census Bureau American Community Survey



Measures of Assimilation in Indiana

Educational Attainment

As mentioned above, educational attainment is an incredibly important measure of assimilation, not only because it is fairly easy to make comparisons across groups due to a wealth of data collected regularly on educational attainment, but also because it is highly correlated with future occupational attainment, income, and lifetime wealth. A common misconception of is that immigrants to the US are largely uneducated. Reality, however, is more complicated. While it is true that immigrants are concentrated at the lower end of the educational spectrum in Indiana as well as nationally, they are also concentrated at highest end. As Figure 3 shows, in 2016 slightly under 11 percent of the native population and 30 percent of the foreign-born population (ages 25+) had less than a high school diploma. In the same year, approximately 24 percent of the native born population had a college degree of more, while 30 percent of the foreign-born population had earned a college degree or higher. In fact, over half of foreign-born degrees (15.8 percent) were graduate degrees. In contrast, only 8.5 percent of the native Hoosier-born population had earned a graduate degree by 2016.

Moreover, there is evidence that the educational attainment of immigrants is increasing both nationally and in Indiana. Immigrants living in Indiana who arrived in the United States prior to 2010 exhibit the above educational bifurcation, where essentially equal percentages have less than a high school education (30 percent) and a college degree or greater (31 percent). Compare that to Hoosier immigrants who arrived in the US between 2010-2016. Only 20 percent of immigrants arriving in these years have less than a high school diploma, while nearly 50 percent have a college degree or greater (*Figure 4*).

Alternatively, the rate of educational attainment for native-born Hoosiers did not changed significantly between these two time periods. As *Figure 5* shows, 10.8 percent of native-born Hoosiers had less than a high school diploma in 2016, which is only 2 percentage points lower than it was in 2010 (12.8 percent). College degree attainment had a similar change, with 24 percent of native-born Hoosiers having a college degree in 2016, up from 22 percent in 2010.

Wealth and Poverty

Very closely related to educational attainment are measures of wealth and poverty. Wealth can be, and often is, measured using income and home ownership. Income represents the ability to meet basic needs and save for the future, whereas owning a home represents a stock of financial resources. As an entire group, immigrants in Indiana clearly possess less wealth and experience higher rates of poverty than does the native-born population. Median household income for foreign-born Hoosiers was approximately \$8,000 less than for the native-born in 2016. Correspondingly, their poverty rate was nearly 5 percentage points higher than for native-born Hoosiers. This lack of income and higher rates of poverty translates into lower stocks of wealth, such as home ownership, as well, which is clear in *Figure 6*.

Another very common trope in the current immigration debate is that immigrants are exploiting our public welfare system by coming to the US specifically to get access to public assistance without paying into the system. Statistics on public assistance use, as seen in Figure 7, tells a different story, however. These data, which do include both authorized and unauthorized immigrants, show that immigrants are both more likely to have work-related income and less likely to have income from any other source than are native-born households. For example, only 15 percent of foreign-born households receive income from Social Security Insurance (SSI), which is less than half of native-born households (32 percent); while the difference between foreign- and nativeborn households that receive cash benefits is smaller (1.5 percent versus 2 percent respectively), a smaller percentage of foreign-born households receive these benefits as well. The one exception to this rule is participation in SNAP, the Supplemental Nutritional Assistance Program also known as Food Stamps. A slightly higher percentage (0.8 percent) of foreign-born households receive these benefits than do native-born households.

Not only do fewer foreign-born households receive most benefits, they also get less from those benefits when they do receive them. *Figure 8* shows that foreign-born households that receive cash assistance in 2016 received, on average, approximately \$300 less per month than did native-born households. Similarly, foreign-born households received approximately \$1,000 less in SSI benefits than did native-born households, likely due to smaller contributions by lower-paid immigrants.

Benefits and Unauthorized Immigrants

A discussion about immigrants and benefits would not be complete without an explicit mention of unauthorized immigration. Here again the data show the inaccuracies of dominant public discourse. Unauthorized immigrants are ineligible for the majority of government assistance programs. In fact, the only programs that unauthorized immigrants are eligible for are school meal programs, WIC (Women, Infants and Children-a nutritional supplement program), Head Start (an early educational program), and emergency Medicaid. Unauthorized immigrants are ineligible for the following programs: cash welfare, TANF (Temporary Assistance to Needy Families, formerly known as welfare), SNAP, SSI, Medicaid, CHIP (Children Health Insurance Program), Medicare, ACA (Affordable Care Act) subsidies, and Social Security. Not only are undocumented immigrants ineligble for the majority of federal benefits, but they are ineligible for these programs despite the fact that many do pay into the system. By and large, immigrantsregardless of authorization status-work for legitimate businesses and corporations that both require a Social Security number and

