

An Analysis of the Causes and Consequences of Foreign-Born Population Growth in the Midwest
and South-central States, 1950-1990

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The United States is primarily a nation of immigrants and their ancestors. Nevertheless, after 100 years of virtually free access to the United States, restrictions began to be placed on immigration in the 1870s. The first restrictions were based on prior criminal behavior. In the 1880s, restrictions were imposed on immigration of Chinese laborers. The role of country of origin as an admission criteria was expanded in the 1920s. Strict quotas on the number of visas issued per country per year were established.

The permissive attitude toward immigration in the first 100 years was due to available land. Land rich and labor poor, the country needed to populate land freed by the Louisiana Purchase and the expansion westward. The Homestead Act of 1862 made land available to both native-born and immigrant populations. Both the railroads and states sent recruiters to Europe to encourage families to move to the United States to homestead. The Homestead Act was so successful that the number of farms increased 50 percent between 1870 and 1880. As Benjamin Hibbard concluded, “leaving semi-arid land out of account..., the public domain was pretty well exhausted by 1890. Since that time, irrigation, drainage and dry-farming have been terms... familiar to those interested in the public domain.”¹

Support for restrictive immigration policies gained prominence as the supply of free land disappeared. Organized labor, a strong proponent of the Homestead Act as a way to help the unemployed (and remove them from competition for union jobs) was also a strong proponent of restrictions on immigration.² Without the homesteading option, immigrants came into direct competition with low-skilled native-born labor. The 1886 establishment of the American Federation of Labor provided the first effective and stable national union, and its rapid growth in

membership gave political force to the call for limitations to immigration which finally bore fruit in 1920s.

Along with two world wars and the Great Depression, immigration quotas lowered the growth rate of immigration below that of the overall population growth rate. The foreign-born percentage, which was 14.8 percent in 1910, began a steady decline which lasted 60 years. By 1970, only 4.7 percent of the population were immigrants. However, changes in immigration laws instituted in 1965 made it easier for political refugees and relatives of U.S. residents to obtain visas. As a consequence, immigration grew sharply in the 1970s and 1980s. Because of undercounting due to illegal immigration, the official 1990 percentage foreign-born of 7.9 percent is probably closer to 9 percent, the highest level in sixty years.

These recent sharp increases in legal and illegal immigration has invited the scrutiny of policy makers and social scientists interested in assessing the social and economic consequences of increased immigration. Studies have analyzed wages, unemployment, labor supply, poverty levels, criminal behavior, and welfare participation of the recent immigrant groups relative to earlier cohorts of immigrants. They have also analyzed how increases in immigrant growth rates have affected the labor market for native-born workers, particularly the less-skilled native-born groups. Much of this analysis has concentrated on the experience of immigrants in urban labor markets or in California. Little attention has been paid to the impacts of increased immigration in the Midwest or the South or in rural labor markets.

This paper compares immigrant populations in the Midwest and South with immigrant populations elsewhere, and with immigrant populations of the past. This comparison is used to support hypotheses about the likely impacts of recent increases in immigration on labor markets in

these states. An analysis of the determinants of county population changes is used to guide speculation on whether immigration will create pockets of poverty, unemployment, or dependency in the rural South or Midwest.

The paper opens with a review of what has been learned about the economic performance of recent waves of immigrants relative to those of the past. Next, immigration in the South and Midwest generally, and in rural areas more specifically, are compared to immigration elsewhere to assess the likelihood of similar outcomes across regions and metropolitan designations. The paper then introduces a specific data set composed of a stratified random sample of rural counties in 17 states. This sample is used to determine if foreign-born populations in rural labor markets are more or less sensitive than native-born populations to economic circumstances and social services. These models provide leverage on the question of whether immigrants are likely to become entrenched sources of poverty in the rural United States.

