Should They Stay or Should They Go? Immigration and Municipal Bonds

Kyle E. Zimmerschied *

September 2024

Abstract

Immigration stimulates economic growth, but it also increases the demand for local public resources. This paper causally examines the impact of immigration on the local government's access to finance to evaluate this trade-off. I find that immigration inflows improve local government access to finance, as evidenced by a decline in municipal bond yields. I instrument for current immigrants' settlement decisions using historical migration patterns of immigrants from 1880 onward, interacted with the flow of incoming immigrants. I find similar effects using the staggered adoption of the Secure Communities Act which increased the likelihood of detainment for undocumented immigrants. These effects are stronger for communities located further from the border, with higher operating margins, and with older demographics. Immigrants of higher education levels provide stronger benefits to the communities they settle in. The positive impact of immigration is driven by an expansion in the local labor market and an enhanced ability to fund collateral, rather than economies of scale. These findings provide evidence of the positive benefits immigrants bring to local communities.

Keywords: Municipal Bonds, Immigration, Public Finance

*I thank Niklas Augustin, Fred Bereskin, Abhishek Bhardwaj, Matteo Binfarè, Kristin Butcher, Alyssa Carlson, Tiago Bernardino (discussant), Hans Degryse, Pengjie Gao, Camilo Garcia-Jimeno, Abhinav Gupta, Matthew Gustafson, Sabrina Howell, Jessica Jeffers, Diego Jimenez-Hernandez, Ezra Karger, Hyunseob Kim, Cory Koedel, Michael O'Doherty, Du Nyugen, Shanthi Ramnath, Adam Yore, Michael Young, and seminar participants at the Nova Finance PhD Final Countdown, University of Missouri, and Silicon Prarie New Idea Session. Kyle E. Zimmerschied (kzimmerschied@mail.missouri.edu) is at the University of Missouri, Robert J. Trulaske, Sr. College of Business. All errors are my own. This paper is dedicated to the memory of Angela Skrzypczak.

"The arrival of Joseph, Oreus and as many as 15,000 other immigrants from Haiti over roughly the last three years has reshaped this city of 58,000, offering some promise of economic revival along with growing pains... Enrollment in Medicaid and federal food assistance and welfare programs surged...[But] "We needed a workforce"... said Amy Donahoe, director of workforce development with the Greater Springfield Partnership. "They are coming in and they are working hard and they want to make money."[1]

There is a longstanding debate on whether immigrants benefit the communities they settle in. On the one hand, immigration can promote both short- and long-term economic growth by increasing the local labor supply and fostering new business creation (Bernstein et al., 2022; Burchardi et al., 2020; Peri, 2012). On the other hand, immigration can place a greater strain on local public resources such as healthcare, education, and social services as immigrants assimilate into their new communities (Borjas, 1999; Mackie and Blau, 2017). These contrasting impacts of immigration have become increasingly relevant as the United States faces the largest inflow of immigrants in its history and the U.S. welfare system continues to expand.[2]

In this paper, I causally examine the impact of immigration on the local governments' access to finance to test this trade-off. While these trade-offs have been difficult to test simultaneously, I use the municipal bond market as a laboratory, building on the notion that municipal bond yields reflect the markets' forward-looking expectations of risks to local economies.[3] This market has grown from $200 billion issued in 1990 to nearly $800 billion issued in 2020 as county governments replace aging infrastructure and offset declines in state support (Randall, 2020). Examining borrowing costs reveals how immigrant inflows support or hinder a community's access to finance, which is crucial for its long-term development. I link this with extensive data from U.S. counties on labor market, income statement, and balance sheet data to explore the channels through which immigration affects

[1] Schneider (2024)

[2] Milton Friedman highlighted the economic concerns associated with immigrants "freely immigrating to welfare rather than jobs" nearly 50 years ago but this debate remains largely unsettled (Friedman, 1978).

[3] I use the term county, municipality, and local community interchangeably throughout the paper

the local economy and local government.

I first show in descriptive models that immigrant inflows are associated with significant declines in the cost of borrowing, suggesting that immigration improves their access to finance.[4] This link could reflect the fact that immigrants choose where they settle inducing an upward bias if immigrants settle in areas where economic conditions are improving or a downward bias if immigrants settle where the provision of public and social goods is increasing. Consistent with a bias from selection, I find that immigrants tend to settle in areas with increasing public and social goods expenses (e.g., healthcare and welfare). To address this issue and identify the causal effects of immigration on public finance, I build on the framework of Burchardi et al. (2019, 2020) to construct an instrument for where immigrants of a certain national origin settle within a given time period.