Figure 6. Wealth and Poverty Statistics of Native-Born and Foreign-Born Hoosiers, 2016

Source: US Census Bureau American Community Survey



Figure 7. Percent of Indiana's Native-Born and Foreign-Born Households Receiving Benefits, 2016





Figure 8. Income Amounts for Indiana's Native-Born and Foreign-Born Households, 2016

Source: US Census Bureau American Community Survey



Figure 9. Employment Statistics for Indiana's Native-Born and Foreign-Born Households, 2016

Source: US Census Bureau American Community Survey



pay Social Security and taxes on behalf of their employees (Hallman, 2018). Indeed, the American Immigration Council (2017) estimates that unauthorized immigrants contribute over \$12 billion a year nationally to social security, and The New American Economy (2016) estimates that in 2014 they contributed almost \$65 million to local and state taxes in Indiana. These numbers are significantly higher when considering the entire immigrant population, regardless of authorization status, in Indiana. The New American Economy (2016) also estimates that in 2014 foreign-born Hoosiers contributed \$1.6 billion to federal taxes, \$815 million to Social Security, \$217.5 million to Medicare, and \$702 million to state and local taxes. In the same year, immigrants in Indiana earned approximately \$8.1 billion, meaning that after taxes, the spending power of immigrants living in Indiana was approximately \$5.8 billion (New American Economy, 2016).

Employment

If the employment statistics are an indication, the foreignborn population in Indiana may well be paying into the system at higher rate than native-born Hoosiers. Statistics on unemployment, labor market participation, self-employment, and the average number of workers per household (as seen in *Figure 9*)

Figure 10. Industrial Composition of Employment for Indiana's Workers, 2016 (Selected Industries)

Source: US Census Bureau American Community Survey



Education, Health, Social Assistance

all indicate that foreign-born Hoosiers are more economically active than the native-born population. This is, in part, because immigrants are more likely to be of working age than is the native-born population. They are also less likely to be unemployed or unattached to the labor market than are native-born Hoosiers.

A comparison of the previous four figures is incredibly telling regarding the economic and social position of immigrants in Indiana. Taken together, they paint a picture of a group of people who work greater rates than a second group, make less money for that work, and take fewer state and federal benefits despite having higher rates of poverty. This is not the dominant narrative in the current immigration debate, but is one that born out by the data.

Indiana also relies heavily on its immigrant workforce. As *Figure 10* shows, more foreign-born Hoosiers (24 percent) work in the manufacturing industry than in any other industry in the state. The next closest industry, education/health/social assistance, employs 19.7 percent of the foreign-born population. Although these industries also employ the most native-born Hoosiers, the percentages are essentially flipped, with 23 percent working in education/health/social assistance and another 18.5 percent in manufacturing.

Visas and Green Cards

A brief note about the avenues for immigration to the US is warranted here. An outsized emphasis has been placed on the visa lottery and family reunification system in recent political discourse. In 2017, less than 10,000 immigrants in the country via the visa lottery system were granted permanent legal residence (PLR) status, and the majority of family-based PLRs were the spouses, children, or parents of US citizens or "resident aliens" (US Department of Homeland Security, 2018), not distant relatives as some have claimed. But what is the difference between PRL status and visas? PLR are green-card holders, which means that they are permitted to be in the country permanently, but they retain citizenship in a different country (although having a green card allows them to apply for citizenship). PLRs are not allowed to vote and can be deported, and only 7 percent of green cards can go to citizens of any one country in a given year. Visa holders, on the other hand, allow people to be in the country for a limited period of time for work, school, or travel. In Indiana, the most common visas are H1B, H2A, and H2B, as shown in Table i.[A]

H1B visas are reserved for highly skilled workers to fill specialized positions,^[8] and allow temporary settlement in the US (three years initially, with a possible extension of another three years). The number of H1B visas given every year is capped, and they are given to employers via a lottery system. In 2017, nationally employers submitted over 236,000 requests for 85,000 available H1B visas (USCIS, 2016).^[C] Workers who fill H1B visa positions must have at least a bachelor's degree, 12 years of relevant experience, or a combination of the two. The maximum number of H1B visas has been reached for 16 consecutive years. Spouses and unmarried, underage children of H1B visa holders may apply for admission to the US, but are not allowed to work (under the H4 visa) without proper permission.

Temporary or seasonal agricultural workers from a limited number of countries are allowed to work in the US via the H2A visa. Holders of H2A visas (which are also given to employers rather than employees) can remain in the US for a maximum of three uninterrupted years. In order to be eligible for H2A status, employers must demonstrate that they are unable to fill the positions with qualified domestic workers and that employing H2A workers will not adversely affect the wages or working conditions of similarly employed domestic workers (USCIS, 2018). Family (spouse and unmarried, underage children) of H2A visa holders are not allowed to work if they are permitted to accompany the visa holder with a H4 visa.