I. Recent Immigration in Historical Context

Between 1920 and 1965, immigration laws served to limit the number of immigrants and gave preferences to immigrants with rare skills. Small numbers of immigrants limited the potential crowding effects of new arrivals on the labor market, while the skill preferences resulted in average education levels for immigrants which were higher than those of native-born residents. The 1965 amendments to the Immigration and Nationality Act dramatically changed the number, source and average skills of immigrants. Illegal immigration has added to these differences between recent and past cohorts of immigrants. These differences have tended to limit the economic performance of recent arrivals.

The most important difference has been in education levels. In contrast to those who immigrated before 1970, recent immigrants have lower average education levels than the native-born population. Borjas (1990) argues that the influx of less-skilled immigrants is a consequence of the 1965 changes in immigration laws which increased the emphasis on refugee status and family reunification for visa qualification. As a consequence, only 4 percent of those legally admitted in 1987 were granted visas on the basis of their skills, whereas 50 percent of visas were reserved for urgently needed skills under the 1952 Immigration and Nationality Act.³

Another characteristic of recent immigrants is that they are more geographically concentrated than native-born residents of the same age and ethnicity (Bartel, 1989). Immigrants tend to locate in cities with high concentrations of the same ethnic group. In addition, less-educated immigrants tend to remain in these ethnic enclaves over time. Immigrants become more mobile as their education increases. Thus, Bartel and Koch (1991) found that the relatively less-educated immigrants from Central and South America were concentrated in the fewest number of SMSAs. In addition, internal migration of the less-educated ethnic groups tends to be from one ethnic enclave to another, so mobility does not tend to affect dispersion.

A final difference between more recent and earlier cohorts of immigrants is the increased importance of illegal immigration. As a result of illegal immigration, census figures understate the true proportion of foreign-born in the population by about 9 percent.⁴ As we show below, in most states, the undercounting of illegals is too small to have any consequence for labor markets. However, because of the geographic concentration of low-skill immigrants, the undercounting can be substantial, particularly for urban labor markets.

A. Impact of Immigration on Local Labor Markets

To the extent that the overall level of immigration is set by national policies, increasing proportions of immigrants in a locality are an exogenous shock to labor supply. The effect of this increased supply of labor on native-born workers depends upon the degree to which foreign-born and native-born workers are substitutes or complements in production, and on the size of the immigrant cohort relative to the local market. The experience of the last two decades indicates that the effects of even the largest infusions of immigrants are relatively easily absorbed. For example Card (1990) found that the 1980 Mariel Boatlift increased the supply of low-skilled labor by 7 percent in a single year, and yet had negligible effects on local low-skill employment and wages. Cross-sectional studies by Lalonde and Topel (1991) and Altonji and Card (1991) examined how differences in immigrant population growth rates affected the wages of immigrants and of native-born, low-skill workers. Both studies found negligible employment effects. Lalonde and Topel found small negative impacts on young (16-34) native-born black and Hispanic wages. Using a different specification, Altonji and Card found larger effects. Together, the two studies suggest a one percent increase in immigrant share will depress wages for low-skilled native-born workers by 0 to 1.2 percent. Estimated wage effects of larger immigrant growth rates on the immigrant's wages were somewhat larger.

The adverse effects of unusually large immigrant cohorts on wages would be expected to dissipate over time. Less clear is whether immigrants eventually become fully integrated into the U.S. economy. In the past, immigrants assimilated remarkably quickly into the labor market. Upon arrival, immigrants earn less than native-born residents of like education and demographic characteristics. However, Chiswick (1978) found that pre 1970 immigrant earnings grew faster

than native earnings, so that parity was reached after 14 years. Thereafter, immigrants earned more than their native-born counterparts. As Borjas (1991) and Lalonde and Topel (1991) demonstrate, this pattern differed greatly across countries of origin with the fastest assimilation by immigrants from Europe, Asia, and the Middle East. Even though the assimilation rate appears to have slowed more recently, these immigrants still fare reasonably well. However, immigrants from countries with low average education levels have had noticeable reductions in lifetime earnings. For example, immigrants from Latin America generally have continued to earn less than natives, even after 20 years in the United States.⁵ Borjas and Trejo (1991) also found that Hispanic immigrants and those qualifying for visas as refugees were more likely than other immigrants to be on welfare. The slower assimilation overall may be due to the larger size of recent cohorts of immigrants. However, the relatively weaker performance of Hispanic and refugee Asian groups corresponds to their much lower education levels relative to the U.S. population.