The exogenous variation in my instrument for immigrant inflows into a given county over a given time period arises from counties having different exposures to various ancestry groups based on: (1) historical patterns of when immigrants were leaving their home country and (2) the desirability of a given county at that time. For example, Mexican immigrants arriving to the United States in the early 1900s were much more likely to end up in the western United States compared to European immigrant arriving in the late 1800s, due to the growth of infrastructure and development that increased these counties' accessibility and desirability (Sequeira et al., 2020). Coupled with the preference of individuals to live among others of a similar ethnic background, this suggests that these counties with historically higher exogenous shares of Mexican immigrants would be more likely to receive subsequent inflows of Mexican immigrants than otherwise similar counties with different expected ancestry compositions.

In practice, my instrumental variables design proceeds in two steps using data from the U.S. Census from 1880 onward. First, I predict a county's number of residents of a given ancestry (e.g.,

[4]The municipal bond yield spread is computed as the tax-adjusted bond yield less the maturity-matched treasury rate.

Mexican) in a given year (e.g., 1985) building instruments around the *predicted* number of Mexican immigrants that would have been expected to settle into that county based on the interaction of: (1) the flow of Mexican immigrants arriving in the U.S. in that time period and (2) how desirable the county was in that Census period. For example, I predict that many Mexican immigrants settled in Los Angeles in 1920 because a large number of Mexicans were arriving in the United States and many non-Mexican immigrants were settling in Los Angeles at that time. Iterating through every Census period allows for the isolation of quasi-random variation in ancestry distribution *across* counties with the aid of origin country $\times$ destination region and continent of origin $\times$ destination fixed effects and other time-invariant controls for country $\times$ county characteristics. Next, I use these predicted, instrumented ancestry weights interacted with the flow of Mexican immigrants to predict the number of Mexican immigrants into a given county over the last period. For example, if Los Angeles County had a high predicted Mexican ancestry in 1985 and many Mexican immigrants were arriving in other U.S. regions between 1985 and 1990, I would predict a large inflow of Mexican immigrants to Los Angeles in 1990. This Bartik-instrumental variables approach satisfies the relevance condition with a first-stage F-statistic exceeding 200. To support the exclusion restriction, I build the *predicted* immigrant inflows using a strict leave-out information approach in constructing the plausibly exogenous ancestry weights (Goldsmith-Pinkham et al., 2020).

The instrumental variables (IV) approach provides strong evidence that increasing immigration improves a county's access to finance by lowering its municipal bond yields. Consistent with the downward bias in OLS due to immigrants settling in areas with rising social welfare spending, I find larger effects in the IV setting. A one-standard deviation increase in immigration inflows (about 20,000 people) reduces a county's borrowing cost by about 6 basis points. These effect sizes are closer to 15 basis points for larger counties where the majority of immigration inflows occur which reflects about a 10 percent increase relative to its standard deviation. These findings suggest that, on average, the benefits immigrants bring to local communities outweigh their consumption of public

goods and social services.

Thus far, I have documented the positive effects of immigration in improving local communities access to finance; however, it is possible that my design understates the potential downsides of undocumented immigration. To support the inference of my main design, I exploit the staggered policy adoption of the Secure Communities Act from 2008 to 2014 across U.S. counties which increased the likelihood of detainment for undocumented immigrants through increased information sharing between the local county police and the Department of Homeland Security. The policy resulted in an additional detainment of over 450,000 undocumented immigrants (primarily Mexican) and decreased the stock and flow of subsequent immigration (East et al., 2023). I find that reducing the population of undocumented immigrants increased the cost of borrowing for local governments by about 8 basis points which is similar in magnitude to my main design. These results are consistent with East et al. (2023) which find the passage of this policy resulted in increased labor costs that reduced employment and wages for both undocumented and native residents and a reduction in local consumption.

