

IMMIGRATION'S CONTRIBUTION TO POPULATION
GROWTH AND ECONOMIC VITALITY

BY MADELINE ZAVODNY

EXECUTIVE SUMMARY

Immigration has been a major contributor to U.S. population growth and economic growth for most of the last 50 years. However, international migration – the number of people moving to the United States minus the number moving abroad – declined precipitously between 2016 and 2019. The drop in international migration, combined with falling birth rates, resulted in what may have been the slowest decade of population growth in U.S. history – and does not include the additional decline between 2019 and 2020 connected to Covid-19. The slowdown in population growth portends slower economic growth since population growth is central to long-run economic growth.

Analysis of U.S. Census Bureau data finds international migration was the only source of population growth in rural areas as a whole during most of the 2010s. International migration is strongly related to employment growth in both rural and metro counties. Each additional international migrant is associated with an additional 1.2 jobs in rural counties over 2010 to 2018. The estimate for rural areas suggests that international migration adds to total employment well beyond the jobs filled by international migrants. International migrants may have a larger impact on employment because of the jobs they fill. International migrants may work in jobs that otherwise would go unfilled by local residents and thereby enable businesses to expand.

Slower population growth is a particular challenge for rural parts of the U.S., which experienced net domestic outmigration and deaths outnumbering births for most of the last decade. The only source of population growth for rural areas as a whole during most of the 2010s was international migration. International migration also was a vital component of population growth in metro areas. Given the strong relationship between international migration and employment growth, returning to pre-2017 levels of immigrant inflows when the pandemic ends can help speed the economic recovery and support robust future economic growth.

This study examines the components of population growth during the 2010s and how they are related to employment growth. The study focuses on differences between metro areas (classified here as counties that are part of a metropolitan or micropolitan statistical area) and rural areas. Using U.S. Census Bureau data, the study finds:

- International migration was the sole contributor to population growth in rural areas as a whole during most of the last decade. International migration, which is predominately composed of immigrants but includes some U.S. natives who are moving abroad or returning home after living overseas, accounted for about two-fifths of population growth in metro areas as a whole between 2010 and 2019, with births minus deaths and domestic migration – movement across areas within the U.S., whether by U.S. natives or immigrants already present in the U.S. – accounting for the remainder of population growth across metro areas.

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- Although international migration added to the rural U.S. population during the 2010s, it was not enough to prevent most rural counties from shrinking during the 2010s. Almost three-quarters of rural counties had fewer residents in 2019 than in 2010. International migration helped reduce population losses in over two-thirds of those rural counties.
- International migration is strongly related to employment growth in both rural and metro counties. Each additional international migrant is associated with an additional 1.2 jobs in rural counties over 2010 to 2018, and an additional 0.9 jobs in metro counties. The estimates, although not necessarily causal, suggest substantial positive employment impacts of international migration, particularly in rural areas. The estimate for rural areas suggests that international migration adds to total employment well beyond the jobs filled by international migrants.
- International migrants may result in job creation because they tend to work in jobs dissimilar to those held by people already living in an area and those held by domestic migrants, especially in rural areas. International migrants to rural areas disproportionately work in jobs related to agriculture or to food preparation and serving or building and grounds cleaning and maintenance. The same is true in metro areas, but to a lesser extent than in rural areas.

The strong relationship between international migration and employment growth points to the importance of reversing the late-2010s slowdown in international migration when the pandemic ends. Resuming international migration is paramount to population growth in rural areas in particular while supporting population growth and economic vitality across the United States.

POPULATION GROWTH AND INTERNATIONAL MIGRATION

Population growth is fundamental to long-run economic growth. A country's population grows if births outnumber deaths or if more people move in than move out. The U.S. has traditionally experienced both sources of population growth, contributing to its economic strength. It is concerning, however, that both sources of population growth have weakened in recent years and population growth has slowed. Indeed, population growth in the 2010s may have been the slowest in U.S. history.¹ Notably, the drop in population growth precedes the onset of the Covid-19 pandemic.

Figure 1 shows the components of U.S. population growth over the last decade. The height of the vertical bars in the figure is the change in the total population, divided between births minus deaths (in red) and international migration (in blue). The total height of the bars falls after 2016, indicating that population growth slowed during the second half of the 2010s. A drop in international migration – the difference between the number of people moving into the U.S. and the number of people moving out of it – played an important role in the slowdown. Most of the drop in international migration is due to fewer immigrants moving to the U.S., although it also likely reflects an upswing in the number of people leaving the U.S.² Stricter U.S. immigration policy in combination with relatively favorable economic conditions and welcoming immigration policies elsewhere underlie the drop in the net migration into the U.S.³ The drop in births minus deaths, meanwhile, reflects falling fertility rates among women of childbearing age and rising death rates as the U.S. population ages.

The population growth that did occur was not evenly spread across the country. Instead, it was concentrated in metro parts of the U.S. The number of people living in metro counties – defined here as counties that are part of a metropolitan or micropolitan statistical area – rose by 7 percent between 2010 and 2019.⁴ The number of people living in rural, or non-metro, counties fell by 2 percent. The population drop was widespread across rural counties. Almost three-quarters of rural counties had a smaller population in 2019 than in 2010.