B. Correspondence to the Midwest and South

All of the research reviewed above was based on urban markets, but the outcomes suggest several hypotheses regarding how recent immigration may have affected rural labor markets. Adverse outcomes are related to the size of the influx of immigrants, the skills embodied in those immigrants, and the size of the illegal immigration population. We undertake an exploratory analysis of these factors as they relate to the labor markets in the Midwest and South-central states.

The first exploration is reported in Table 1. The foreign-born percentage of the U.S. population is listed first as a reference, and then the time path for the states from 1950 to 1990.

Two series are reported for each state, the percentage foreign-born in rural areas and the proportion foreign-born in the state as a whole. Only three of the eighteen states (Illinois, Minnesota and North Dakota) had foreign-born populations comparable to the 1950 U.S. average, and by 1990, only two (Illinois and Texas) were comparable to the U.S. average. In general, therefore, the Midwest and South-central states have relatively low density of foreign-born residents.

All eight of the South-central states had rising proportions of immigrants over time, and seven of these states had rising immigrant densities in rural areas as well. However, only in Texas did the foreign-born density approach the U.S. average. In the other states, overall density was one-quarter of the 1990 U.S. average or less. In rural areas of these states, the foreign-born density was less than one-percent.

In the Midwest states, foreign-born density in 1950 averaged over 4 percent in rural areas and 5.7 percent overall. The high foreign-born density in rural areas was still a reflection of immigrant establishment of farms. Other than urban Illinois, these states experienced declining foreign-born populations over time.

With the exception of Texas and Illinois, states of the Midwest and South ended the period with negligible foreign-born populations. Rural areas in all of these states except Texas ended the period with foreign-born densities below two percent.

This story is not sensitive to possible undercounting of illegal aliens. Sixteen of these eighteen states had corrected densities between zero and three-tenths of one percent. Only Texas (+1.1) and Illinois (+0.9) had significant adjustments to their official densities.⁶ Therefore, the official Census data will not yield misleading information regarding immigration in these states.

The distribution of immigrants by origin in the Midwest and South-central states is also very different from the U.S. average. Table 2 presents the 1990 distribution of immigrants by country of origin. Only 20.3 percent of immigrants were born in Europe, a smaller share than Mexico's. Asia's share of immigrants has risen to 25.2 percent. The share of Asian and Hispanic immigrants has grown very rapidly. Half of all Mexican immigrants and 56 percent of Asian immigrants came to the U.S. in the 1980s. Borjas(1990) estimated that nearly one-quarter of visas are now allocated to refugees, accounting for the large immigrant shares for the relatively small countries of Cuba, Laos and Vietnam.

The Midwest and South-central states (excluding Texas) have higher proportions of immigrants from the more educated countries and slightly lower proportions from refugee sources. The earnings analysis would suggest that these states would have higher skilled immigrants than the national average. Rural areas in these states have even higher proportions from countries with relatively successful immigrants and lower proportions from countries that have been relatively unsuccessful. The implication is that the Midwest and the South-central states generally, and the rural areas in these states more particularly, have absorbed a relatively small proportion of the recent influx of immigrants. The relatively small immigrant labor supply shocks, and the higher proportion of more educated immigrants suggest that labor markets in these states had even smaller adverse effects on employment and wages than the relatively small effects found in the studies reviewed above. The exception to this analysis would be in Texas where relatively large numbers of immigrants and relatively high proportions from less-successful countries were absorbed.