While, on average, immigration improves a county's access to finance, it is likely that immigration is particularly valuable to counties in need of additional labor supply or counties that are better able to help immigrants assimilate into their communities. I find that counties that are both further from the southern border and coasts benefit more from immigration inflows suggesting the marginal benefit of immigrant inflows is higher in areas less exposed to traditional migration paths. Consistent with counties with more financial slack and resources being able to help immigrants assimilate, I find stronger effects of immigration inflows in counties with a smaller proportion of residents below the poverty line and also where the county government has higher operating margins. Immigrant inflows are also particularly valuable in communities with aging demographics where younger immigrants can fill gaps in the labor force. Regarding the skill complementary of county labor forces, I find no difference in the effect of immigrants into areas with a larger proportion of workers in labor-intensive

trades.

Significant differences exist across immigrant characteristics that are also important to consider. For example, the U.S. Conference of Mayors recently endorsed the Heartland Visa, which is a bipartisan immigration proposal designed to attract skilled foreign professionals and entrepreneurs to struggling urban areas.[5] In contrast, their is much debate about welcoming lower-skilled immigrants.[6] Instrumenting for a county's inflow of immigrants using variation in exposure across *individual* country immigration flows of varying education levels, I find immigrants with higher levels of education further improve a county's access to finance. The effects of education are stronger for college attendance than general years of education suggesting additional benefits for exposure to immigrants with a higher likelihood of white-collar work or are more likely to become entrepreneurs. While the strongest benefits to immigration stem from exposure to highly-educated immigrant inflows, these positive effects of access to finance remain even for immigrants of lower skill.

Overall, I find that immigration enhances productivity and improves a county's ability to fund collateral which reduces borrowing costs for communities. I find that increasing immigration not only drives employment growth but also boosts the number of new businesses, as immigrants both start their own businesses and alleviate labor constraints for other entrepreneurs. These productivity gains translate into higher local government revenues through increased tax collection and intergovernmental transfers. I find no evidence of economies of scale, as expense growth slightly exceeds revenue growth. In contrast, these increased expenses are used to partially fund improved capital projects and infrastructure. In combination with the fact that immigration actually leads to an *increase* in outstanding debt, it appears that immigration allows counties to fund collateral which is used to fund more debt at better terms.

[5] See https://www.boundless.com/blog/mayors-endorse-heartland-visa-to-boost-struggling-cities/

[6] For example, the city of Wichita, Kansas has been seeking to attract incoming Mexican immigrants to help offset a labor shortage and aging demographic curve while the state of West Virginia facing similar labor and demographic tensions has been largely opposed to immigration https://www.wsj.com/us-news/the-american-city-with-a-message-for-migrants-we-want-you-69ef7049 and https://www.wsj.com/politics/policy/west-virginia-workers-migrants-jobs-0be74c9f

My work joins a growing literature on determinants of municipal access to finance (Butler and Yi, 2022; Cornaggia et al., 2022; Gao et al., 2020; Goldsmith-Pinkham et al., 2023; Painter, 2020). The most closely related paper is Gustafson et al. (2023) which finds that Covid-induced, primarily white-collar internal migration increases county bond yields and reduces access to finance for counties losing these residents. In contrast, my paper provides empirical evidence that increases in population due to international migration, including those beyond just white-collar workers, enhance a community's access to finance as more immigrants settle in a given area. This paper also introduces a novel identification approach to the finance literature which allows for a broader understanding on the impacts of immigration on the financial system.

To my knowledge, this is the first paper to study the connection between immigration and local government finance. Prior research has explored immigration's impact on local labor markets and productivity (Burchardi et al., 2020; Card, 2001; Doran et al., 2022; Peri, 2012; Piyapromdee, 2021; Tabellini, 2020), foreign direct investment and international trade(Burchardi et al., 2019; Cohen et al., 2017; Eghbali et al., 2024), innovation (Bernstein et al., 2022; Burchardi et al., 2020), labor and housing prices (Cortes, 2008; Saiz, 2003), long-term community impacts (Sequeira et al., 2020), and the consumption of public goods by immigrants (Borjas, 1999; Chalfin, 2015; Mackie and Blau, 2017). In a related work, Burchardi et al. (2020) show that immigration leads to an increase in the production of innovation and wage growth in counties receiving immigrant flows. However, the overall impact of immigration on public finance remains unclear, as the consumption of public goods and social services by immigrants could offset their economic benefits. By analyzing how immigration affects county revenues, expenses, and balance sheets, my paper enhances our understanding of its implications for public finance.