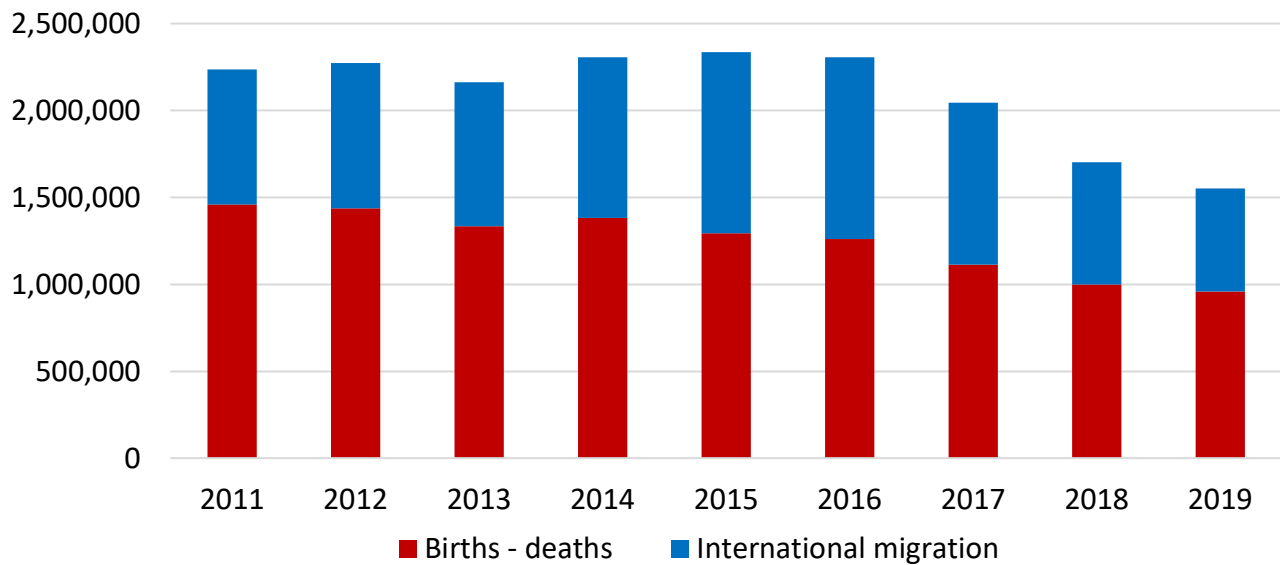
¹ See <https://www.brookings.edu/blog/the-avenue/2020/12/22/the-2010s-saw-the-lowest-population-growth-in-u-s-history-new-census-estimates-show/>.

² International migration estimates from the U.S. Census Bureau include both foreign- and U.S.-born people who move into or out of the U.S. Temporary visitors are not included, only people whose primary residence changes.

³ See <https://www.dallasfed.org/research/economics/2020/0409> and <https://www.forbes.com/sites/stuartanderson/2020/07/21/trump-cuts-legal-immigrants-by-half-and-hes-not-done-yet/?sh=2e3576596168>.

⁴ Counties are classified as metro here if the Office of Management and Budget classifies them as part of a core-based statistical area, a geographic area of one or more counties anchored by an urban center of at least 10,000 people plus adjacent counties that have a high degree of social and economic integration with the urban center as measured by commuting. The classification of counties as rural or metro does not change over time in this analysis.

Figure 1
Components of Population Change in the U.S.

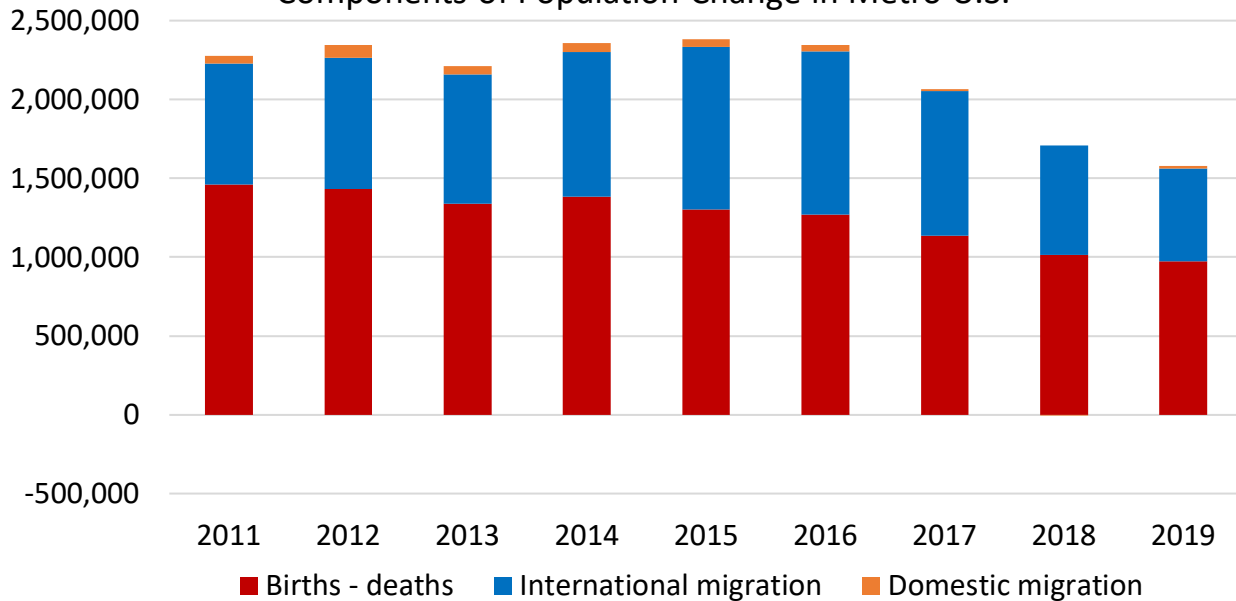


Note: Population changes are for the 12-month period ending in July of the year indicated. Data from U.S. Census Bureau.

