



Time to Choose

INDIANA'S DECADE TO DECIDE
ITS DEMOGRAPHIC FUTURE

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Executive Summary

Indiana has enjoyed nearly uninterrupted demographic growth since the earliest population records in 1800. There were some hiccups during the world wars and a weak period in the mid-1980s, but the overall trend of growth has always been clear. However, Indiana's population will likely hit a peak and begin a long-term decline in the next few decades. This will be a new experience for Indiana because, while Indiana's population growth since 1900 has been lower than the population growth in neighboring states such as Illinois, Michigan, and Ohio, it has been far steadier.

Today, falling fertility, an aging population, the wave of "deaths of despair," and a likely return to roughly balanced net domestic migration will all lead to Indiana's population peaking around seven million people in the late 2030s and then gradually declining. This gradual decline will disguise a swift aging of the population. The average age of a Hoosier will rise from 38.4 years old in 2018 to 40.6 in 2040 and 42.9 in 2070. Meanwhile, the share of the population age 65 or older will rise from 16 percent today to 23 percent in 2070.

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Indiana is in a unique position to choose its demographic future. For most states in most times, their demographic future is fairly locked-in: Declines are too deep-seated to reverse, or increases are so baked into the population structure that no mismanagement could prevent growth. As shown below in various population models, Indiana's case is different. Whether Indiana's next 50 years will feature demographic decline or continued growth depends on fairly modest differences in demographic fundamentals, differences that may be amenable to policy action.

Policymakers in Indiana have about five—and no more than 10—years remaining to decide their demographic future. Action now can make Indiana a hub of growth in a midwestern region where every other state faces inexorable decline. Delay or inaction amounts to a forfeiture of Indiana's centuries-long legacy of stable growth.¹

Indiana's Population History

Before discussing the future, it is necessary to review Indiana's demographic past. Indiana's historic population growth has been extremely steady, far more so than many of its regional peers and neighbors, which have all seen more extreme boom-bust cycles in their economic growth (Figure 1).

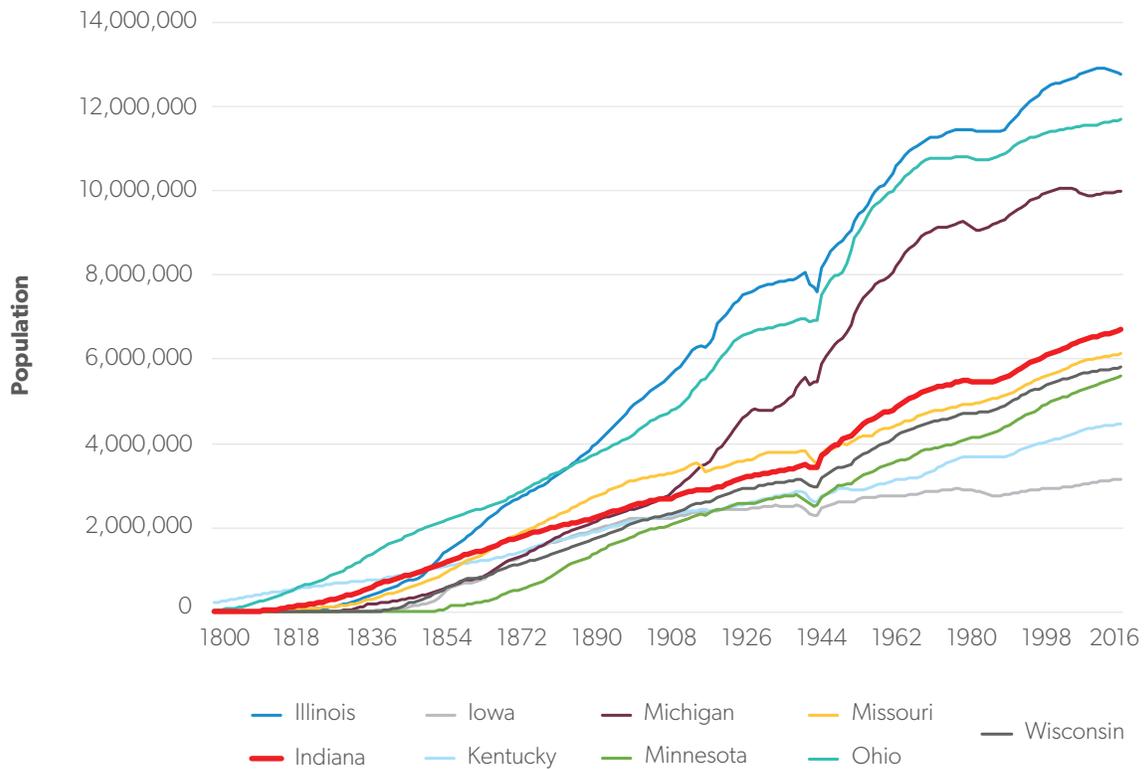
At different times, this population growth has come from different sources. For example, before 1850, Indiana received a considerable amount of migration, international and domestic, as its open lands received their first wave of settlers. Estimating the exact patterns of this migration is difficult because Indiana did not have any formal vital statistics registry in those early years and because the US Decennial Census did not add detailed questions about migration and family structure until the 1850 Census. However, from limited available data on population growth in Indiana and other states, domestic migration was likely quite high and positive, as was international migration.

But starting in 1850, detailed estimates of births, deaths, and migration in and out of Indiana are possible. By the 1850s, Indiana's settlement period was over, and it had net negative domestic migration. Hoosiers were moving west well before the Civil War, and indeed, Indiana had negative net migration for nearly a century (Figure 2).

Death rates in those days were also high, with over one in 50 Hoosiers dying each year. And during the Civil War, thousands or tens of thousands more Hoosiers were killed in combat or because of new hardships on the home front.

But despite these casualties, disease, and the pull of the open West, Indiana grew. While mortality was indeed high, births were even higher. In fact,

Figure 1. Long-Run Population Comparison of Indiana and Neighboring States



Source: US Census Bureau Population Estimates Program, decennial censuses; state and territorial censuses; and author’s imputations and calculations.

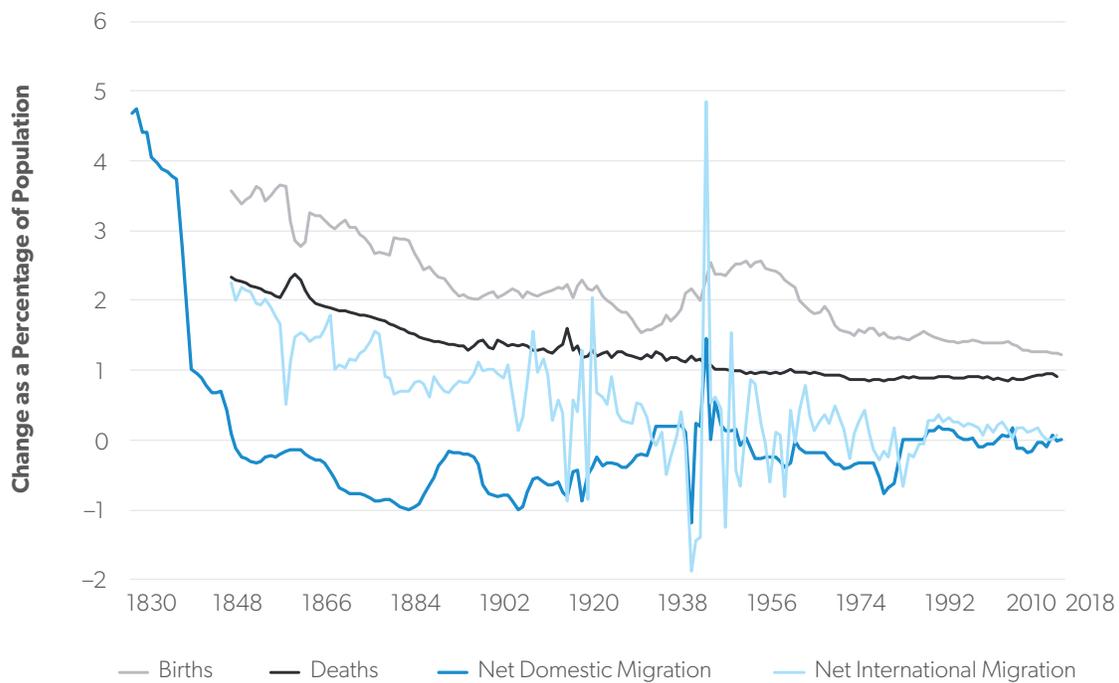
a considerable share of Indiana’s mortality was infant and child mortality. During the 1850s, somewhere between a quarter and half of children born in Indiana died before age 5. This was similar to the nation on the whole. Figure 3 shows Indiana’s historic fertility rate and an adjusted fertility rate accounting for child mortality.

Adjusting births and deaths to remove children who died before age 5 nonetheless shows that Indiana’s birth rate remained a robust driver of non-infant population growth throughout its history, and it remains so today (Figure 4). However, as of late, the rate of natural increase has slowed down to its lowest level in Indiana’s history, lower even than during the Civil War or the Great Depression.

With a high birth rate, Indiana grew despite deaths and net out-migration. And on top of that, Indiana

benefited from a more than century-long wave of international migration, from 1800 until the immigration restrictions of the 1920s. Since the Census Bureau includes such movements in its migration and population calculations, the estimate here of international migration includes troop deployments and returns as well, which explains the volatility around the world wars. Overall, Indiana’s immigration rate has trended gradually downward since the earliest data. It is usually positive but is getting smaller over time as Indiana has benefited relatively little from the post-1965 wave of immigration. Whereas 19th-century immigrants mostly settled around the industrial hubs of the Northeast and Midwest or the cheap lands further West, today’s immigrants are more often settling around knowledge-economy hubs in major cities or in the South and Southwest.

Figure 2. Long-Run Components of Population Change for Indiana



Note: Other anthropogenic deaths include all external causes and alcoholic liver disease. Deaths in the broader behavioral health category included selected deaths related to listed causes, including HIV deaths, diabetes and obesity deaths, lung cancer, emphysema, and several obesity- and smoking-related heart and circulatory conditions. Not all deaths are necessarily related to behavioral health, but they represent death categories in which behavioral health choices are a major, scientifically recognized risk factor.

Source: US Census Bureau Population Estimates Components of Population Change, Centers for Disease Control National Vital Statistics Reports, Indiana State Vital Statistics Reports, imputations from decennial and state censuses, and author’s calculations and imputations.

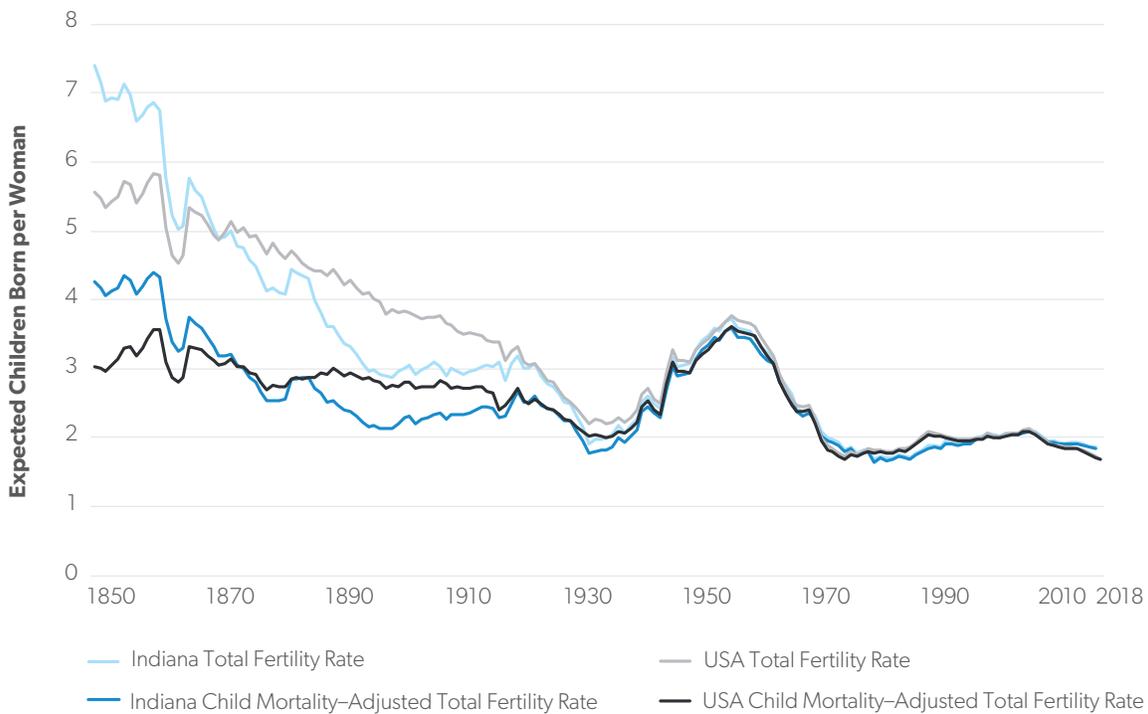
However, in recent years, Indiana’s mortality conditions have worsened, due almost exclusively to man-made causes of death: suicide, drug overdoses, alcohol, traffic accidents, and homicides. Figure 5 shows the percentage change in external causes of death since 1999 in Indiana and the US on the whole and the percentage change in all other causes.