II. Data and Empirical Strategies

Our aim is to establish which factors cause rural foreign-born populations to grow or decline over the 1950-1990 period.⁷ Therefore, it is critical that the universe of rural counties be defined using 1950 population figures and not current definitions. As rural counties grow, they change from rural to urban designation. Consequently, a sample of rural counties as designated in 1990 would select out the rural counties that have grown the most. This would naturally bias downward the growth of rural foreign-born populations. The Census designates a county as rural, metropolitan or nonmetropolitan using a system developed by Calvin Beale. However, because the codes were first applied for the 1980 Census, we did not have Beale codes for 1950. Instead, we applied the 1980 Beale code criteria to the 1950 data. A county was designated as rural or nonmetropolitan if it fit the 1980 criteria for Beale Codes 6-9 in 1950. Essentially, this meant that the county had a total urban population under 20,000 in 1950.⁸

The states used in this analysis were those in Table 1 excluding Texas. As shown above, the experience of Texas is sharply different from the other states. Other than Texas, the rural foreign-born populations grew in the South-central states and shrank in the Midwestern states so that by 1990, the immigrant proportions were all between .3 and 1.2. In these 17 states, 1,266 counties were designated as rural/nonmetropolitan in 1950. From each state, a random sample of 18 counties was drawn from the state's universe of qualifying rural/nonmetropolitan counties. This resulted in a total sample size of 306 per Census year. Unfortunately, the Census did not report foreign-born populations for all counties for all years, and the underreporting was particularly great in 1950. As a consequence, the useable sample was 1,062 rather than 1,224.

The focus of the study is to examine how job market attributes affect immigrants' incentives to reside in rural areas relative to the general population. The foreign-born population is presumed to be predominantly of working age, so we contrasted their experiences to those of the total working age (20-64) population in the county. An additional advantage of concentrating on these age groups is that change in population over 20 cannot be due to births over the period, and deaths are likely to be relatively unimportant source of changes in these populations. Therefore, these populations closely fit the model which attempts to explain net migration.

Table 3 reports the averages of immigrant and working age population growth rates by decade, using the 1950 definition of rural. The value of using the 1950 definition is immediately obvious, since the data show average rural population growth over the 40 years of 19.9 percent, whereas the data in Table 1 would have indicated population declines. Because growing rural counties end up being switched to nonrural status, the reported rural population decline is misleading. Over the same period, the foreign-born populations fell by 27.1 percent, a smaller reduction than would have been implied by the data in Table 1. Despite rising overall populations and declining immigrant populations, the two population growth rates were positively correlated. The correlation coefficient was .41 for the entire period, but the decade-by-decade correlations reveal that the overall working-age population and immigrant growth rates became less similar over time. Since changes in immigration policy over the period meant that more recent cohorts of immigrants became progressively less similar to the existing native-born population, residence decisions also became less similar over time.

In the regression analysis, population change is measure as the log change in population between successive censuses from 1950 through 1990. The regression takes the form:

$$(1) \quad \ln (P_{i,t+10}^k / P_{i,t}^k) = \ln (X_t) \mathbf{b}_k + e_{i,t}^k$$

where $P_{i,t}^k$ is the county population of type k in year t, where k represents either the foreign-born or working-age group. X_t is a vector of exogenous variables observed at the beginning of the decade, β_k is a vector of parameters, and the $e_{i,t}^k$ are random errors.

The independent variables follow those typically entering a human capital specification, including income, human capital, local amenities, cost-of-living, government tax and expenditure policies and job search and commuting costs. Details on the variable definitions and sources may be found in Huang(1996).

County income is measured as the median family income divided by persons per family. Higher incomes should attract increased working age populations, other things equal. On the other hand, if immigrants expect to depend on public assistance, local incomes would not affect their decisions at all.

Human capital is measured with two variables: median school year completed for those over age 25 and percentage for those over age 25 and percentage of population with at least a high school degree. These two effects are aggregated to capture the human capital effect on population change. Separate information on education levels for the immigrant population is not available, so county aggregates are used for both groups. If returns to human capital are higher outside of the county, we would expect higher stocks of human capital to be associated with lower rural population growth.