Table i. Visa Characteristics and Indiana's Demand,2014

Source: US Census Bureau American Community Survey

Туре	Demand	Top Jobs/Crops	Top IN Cities
H1B	8,028	 Computer systems analysts Computer programmers Software developers 	 Indianapolis Columbus Carmel
H2A	934	Corn Fruits and vegetables Melons	TippecanoeValloniaOaktown
H2B	1,046	 Amusement and recreation attendants Landscaping and groundskeeping Food preparation and serving 	 Farmland Indianapolis Carmel
Green cards	545	 Software developers Mechanical engineers General internists 	

- A. Table i shows the number of visa applications in 2014 and the types of jobs and locations those applications were associated with. Demand does not necessarily equate to approved visa numbers.
- B. The United States Citizens and Immigration Services (USCIS) website lists "specialty occupations, DOD cooperative research and development project workers, and fashion models" as the target population for H1B visas (USCIS 2018).
- C. H1B visas are capped at 65,000 a year, with an additional 20,000 available for workers with advanced degrees, known as the "master's cap."

H2B visas are similar to H2A visas in that they are specifically intended for short-term fulfillment of employment needs that cannot be filled by domestic workers—the primary difference being that H2B visas are not granted for agricultural workers. Employers must still show that hiring H2B workers will not adversely impact domestic workers, and they must also show that they have a onetime need, seasonal need, peak-load need, or intermittent need for additional workers. There is also a cap on H2B visas (unlike H2A) of 66,000 a year (half granted in the first half of the year, and the remaining in the second half of the year). As with H2A visas, families of visa holders are not eligible for work.

Immigration Effects on Communities

Immigration concerns are more than the effect on people moving across borders. Changes to the existing cultural and demographic mix of residents alter a variety of aspects of receiving communities, which may or may not be welcomed by the nativeborn population. These effects are likely to influence everything from the type and nature of cultural institution (such as houses of worship and social organizations), to languages heard on the street, and foods offered at restaurants. These effects are largely outside the scope of this work, but do exist and have a real effect on the fabric of community life; whether this effect is positive or negatively largely depends on how the existing community does or does not accept the change. In the section that follows, we examine two of the most commonly cited concerns regarding immigration—schools/education and labor markets—and we will explore the impact on receiving communities.

Schools and Education

Local public schools accommodate immigrant students like they do all students, through traditional educational programs and specialized classes or classrooms for English Language Learners (ELL), or students who have not mastered English at an appropriate grade level. The concern of some school officials and parents is that either the presence of ELL students or the amount of resources going to ELL students will have a negative impact on the educational outcomes of their non-ELL peers. There are surprisingly few studies on peer effects of ELLs in schools, but among the very few studies that do exists, researchers find little to no peer effects of having ELLs in classrooms (Angrist and Lang, 2004; Betts, 1998; Brunello and Rocco, 2013; Hoxby, 1998).

In Indiana, ELLs are reported annually, at the school level, to the Indiana Department of Education, but they are not considered in the funding formulas for schools. For this reason, if the effect of diverting instructional resources from traditional to ELL students does result in poorer performance of non-ELL students, the data should reflect this outcome. It is important to understand that geography matters, and school corporations across the state are experiencing this challenge in very different ways. The average school corporation has an ELL rate of about 3 percent; however, the corporation with the highest percentage has a little over 32 percent of ELL students in the student population.

Employing school corporation-level data reported in Devaraj, Faulk, and Hicks (2017), we test the effect of the number and share of ELL students on school performance in Indiana using a time series cross sectional (TSCS) model that includes observations from all of Indiana's school corporations 2012-2014, for a total of three years' worth of data. This model tests whether the share or level of ELL students in a school corporation effects the total pass rate for ISTEP+ test over these three years. There are a host of other factors that can also impact ISTEP+ pass rates, including the share of students eligible for free or reduced lunches (a common socioeconomic control in school performance research), the share of African American and Hispanic (white or non-white) students in a school, and total school enrollment. We control of all of these variables in an effort to isolate the effect of ELL rates on total ISTEP+ pass-ing rates. We include a number of other common controls in the model, including fixed effects dummies for year and school, and White's (1980) heteroskedasticity invariant, variance covariance matrix. The results of both models appear in *Table 3*.