As can be seen, external causes have grown at a shocking pace. Other causes of death remain lower, on an age-adjusted basis, than they were in 1999. However, these other causes have been about stable since 2010, even as the rest of the country has seen improvement. This suggests that Indiana’s *general* health conditions have not improved since 2010, even as the rest of the country *has* seen some improvement. But this effect is dwarfed by the massive increase in external causes of death, commonly referred to as “deaths of despair.”

Note that deaths from alcohol, suicide, and drug abuse show markedly different trends than deaths related to smoking, obesity, sexual and reproductive health, and other behaviorally related conditions. Age-adjusted death rates from these more well-established benchmarks of public health have continued to decline in Indiana, even as age-adjusted death rates due to non-disease conditions have grown rapidly (Figure 6).

Indeed, it appears that the general health of Hoosiers not affected by alcohol, drugs, suicide, homicide, and car accidents is, slowly but surely, improving. Rather, virtually the entire increase in death rates can be overwhelmingly attributed to a new and quite different public health threat. This is not to suggest that conventional health metrics around, for example, smoking and obesity are unimportant; it simply suggests that they are incomplete.

Figure 3. Long-Run Indiana Fertility Rates



Source: Author’s calculations and imputations from numerous sources, including decennial censuses, Indiana vital statistics, and Centers for Disease Control and Prevention vital statistics reports.

The main culprits for Indiana’s declining life expectancy are not sugary foods or flavored cigarettes, but fentanyl, vodka, SUVs, and depression.

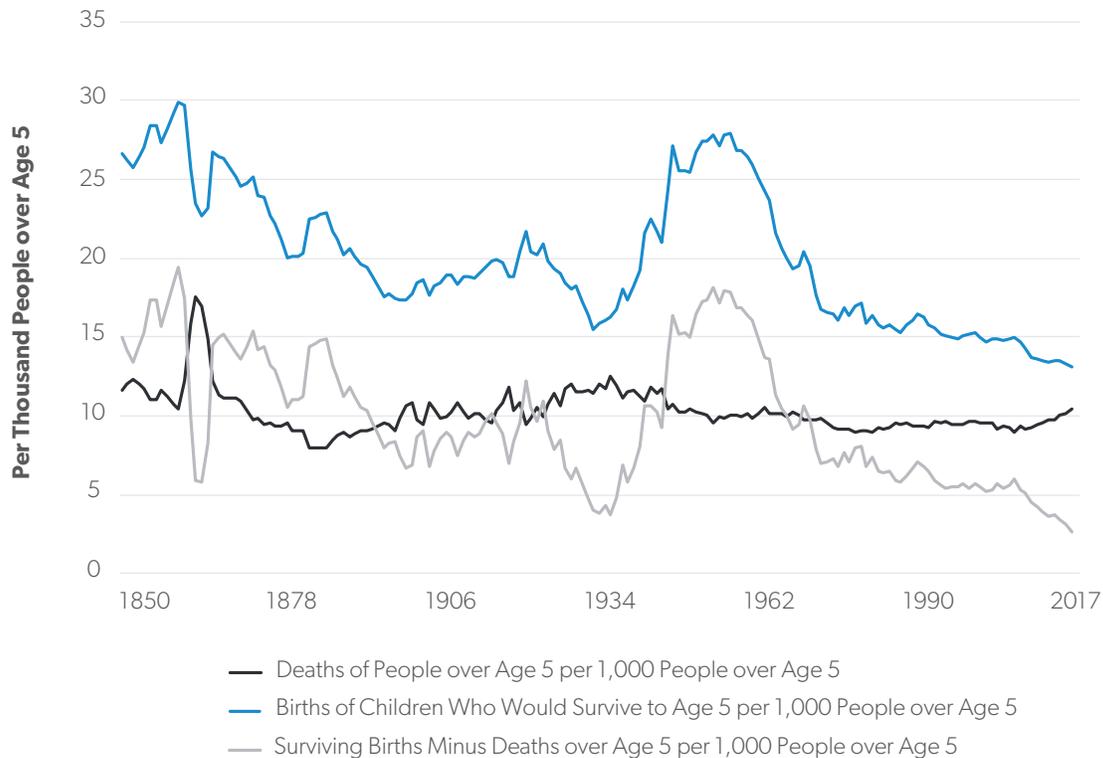
Indiana’s Population Future

Specifically, to avoid demographic decline, Indiana must swiftly adopt measures to address three key drivers of population change: mortality, fertility, and appeal to migrants. Life expectancy is falling in Indiana. This is true nationally as well, and the causes of falling life expectancy in Indiana are much the same as the national decline: a huge spike in so-called “deaths of despair.” Death rates for Hoosiers age 15 to 40 have risen by nearly a third in *just five years*, according to data from the Centers for Disease Control.² In terms of its effect on life expectancy, this

plague is nearly as damaging as the last great biological plague, the influenza pandemic of 1919.

In Indiana, alcohol and drugs are relatively more important drivers of increased prime-age death rates, while suicide is less significant. For long-term demographic growth to continue, Indiana must reduce mortality rates and morbidity from suicide, drug overdose, and alcoholism. Policies as wide-ranging as reinforced Sunday closure laws for alcohol-selling establishments, higher alcohol taxes, restrictions on addictive painkillers, the use of opioid settlement dollars for public health programs, law enforcement actions against illegal drug providers, improved mental health and pain management services, and better rural health networks could all help. But crucially, given that an individual’s risk of opioid addiction is sensitive to social factors such as involvement in community institutions or marital status,

Figure 4. Indiana Births and Deaths, Excluding Cases of Child Mortality



Source: Historic vital statistics and mortality estimates as described for Figures 2 and 3.

policymakers will also need to look to the health of Hoosiers’ relationships, families, and communities.

And it turns out, many Hoosier families are struggling. Birth rates are falling extremely rapidly in Indiana. The total fertility rate is well below what is needed for population stability in the long run and is still falling. This is true nationally as well. And in both cases, there is no cause for optimism about a robust future recovery.

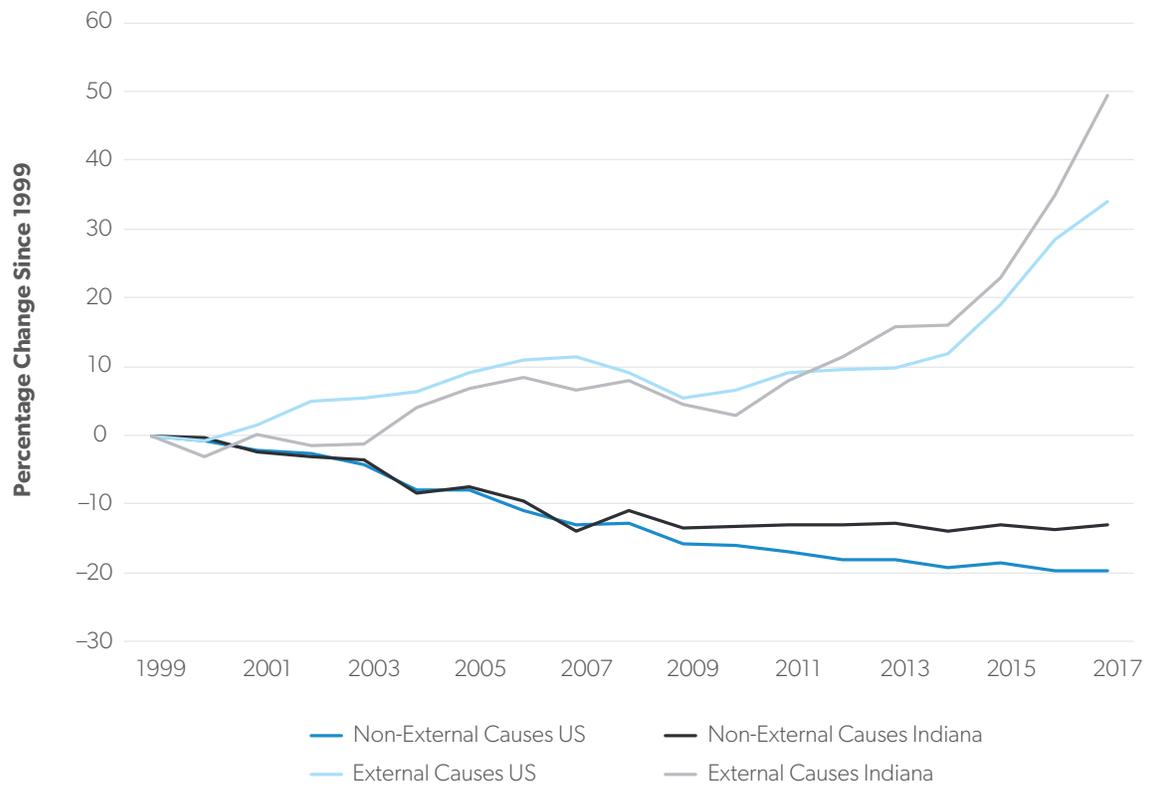
Fertility rates are in decline around the developed world for various reasons, most notably the increasing delay in marriage. However, policymakers should not interpret this to mean that fertility delays are necessarily what people want. The American Family Survey asked a representative sample of Americans what they considered the ideal age for a first marriage. On average, respondents under age 50 said 28.3 years old for males and 26.3 years old for females. Strikingly, in

2015, the actual typical age at first marriage around the country was 29.8 for males and 27.8 for females: more than a year later than what marrying-age Americans said they considered ideal for each sex.

Relatedly, Americans right now can expect to have about 1.7 children, despite reporting personal desires of around 2.3 to 2.5 children. In other words, Americans, Hoosiers among them, are not delaying marriage and childbearing because they do not want to get married, but because life creates obstacles to realizing their familial aspirations.

Many policy factors influence fertility and marriage rates, including the cost and duration of higher education (expensive, longer programs reduce marriage and childbearing), land use and zoning rules (higher rents reduce family formation), economic competitiveness to attract employers, child tax credits against the state income tax, explicit and implicit marriage penalties in

Figure 5. Change in Indiana and US Deaths by Major Category of Death



Source: CDC WONDER age-adjusted cause of death.

the tax code or welfare eligibility rules, occupational licensure rules that reduce job opportunities, parental leave policies, and the quality of public education. Furthermore, fertility behaviors respond to some extent to societal levels of optimism: If young people think Indiana will be a good place to live in the future, they are more likely to put down roots and start a family now. Obviously, the epidemics of drugs, alcoholism, and suicide can make a place seem not so nice to live in. High incarceration rates also reduce marriage rates. Thus, a crackdown on drug-related crime alone is unlikely to solve this problem.

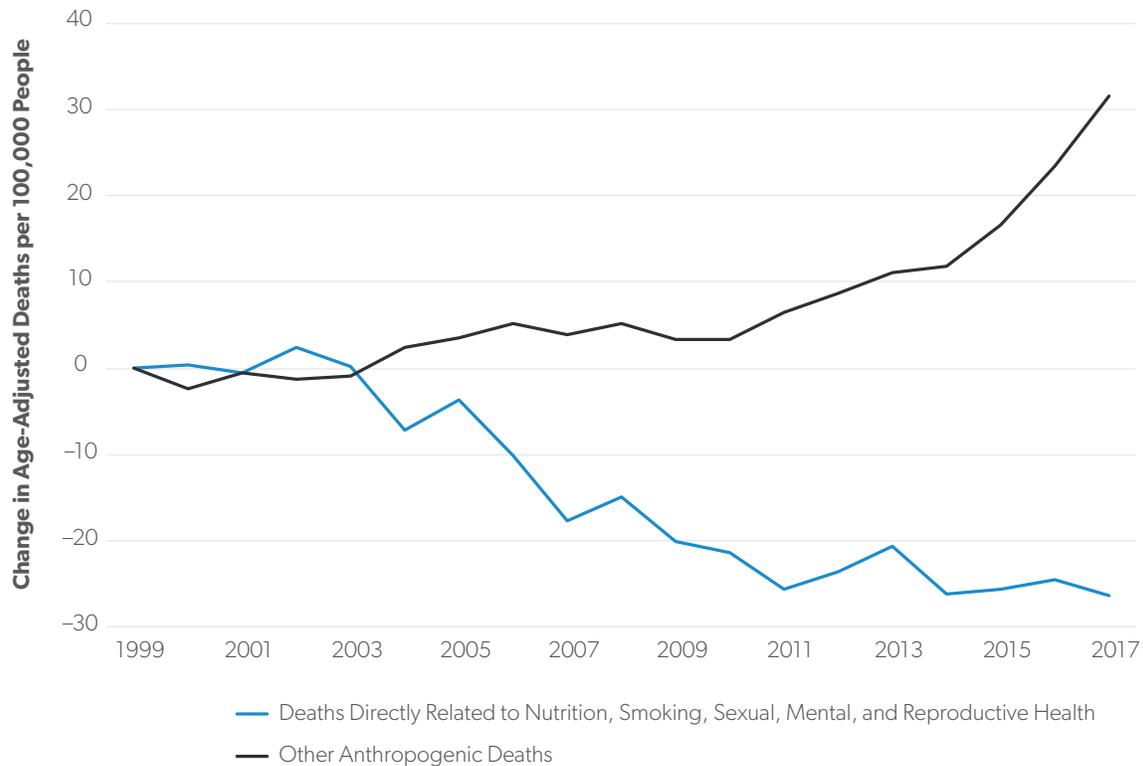
Mortality and fertility go together. It is hard to effectively address fertility without also addressing deaths of despair.