The components of population change differed between metro and rural areas of the U.S. as a whole, as shown in Figures 2 and 3. Metro areas had more births than deaths, on average, which contributed to their population growth. In contrast, in rural areas, deaths outnumbered births for most of the 2010s. The red area in Figure 3 is negative most years. Many young adults from rural areas move to metro areas as they finish their education, enter the labor force, and start having children. As a consequence, elderly adults comprise a growing share of the U.S. rural population. The diverging patterns of natural population increase (births minus deaths) in rural versus metro areas reflect these demographic differences.

A second difference between metro and rural areas is net domestic migration. Domestic migration – movement across areas within the U.S. whether by U.S. natives or immigrants already present in the country – was a minor component of population change for metro areas as a whole during the 2010s. Indeed, domestic migration is barely evident in Figure 2 most years. While it was only a drop in the bucket for metro areas, domestic migration was the major component of population change across rural areas most years. As the orange areas in Figure 3 show, domestic migration caused rural populations to shrink most years. The year 2018 is an intriguing exception, as the only year during the 2010s when more people moved to rural areas from metro areas than the opposite.

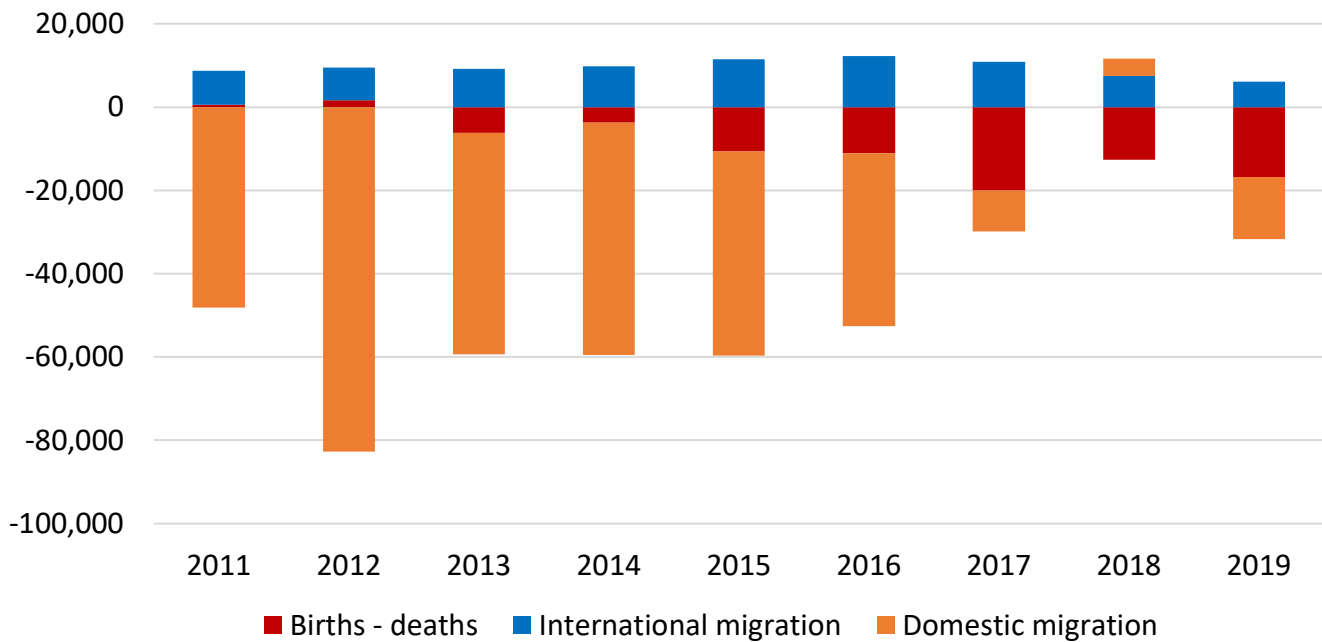
Figure 2
Components of Population Change in Metro U.S.



Note: Population changes are for the 12-month period ending in July of the year indicated. Data from U.S. Census Bureau.

International migration added to metro and rural area populations alike during the 2010s. International migration added far more in sheer numbers to metro areas than to rural areas, but it was considerably more important to rural areas. International migration was the *only* source of population growth in rural areas most years, as Figure 3 shows. For metro areas, international migration accounted for about two-fifths of population growth during the 2010s. The contribution of international migration to population change declined after 2016 in both rural and metro areas. The drop may have hit rural areas harder since international migration was the sole source of population growth most years.