Residents of rural areas may have access to urban labor markets if they are within commuting distance of a city. The cost of the commute is assumed to be a function of distance to the nearest city of at least 100,000 population in 1950. Since urban markets have grown much more rapidly than rural markets, ability to tap into an urban market may enable a rural county to maintain or increase population, even as other rural counties decline. The 1950 distance is used for all decades to avoid simultaneity problems with counties that grow into metropolitan districts over time.

Job search costs are assumed to be lower when there are many different industries represented in the rural labor market. To the extent that labor demand shocks are not perfectly correlated across industries, a diversified rural economy will have a higher probability of offering alternate employment opportunities when a given industry experiences a reduction in labor demand. On the other hand, if only one industry employs rural labor, a shortfall in demand will force rural residents to migrate elsewhere for employment. A Herfindahl index using 11 one-digit level employment shares for each county was computed as,

$$(2) \quad H_{i,t} = \sum_{j=1}^k \left(\frac{E_{i,j,t}}{E_{i,t}} \right)^2$$

where $E_{i,j,t}$ is county i employment in industry j and year t , and $E_{i,t}$ is total employment in the county.

The Herfindahl index takes a value of one if there is only one employer, and will approach zero if there are many employers.

Higher values of the Herfindahl index and commuting distance would be associated with lower local returns to employment, just as higher per capita incomes would be associated with higher labor market returns. The more sensitive the population is to labor market opportunities, the greater will be population response to these measured indicators of labor market returns.

Local government tax and expenditure policies may increase or decrease incentives to reside in a rural area. Better government services would induce entry, while higher taxes raised to pay for the services would induce exits. Government tax policy is measured by per capita local revenues. Two measures of government services are added, per capita state and local welfare and educational expenditures. Immigrant and native populations will differ in their response to these factors if they have different labor market attachments. Populations sensitive to local returns in deciding where to reside will respond negatively to increases in local per capita taxes. Populations which are dependent upon social services will be attracted to areas offering higher levels of those services.

Agriculture has been a major employer of low-skill immigrants. Agricultural jobs may have differential attraction for immigrant relative to native-born labor. Variation in the importance of agriculture to the rural economy was captured by the proportion of the population living on farms.

All dollar denominated values are in real terms, but variation in prices across counties may also influence decisions to reside in rural areas. There is no available cost-of-living index for counties, but there are several measures which partially control for local prices. Housing costs were measured by an estimate of rental costs of housing for each county. Changes in rural cost-

of-living over time are captured by dummy variables for each decade. Cost-of-living and local amenities are measured by average temperature in January and July and average annual rainfall.⁹

Other controls included the percentage of blacks in the local population, the percentage of population below 15 years of age, and the percentage over 65. The age distribution measures help to correct for population changes due to births and deaths since younger populations would be expected to have more births and older populations would have more deaths.

III. Regression Analysis of Rural Working Age and Immigrant Population Growth

The results of the regression analysis are reported in Table 4. The model explains 42 percent of the variation in working age population growth rates changes and 39 percent of the variation in the foreign-born population growth rates. The results indicate significant differences between the population responses of immigrants and others to county economic variables. We find that the nonmetropolitan immigrant population is more responsive to economic returns than is the working age population as a whole.

Immigrants are significantly more sensitive to per capita income than are others. The coefficients on per capita income suggest that a ten percent increase in real income leads to a 3.7 percent increase in foreign-born population, but only a small and insignificant increase in the working age population as a whole.

Higher human capital stocks at the beginning of the decade lead to significantly lower immigrant population growth, but have neutral effects on the overall population.¹⁰ The immigrant response is significantly different from the population as a whole. The aggregated human capital effect suggests that a ten percent increase in county human capital stock leads to 5

percent slower growth of the immigrant population. While it is a bit difficult to interpret the result exactly since the education data refer to the whole county and not just the immigrant population, the result is consistent with the hypothesis that immigrant populations are more sensitive to differences in human capital returns in making decisions of where to live.