Migration, of course, is a popular discussion topic, and migration is the most volatile and influential

driver of short- and medium-term population growth. Indiana’s migration has been roughly balanced over the past several decades. This will likely be true in the future as well. But to attract migrants and have more years with positive migration than negative, Indiana can simply make itself a good place to live at a reasonable price: competitive tax policy, efficient public spending, good public health, opportunities for good housing and work, and so forth. In other words, the same policies that will reduce mortality and increase fertility will likely support higher migration rates as well.

Thus, policymakers should focus on directly improving the lives of Hoosiers today, with a side benefit of attracting migrants. Where locals live well, outsiders tend to move in.

Figure 6. Change in Indiana Death Rates Among Behavioral–Health–Related Causes of Death



Source: CDC WONDER age-adjusted cause of death.

What Drives the Forecast?

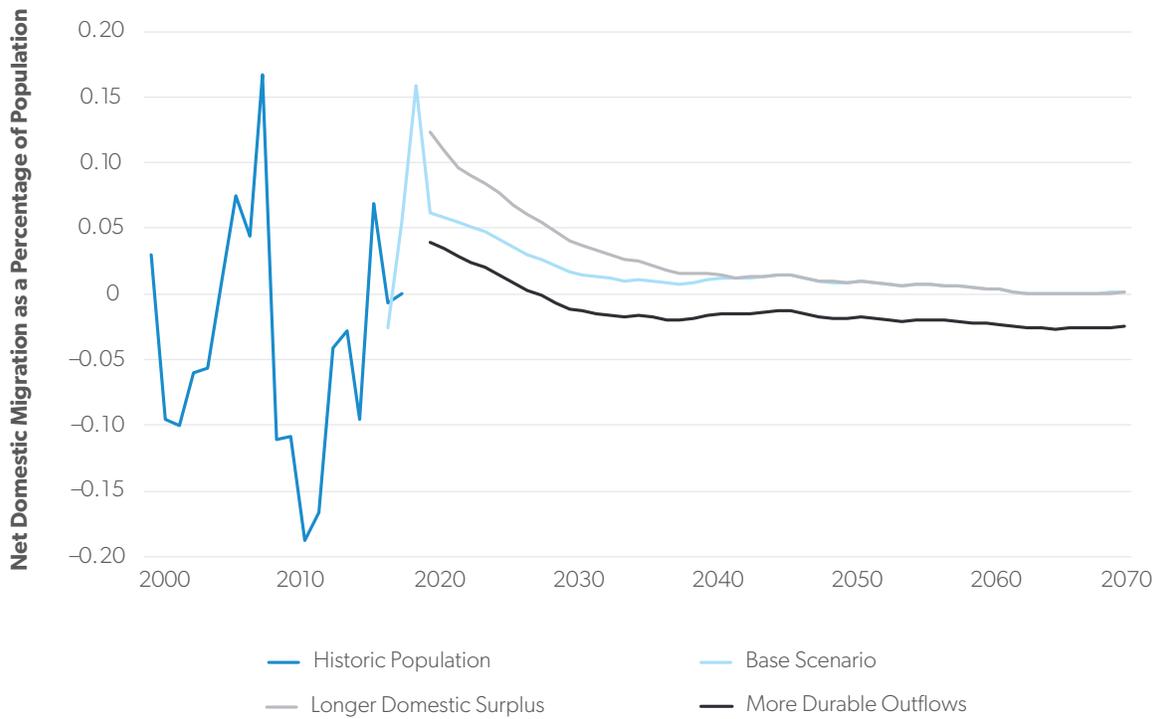
This report’s findings are based on the output of a cohort-component population model of Indiana. This model is conceptually the same as the population models used by the US Census Bureau, the UN Population Division, or even Indiana’s own statistical agencies and advisers such as the Indiana State Data Center and the Indiana Business Research Center.

Cohort-component models are conceptually simple: They start with a “cohort” of people (say, women who are age 35 in 2018) and then “age” them forward one year, making additions for immigration and interstate inflows and subtractions for deaths, emigration, and interstate outflows. So the estimate for 36-year-old women in 2019 would be 35-year-old women in 2018 plus expected 36-year-old female immigrants

and interstate inflows minus expected deaths, emigration, and outflows. This process is repeated for every single year of age (except those age 85 plus, who are grouped together) for both sexes. Rates of birth, death, and migration are benchmarked to and forecast from Centers for Disease Control and Prevention birth and death data and a harmonization of American Community Survey migrant characteristics with Census Population Estimates of net domestic and international migration.

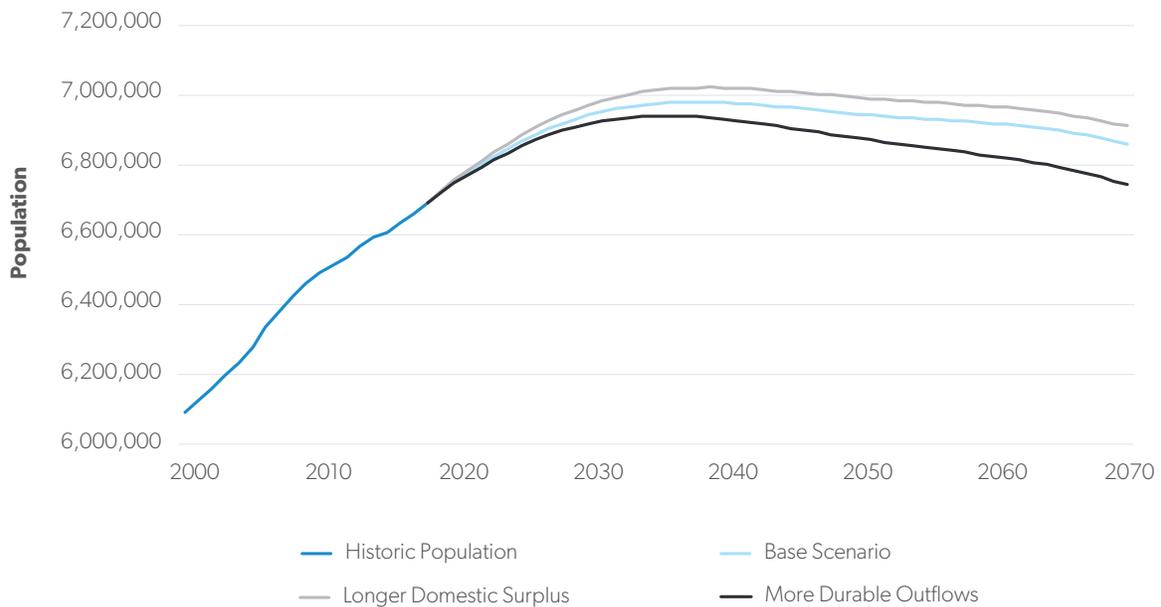
The base forecast for Indiana, which is used throughout the rest of this report whenever alternative scenarios are not listed, assumes that currently positive migration rates gradually drift toward net-zero domestic migration. This is consistent with Indiana’s long-run migration track record. However, alternative scenarios explore what would happen if migration balances were much more positive or negative (Figures 7 and 8).

Figure 7. Domestic Migration Projection Scenarios: Migration Rates



Source: Census population estimates and population model outputs.

Figure 8. Domestic Migration Projection Scenarios: Population Outputs



Source: Census population estimates and population model outputs.

Higher domestic inflows would result in higher population levels, and lower flows would result in lower levels. However, because the model assumes that no large positive or negative migration balances can be sustained forever, the long-run effects of net domestic migration are not particularly extreme and do not change the long-run trend of eventual decline. For a long-run projection, it is simply unreasonable to suppose that Indiana will have large positive or negative domestic migration balances forever. That said, fluctuations from this model scenario are likely and could be substantial in some periods.

International Migration

The base model assumes that Indiana's immigration rates will slowly decline. This assumption is based on changing global demography: Fertility rates are falling in many migrant-sending countries, immigration rates to the US on the whole are about stable for now, and in the long run, a greater number of rich countries are opening their doors to migrants. In sum, the international migration "market" has a diminishing supply of migrants thanks to falling developing world fertility and rising competition among migrant-receiving countries. Indiana is always forecast to have net-positive immigration, but the scale of this net-positive flow shrinks over time, consistent with the past two centuries of Indiana history.

Alternative scenarios explore the impact of different net international migration balances (Figures 9 and 10). The low scenario reflects a policy mix of high deportations and few foreign students able to get jobs in America, while the high scenario would reflect a major liberalization of immigration policy allowing many more migrants in.

Higher international migration would result in a much larger population, peaking around 7.2 million in the 2060s, and the effect would be felt rapidly. Immigration is a powerful quick fix to demographic decline. However, in the long run, immigrants age too and are exposed to similar fertility- and mortality-determining

conditions. Thus, even in a high-immigration scenario, population decline eventually sets in.

Of course, if there is a rapid spike in *emigration* due to more deportations and fewer foreign students sticking around for jobs, then population could fall dramatically. The low-net-migration scenario has a peak population around 6.9 million in the early 2030s and then a rapid decline to 6.6 million in 2070.

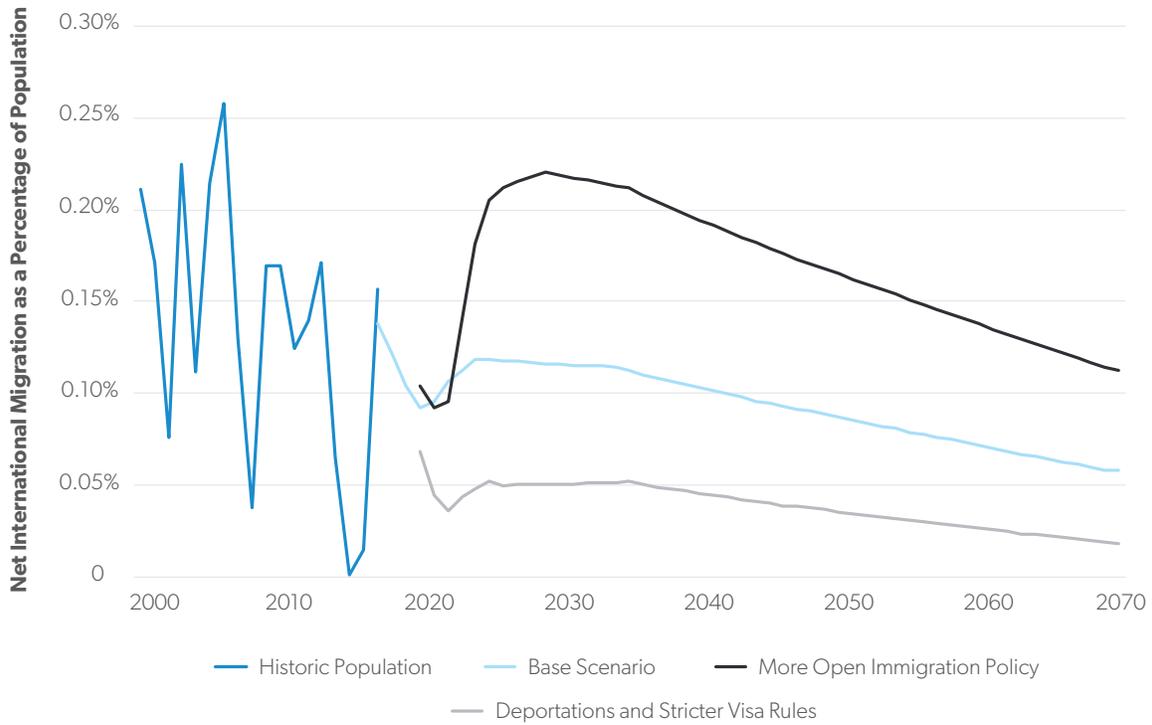
Fertility

On fertility, the base scenario makes a more pessimistic assumption than is typical in standard population forecasting conducted by the Census Bureau or the UN. The base scenario assumes continuing decline in Hoosier women's total fertility rate. Most standard population forecasting assumes fertility declines are soon offset by fertility increases; however, a growing body of research has challenged this view, noting that countries allegedly near "stable" fertility are in fact experiencing continuing declines in their birth rates.³

But whatever the theoretical approach, the reality is that the sources of Indiana's recent decline in fertility are unlikely to be reversed: sharply falling Hispanic fertility due to successful immigrant assimilation; delayed marriage due to changed social values about gender, sex, and education; and rising financial and opportunity costs of childbearing for women. Indiana's fertility in 2070 would still be relatively high compared to most of the developed world but low compared to today.