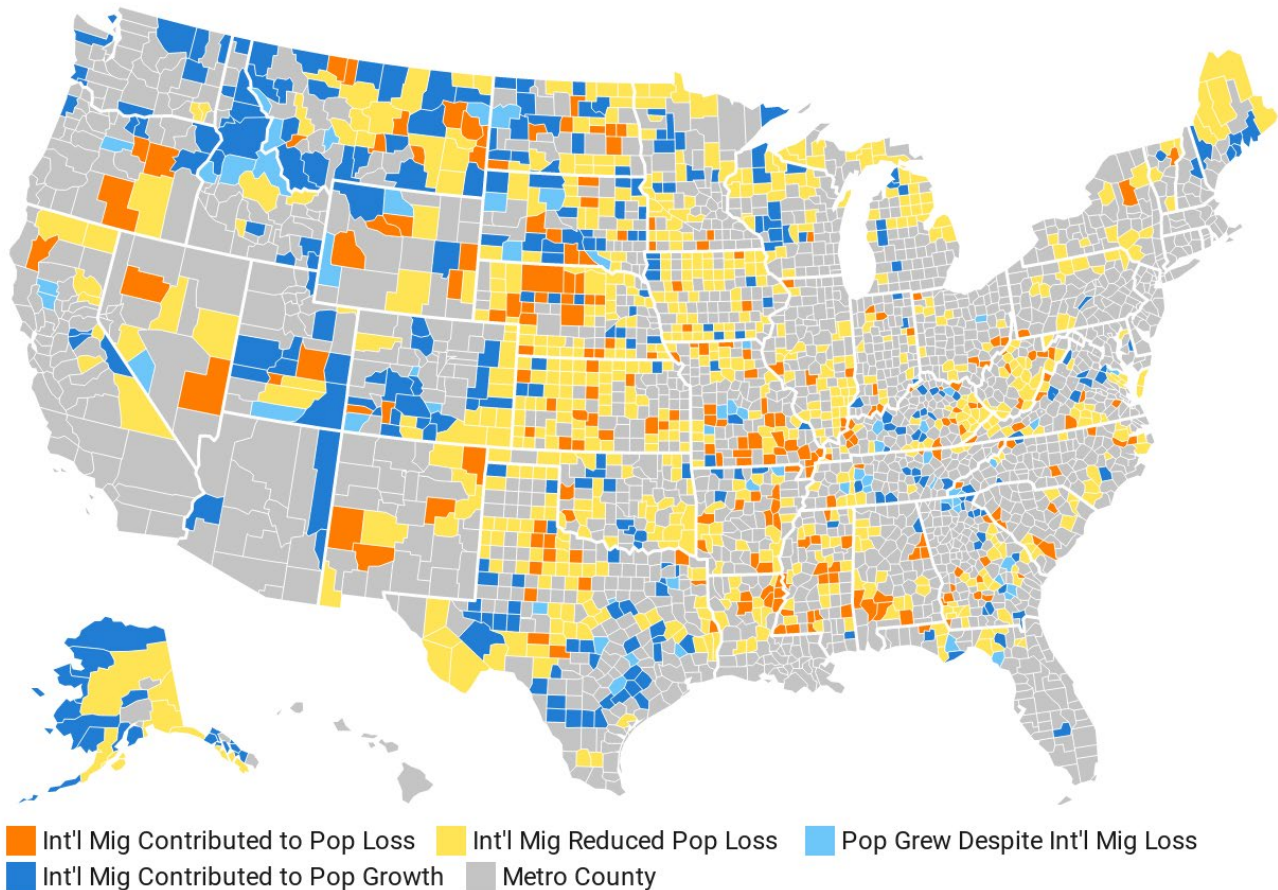
Figure 3
Components of Population Change in Rural U.S.



Note: Population changes are for the 12-month period ending in July of the year indicated. Data from U.S. Census Bureau.

Although international migration added to the rural U.S. population during the 2010s, it was not enough to prevent most rural counties from shrinking during the 2010s. However, the population decline in most rural counties would have been even larger absent international migration. As Figure 4 shows, the vast majority of rural counties had a smaller population in 2019 than in 2010 (the orange and yellow categories). International migration helped stanch population losses in the counties highlighted in yellow – over two-thirds of the rural counties that experienced population loss gained international migrants, on net. Many of those counties are in the Midwest, but international migration into rural counties occurred in rural counties across the country. International migration also contributed to population growth in most of the rural countries that saw their population expand between 2010 and 2019 (the dark blue category). Less than 5 percent of rural counties saw their population grow but did not gain international migrants (the light blue category).