1 Data Sources and Sample

1.1 Bond Issuance Data

I begin with a sample of all municipal bond issuances from Refinitiv's SDC Platinum from 1985 to 2010 which returns 374,971 bond issuances. I am able to link 90 percent of these issuances to the ultimate county issuer resulting in 338,959 matched issuance. As my research design uses flows of immigration over five year periods, I keep only bonds issued at five year endpoints (e.g., 1985 and 1990) which returns 72,744 bond issuances. Lastly, conditioning down to bonds that have non-missing information related to the bond's yield and lagged characteristics returns 53,516 bond issuances.[7] My main measure of borrowing cost for a given bond issuance is the tax-adjusted bond yield less the maturity-matched treasury bond yield where following Garrett et al. (2023) is computed as:

$$Spread_{i,c,t} = \frac{Yield_{i,c,t}}{(1-\tau_{c,t})} - r^{f}_{m,t} \tag{1}$$

where $r^{f}_{m,t}$ is the yield of treasury bill of maturity m issued at time t, $\tau_{c,t}$ is the marginal tax rate on personal income calculated as $\tau_{c,t} = \tau_t^{Federal} + \tau_{c,t}^{State} \times \mathbf{1}[Exemption^{State}]_{c,t}$ where $\tau_t^{Federal}$ is the federal tax rate for top earners after adjusting for the deductability of state income taxes at the federal level and $\tau_{c,t}^{State}$ is the state income tax rate for top earners with both measures provided by NBER Taxsim (Feenberg and Coutts, 1993).

Table 1 Panel A presents summary statistics on key variables at the bond issuance level. The average bond has a yield spread of 2.43 percent in excess of the maturity-matched, treasury bond yield suggesting that investors demand a sizeable default and illiquidity premium from holding

[7] I keep only the longest maturity bond within a given bond issuance as the information required to compute the yield on shorter-dated bonds within the same issuance is not available until 2003.

municipal bonds. Cross-sectionally, there is sizeable variation across municipalities despite the low, observed default rates as gap between the 25th and 75th percentile of issuances is about 2 percent. The average bond has a maturity of 15 years and a principal amount of $4.5 million suggesting many municipal projects are sizeable in scope and longevity. About 33 percent of bonds are revenue bonds backed only by the cash flows of the underlying project itself and 88 percent of bonds are tax-exempt.

1.2 County Census Data

I link this bond issuance level data with U.S. Census data on population, immigration, and other county characteristics. The average population of bond-issuing counties in my sample is about 200,000 residents. These counties receive about 4,000 immigrants over the five-year intervals measured in the Census data with about 90 percent of these immigrants migrating from non-European countries. These immigrant inflows have significant cross-sectional dispersion as the median U.S. county receives inflows of about 250 immigrants while the standard deviation is about 20,000 immigrants. These immigrant inflows are a significant part of the population sustainment and growth in the United States as the average population change over the same interval is only 10,000 residents. Figure 1 shows the stock and flow of immigrants in the United States over time. Panel A documents that the United States had an increase in the stock of immigrants from 15 million immigrants in 1980 to nearly 40 million in 2010. Immigrants also make up a much larger relative proportion of the U.S. population increasing from about 5 percent in 1980 to nearly 15 percent in 2010 near a record high.[8] Panel B of Figure 1 shows the increasing flow of U.S. immigrants from other North American, Asian, and South American countries over time while European immigration has declined.[9]

[8]The Appendix provides a historical overview of U.S. immigration policy which has contributed to these trends.

[9]Figure IA.1 plots the flow of immigrants by continent in proportions.

Regarding demographics, about 60 percent of residents are between the working ages of 18 to 65 and about 12 percent of residents live below the poverty line. The average county has 71,000 employed individuals with 71 percent of these individuals working in more labor-intensive, blue-collar lines of work.[10]

Lastly, I include two data sources of county financial data. The first comes from the Quarterly Census of Employment and Wages which includes data on the number of establishments, employees, and total pay within a given county. Table 1 Panel C shows that the average county has about 5,000 establishments, 80,000 employees, and an average annual CPI-adjusted pay of about $35,000 in 2010 dollars. The second source provides government financial data from the Government Finance Database which aggregates data primarily from the US Census Bureau's Census of Governments and Annual Survey of State and Local Government Finances (Pierson et al., 2015).[11] These data provide comprehensive information on the income statements and balance sheets of local county governments. Table 1 Panel D shows that the median county has revenues of about $40 million consisting of total taxes, intergovernmental revenue, and other miscellaneous revenue. Regarding expenses, the average county has comparable expenses which are dispersed broadly across public goods for local citizens such as infrastructure and roads, police, judicial, and public welfare spending.[12] The average county government has about $140 million in debt outstanding while financial assets represent about $350 million which is spread across a mix of cash, trust cash securities, and other securities. The average municipality has a leverage ratio of about 0.36 when scaling its total debt by its financial assets while some distressed counties have leverage ratios exceeding 2.[13]