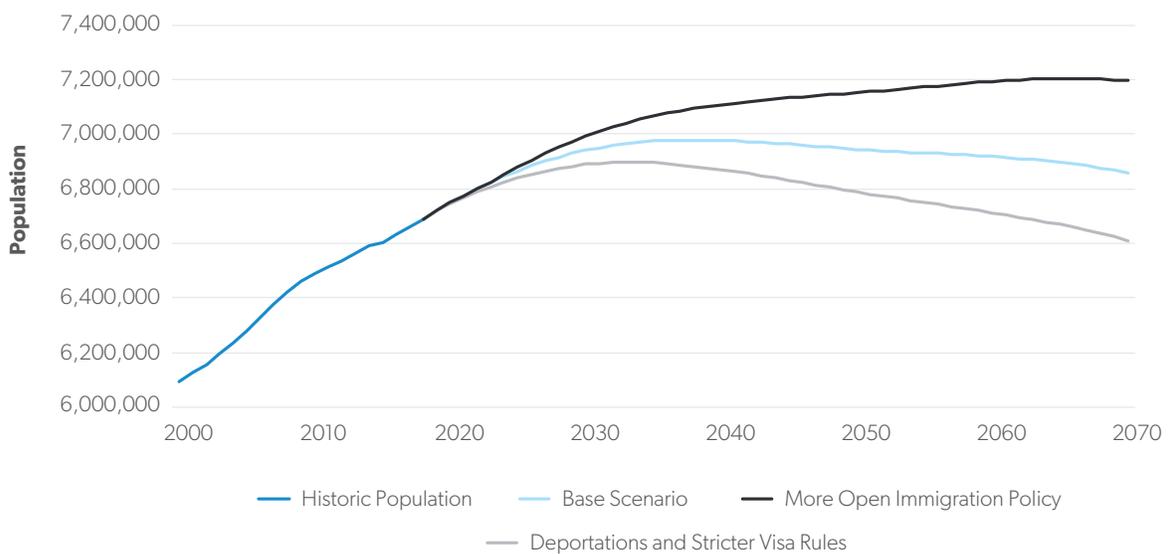
While this assumption may seem too pessimistic, it must be emphasized that the fertility-rebound forecasting assumption built into most models used by benchmark agencies has a long track record of inaccuracy. Around the world today, long-awaited fertility rebounds have consistently failed to appear. As such, it is more prudent for policymakers to assume there will not naturally be any meaningful recovery in birth rates. However, alternative scenarios represent what would happen if fertility did rebound.

Figure 9. International Migration Projection Scenarios: Migration Rates



Source: Census population estimates and population model outputs.

Figure 10. International Migration Projection Scenarios: Population Outputs



Source: Census population estimates and population model outputs.

Fertility Rates

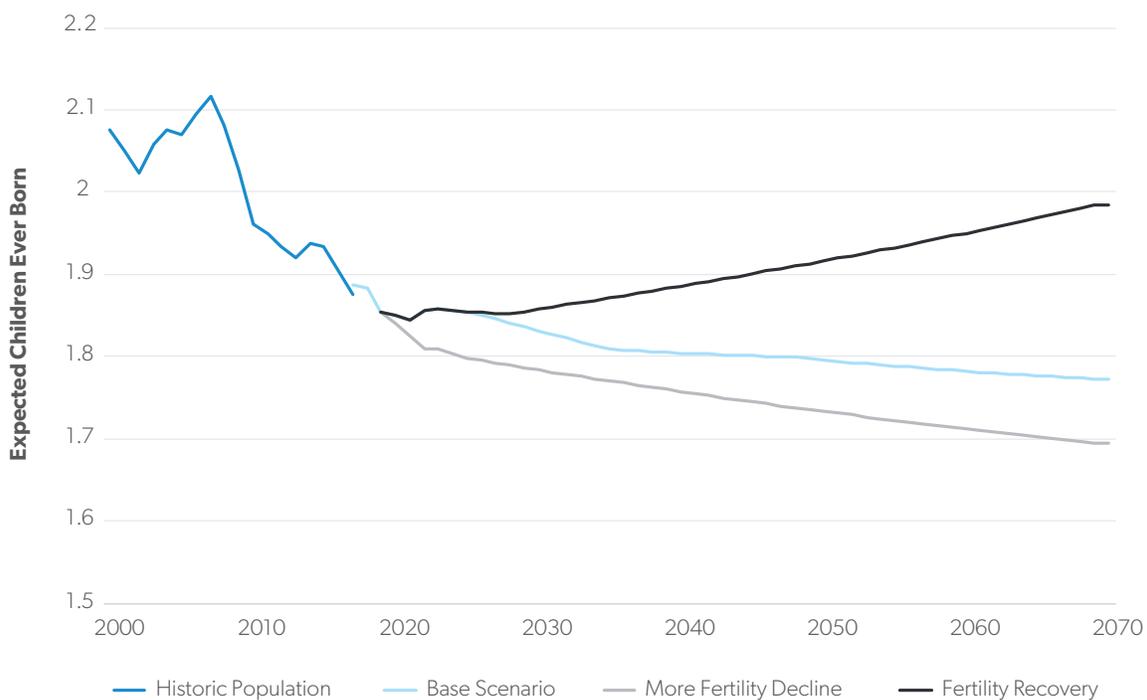
Fertility rates are highly consequential for long-run population growth. If fertility rates can recover to near-replacement levels, then Indiana has no population decline anywhere in sight. Indeed, higher birth rates are the *only* alternative scenario that can yield continuing population growth through the 2060s (Figures 11 and 12). But even with rising birth rates, the 2030s would be a slow decade due to the aforementioned population structure challenges and the delayed impact of higher fertility. Then the 2040s and later would see a return to quicker population growth. However, even that growth would be much slower than the growth over the past two centuries. And if fertility falls more than expected, then population could peak around 6.94 million in the mid-2030s and then begin a rapid decline, falling to 6.69 million by 2070.

Mortality

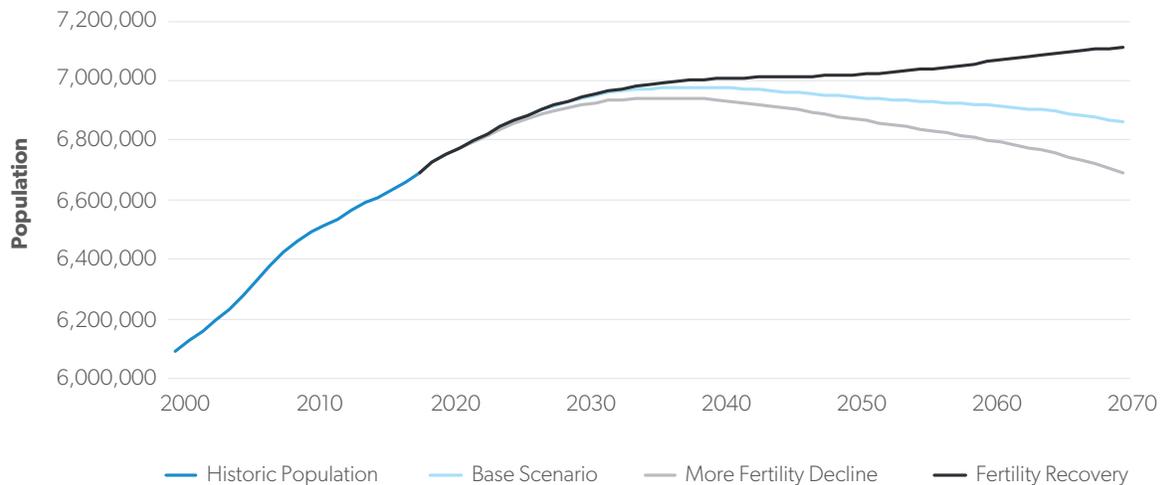
The base forecast of mortality and life expectancy is also unconventional. It is most typical to assume a fairly standard rate of increase in life expectancy in long-run population forecasts. However, life expectancies in Indiana have declined in recent years (Figures 13 and 14). The base forecast assumes that this decline in life expectancy, driven by deaths of despair, will continue for quite a few more years before eventually being rectified, at which point life expectancy increases will continue. Alternative scenarios represent the impact of a faster or slower reduction in deaths of despair.

Differences in mortality assumptions have an appreciable effect on population trends and levels. If deaths of despair can be reduced and life expectancy can quickly return to trend growth, then Indiana’s population will continue rising until the 2060s.

Figure 11. Fertility Projection Scenarios: Total Fertility Rate



Source: CDC WONDER birth statistics and population model outputs.

Figure 12. Fertility Projection Scenarios: Population Outputs

Source: Census population estimates and population model outputs.

Growth rates would still decline sharply in the late 2030s, but they would remain positive. Population would peak around 7.06 million Hoosiers. But in the direst scenario, population peaks at 6.94 million in the mid-2030s and then ultimately declines to 6.76 million in 2070. In other words, the difference between fixing deaths of despair quickly versus slowly is decades of lost population growth and ultimately a 4 percent difference in population size.

Figure 15 presents all these scenarios together and a best-case and a worst-case scenario. These scenarios represent the combined effects of the fertility, mortality, domestic migration, and international migration scenarios, combining all “good” scenarios for the best case and all “bad” outcomes for the worst case. The range of forecasts is considerable, but the clear conclusion is that Indiana’s real options for the next 50 years range from precipitous population decline to modest population growth. Immigration has the largest direct impact, but even high immigration cannot stave off decline forever. Only a higher fertility rate achieves a durable continuation of population growth.

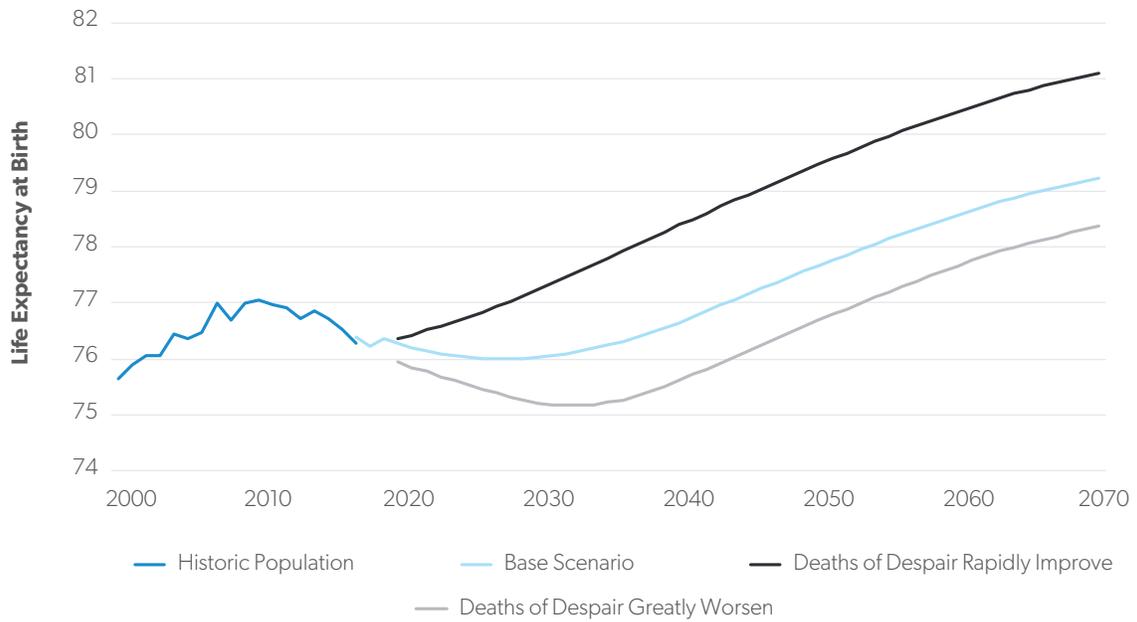
Who Are the Hoosiers?