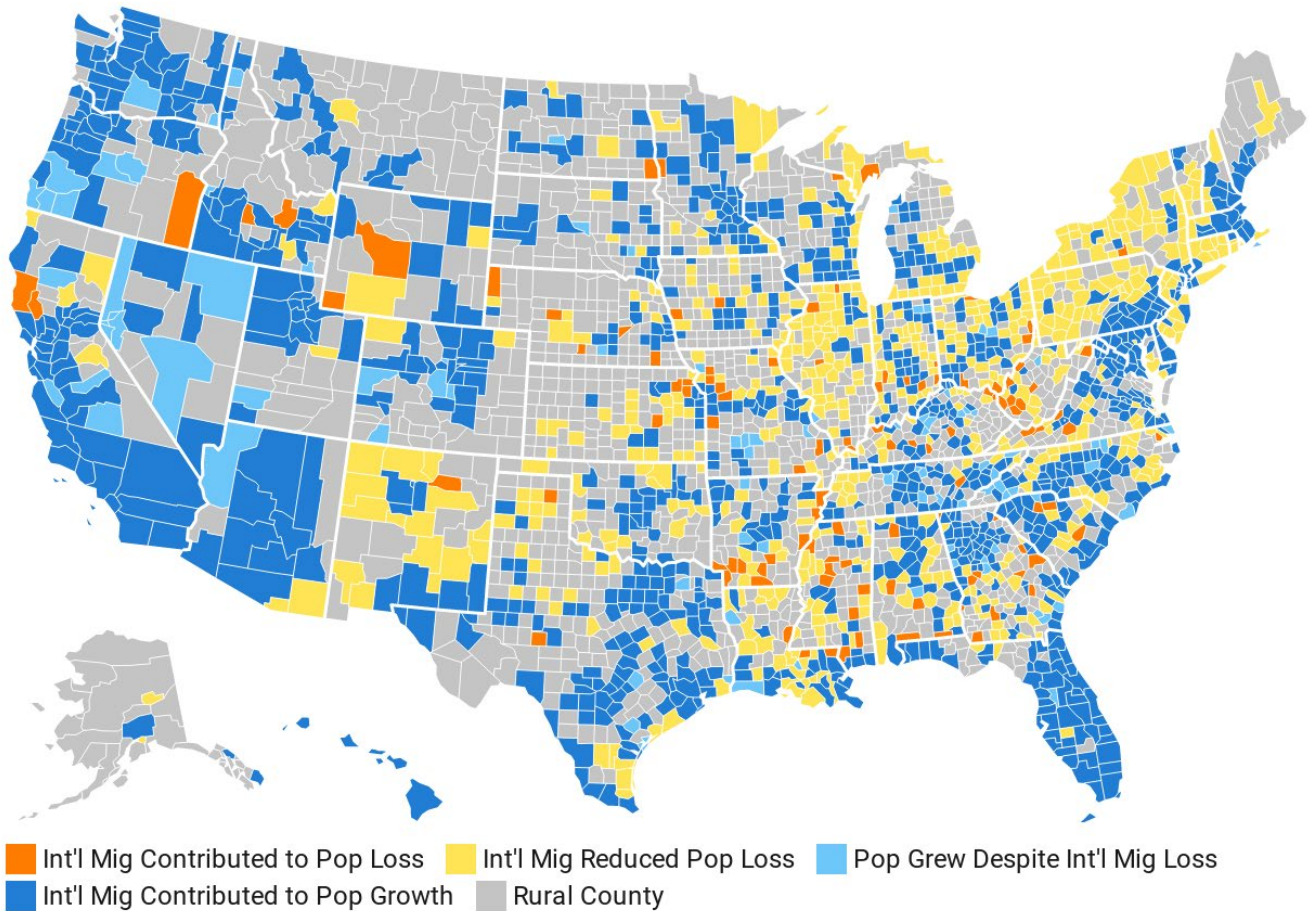
Figure 4
International Migration and Population Growth in Rural Counties, 2010-2019



Note: Based on data from U.S. Census Bureau.

The pattern of population change is considerably different in metro counties. As Figure 5 shows, most metro counties experienced population growth over 2010 to 2019 (the light and dark blue categories). International migration contributed to population growth in the vast majority of those growing counties, especially in the South and West (the dark blue category). Among the 40 percent of metro counties that experienced population loss, international migration again helped stanch the losses in most of them (the yellow category). Many of those counties are in the traditional rust belt states and the Northeast.

Figure 5
International Migration and Population Growth in Metro Counties, 2010-2019



Note: Based on data from U.S. Census Bureau.

EMPLOYMENT GROWTH AND MIGRATION

Population growth usually results in employment growth. A larger population typically means a larger labor force and more demand for the goods and services that workers produce. The three sources of population growth – births minus deaths, domestic migration, and international migration – may have different impacts on employment growth since they likely correspond to different changes in the labor force and in consumer demand. For example, natural population increase – births minus deaths – has little direct impact on the size of the labor force, whereas international migration can have a sizable impact on the labor force since most international migrants are working age. International migrants and domestic migrants may have different demographic and socioeconomic characteristics that result in different employment impacts.

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This study examined the relationship between the three sources of population growth and employment growth across counties between 2010 and 2018, the most recent year of county-level employment data available. (The appendix provides details about the data and analytical method.) The regression analysis was conducted separately for rural and metro counties. Table 1 reports the regression results. Not surprisingly, all three components of population change are positively related to employment growth, but the magnitudes of the estimated relationships differ somewhat across the three components and between rural and metro areas.

Table 1
Relationship between Change in Employment and Components of Population Change

	Rural counties	Metro counties
International migration	1.196 (0.362)	0.883 (0.241)
Domestic migration	0.307 (0.040)	0.310 (0.065)
Births minus deaths	0.431 (0.094)	0.892 (0.147)

Note: Each column shows the results of a separate OLS regression result, with robust standard errors in parentheses. See the appendix for details.

International migration appears to have a larger impact on employment in rural counties than in metro counties. As Table 1 shows, employment rose by almost 1.2 jobs per international migrant in rural counties over the period 2010 to 2018. Importantly, the point estimate suggests that international migration adds to total employment well beyond the jobs filled by international migrants; if each international migrant resulted in exactly one additional job filled by that migrant, the point estimate would be one.⁵ Of course, not all migrants are in the labor force, so an estimate below one does not mean that international migrants take jobs away from other workers.⁶ In metro counties, employment rose by about 0.9 jobs per international migrant, suggesting a smaller relationship between international migration and employment growth than in rural areas but still consistent with a positive impact.

Domestic migration appears to have a similar effect on employment in rural and metro counties, at about 0.3 jobs added per domestic migrant. International migration therefore appears to have a considerably larger impact than domestic migration on employment.