[10] I classify 2-digit NAICS codes into blue or white-collar work based on the nature of work and education required for the position. These county-level employment data are from the County Business Pattern Files (Eckert et al., 2020).

[11] I use the most recent observation from the County Business Pattern Files as these data are provided comprehensively in years ending in the digit 2 or 7.

[12] Figure A.1 shows the decomposition of a county's revenue and expense sources.

[13] In comparison, the ratio of total debt to equity of U.S. corporations was nearly 85 percent at the end of 2023. Schwert (2017) estimates that default risk accounts for 74 to 84 percent of the average municipal bond spread after adjusting for tax-exempt status despite the low incidence of municipal default of less than 0.16 percent.

2 Empirical Approach

2.1 Yield Spread Changes Following Immigration

To examine the impact of immigration on municipal bond yields, I first estimate the following regression specification:

$$\begin{aligned}\text{Yield Spread}_{i,c,t} = \beta_0 + \beta_1 Immigration_{c,[t-5,t]} + \tau' \times \text{Bond Controls}_{i,t} \\ + \rho' \times \text{County Controls}_{c,t-5} + \delta_t + \gamma_c + \epsilon_{i,c,t}\end{aligned} \tag{2}$$

where $\text{Yield Spread}_{i,c,t}$ is the municipal bond's tax-adjusted issue yield less the yield on a maturity-matched treasury bond.[14] $\text{Immigration}_{c,[t-5,t]}$ is the inflow of immigrants into county c over the last five years. $\text{Bond Controls}_{i,t}$ includes the total issue amount of the bond, the time to maturity, whether the bond is callable, insured, a negotiated bid, taxable, the rating of the bond, whether the bond has a sinking fund, and whether the bond is used to refinance existing issuances. $\text{County Controls}_{c,t-5}$ is a vector of lag county controls from five years prior which includes the population, percent of the population between 18 and 65, percent below the poverty line, the average income, median age, the number of employed people, and the proportion of employees working in labor intensive fields. δ_t is a time fixed effect to account for differences between observed time units, and γ_c is a county fixed effect to capture time-invariant differences across issuing counties.

Table 2 examines how changes in immigration affects municipal bond yield spreads. Increases in immigration consistently lead to lower issuing yields for counties across the OLS estimator. In columns (1) to (5), I regress the yield spread directly onto immigration, and I find that a one-standard deviation increase in immigration leads to about a 5 basis point decline in an issuing

[14] I also use $\Delta\text{Yield Spread}_{i,c,t}$ as a measure of yields where $\Delta\text{Yield Spread}_{i,c,t} = \text{Yield Spread}_{i,c,t} - \overline{\text{Yield Spread}}_{c,t-5}$

county's yield spread on average. These effect size sizes are closer to 12 basis points in the larger counties where the majority of immigration occurs. Columns (6) to (8) provide similar evidence when modeling *changes* in the yield spread with an estimated effect of about 4 basis points. These results are robust across the inclusion of bond and county controls, and the inclusion of county fixed effects providing initial evidence of a link between immigration and reduced borrowing costs for communities.

This link between immigration and reduced municipal bond yields might simply reflect that additional population increases or additional internal migration to counties improve their access to finance and reduce their municipal bond yield spreads. To understand whether immigration has a similar or distinct link from population changes and internal migration, I examine the link between the latter two on bond yields. First, I regress measures of a municipality's yield spread on population changes in Panel A of Table A.1, and I find only one specification results in a significant reduction in borrowing costs. Next, I examine the link between a municipality's issuing yield spread and the inflows of native residents using data from the IRS. In contrast, I find no evidence that increasing internal migration improves a county's cost of borrowing as shown in Panel B of Table A.1. These estimates provide preliminary evidence that population changes or internal migration are not mechanically linked to lower costs of borrowing.