Net returns to working in nonmetropolitan counties are assumed to be higher when there are many different industries to choose from and when distance to urban labor markets are small. Consistent with these hypotheses, lower Herfindahl indices and lower distance to a city are associated with higher growth of the working age and immigrant populations. The differences in magnitude of the coefficients across the two populations are not statistically significant.

Counties with greater emphasis of farming had slower growth in working age populations, although the elasticity is extremely small. The impact of farming concentration on immigrant population is even smaller, although the differences between the two populations are not significant.

The two populations also respond similarly to local government policy variables. Higher local per capita taxes lower the population growth rate for both working age and immigrant groups. Per capita welfare and educational expenditures have no significant effect on either population. There is no evidence that immigrants differ from other nonmetropolitan residents in reaction to government revenue or expenditure policies, or that generous welfare benefits attract either group.

The consistent finding across all these variables is that immigrant populations are as responsive or more responsive to the economic returns to local labor market variables. This finding suggests that immigrants are not likely to stay in nonmetropolitan areas if the labor market

does not offer satisfactory rewards. Instead, immigrants are more likely than others to exit weak nonmetropolitan labor markets. They are less likely to stay and form enclaves of rural poverty.

While underlying rationale for this finding must be speculative, it is likely that immigrants have less location-specific wealth than others in nonmetropolitan counties. Lacking land or property, they are more dependent on labor for income. Their higher responsiveness to labor market variables is consistent with their relative lack of other sources of income. The impact of rental price on population growth offers at least partial evidence in support of that explanation. Higher rents are associated with lower immigrant population growth rates, but marginally higher growth rates for the working age population as a whole. The difference in response is consistent with the labor market responses if immigrants are more heavily represented among renters and native-born are more heavily represented among landlords. Higher rents mean higher cost-of-living for renters, but higher income for landlords.

IV. Concluding Comments

The evidence presented in this paper suggests that Midwest and South-central states have faced relatively small increases in immigrant populations as a result of the increased legal and illegal immigration over the past thirty years. In addition, these states have faced relatively smaller increases in the immigrant groups (refugees, Hispanics) which have had the greatest difficulty being assimilated into the U.S. labor market. As a result, the labor markets in the Midwest and South-central states are likely to have had even smaller adverse effects of these immigrant labor supply shocks than the small effects found elsewhere.

Rural and nonmetropolitan labor markets in these states have been even less affected by increased immigration than are the states as a whole. Immigrants have tended to concentrate in

urban areas and have generally moved from one urban area to another when they did move. In addition, we find that immigrants in nonmetropolitan areas are more sensitive to labor market returns than are others, and so they are more likely to move to areas where the returns to labor market status are higher. As a consequence, the immigrant proportion of the nonmetropolitan population has fallen, even as it has increased in the nation as a whole.

Nevertheless, there are some nonmetropolitan areas that have experienced increases in foreign-born populations as a result of the recent waves of immigration. Are these immigrants likely to present pockets of dependency? There are many reasons to suspect that they will not. How did these ethnic enclaves become established in places where there were no previous concentrations of similar ethnic backgrounds, given that the general pattern has been that immigrants tend to go to areas populated by earlier immigrants from the same country. The answer may be similar to the explanation for ethnic enclaves formed in the Homestead era. Lacking local population, states and railroads recruited immigrant families to come to an area they would not have come to otherwise. These families came in pursuit of better economic rewards, and left if the promised rewards were not realized. It is not clear to us that incentives for these more recent immigrants are different from those who came 100 years ago.