Natural population increase appears to have a much larger impact on employment in metro counties than in rural counties. The point estimates suggest that natural population increase and international migration have a similar

⁵ The point estimates for rural areas likely underestimate employment changes since the employment data do not include agricultural production workers.

⁶ During the period examined here, about 55 percent of international migrants (across all ages) are in the labor force.

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impact on employment in metro areas, whereas international migration appears to have a much larger impact than natural population increase in rural counties.

Why are the estimates for international migrants different for rural and metro areas? International migrants to rural areas may be systematically different from those who go to metro areas in terms of age, education, and other characteristics that can influence their impact on employment.⁷ International migrants also may be different from domestic migrants. Table 2 examines this possibility with descriptive characteristics for international migrants and domestic migrants during the period 2010 to 2019. Only people who recently moved to the U.S. from abroad or recently moved counties within the U.S. are included in the sample used to construct the descriptive characteristics.⁸

Table 2
Characteristics of International and Domestic Migrants into Rural and Metro Areas

	Rural areas		Metro areas	
	Int'l migrants	Domestic migrants	Int'l migrants	Domestic migrants
Age	26.8	30.8	29.0	30.7
Highest level of education completed (%):				
Not high school graduate	24.5	12.8	13.1	8.1
High school diploma	20.8	33.5	17.8	23.7
Some college	13.6	30.1	16.4	27.3
Bachelor's degree	24.5	14.8	30.2	25.2
Graduate degree	16.6	8.8	22.5	15.7
Self-employed (%)	3.3	5.6	6.0	6.2
In labor force (%)	65.8	69.1	57.0	74.7

Notes: Education distribution shown only for ages 25 and older; labor force participation and self-employment only for ages 16–65. Self-employment is also conditional on being in the labor force. See the appendix for data details.

Some of the differences between international migrants and domestic migrants are similar to typical differences between immigrants and U.S. natives. International migrants tend to be younger than domestic migrants, and the distribution of international migrants across education categories is more bimodal than is the case for domestic migrants. Both international and domestic migrants to rural areas tend to have less education than those to metro areas.

A relatively low share of international migrants to rural areas are self-employed. This is surprising since immigrants tend to be slightly more likely than U.S. natives to be self-employed. The differences in self-employment rates in

⁷ Similarly, the difference between rural and metro areas in the point estimates for natural population increase may reflect other differences in demographic and socioeconomic characteristics that are related to employment growth.

⁸ The sample only includes people who reported moving within the last year. Education levels among international migrants are higher than among the total adult foreign-born population living in the U.S., consistent with a shift toward more-educated new immigrants in recent years. See <https://www.pewresearch.org/fact-tank/2018/09/14/education-levels-of-u-s-immigrants-are-on-the-rise/>.

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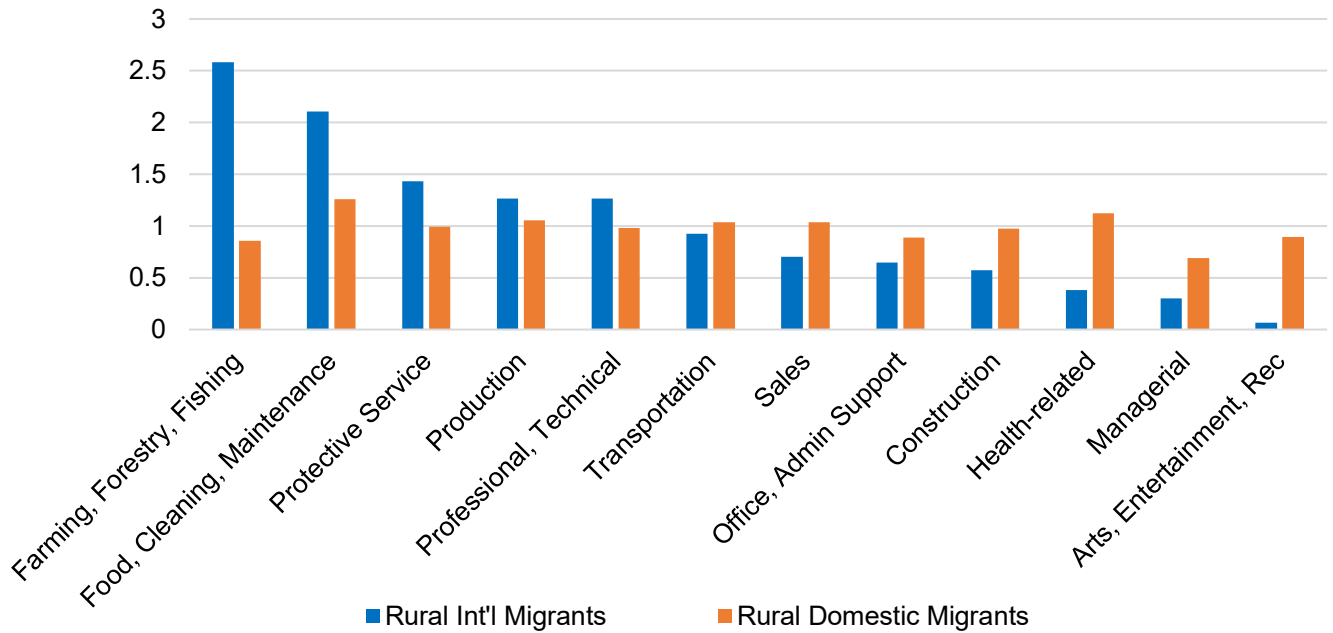
Table 2 may indicate that jobs are more readily available to immigrants in rural areas than in metro areas or that entrepreneurial immigrants tend to go to metro areas when they move to the U.S.