Indiana’s demographic future is wide open. The state could grow if it makes wise policy choices or shrink if it does not. But the remainder of this report will elaborate on the social, economic, and regional implications of the base scenario provided. In other words, Figure 16 correctly represents Indiana’s future demographic indicators, what will it be like to be a Hoosier?

Immigrants or Natives?

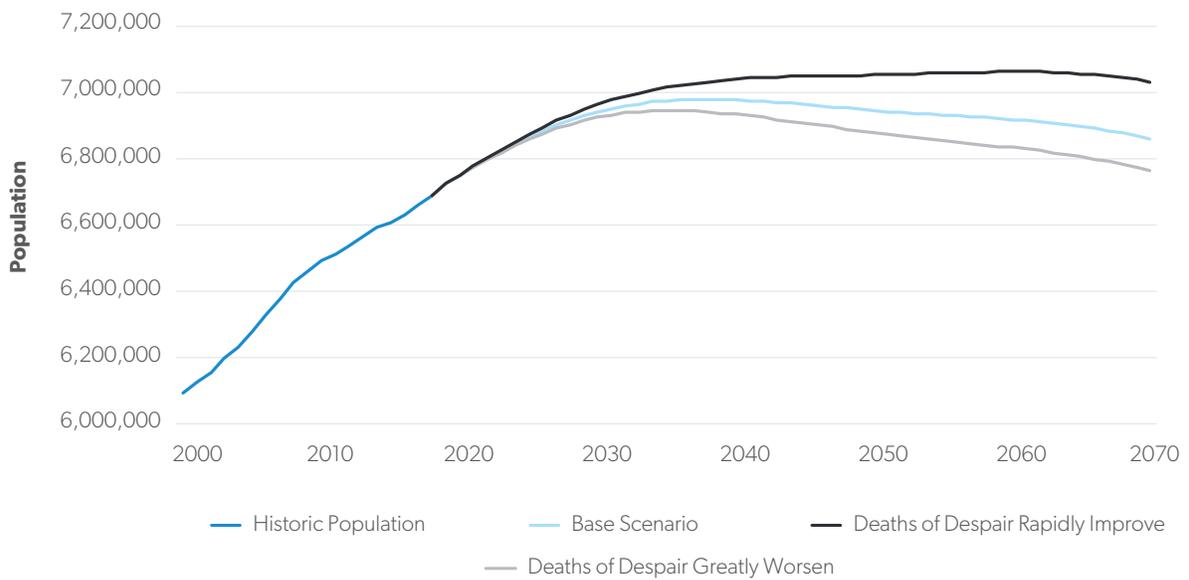
Having established the broad outlines of Indiana’s demographic history, it is worthwhile to look in greater detail at the characteristics of the people who lived in Indiana in the past. The logical starting point is immigration. The immigrants who fueled Indiana’s rapid growth in the 19th century were disproportionately from northern Europe. But while international migration did fuel much of Indiana’s growth, foreigners *never* made up as large a share of Indiana’s population as they did in other

Figure 13. Mortality Projection Scenarios: Life Expectancies



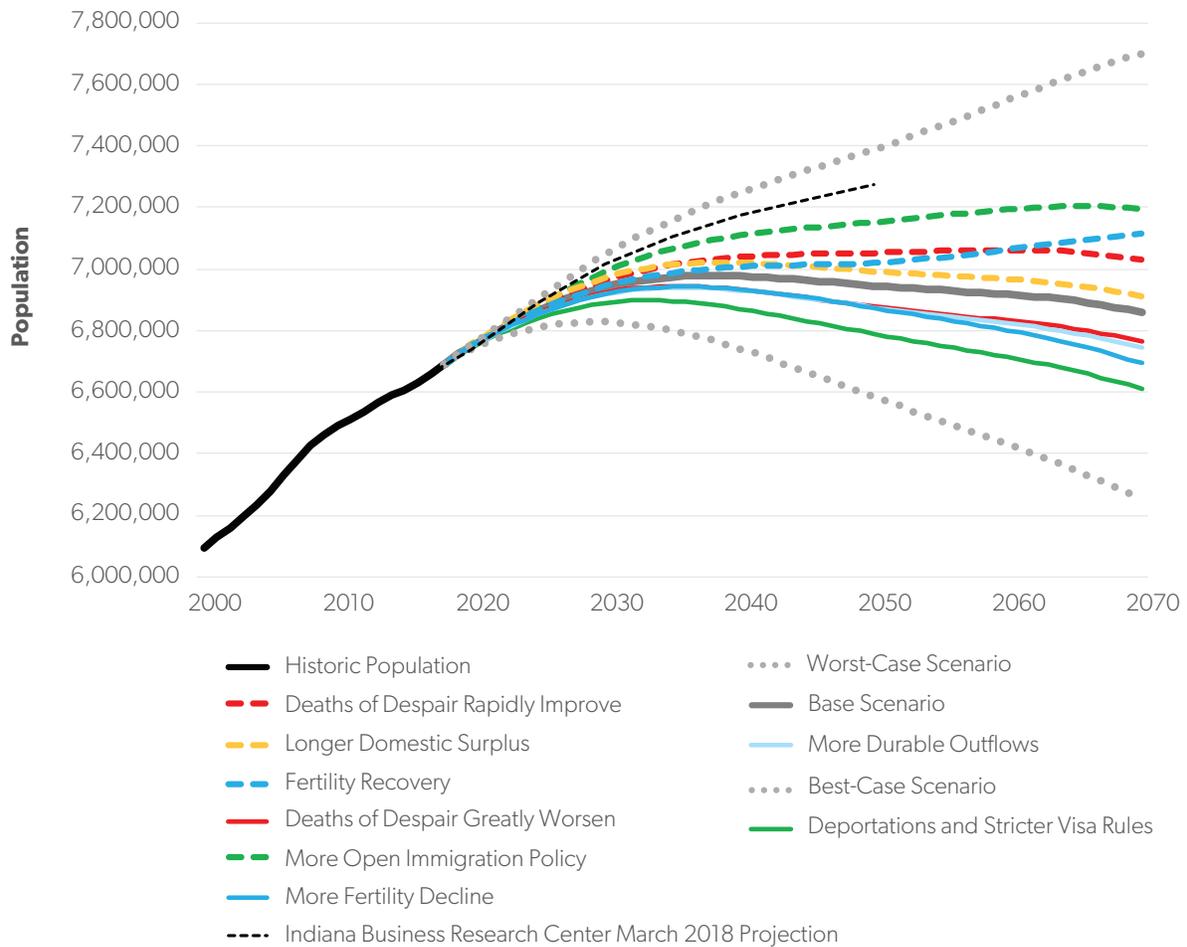
Source: CDC WONDER death rates; author’s calculations; and population model outputs.

Figure 14. Mortality Projection Scenarios: Population Outputs



Source: Census population estimates; and population model outputs.

Figure 15. All Projection Scenarios



Source: Census population estimates and population model outputs.

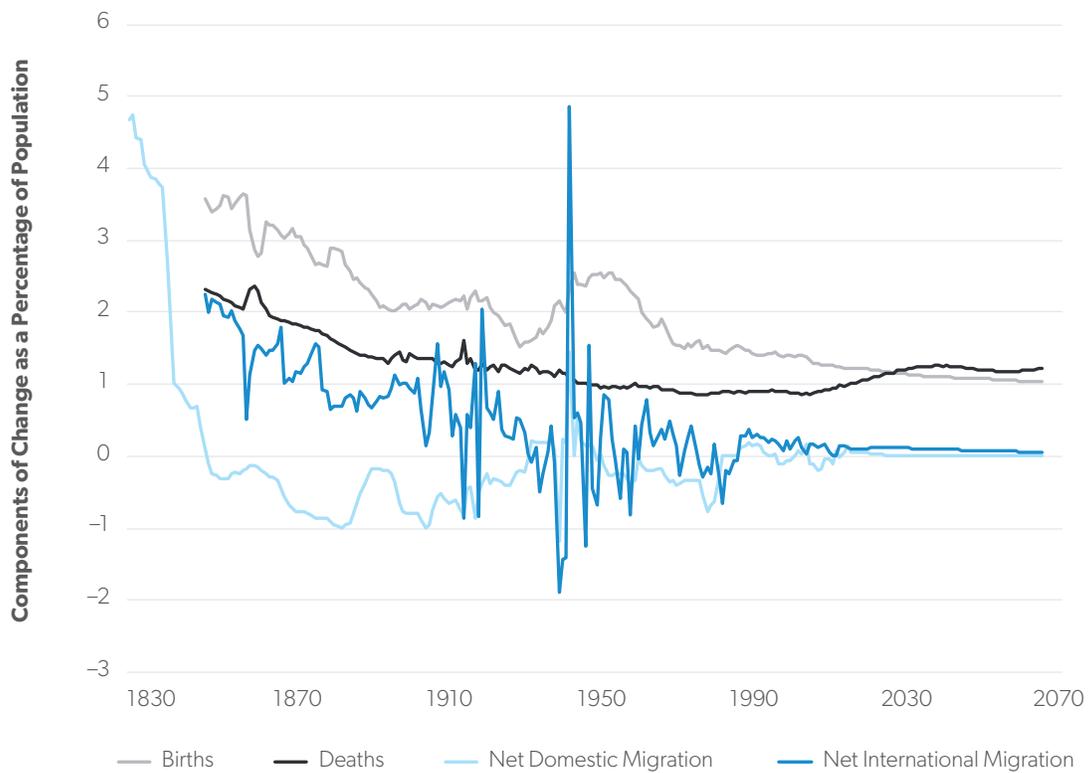
midwestern states, with Indiana’s foreign-born share more similar to Kentucky’s than Ohio’s.

By 1970, the foreign-born share of Hoosiers fell to fewer than 2 percent, a far cry from the over 8 percent foreign-born share a century earlier. Today, the foreign-born share of the population is gradually rising in line with other nearby states but remains fairly low compared to other parts of the country. The base scenario for Indiana corresponds to a continuing increase in the foreign-born share of the population, even as immigration rates fall slightly, because birth rates and domestic net migration are too low to outweigh immigration (Figure 17).

However, even by 2070, the foreign-born share of Indiana’s population is projected to be just one in 10, a rate lower than the national average today. This means that, in the second half of the 21st century, foreign-born people will be more common in Indiana than they are in any nearby state today, except for Illinois. But Indiana will probably never reach as large a foreign-born population as Illinois. Barring a huge change to migration patterns, Indiana is extremely unlikely to see a foreign-born population very far outside its historic experience.

This relatively modest growth in the immigrant population is mostly because immigration today

Figure 16. Long-Run and Projected Components of Population Change for Indiana



Source: US Census Bureau Population Estimates Program; Components of Population Change; Centers for Disease Control National Vital Statistics Reports, Indiana State Vital Statistics Reports; imputations from decennial and state censuses; author’s calculations and imputations; and population model outputs.

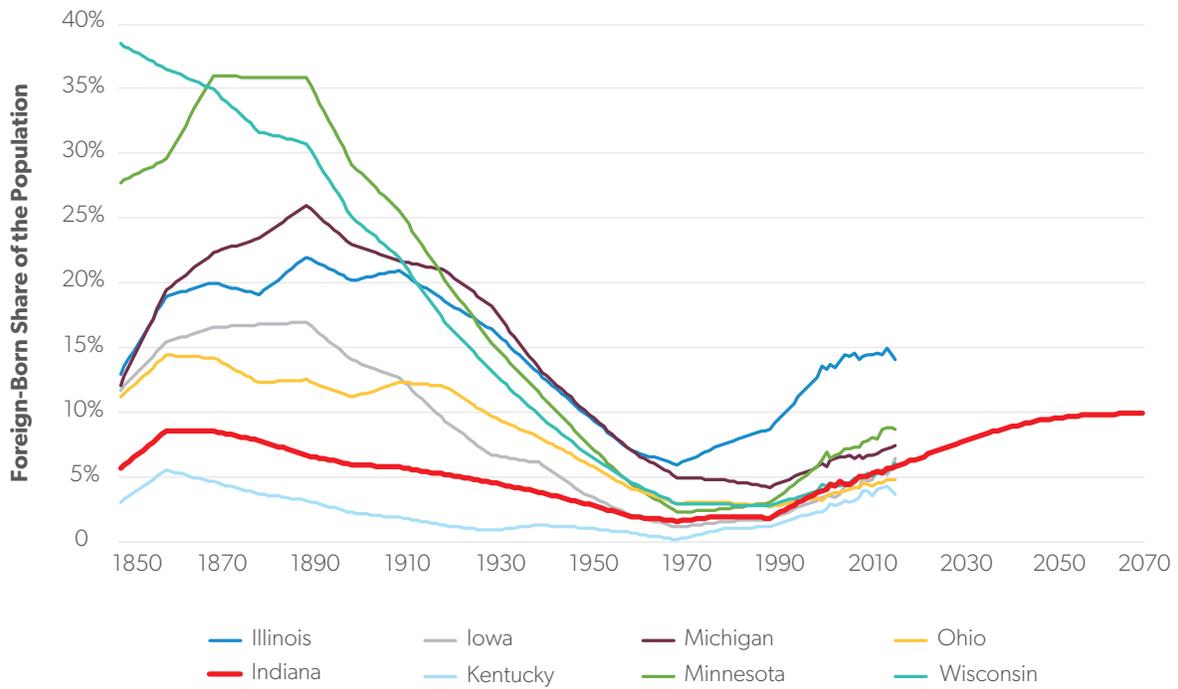
is centered on so-called megacities such as New York, Los Angeles, or, of course, Chicago. Indiana has no such super hub and thus does not attract as many immigrants.