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Endnotes

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1. Hibbard(1924), p. 542.
 2. Dick(1970), pp. 140-1.
 3. Borjas(1990), pp. 31-32.
 4. Figures based on Abowd and Freeman(1991), Table 1, page 4.
 5. Immigrants from Brazil and Argentina assimilate more readily than other Hispanic immigrants. Consistent with the role of human capital in immigrant success, immigrants from Argentina and Brazil have higher average education levels than the native-born population.
 6. Based on Table 7, p. 15 of Abowd and Freeman(1991).
 7. Sociological analysis of rural population growth rates include papers by Adamchak et al (1985), Albrecht (1993), and Johnson (1989, 1993). Barkley is the most recent economic analysis of rural population change.
 8. For a discussion of Beale Codes, see Butler (1990).
 9. Such hedonic indicators of land price have been analyzed by Roback(1982) and by Gyourko and Tracy(1991).
 10. The neutral effects reported herein for the working-age population are sensitive to the sample. When the counties with missing foreign-born data are included in the regression, Huang(1996) found small but significant negative effects of human capital stocks on the growth of the working-age population. Those results are consistent with the presumption of higher returns to human capital in urban labor markets.

Table 1: Foreign-Born as a Percentage of Total Population, by Rural Residence and State, 1950-1990.

	Foreign-Born as a Proportion of Total					1950-1990 Percent Change in		
	1950	1960	1970	1980	1990	Population	Rural Population	Rural Foreign Born Population
<u>South-Central</u>								
Alabama	.21 ^a [.48] ^b	.25 [.46]	.19 [.46]	.54 [1.00]	.45 [1.08]	32.0	-6.9	73.5
Arkansas	.42 [.54]	.46 [.42]	.26 [.43]	.59 [.98]	.60 [1.06]	23.1	-14.6	28.3
Kentucky	.29 [.58]	.36 [.55]	.17 [.52]	.46 [.95]	.35 [.93]	25.1	-4.6	16.2

Louisiana	.49 [1.15]	.34 [.94]	.32 [1.09]	.83 [2.03]	.64 [2.07]	57.3	11.2	44.0
Mississippi	.29 [.43]	.18 [.37]	.20 [.32]	.59 [.93]	.41 [.79]	18.1	-13.3	24.4
Oklahoma	.74 [.91]	.56 [.86]	.33 [.79]	.70 [1.86]	.71 [2.08]	40.8	-7.2	-10.7
Tennessee	.23 [.49]	.20 [.44]	.19 [.48]	.56 [1.05]	.49 [1.21]	48.2	3.8	101.2
Texas	3.52 [3.91]	2.19 [3.12]	1.66 [2.77]	3.14 [6.02]	4.42 [8.97]	120.3	16.6	46.4
<u>Midwest</u>								
Illinois	3.17 [9.17]	2.00 [6.81]	1.32 [5.66]	3.07 [7.21]	1.12 [8.33]	31.2	-9.8	-68.8
Indiana	1.26 [2.62]	.88 [2.00]	.66 [1.60]	.89 [1.85]	.75 [1.70]	40.9	23.5	-25.8
Iowa	2.99 [3.28]	1.69 [2.04]	1.04 [1.42]	.93 [1.64]	.56 [1.56]	5.9	-20.2	-85.1
Kansas	2.06 [2.17]	1.39 [1.53]	.84 [1.24]	1.05 [2.03]	1.15 [2.53]	30.0	-16.1	-56.3
Minnesota	5.96 [7.16]	3.16 [4.22]	1.80 [2.58]	1.38 [2.64]	.83 [2.58]	46.7	-12.7	-86.4
Missouri	.84 [2.40]	.65 [1.80]	.42 [1.40]	.70 [1.74]	.57 [1.63]	29.4	5.2	-25.6
Nebraska	3.71 [4.38]	1.98 [2.85]	1.23 [1.94]	1.01 [1.97]	.75 [1.79]	19.1	-24.0	-84.7
North Dakota	8.24 [8.02]	4.78 [4.73]	2.93 [2.98]	1.94 [2.27]	1.07 [1.47]	3.1	-34.4	-91.5
South Dakota	4.97 [4.82]	2.76 [2.73]	1.54 [1.63]	1.19 [1.39]	.69 [1.11]	6.6	-20.0	-88.9
Wisconsin	4.99 [6.43]	2.79 [4.34]	1.83 [2.96]	1.44 [2.66]	1.06 [2.48]	42.2	15.7	-75.4

Source: Authors' computations using Census data.