Although, the OLS estimator provides initial evidence that immigration leads to lower yields, it is possible these estimates do not recover the *true* average treatment effect for two reasons. The first, is due to the non-random selection of immigrants into communities as they typically decide where to settle. For example, immigrants might settle into communities where the marginal productivity of labor is increasing from enhancements to the total factor productivity (positive selection) or the marginal cost of living is declining due to an exodus of native residents (negative selection) the coefficient estimate might suffer from bias in either direction. Additionally, county-country specific factors can also bias these estimates as workers from a specific country might settle into counties

which have concentrated exposure to a specific sector (e.g., Indians settling in Silicon Valley in Santa Clara County due to tech exposure). Productivity shocks in this sector will lead to both improvements in the financial situation of these communities and more immigrant inflows leading to a spurious correlation between immigration and a community's financial situation.

2.2 Instrumental Variables and Bartik-Instrument Approach

While immigrants typically choose their settlement location, I follow Burchardi et al. (2020) in exploiting the fact immigrants are more likely to settle into communities where others of the same ethnic group have previously settled. Applying the framework of Burchardi et al. (2020), I use historical migration and settlement patterns from the U.S. Census from 1880 onward to provide quasi-random, ex-ante variation in the settlement decision of current immigrants. Using migration and settlement decision of historic migrants to determine the exposure of counties to ongoing immigrant flows helps to guard against the settlement decision of immigrants reflecting private information connected to a county's time varying financial performance (e.g., immigrants end up in only improving/declining counties). Additionally, to guard against country-county connections inducing a spurious correlation, immigrant inflows from a specific country are predicted to a specific county using information independent of the county-country time pairing.

The framework of Burchardi et al. (2020) proceeds in two steps which I provide the estimating equations and intuitions through a stylized example.

2.3 Predicting Ancestry

In the first step, I predict the number of people of a specific ancestry in a given county in a given year by instrumenting for the historic flow of immigrants using plausibly exogenous variation in the migration and settlement patterns of historic immigrants.

$$Ancestry_{o,c,t} = \sum_{\tau=1880}^{t} a_{r(c),\tau} Imm_{o,-r(c),\tau} \frac{Imm_{Europe,.,c,\tau}}{Imm_{Europe,\tau}} + v_{o,c,t,} + \delta_{o,r(c)} + \delta_{c(o),c} + X'_{o,c}\varsigma \qquad (3)$$

For example, Ancestry$_{o,c,t}$ is the number of people of Mexican origin (o), in Los Angeles County (c), in 1985 (t). The instruments are constructed using the interaction of two sources of variation based on: (1) a *push* factor consisting of variation in the magnitude of when immigrants leave their home countries and (2) a *pull* factor consisting of how desirable these areas are to immigrants settling in the same time period. For example, $Imm_{o,-r(c),\tau}$ is the total number of immigrants *Imm* from Mexico that settle in U.S. regions outside the West Coast in 1880 (*-r(c),*τ) capturing the *push* of immigrants from Mexico. $\frac{Imm_{Europe,.,c,\tau}}{Imm_{Europe,\tau}}$ is the proportion of European immigrants settling in Los Angeles County in 1880 reflecting the *pull* of this area to attract immigrants in this period. $\delta_{o,r(c)} + \delta_{c(o),c}$ are a series of origin country $\times$ destination region and continent of origin $\times$ destination county interacted fixed effects, and $X'_{o,c}$ contains a series of time-invariant controls for country $\times$ county characteristics.

These instruments are constructed for each Census period with immigration data from 1880 onward with the intuition that many immigrants end up in areas as a function of their timing of leaving their home country and the short-term draw of an area. Figure 2 shows large variation in the flow of immigrants (*push*) from the top five sender countries over time while Figure 3 show variation in the short-term desirability (*pull*) of U.S. counties over time. For example, I would *predict* a large number of Mexican immigrants ended up in Los Angeles as this county was very desirable in the early 1900s when Mexican immigration spiked which is used to explain the large composition of people of Mexican ancestry in Los Angeles *today*. In contrast, I predict that few counties in the Midwest region of the United States have a high concentration of Mexican immigrants as these counties were largely settled in the late 1800s before Mexican immigration spiked. Initial immigrant settlement patterns even when driven by quasi-random forces and devoid of county $\times$ country

information are strong predictors of subsequent settlement patterns of ethnic peers as immigrants tend to cluster in similar areas.