Urban or Rural?

But Indiana does have a large city: Indianapolis. And throughout Indiana’s history, the Indianapolis metro area has been a major engine of growth, a fact that can be seen easily just by looking at the Indianapolis region’s population over time versus the rest of Indiana (Figures 18 and 19). For this report, all Indiana regions are defined by the county clusters established by the Indiana GPS Project.

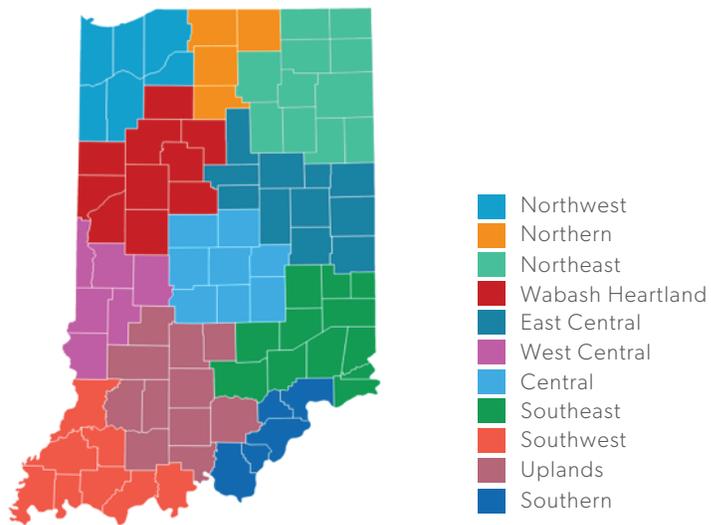
Today, the Indianapolis region is home to about 28 percent of Hoosiers, up from just 21 percent 50 years ago. That share is rising even faster now than in the past and is projected to increase still more in the future to considerably over one-third of Indiana’s population by 2070, perhaps as much as 45 percent. In the future, “Indiana” will increasingly be economically and demographically synonymous with “Indianapolis.” This forecast even accounts for the declining population in much of Indianapolis’ “migration shed”—that is, the other counties in Indiana from whence many people migrate to Indianapolis. Despite a shrinking population of potential rural-to-urban migrants, the Indianapolis region will likely continue growing. By 2030, the Indianapolis region will likely account for virtually all population growth in Indiana.

Figure 17. Historic and Projected Foreign-Born Share in Indiana and Selected States

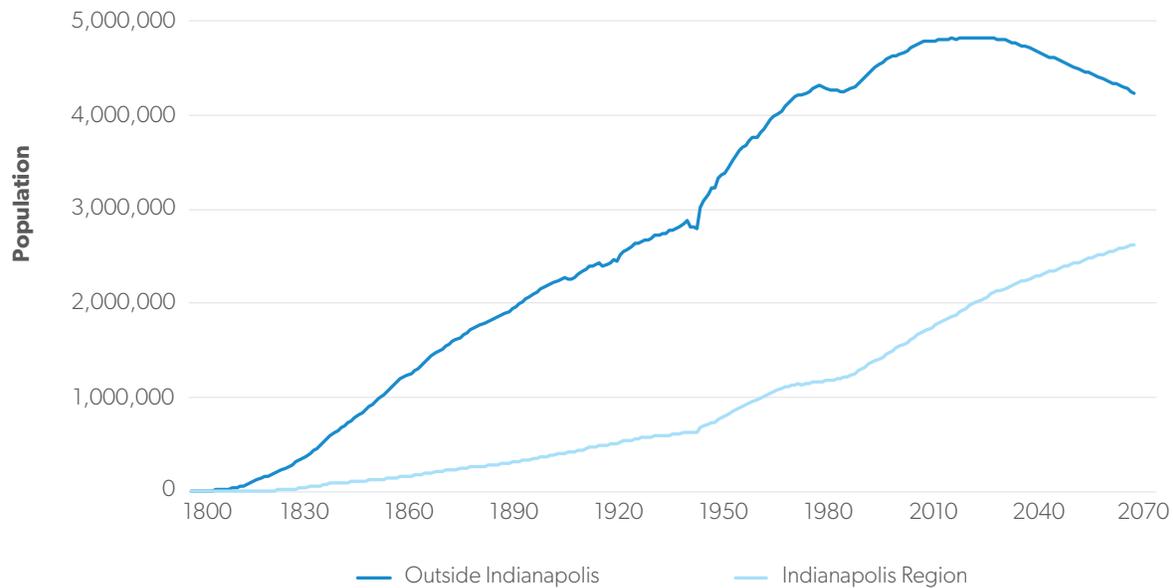


Source: US Census Bureau Population Estimates Program; decennial censuses; state and territorial censuses; American Community Survey; Current Population Survey; author’s imputations and calculations; and population model outputs.

Figure 18. Indiana Economic Regions



Source: Indiana GPS Project.

Figure 19. Population of Indianapolis and the Rest of Indiana

Source: US Census Bureau Population Estimates Program; decennial censuses; state and territorial censuses; author’s imputations and calculations; and population model outputs.

Different parts of Indiana will likely have different population futures. Figure 20 shows each region, color coded by how each population will likely change from 2018 to 2070.

While Indianapolis and the southern region led by Louisville suburbs will likely see growth, the vast majority of the state will face population decline. Even the northeast around Fort Wayne and the Wabash Heartland around Lafayette will see population decline by late in the period. But the coming declines in the east-central and northwest regions are particularly dramatic. East-central Indiana will face population declines on a similar scale as former coal regions in Appalachia, while Chicago’s demographic malaise is likely to extend into northwest Indiana as well.

To the extent the northwest outperforms this projection, it will be due to more migration from Chicago. While states often take pride on “winning” at cross-border migration, high migration would

probably signal an economically stagnant Chicago, which is not good news for northwest Indiana, where many businesses depend on strong demand for goods and services from their nearest metropolitan hub.

Because of these changes, Indiana’s future population will become continually less rural over time. However, estimating urbanity can be challenging. The rurality of a given county, the main level at which historic population is tracked, varies over time, and individual-level data sources often do not cover the whole historic window. Thus, for this report, a wide range of different definitions of rurality are presented.

Three measures are taken from the individual data coding used by the Integrated Public Use Microdata System (IPUMS): whether a person is in a “farm” household, lives in a then-designated metro area, or lives in a rural community. Metro and rural designations are available for only 1850–1990, while farm status is available for 1850–2017.

Three other rurality estimates are also used, derived from county population statistics. The longest period, running from 1800 through 2070, simply takes counties defined as nonmetro or metro-outlying regions in 2018 and tracks those counties' populations across time as a share of Indiana's state population. Another related metric, available for 1850–2070, simply tracks the population of half the counties with the lowest populations, yielding a similar estimate. Finally, data from 1850 to 2070 can be used to estimate the share of the population living in counties with a population density under 50 people per square mile (Figure 21).

These different data sets have major disagreements about the extent to which Indiana is rural and how it changed over time. Based on contemporaneous “rural” or “metropolitan” classifications, Indiana went from about 95 percent rural in 1850 to about one-third rural in 1990, a figure that has presumably declined further.

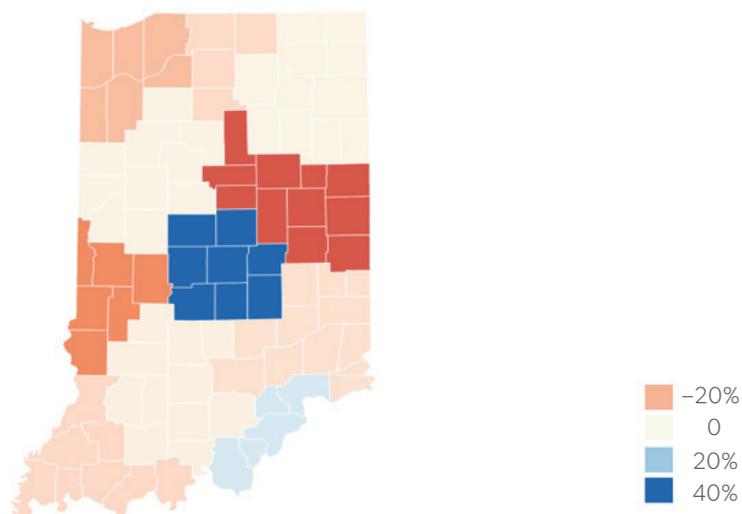
But what it means to be rural has changed. In 1850, about 70 percent of IPUMS-designated rural Hoosiers lived in “farm” households, a figure that

dropped to under 10 percent in 1990. Rurality used to mean agriculture, but this is no longer true. Rural Indiana's economy today is overwhelmingly composed of nonfarm economic activity. The decline of labor-intensive agriculture has been *much* faster than the decline of rurality itself.

The vast majority of the decline in rurality, however, has come from suburbanization. We can see this by comparing the decline in IPUMS-reported rurality to the constant-county definition of rurality. Using the same counties over time, rurality has fallen a bit over 30 percentage points versus about 70 percentage points when we allow county definitions to fluctuate, as the IPUMS metropolitan estimate does. That fluctuation mostly represents metro areas gobbling up nearby rural counties. The decline of more outlying counties has been more gradual and is likely to gradually continue in the future, with today's nonmetro counties declining to just over 10 percent of Indiana's population by 2070.

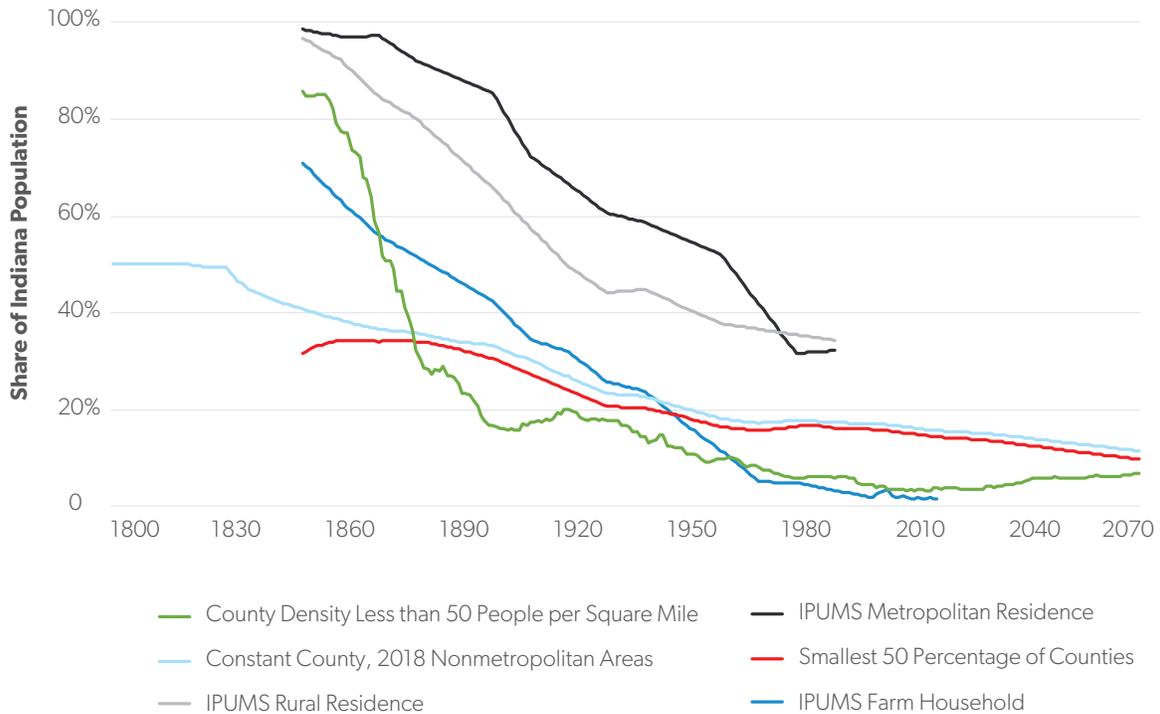
However, the density-based estimate of rurality reveals something fascinating. If rurality is measured not by metro or farm status but by

Figure 20. Map of Projected Population Percentage Change by Indiana Region, 2018–70



Source: Population model outputs.