^aRural Foreign-Born as a percentage of all rural residents, using current Census definition of rural.

^bForeign-Born as a percentage of total population in brackets.

Table 2: Percent Distribution of Rural and Urban Foreign-Born by Origin, 1990.

	U.S.	Texas	Other Midwest and South-Central	
			Total	Rural
Europe	20.3	7.0	30.7	47.0
Asia	25.2	16.3	29.8	19.4
Vietnam and Laos	3.6	4.1	5.5	3.3
North America	41.0	68.4	28.9	23.9
Mexico	21.7	59.5	19.5	11.3

Cuba	3.7	.8	1.3	.8
South America	5.2	2.4	2.9	1.9
Africa	1.8	1.8	2.1	1.2

Source: Authors' computations using Census data.

Table 3: Percentage Change in Rural County Foreign-Born and Working Age Populations in the Midwest and South-Central States, 1950-1990.

	Population Aged 20-64	Foreign-Born Population	Correlation
1950-60	-9.3	-24.3	.88
1960-70	2.7	15.6	.49
1970-80	11.1	170.8	.32
1980-90	1.6	-6.4	.10
1950-90	19.9	-27.1	.41

Source: Authors' computations based on Census data for a stratified sample of rural counties.

Table 4: Least Squares Analysis of Rural County Growth Rates for Working Age and Foreign-Born Populations, 1950-1990.

	Population Aged 20-64	Foreign-Born Population
Average Years of Schooling	.030 (.37)	-1.026** (2.59)
Percent with High School Degree	-.002 (.05)	.472** (2.41)
Median Income	.046 (1.61)	.372** (2.67)
Herfindahl Index	-.116** (6.04)	-.197** (2.13)
Distance to City	-.048** (5.58)	-.028** (.68)
Percent Farm Population	-.020** (2.47)	.003 (.07)

Per Capita Tax	-.108** (7.53)	-.147** (2.13)
Per Capita Welfare Expenditure	-.009 (.64)	-.055 (.81)
Per Capita Educational Expenditure	.025 (.94)	.034 (.26)
Median Gross Monthly Rent	.097** (3.13)	-.379** (2.54)
R ²	.42	.39
N	1062	1062
Human Capital Effect	.028 (.46)	-.554* (1.87)

All variables are in log form, so the coefficients are interpretable as elasticities. t-statistics in parentheses.
 * indicates significance at the .10 level. ** indicates significance at the .05 level.

Regression also includes controls for average January and June temperature, annual rainfall, housing rent, percent aged 15 or less, percent aged 65 and over, percent black, and dummy variables for the south and for each decade.

The acceleration of population growth in the nineteenth century was a direct consequence of declining death rates and stable or even rising fertility rates. In England rising birthrates produced much of the growth, and these were, in turn, the consequence of increased incidence of marriage and earlier age at marriage and not of rising marital fertility. Birthrates rose in Germany in the nineteenth century as well. In other cases declining mortality played a more central role. The standard model of the demographic transition has four stages. The causes and consequences of demographic transition. The Harvard community has made this article openly available. Please share how this access benefits you. The Causes and Consequences of the Demographic Transition. David Canning. Harvard School of Public Health. July 2011. Dyson's view of population and development can be contrasted with the alternative "unified growth theory" as expounded by Galor (2011). The major theme of that theory is that there are two epochs in development, the first characterized by a Malthusian trap where any improvement in living standards inevitably leads to pressure on agriculture and starvation, followed by an epoch of sustained economic growth following escape from the trap.