The results of this model show that, despite fears that the presence and number of ELL students will negatively impact educational outcomes of non-ELL students, neither the share nor level of ELL learners influence the pass rates on the ISTEP+ test at the corporation level. The largest share of variance in test scores is, unsurprisingly, related to poverty (the share of students receiving free and reduced lunch). To make sure our findings were sound, we conducted a series of robustness tests,^[3] and in none of these alternatively specifications did ELL rise to statistically significance. Indeed, the p-value in these estimates never improved to even 20 percent in any of these specifications.

The lack of effect on Indiana is unsurprising. Levels and share of immigration in Indiana are relatively low, and the composition of immigration likely includes an unusually large share of native English speakers. Whatever the cause, it is clear that overall, school performance in Indiana is unaffected by the number of share of ELL students in schools.

Table 3. Effect of English Language Learners (ELL)on School Performance in Indiana, 2012-2014

Source: Author calculations using data from Indiana Department of Education Note: ***statistical significance at the 0.01 level; **statistical significance at the 0.05 level; *statistical significance at the 0.10 level.

	Share of ELL Students	Number of ELL Students	
Intercept	64.44755***	63.99075***	
Share of students receiving free and reduced lunch	-15.65941*	-15.54473*	
African American student share	-7.417115	-8.445288	
Hispanic student share	-15.40882	-2.207611	
ELL share	41.49272		
Number of ELL		-0.000567	
Enrollment	0.003060**	0.003316**	
Adjusted R-squared	0.94	0.94	
Durbin Watson	2.47	2.47	
F-statistic	47.879***	47.765***	

3. We tested these models cross sectionally, so as to eliminate any dynamic adjustment which might occur; we also tested these models without fixed effects, and also squared the level and share of enrollment to evaluate the potential for nonlinear effects.

Figure 11. Effects of Additional Population (e.g. Immigrants) on Labor Supply and Demand



Number of Workers

Immigration and the Labor Market

A central consideration surrounding immigration, and one closely connected to education, is its effect on labor markets. Immigrants add to both the supply and demand for workers through a series of mechanisms, the most visible of which is that immigrants add to the supply of labor by seeking jobs within a local area. However, immigrants also add to the demand for labor by consuming goods and services. Both supply and demand for labor have the potential to influence the wage rate and employment levels, as demonstrated in *Figure 11*.

However, *Figure 11* depicts only static labor market effects and cannot account for the dynamic nature of labor markets, such as changes in work productivity due to changes in aggregate human capital. Changes in the productivity of work alter the demand for workers—if workers are more productive at their jobs, fewer workers are needed to complete the same tasks. There are also other effects from productivity changes, which likely manifest themselves over a longer period, including growth in new investment and changes to the level of urbanization.

Individually, the predictions regarding the impact of immigration on labor supply and demand are clear; immigrant workers and their family increase the demand for goods and services, while also increasing the supply of workers. But, the aggregate effect is not clear, meaning the magnitude and direction of immigration effects on wages and employment remain an empirical matter. Fortunately, there is abundant empirical research on the effect of immigration on labor markets in the United States.

Historical Views of Immigrant Workers

Very high levels of immigration in the late 19th century occasioned such publications as *The Restriction of Immigration* (Bemis, 1888), which clearly mirrors the issues confronted in the immigration debate today.

It is by no means proven, that, as held by some eminent writers and many flippant paragraphers, the Irish immigrant merely forced the Yankee millworker upward, and that the French Canadian in turn did the same favor to the Irish, and is now being similarly elevated by the pressure of the still cheaper Italian and Hungarian. Neither is it true, as commonly supposed, that no one would do our rough work of mining, sewer digging, railroad construction, etc., were it not for the new arrivals from Europe. Perhaps the American would demand higher pay, and thus stimulate more use of laborsaving machinery, but this every lover of humanity should desire. Rather, the conception that it takes a mean man to do mean work probably arises from the class of immigrants that come to us fitted for little else save rough work.

-Attributed to Francis A. Walker, in Bemis, 1888, pg. 562

And this treatment of the putative wage effect:

[Immigrants] are able and willing to live on what would not support in decency a native American with a family. Thus this new class of our immigration prevents the rise of wages, and even causes their fall in the mines, sweat-shops, and some other crowded employments, where they especially congregate. Some time ago, the writer noticed Italians working on the waterworks at Portland, Me., for sixty cents a day and their expenses of thirteen cents, while a considerable number of American workmen were idle, because they could not earn the small wages of \$1.25 per day rightly considered necessary to maintain their families.

—Bemis, 1888, pg. 565

Lee (1889) examined the effect of Chinese immigration in the west, reporting "... a greater supply of unskilled labor made it possible for skilled laborers to command higher wages and more regular employment" (pg. 31). This observation notes that there are separate labor markets for workers of different skills, and that immigration could generate significantly different effects across different skill levels.