Figure 21. Various Measures of Rurality in Indiana



Source: IPUMS USA query of American Community Survey and historic decennial censuses; US Census Bureau Population Estimates Program; decennial censuses; state and territorial censuses; author’s imputations and calculations; and population model output

county-level population density, then Indiana’s population might get slightly *more rural* during the mid-21st century. This may seem strange but actually does not contradict other data. A growing number of counties will have so thoroughly depopulated by 2070 that their population density falls below 50 people per square mile.

Thus, the nonmetro population will continue to fall, but the share of the nonmetro population living in *extremely sparsely populated counties* (i.e., under 50 people per square mile) will rise. Indiana will increasingly be demographically polarized between increasingly dense Indianapolis and increasingly sparse rural counties. In 1930, 75 percent of the population of present-day nonmetropolitan counties lived in thinly populated counties. That share fell to a low ebb of 20 percent in 2011 and has risen since.

By 2070, more than 50 percent of the nonmetro population will once again live in low-density places.

These low-density places might be sprawling, highly mechanized superfarms. Or, they might be abandoned lands that have returned to the wild. Or, they might be the withering skeletons of half-abandoned towns vainly trying to hang on but unable to provide basic services for residents. Indiana’s countryside in the 2060s and beyond will increasingly be a scene of ghost towns, empty houses, the ruins of once-vibrant schools, and abandoned farms, much like Appalachia today or the hinterlands of many Eastern European countries.

These county forecasts do not include a dynamic feedback loop, but these low population densities could prove unsustainable, leading local governments to shut down, merge, or severely pare back

services. In the long run, entire counties may need to be reorganized. For example, both Union and Ohio counties could have fewer than 5,000 residents in 2070, with Benton and Blackford counties just barely above 5,000. In the event that such institutional triaging occurs, out-migration would probably accelerate, leading to faster population growth in Lafayette, Fort Wayne, Indianapolis, and other nearby cities and even more decline in low-density counties than this model projects.

Young or Old?

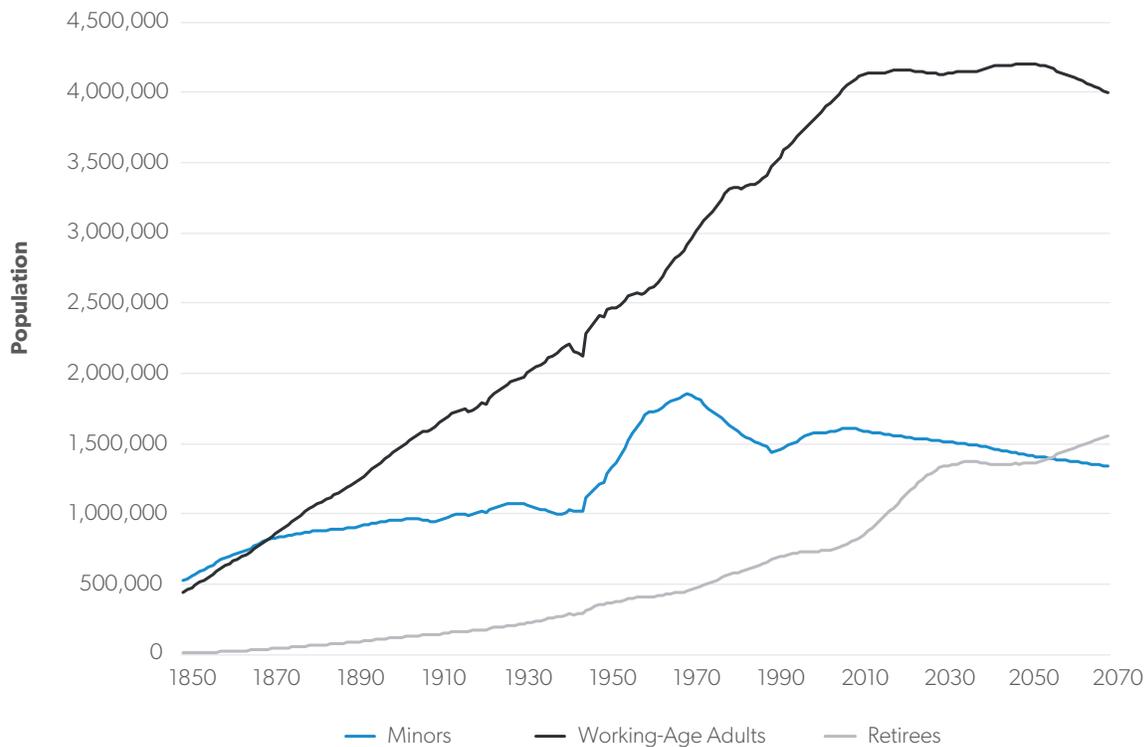
Even if a region has a stable population, it may not have a stable working-age population. Indiana’s population aging will continue in the future, with an ever-expanding population of retirees. Indiana’s

working-age population has already stopped growing, and it may not see any appreciable growth ever again (Figure 22). By the 2050s, the working-age population will probably begin to shrink. But for the time being, Indiana’s present economic base can probably be sustained for several more decades, despite demographic changes.

More concerning is the shift in the nonworking population. The population of minors will steadily decline for the foreseeable future. On the other hand, thanks to the rapid growth of the retiree population, Hoosiers over age 65 will outnumber Hoosiers under age 18 by the 2050s.

Thus, business sectors that depend on young people, such as school systems, universities, construction, real estate, and much of the retail sector, will struggle. Businesses that depend on older people for business, such as health care, financial planning, and

Figure 22. Indiana’s Historic and Projected Population by Age Category



Source: US Census Bureau Population Estimates Program; decennial censuses; state and territorial censuses; author’s imputations and calculations; IPUMS USA query of American Community Survey and historic censuses; and population model outputs.

advising, will boom. This creates a long-run economic problem for Indiana: 21st- and 22nd-century economies depend on knowledge creation, innovation, and dynamism for growth. A declining educational sector and a weak real estate market will hammer Indiana's economic potential as local talent development becomes harder and fewer Hoosiers have access to startup capital for their businesses. Obviously, public pensions will also pose an enormous challenge, with public finances placing new burdens on younger workers to pay for an aging population.

Indeed, while both children and retirees can create costs for the public budget, the timing of those costs is different. Children create upfront costs for the government through public health and welfare spending and especially educational spending. But that investment is repaid through a long working career.

Retirees, however, create current costs for the government as they claim pensions and benefit from public health and welfare spending but have no long taxpaying career ahead of them. Thus, while the working-age population will not shrink dramatically as a share of Indiana's population, workers will face a much more pessimistic long-term economic outlook if they stay in Indiana. This pessimistic outlook and its attendant fiscal crunch are already hammering Illinois and driving out-migration. Indiana will face the same problems if it does not address population aging productively now. The dynamic effect of a worsening fiscal crisis has not been included in this base scenario; if Indiana faces such a crisis, the working-age population could shrink considerably faster than projected here.

Hoosiers in Every Color

Regardless of demographic or economic scenarios, one thing is certain: Indiana's future population will be less white than it is today. About 80 percent of Hoosiers today are non-Hispanic whites. That share will fall to less than 75 percent by 2070 and perhaps much lower, with the share of Asians and Hispanics especially rising to fill the gap (Figure 23).

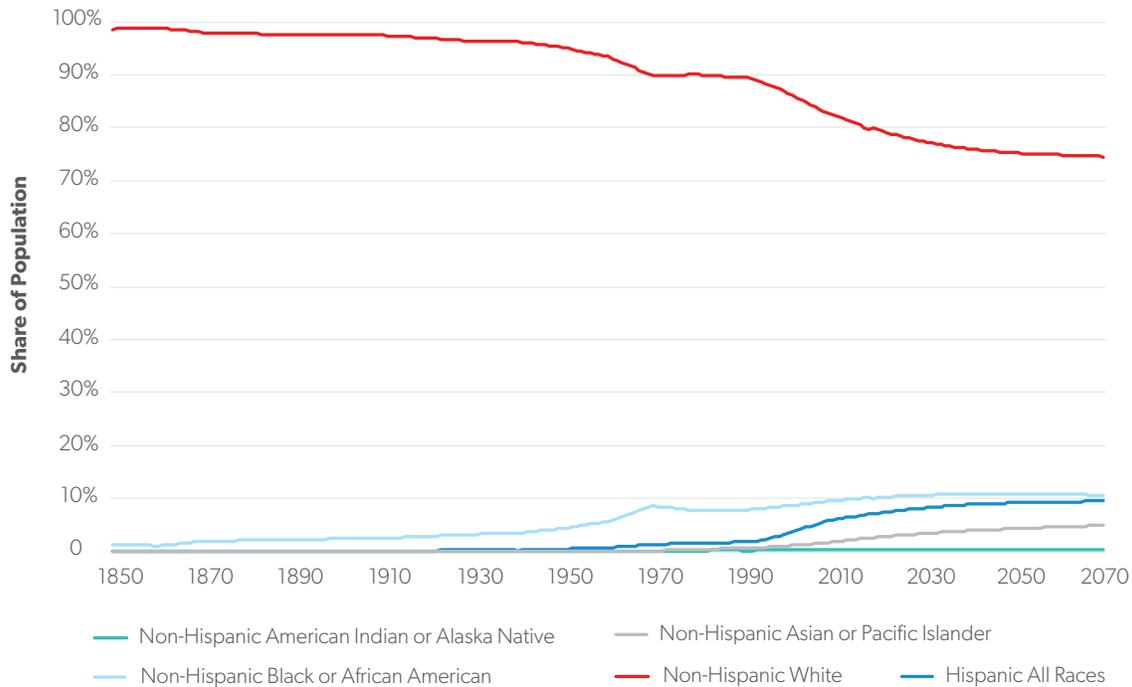
However, projecting race and ethnicity is extremely challenging, as these concepts are not fixed over time. A steadily growing share of Hoosiers, today over 2 percent, identify with multiple races. This report adopts the Centers for Disease Control and Prevention's "bridged race" concept, collapsing multiracial respondents into one racial category.⁴ But as self-identified multiracial people grow as a share of the population, identifying the population's racial mix will prove increasingly difficult.

Moreover, demographic projections of race are often bedeviled by unpredictable child racial identification. While it is generally assumed that a child's racial or ethnic identification will match the parent's, this is not always the case. Some children grow up to identify as some other racial or ethnic identity than their parents. This is especially common among Hispanic Americans, as a large number of children of Hispanic parents cease to identify as Hispanic when they are adults. Similarly, it is difficult to predict the racial or ethnic identification of children born to parents of two different racial or ethnic groups.

This report's projections use a fairly aggressive assumption about racial identification—namely, that "white" identity will continue to be racially coded as "normal" in Indiana, and thus long-assimilated immigrants will tend to identify as white as their generational distance from immigration increases. In other words, this model assumes that considerable numbers of Hoosiers whose racial self-identification is conceivably malleable, especially children of parents of two different races and Hispanics, will functionally "become white"—that is, experience the same racial assimilation that Italians and Poles experienced a century ago. This may be true even for immigrants whose skin tone is relatively heavily pigmented: A group of Indian Americans was recently criticized as "white supremacist" in a *New York Times* article, demonstrating the social malleability of the concept of whiteness.⁵

Thus, even as Indiana's non-Hispanic white population share begins to stabilize in the 2060s, those white Hoosiers will be notably more racially diverse than the white Hoosiers of 1980. Many of those non-Hispanic whites will nonetheless

Figure 23. Indiana’s Historic and Projected Population by Racial or Ethnic Group



Source: US Census Bureau Population Estimates Program; decennial censuses, state and territorial censuses; author’s imputations and calculations; IPUMS USA query of American Community Survey and historic censuses; and population model outputs.

have Spanish-origin surnames, Asian and African American ancestors, or even skin colors considerably darker than their German-, Irish-, or English-descended neighbors. Even Indiana’s white population will diversify over time.

Conclusion

Indiana is at a unique point in its history. Population decline could begin within two decades, or the state could continue to have appreciable population growth indefinitely. The differences between these scenarios, in the necessary changes to fertility, mortality, and migration patterns, are not insurmountably large. Indiana’s leaders can secure a prosperous future for all Hoosiers by taking concerted action to

tackle deaths of despair and other public health problems, creating an affordable and supportive environment for kids, and ensuring public services are efficiently delivered at a reasonable tax price.

If Hoosiers fail to rise to these challenges, consequences could be severe. Population decline will cripple basic public service provision in many localities, even as the statewide burden of pensions and other obligations inexorably rises. Many mainstays of the economy, such as education, retail, and real estate, will face permanent headwinds as demand for products shrinks with each generation. In the long run, Indiana will be reduced to the urban cluster around Indianapolis, surrounded by county upon county of squandered hopes.

This does not have to be Indiana’s future. But without decisive action in the near future, it will be.