Another surprising finding in Table 2 is that international migrants are less likely than domestic migrants to be in the labor force. The difference in labor force participation between international migrants and domestic migrants may seem inconsistent with the results in Table 1 that suggest international migrants have a larger impact than domestic migrants on employment. There are at least two ways to reconcile the results. First, international migrants may take longer than domestic migrants to adjust to local labor markets. Table 1 compares total international and domestic migration over 2010 to 2018 with the change in employment over that period, whereas Table 2 looks at international and domestic migrants within the year that they moved. International migrants may enter the labor force in larger numbers over time, which analysis over a longer period than one year, as in Table 1, would capture but analysis of just the year when people move, as in Table 2, would miss. Second, international migrants may have a larger impact on employment because of the jobs they fill. International migrants may work in jobs that otherwise would go unfilled by local residents and thereby enable businesses to expand.

Figures 6 and 7 examine whether international migrants and domestic migrants work in jobs similar to those held by people already living in rural and metro areas. The figures show the distribution across occupations of people who moved from abroad or from another county within the U.S. relative to the distribution of people who did not move, separately for rural and metro areas. A ratio above 1 indicates that migrants were more likely than non-migrants to work in that occupation, and a ratio below 1 indicates that migrants were less likely than non-migrants to work in that occupation. The ratios implicitly control for differences in the types of jobs available in rural areas versus metro areas, such as more agricultural jobs in rural areas and more office and administrative support jobs in metro areas.

Comparing the two figures, the most striking pattern is that international migrants in rural areas are distributed the most differently across occupation groups relative to non-migrants. The vertical bars for international migrants in Figure 6 (in blue) are the furthest away from one – either higher or lower – for most of the occupation groups. International migrants in metro areas and domestic migrants in both rural and metro areas tend to have ratios relative to non-migrants that are closer to one. This pattern may explain why international migrants appear to have a larger employment impact in rural areas: international migrants to rural areas tend to work in different jobs than non-migrants and domestic migrants. The arrival of international migrants may enable some employers to fill jobs that otherwise would be vacant or to create new jobs.

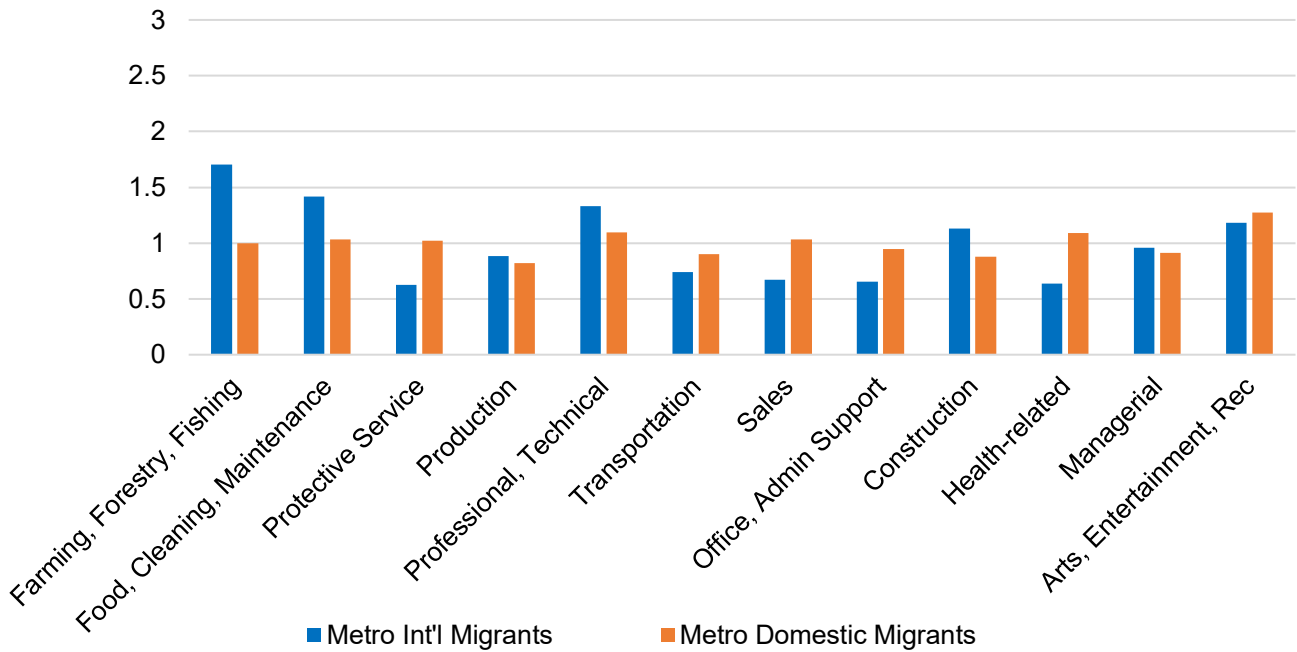
Figure 6
Occupational Distribution of Rural Migrants Relative to Non-Migrants



Note: Based on 2011-2019 Current Population Survey data.