Research over the ensuing decades has largely confirmed the existence of immigration effects on labor market, which differs across skill levels. Borjas (1994) provides a broad literature review and empirical evidence of skill and age differentials across native and immigrant workers. His summary notes that immigrant workers earn less than native workers in early years, but experience more rapid growth over a lifetime, out-earning native workers by middle age. This of course reflects a number of expected differences in human capital of those with a higher propensity to immigrate.

Over the past several centuries of international immigration, what is clear is that many immigrant groups arrive with lower levels of measured human capital, such as educational attainment or specific labor skills. Differences in school and credentials, as well as language barriers, make transmission of formal human capital more difficult between nations than within them (Cheswick and Miller, 2009). However, the factors that contribute to

Immigrants add to the <u>supply</u> of labor by seeking jobs within a local area while also adding to the <u>demand</u> for labor by consuming goods and services.

the probability of migration also suggest that these workers possess much higher levels of unmeasured human capital, which may manifest itself in higher levels of entrepreneurship, and may also be transmitted to the next generation of workers.

Studies of the regional effect of immigration on wages include examination of US cities between the 1890s and 1920s. Goldin (1994), for example, offers an analysis using cross sectional changes in labor force composition and wages which found a modest effect of immigration with a one percent increase in immigration leading to a decline of wages of between 1.0 percent to 1.6 percent. Lalonde and Topel (1991) conduct a similar analysis in the 1970s, finding a 1 percent increase in immigration reducing wages by roughly 0.3 percent. Both studies examined some worker characteristics, with the Lalonde and Topel (1991) study focusing the effect of early migrants on overall wages and those of African-American and Hispanic workers.

Borjas, Freeman, and Katz (1992) examined two decades ending in 1987, and found a 1 percent increase in immigration reduced wages by roughly 1.2 percent for native workers. Altonaji and Card (1991) report a similar level of effects. Freiberg and Hunt (1995) provide a review of both the potential adverse labor market effects of immigration, as well as the positive effects through complementaries in factors of production. This study also outlines methodological issues related to regional modeling of impacts. Freiberg and Hunt (1995) ultimately conclude that "empirical estimates in a variety of settings and using a variety of approaches have shown that the effect of immigration on the labor market outcomes of natives is small" (pg. 42). Their findings of wage effects are very small, with wage reductions for native workers of roughly 0.1 percent corresponding with a 1 percent increase in immigration.

What these studies make clear is that careful attention to empirics is necessary in evaluating the labor market effects of immigration. Borjas (1994) and Freiberg and Hunt (1995) provide a clear and contemporary approach to modeling both individual and regional effects in their reviews. Borjas (2003) empirically examines these issues again, with estimates of labor market responses, which vary across both educational attainment and years of experience. This study, conducted at the level of the individual workers, illustrates the effect of differential immigrant human capital levels plays on wages of incumbent workers. He finds that during the two-decade period ending in 2000, workers who did not finish high school faced relatively high level of wage effects due to immigration levels. His work examined the total effect of large immigration increases in this time period. He found that for all worker classes, the effect of a 1 percent increase in immigration was a roughly 0.3 percent decrease in wages.

Borjas (2003) also estimated the total effect of immigration on wages during this time period of heavy immigration, and found that immigration accounted for wage reductions of 6.5 percent for new workers (1-5 years) who did not finish high school. The

effect rose through workers with 20 years of experience and declined thereafter. Across all workers without a high school education, immigration accounted for wage reduction of 8.9 percent. High school graduates faced impacts of roughly 30 percent that level, while native workers with some college experienced no statistically discernible wage effect due to immigration. However, the effect returns for workers with a college degree, with overall wage impacts at about half that of the non-high school graduates.

These studies imply that the labor markets are affected by the human capital distribution of immigrations, and that careful attention to identification of the parameters of interest is important. These studies also suggest that the time period of analysis may influence estimates, but only modestly.

Modeling Effects in Indiana

To test the impact of immigration on labor markets in Indiana, we follow a very simple model of county-level labor supply and demand. Our goal here is to identify the labor market effects of immigration on wages within the context of broader labor market issues using the time period of 2002-2016. We test the effect of immigration on wages across education categories, for incumbent and newly-hired workers using the following two-equation model of labor supply and demand:

Equation 1 Employment = f (Wages, Capital, and Population)

Equation 2 Wages = f (Employment, Immigration, Metro, and 2000 wages)

In this model, we assume a standard regional production function, in which employment is a function of real wages, available physical capital, and employment (*Equation 1*), and where real wages are a function of employment, immigration, metro status, and initial wages (*Equation 2*).