Acknowledgments

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About the Author

Lyman Stone is an adjunct fellow at AEI and a research fellow at the Institute for Family Studies. He is the chief information officer of the population forecasting firm Demographic Intelligence and a former international economist at the US Department of Agriculture, where he forecasted cotton market conditions.

Appendix A. Comparison to IBRC Projections

Indiana already has public bodies that produce population projections. The IBRC, housed at Indiana University's Kelley School of Business, is a coordinating agency with Indiana's Census State Data Center, which is tasked with assisting census operations in the state and producing state population projections. IBRC uses a cohort-component model similar to the one used in this report.

However, it has a few differences. IBRC's model uses five-year age groups and time increments instead of one year, a technical difference that should not cause any substantive disagreements. It also produces Indiana-wide projections by summing county-specific projections, whereas this report relies on an Indiana-wide projection, which is then allocated to counties based on their demographic characteristics. But again, this should not radically alter report's conclusions, unless IBRC makes strong assumptions about the role of county-place characteristics in causing specific demographic behaviors. IBRC bases its projections from 2015 data, while this report bases its projections on 2018 data, a difference that, while not trivial, ought not to radically alter forecasts either. Thus, the two models are highly comparable and could be expected to produce similar values for future years.

But in reality, IBRC's figures are far more optimistic than those presented in this report. IBRC's most recent projections, from March 2018, are included in Figure 13, alongside various scenarios from this report. IBRC's projection is higher than any scenario other than the best-case one. The sources of disagreement are several. According to IBRC's methodology paper, it assumes a fertility rebound that this report eschews.⁶ IBRC also assumes that life expectancy increases will continue unabated, while this report incorporates different assumptions about the growing mortality risks for many Hoosiers. These choices especially affect

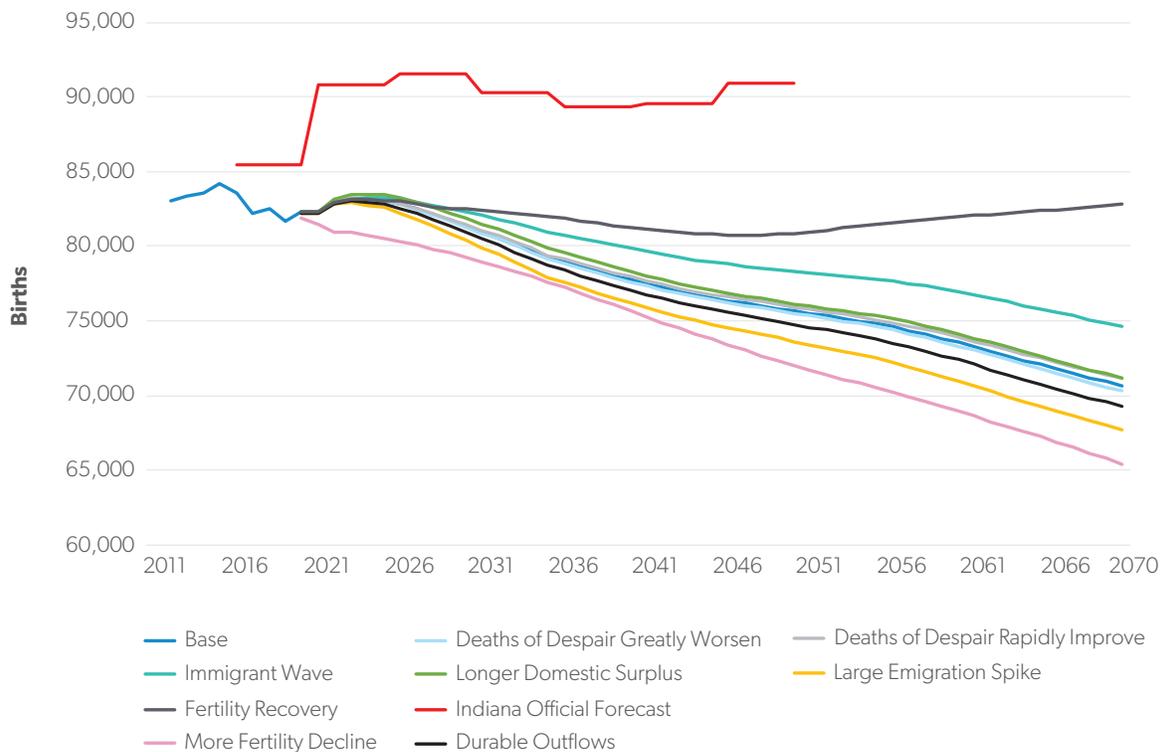
population changes in later years. These differences of assumptions are a matter of debate; IBRC's different choices are not errors but simply represent different judgments about the future.

However, in addition to these different assumptions, IBRC's last projections were produced during a period of extremely rapid change in birth and death rates. This report benefits from hindsight and national perspective, enabling a different treatment of these factors that would have been challenging for IBRC staff to duplicate at time of publication. This difference is elaborated on below.

IBRC provides five-year birth, death, and net migration totals. Those totals can be divided by five to create average yearly births, deaths, and net migration projected by IBRC for a given five-year period, which should be directly comparable to yearly figures produced by this report's model. For example, IBRC's birth forecasts from 2015 to 2050 can be compared to actual births for 2015–18 and births from various scenarios for 2019 onward (Figure A1).

IBRC's projections overestimated births for 2016–18 by about 3,000 per year and then expected a considerable increase for 2020–24. Recently released data suggest that this projection was too optimistic. With a different approach, IBRC could have addressed this problem. Birth totals for 2016 at least were widely known in March 2018 when the report was published, and birth totals for 2017 might have been available from Indiana's state agencies for health or vital statistics. However, regardless of whether this past projection could have been improved, more recent data reveal the forecast to have been a consequential error. This error rolls forward into all future years, resulting in a forecast of births that is far too high, in some years almost 10,000 births per year higher than this report's most optimistic scenarios.

Figure A1. Comparing IBRC-Projected Births to Actual and Scenario Births



Source: IBRC Indiana State and County Population Projections for 2015 to 2050; population model outputs; and CDC WONDER.

IBRC’s death estimates exhibit the same difficulty. IBRC greatly underestimated deaths over the past several years and provided projections of future deaths far lower than those anticipated in any of this report’s modeled scenarios (Figure A2). Between births and deaths, IBRC has overestimated population growth by thousands of people every year, leading to a far more optimistic picture of future population growth than is likely.

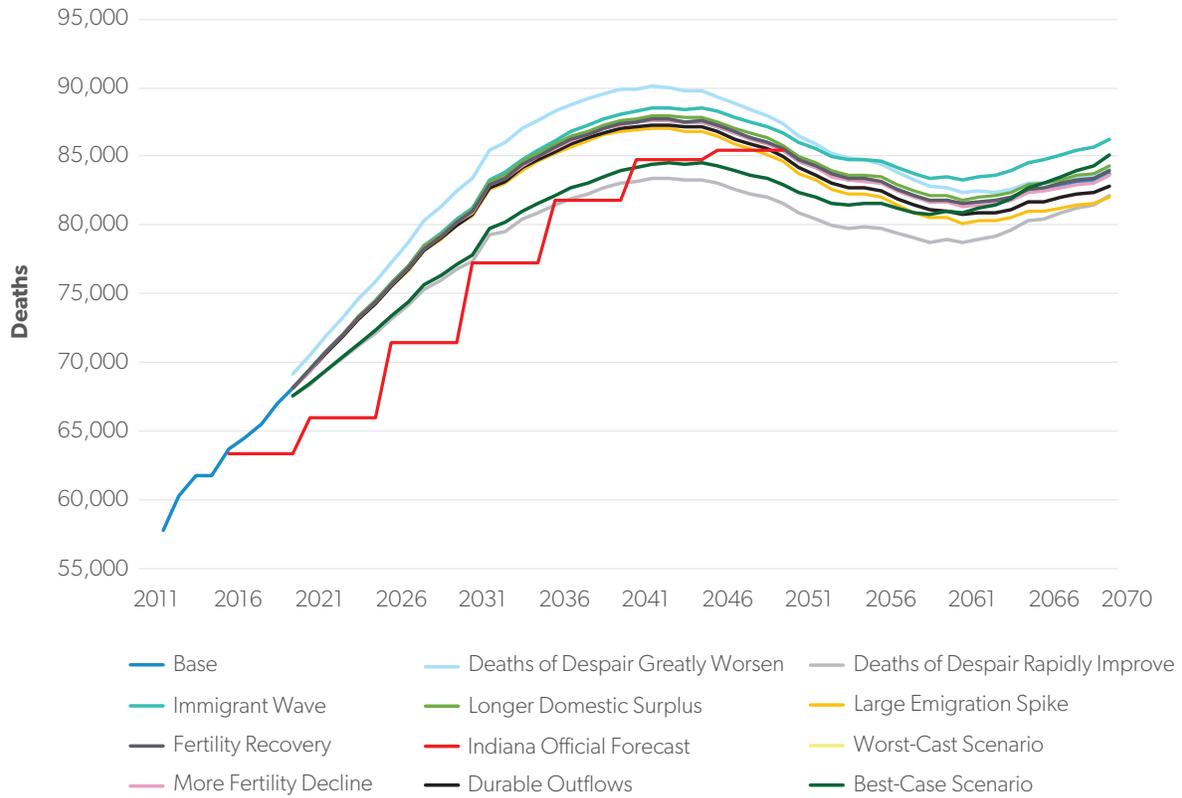
However, this note is placed as an appendix to avoid the appearance of criticizing IBRC unfairly: National experts and forecasters based in Washington, DC, made the identical mistake. The Census Bureau’s own 2017 population forecasts had the same problem: greatly overestimated births and greatly underestimated deaths. The Census Bureau’s projections overstated population growth for the whole nation by hundreds of thousands of people every

year.⁷ IBRC’s methodology paper explicitly notes its emulation of Census Bureau assumptions and forecasting norms, suggesting that the observed errors may truly not be the IBRC’s fault but may be downstream products of the US Census Bureau’s far more egregious error.⁸

In reality, IBRC has provided Indiana’s policymakers with population projections of equal or better quality as any other state. But the speed with which demographic fundamentals have changed in recent years has challenged forecasters of all stripes, particularly the US Census Bureau and its affiliated bodies.⁹

Regardless of these challenges, policymakers must be clear: Indiana faces imminent population decline. Without corrective action to increase births, reduce deaths, and attract migrants, serious demographic headwinds will place pressure on the state’s economy, making life worse for all Hoosiers.

Figure A2. Comparing IBRC-Projected Deaths to Actual and Scenario Deaths



Source: IBRC Indiana State and County Population Projections for 2015 to 2050; population model outputs; and CDC WONDER.

Notes

1. This forecast is considerably more pessimistic than the most recent forecast produced by the Indiana Business Research Center, which is formally similar to the forecasts used to inform long-term fiscal policy for the state. The sources of this difference are analyzed in detail in Appendix A.
2. Author's query from CDC Wonder.
3. Lyman Stone, "A 'New' Normal? An Updated Look at Fertility Trends Across the Globe," Institute for Family Studies, October 15, 2019, <https://ifstudies.org/blog/a-new-normal-an-updated-look-at-fertility-trends-across-the-globe>; and Tomas Sobotka, "Post-Transitional Fertility: Childbearing Postponement and the Shift to Low and Unstable Fertility Levels" (working paper, Vienna Institute of Demography, Vienna, Austria, 2017), https://www.oeaw.ac.at/fileadmin/subsites/Institute/VID/PDF/Publications/Working_Papers/WP2017_01_HFDRR.pdf.
4. Centers for Disease Control and Prevention, *U.S. Current Populations with Bridged Race Categories*, June 20, 2019, https://www.cdc.gov/nchs/nvss/bridged_race.htm.
5. Nell Irvin Painter, "A Racist Attack Shows How Whiteness Evolves," *New York Times*, October 26, 2019, <https://www.nytimes.com/2019/10/26/opinion/new-jersey-high-school-racism.html?>
6. Matt Kinghorn, "Methodology for Indiana State and County Population Projections, 2015 to 2050," STATS Indiana, March 2018, https://www.stats.indiana.edu/about/pop_proj_15-50.asp.
7. Lyman Stone, "American Renewal: There Won't Be as Many Future Americans as the Census Bureau Thinks, the Projections Are Seriously Flawed", Daily Caller, September 25, 2019, <https://dailycaller.com/2019/09/25/american-renewal-census-bureau-future-americans/>.
8. Kinghorn, "Methodology for Indiana State and County Population Projections, 2015 to 2050."
9. Lyman Stone, "'Empty Planet' Review: A Drop in Numbers," *Wall Street Journal*, February 6, 2019, <https://www.wsj.com/articles/empty-planet-review-a-drop-in-numbers-11549497631>.