In rural areas, international migrants are more than twice as likely as non-migrants to work in agricultural jobs (“farming, forestry, and fishing” in the figures) or in jobs related to food preparation and serving or building and grounds cleaning and maintenance (“food, cleaning, maintenance” in the figures). In metro areas, international migrants are also more likely than non-movers to work in those two occupation groups, but the ratios are smaller than in rural areas. International migrants are particularly under-represented in arts, entertainment and recreation jobs, managerial jobs, and health-related jobs. The differences are again smaller – or even reversed in the case of arts, entertainment, and recreation jobs – in metro areas.

Figure 7
Occupational Distribution of Metro Migrants Relative to Non-Migrants



Note: Based on 2011-2019 Current Population Survey data.

Domestic migrants in both rural and metro areas tend to be more similarly distributed across occupational groups than international migrants. This may explain why the relationship between migration and employment growth is smaller for domestic migration than for international migration. The economic gains from migration are bigger when migrants are dissimilar from the workers already there than when they are similar.

DISCUSSION AND CONCLUSION

The United States experienced considerable demographic stagnation during the 2010s. Immigration was falling rapidly even before the pandemic largely closed the country's borders. Between 2016 and 2019, international migration – the difference between the number of people moving into the country minus the number moving out – fell by more than two-fifths. Since immigrants serve as an important source of population and labor force growth for the U.S., the decline acts as a brake on current and future economic growth. The drop added to other concerns about prospects for economic growth, including a record-low fertility rate, a decades-long decline in domestic

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migration, and a low rate of business formation.⁹ The Covid-19 pandemic reinforced some of these trends, especially the drops in fertility and international migration. The year 2020 was a grim end to a decade of the slowest population growth in U.S. history.

Slower population growth is a particular challenge for rural parts of the United States, which experienced net domestic outmigration and deaths outnumbering births for most of the last decade. International migration was the only source of population growth for rural areas as a whole during most of the 2010s. International migration also was a vital component of population growth in metro areas. Given the strong relationship between international migration and employment growth, returning to pre-2017 levels of immigrant inflows when the pandemic ends can help speed the economic recovery and support robust future economic growth.

⁹ See <https://www.pewresearch.org/fact-tank/2019/05/22/u-s-fertility-rate-explained/>, <https://www.brookings.edu/blog/the-avenue/2020/12/15/just-before-covid-19-american-migration-hit-a-73-year-low/> and <https://www.brookings.edu/research/declining-business-dynamism-implications-for-productivity/>.

APPENDIX: DATA SOURCES AND ANALYTICAL METHODS

Figures 1 through 5 are based on U.S. Census Bureau population estimates data for 2011 to 2019 available from <https://www.census.gov/programs-surveys/popest.html>. The population change data are the change from July of the previous year to July of the current year. Throughout the study, international and domestic migration are net measures (inflows less outflows). For Figures 2 through 5, counties are classified as metro if they are part of a core-based statistical area, and rural otherwise. Figures 4 and 5 are based on the change in the population between July 2010 and July 2019 and total international migration between July 2010 and July 2019.

The data underlying Table 1 is total international migration, total domestic migration, and total births minus deaths for rural counties and metro counties between July 2010 and July 2018 from U.S Census Bureau population estimates data (<https://www.census.gov/programs-surveys/popest.html>) and the change in total employment for rural counties and metro counties between mid-March 2010 and mid-March 2018 from the U.S. Census Bureau's Business Dynamic Statistics program (<https://www.census.gov/programs-surveys/bds.html>). Counties are again classified as metro if they are part of a core-based statistical area, and rural otherwise.

The point estimates reported in Table 1 are based on an OLS regression of the county-level change in total employment between 2010 and 2018 in rural counties or metro counties on the three components of population change during that period, or

$$\Delta\text{Employment}_c = \alpha + \beta_1\text{Int'l Migration}_c + \beta_2\text{Domestic Migration}_c + \beta_3(\text{Births} - \text{Deaths})_c + \varepsilon_c,$$

where c indexes counties. Robust standard errors are reported in the table. The estimates are not necessarily causal relationships since changes in employment may affect international migration, domestic migration, and population movements that affect births minus deaths. However, the pattern of the estimates – namely, larger estimated coefficients for international migration than for domestic migration – is consistent with newly arriving immigrants being more responsive to local economic conditions than people already living in the U.S.

Table 2 and Figures 6 and 7 are based on data from the 2011 to 2019 Current Population Survey Annual Social and Economic Supplement (<https://cps.ipums.org/cps/index.shtml>). The survey includes people's location a year ago. People who reported being abroad are classified as international migrants, and people who reported living in another county are classified as domestic migrants. Whether people live in a rural or metro area is classified using the IPUMS variable metro, with people not in a metro area classified as rural. People whose metro status was not identifiable are not included. It is not possible to tell whether domestic migrants are moving from a rural or metro area, only whether they currently live in a rural or metro area. Observations are weighted using the supplement

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person weights. Education groups are shown for ages 25 and older. Labor force participation is conditional on being a civilian and ages 16 to 65. Self-employment is conditional on being in the labor force. Occupation categories are created using the IPUMS variable occ2010.

ABOUT THE AUTHOR

Madeline Zavodny, a Research Fellow at the National Foundation for American Policy, is a Professor of Economics at the University of North Florida (UNF) in Jacksonville. Before joining UNF she was a professor of economics at Agnes Scott College and Occidental College. She received a Ph.D. in economics from the Massachusetts Institute of Technology. She worked as an economist in the research department of the Federal Reserve Bank of Atlanta and Federal Reserve Bank of Dallas. Her research interests include immigration, economics of the family and economic demography.

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