We focus first on the wages of existing workers, ages 25-64, across four different educational attainment categories: non-high school graduates, those with a high school diploma or equivalent, workers who have attended college, and those who have graduated college or hold post-graduate degrees. It is common to limit analysis to these age categories since a majority of workers of under the age 25 are still in school or workplace training programs, and a significant share of workers over age 65 are no longer in the workforce. Inclusion of these workers would distort the educational attainment categories and results of the analysis.

Data for employment and wages is from the Longitudinal Employer, Household Dynamic database and are monthly levels in the second quarter of each year. The population and immigration data come from the American Community Survey (ACS), and metropolitan dummy variables are based on the Office of Management and Budget (OMB) 2013 metropolitan definition. The primary data limitation from this equation is that we do not have the first two years of the capital value variable, which is the gross assessed value of personal property collected from annual reports of the Indiana Legislative Services Agency. As such, we begin our log changes in 2002.

These equations are jointly estimated, as our variable of interests are the effect of immigration on wages, both through supply and demand. Operationally, we identify the wage equation by including the predicted value of employment from *Equation 1* into *Equation 2*. The results of these models finds that immigration affects both the level of employment and starting wages, but the effects vary across different educational attainment levels.

In our labor demand model, population growth, which includes immigrants, increases employment across all four educational attainment categories. In this model, a 1 percent increase in population increases employment from between 0.092 percent and 0.122 percent. This increased demand for labor affects both the level of employment and wages across all four levels of educational attainment. In our labor supply equation, we observe the effects of population growth due to immigration transmitted through the employment level, as well as the direct effect of immigration on wages. This latter effect is almost certainly due to the increase in available labor competition with incumbent workers.

In total, immigration acts to increase the demand for labor through increased local population, while also increasing the supply of labor. The net effect is an empirical matter that likely varies significantly across levels of educational attainment of workers, as reported in *Table 4*.

The results show a small, but meaningful negative effect of immigration on wages for new workers (less than three months on the job) for those workers who have not been to college. In contrast, there is a large positive impact of immigration on wages for workers who have attended or graduated from college. Part of the differential lies in the absence of any competitive wage effects among better educated workers. There are no statistically or economically discernible effects on incumbent worker wages.

Our estimates differ in two meaningful ways from Borjas (2003)—we find lower net negative effects, and we find positive effects of immigration on better educated workers. This divergence has several possible explanations. First, our estimates are for Indiana and include a period of declining immigration in the state (2007-2009) that was accompanied by labor market shocks of unusual size (the Great Recession). So, while our period is contemporary, it may differ in important ways from earlier, national studies, such as that conducted by Borjas (2003). Second, our data allows us to separate workers by educational attainment, age, or industry, but not all simultaneously. Consequently, our model might capture less fully the

Table 4. Monthly Wages and Effect of Immigrationby Educational Attainment on Newly HiredWorkers in Indiana Counties, 2000-2016Source: Author calculations

	Less Than High School	High School Diploma	Some College	4-Year Degree or Higher
2016 monthly wages for new workers	\$2,257.50	\$3,177.72	\$2,537.10	\$3,188.58
Wage effect of immigrant competition	-\$48.25	-\$69.36	\$0.00	\$0.00
Wage effect due to population growth	\$4.78	\$4.97	\$278.55	\$414.49
Net impact of immigration	-\$43.46	-\$64.39	\$278.55	\$414.49
Net percent change in wages	-1.90%	-2.00%	11.00%	13.00%

level of substitutability between incumbent and immigrant workers. Conversely, our model may perform better in accounting for regional variation in effects. Since labor demand is also influenced by agglomeration economies, which attract more immigrants, the role of regional population growth on wages is an important consideration in net wage determination. Models that do not account for metropolitan area variation are unlikely to isolate that role of immigration.

Idiosyncratic differences are deserving of greater discussion. Immigrant population growth in Indiana is occurring statewide, but overall population growth is concentrated in just a few counties. Growing locations experience increases in both wages and educational attainment, while shrinking places are experiencing wage declines, along with lower levels of relative (and sometimes absolute) educational attainment. Thus, some of the wage effects may be due to changes in the composition of the labor force rather than purely due to labor supply adjustments. None of these caveats suggest these empirical findings are flawed; they merely suggest that Indiana's experience 2002-2016 is likely to differ from the national experience in the 1990s in reasonable ways.

What is clear is that the experience of immigration varies across the education level of workers. The net effect in Indiana is modest, with wage reductions for workers as high as 2 percent for those holding a high school degree or less. For better educated workers, the experience of immigration is positive, with the increasing demand for labor boosting wages, while there is no statistically discernible effect from immigrant competition. Importantly, this effect is only observable for new workers (who have been employed less than three months). There is no statistically meaningful effect on incumbent workers.



Summary

Immigration into the United States has long followed a pattern of successive waves of immigrants following early immigrants into particular communities. The Irish in Boston, Italians in New York, Scandinavians in Minnesota, and, more recently, the Hmong in the Fort Wayne area all popular examples of this pattern. These trends have meant that immigrant groups tended to cluster in a few places around the country. In the 1990s, this patterned shifted dramatically as immigrants spread across the nation, moving to places with less recent experience with international immigration. This shift has been especially apparent among immigrants from Central and South America, who have increasingly chosen to live beyond the "big five" states with historically large Latino populations. These changing patterns of immigration serve to lessen the local intensity of immigration, while simultaneously exposing a larger share of Americans to international migration. It is within this context that any discussion of immigration in the United States, and especially the Midwest, must begin.

In this study, we outlined these patterns and the changes to population and demographics, which occurred over the past century and a half. We also outlined the changing rate of immigration in Indiana. It is important to repeat the empirical observation that the foreign-born population of Indiana is not yet back to the level the state experienced from the Civil War through World War I. As late as the early 1990s immigration into Indiana occurred at about one third the rate it had a century earlier. Although immigration is low in historical context, it has been rising since 1990, but even this increase may be starting to level off.

Importantly, *immigrant population growth is helping to stabilize the dangerous trend of declining population in 19 Indiana counties, particularly in rural counties.* Statewide, a full 25 percent of the population growth Indiana experienced between 2000-2015 was due to increasing immigration.

Our study also explains that the pattern of immigrant location choices is closely linked to economic opportunity. During a lengthy period of economic stagnation from the late 1950s through the 1990s, Indiana's immigrant share shrank to under 2 percent of the state's population, and remained there for close to four decades. The immigration share of the state's population is now closer to 1 in 20 residents, implying better economic opportunity in the state.

There are a number of popular conceptions regarding immigration that our examination of publicly available data in this report proves inaccurate. Notably, immigrants do continue to assimilate much as expected, which is in direct contravention of most popular opinions on the matter. Moreover, there is evidence that not only are immigrants in Indiana actually better-educated than the incumbent population of the state, their rates of educational attainment are increasing while rates remain relatively static for native-born Hoosiers.

In terms of net benefit, it is clear that immigration into Indiana, including unauthorized immigrants, is a net benefit to the state and should be welcomed in every county and municipality. At the same time, we acknowledge that there may be costs to some locations and populations. The most likely costs are in public services, costs of education, and in changes to labor market supply across the state. Total benefits clearly exceed total costs.

The very large literature on public service use by immigrants is, in our judgement, very conclusive. As such, we conducted no new analysis of this issue in favor of reviewing the existing research. This research finds that immigrants are net contributors to the nation and state's social welfare and public assistance programs. Not only do immigrants, including unauthorized workers, pay into the public service system through income, payroll, sales, and property taxes, they tend use fewer services than the native-born population, and receive less benefit when do they do use services.

The issue for schooling costs is not so clear. With few research studies on the effect of immigrant students on the incumbent population, we deemed it necessary to conduct additional research within the context of Indiana to feel confident in speaking to this issue. To test whether high or growing levels of immigrant students (defined here as English Language Learner students) impose measurable costs on other students, we modeled the impact of ELL levels and rates on overall school performance as measured by the ISTEP+ pass rate at the school corporation level. We find no evidence, across several model specifications, of correlation (much less causal effect) of ELL rates on student performance.

The final potential local effect is that of labor supply and demand changes. In our model of immigration and wages in Indiana, we examine the effect of immigration on worker wages 2002-2016—a period of rapid growth in immigration. We find that the growth of immigration during this period had a modest effect on new worker wages. Specifically, workers with a high school diploma or less saw modest declines in wages—\$48 and \$69 per month for less than high school and high school graduates respectively—due to increased competition. Workers with some college or a college degree or higher experienced no negative effect of immigration. Incumbent workers saw no impacts on wages.

In our model of labor demand, we found that the population growth effects of immigration caused very small increases in wages (less than \$5 per month) for workers with a high school degree or less, but better-educated workers (some college or bachelor's degree or higher) experienced labor demand wage increases from immigration resulting in more than \$278 and \$414 per month, respectively. All of these wage effects, positive and negative, dissipate for incumbent workers (those who have been working at the same firm for more than 90 days). These results are generally similar to earlier studies, and point to a small negative effect of immigration on workers with lower levels of educational attainment, and a larger positive effect for those with higher levels of education.

We end here by noting that immigration has a long, and overwhelmingly successful history in the United States. We in Indiana are experiencing a rising rate of immigration that follows the most moribund period of international migration in the state's history. Immigration in Indiana is fiscally and educationally important, and likely marks an environment of increasing economic opportunity for new workers in the state. Moreover, immigrants are helping to stabilize shrinking populations in rural communities throughout the state, and may represent the best chance for population growth in these communities in the foreseeable future. Overall, we find that immigration, regardless of authorization status, is an important source of fiscal, economic, and demographic health for Indiana's future.

Credits

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Authors

- Emily J. Wornell, PhD, research assistant professor, Indiana Communities Institute, Ball State University.
- Michael J. Hicks, PhD, director, Center for Business and Economic Research; and George & Frances Ball distinguished professor of economics, Miller College of Business, Ball State University.

Design

Victoria Meldrum, manager of publications and web services, Center for Business and Economic Research, Ball State University.

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2000 W. University Ave., Muncie, IN 47306-0360 765-285-5926 | cber@bsu.edu bsu.edu/cber | cberdata.org facebook.com/BallStateCBER twitter.com/BallStateCBER



Appendix A

This appendix briefly reviews two models. The first is of the impact of immigration on ISTEP+, our proxy for student achievement. The equation is simply:

ISTEP+ Model

 $\mathbf{I}_{i,t} = \alpha + \alpha_i + \alpha_i + \beta_1 F_{i,t} + \beta_2 A_{i,t} + \beta_3 H_{i,t} + \beta_4 M_{i,t} + \beta_5 E_{i,t} + e_{i,t}$

Where I is the ISTEP+ score, α are common, cross-sectional, and period intercepts, F is the share of students receiving free and reduced lunch, A and H are the demographic controls of the share of African American and Hispanic students, M is the share of immigrants, E is corporation enrollment, and e is a white noise error term. The subscripts i and t denote school corporation (cross section) and year receptively. There are 289 cross sections over three years, for a total of 867 observations. Results are published in *Table 3* (page 12).

In the second model, we have two simultaneous equations to determine supply and demand for labor. We offer two basic relationships:

Labor Model, Equation 1 $\log(N) = a + \delta_1 \log(W/P) + \delta_2 \log(K) + \delta_3 \log(Pop) + e_i$

Labor Model, Equation 2 $\log(W/P) = \alpha + \theta_1(\log(N) + e_i) + \theta_2\log(I) + \gamma_1\overline{M} + \gamma_2\log\overline{W}_0 + u_i$

In this model, we assume a standard production function in which employment is a function of real wages, available physical capital and employment (*Equation 1*), and where real wages are a function of employment, immigration, metropolitan status, and initial wages (*Equation 2*). To evaluate the changes in each, the variables of interest (real wages, employment, capital, population, and immigration) are the log changes (2000 to 2016). Metropolitan status and initial wages are fixed values, so $\gamma_1 M + \gamma_2 \log W_0$ represent two additional county-level dummy variables.

Due to the endogenous nature of this relationship, we include the estimated value of log(N) in the second equation $(log(N) + e_i)$ to identify this labor supply equation, which is our level of interest. We test four levels of educational attainment, reported in *Tables A1 and A2* below, for the effects reported above (new works only). Summary results appear in *Table 4* (page 15).

Table A1. Labor Supply of New Workers

Source:

Note: ***denotes statistical significance at the 0.01 level, using standard t-statistics (or F-statistic); ** denotes statistical significance at the 0.05; and * at the 0.10 level

	Less Than High School	High School Diploma	Some College	4-Year Degree or Higher
Intercept	4.791154***	4.812768***	4.737983***	5.23591***
Change in foreign-born population	-0.02816*	-0.02867*	-0.02078	-0.0215
Change in log employment	0.097488**	0.090159**	0.099251**	0.12206*
Metro	0.007712	0.031116	0.018246	-0.01638
Log(wages)	-0.64026***	-0.63853***	-0.62713***	-0.67659***
Adjusted R-squared	0.316671	0.379839	0.260426	0.30803
Log likelihood	11.54287***	14.93403***	9.010936***	11.12714***

Table A2. Labor Demand for New Workers

Source:

Note: ***denotes statistical significance at the 0.01 level, using standard t-statistics (or F-statistic); ** denotes statistical significance at the 0.05; and * at the 0.10 level

	Less Than High School	High School Diploma	Some College	4-Year Degree or Higher
Intercept	0.025746	-0.15107	-0.02467	-0.00033
Log(wages)	0.287529**	0.184284*	0.251045***	0.195053***
Change in capital (business personal property, \$million)	-0.00113	0.00223	0.00491	0.003311
Change in total population	1.892761***	1.49249***	1.434503***	1.36734***
Adjusted R-squared	0.554786	0.494308	0.471119	0.450723
F-statistic	38.79875***	30.65047***	28.02046***	25.89082***