This is estimated separately for each time period t = *1980,1985,1990,1995,2000,2005,2010* using all non-European countries in the sample. From this estimation, I derive predicted ancestry

$$\widehat{Ancestry}_{o,c,t} = \sum_{\tau=1880}^{t} \hat{a}_{r(c),\tau}(Imm_{o,-r(c),\tau}\frac{Imm_{Europe,c,\tau}}{Imm_{Europe,.,\tau}})^{\perp} \tag{4}$$

where $a_{\hat{r(c)},\tau}$ are the coefficients estimated from Equation 3 and $\perp$ denotes that the interaction of the push and pull factors has been residualized on the controls and fixed effects from Equation 3, isolating the variation in predicted ancestry driven by these instruments.

Figure 4 provides evidence to support the relevance of using historical migration patterns to explain subsequent immigration waves. Due to sticky immigration patterns and the fact that immigration patterns and policies are centered around the family unit, the composition of immigrant flows into a given county are quite persistent. The composition of inflows of immigrants by country into a given county in 1880 have a 30 percent correlation with the composition of the inflow of immigrants in 2010, and this correlation at the country-county level increases to more than 50 percent following 1920.

2.4 Predicting Immigration

Second, I use these *predicted* ancestry compositions interacted with the subsequent flow of immigrants to ultimately predict how many immigrants from a given origin country recently settled in a given county at time t. I use information on the broader flow of immigrants which leaves out the focal county's Census region to exclude the impact of within region $\times$ country migration.

$$Imm_{o,c,t} = \delta_{o,r(c)} + \delta_{c(o),c} + \delta_t + X'_{o,c}\theta + b_t \times [\widehat{Ancestry}_{o,c,t-5} \times \tilde{Imm}_{o,-r(c),t}] + u_{o,c,t} \quad (5)$$

For example, I would predict that Los Angeles county received a large flow of Mexican immigrants in 1985 ($Imm_{o,c,t}$) if Los Angeles County had a high *predicted* level of Mexican ancestry in 1980 $\hat{\text{Ancestry}}_{o,c,t-1}$, and many Mexicans were migrating to regions in the United States outside the West Coast between 1980 and 1985($\tilde{Imm}_{o,-r(c),t}$).[15] Similar to before, the δ's are time, country $\times$ region, and continent $\times$ county fixed effects, $X'_{o,c}$ observable controls.

To predict the total flow of immigrants to Los Angeles from 1980 to 1985, I sum across all a given county's *predicted* ancestry weights in 1980 and the flow of the respective immigrant group over the last five years as follows:

$$\hat{Imm}_{.,c,t} = \sum_o \hat{b}_t \times [\hat{Ancestry}_{o,c,t-5} \times \tilde{Imm}_{o,-r(c),t}] \quad (6)$$

Adding up across foreign origins, I derive the main instrument for the total number of migrants settling in county c in period t, $\text{Immigration}_{c,t}$. The use of a Bartik-instrument design allows me to estimate the effects of immigration on two areas with similar proportions of immigrant ancestry but different compositions of immigrant ancestry (e.g. Chinese versus Mexican) as additional immigrants are drawn to settle where others of their ethnic group have previously settled. An important feature of this design is that U.S. counties have varying exposures to immigrant inflows over time which results in significant variation within the *same* county *over* time as the research design partially relies on variation in the *flow* of immigration over time for identification. In heterogeneity tests of

[15] $\tilde{Imm}_{o,-r(c),t} = I_{o,-r(c),t} \frac{I_{Europe,r(c),t}}{I_{Europe,-r(c),t}}$ the scaled push factor from o. Because Burchardi et al. (2020) leave out from $\text{I}_{i,-r(c),t}$ all migrants from o who settle in c's region, scaling by $\frac{I_{Europe,r(c),t}}{I_{Europe,-r(c),t}}$ corrects for differences in region sizes.

immigrant characteristics on local communities' access to finance, I also use these *individual* country instrumented flows to understand the varying effects of immigrants by their level of education.

2.5 Identification Assumption

A sufficient condition for the validity of this instrument is that predicted ancestry $\hat{Ancestry}_{o,c,t-5}$ is exogenous in Equation 4 which in combination with the baseline regional and continental leave-outs implies the condition can be written as:

$$Imm_{o,-r(c),\tau}\frac{Imm_{Europe,c,\tau}}{Imm_{Europe,.,\tau}} \perp \epsilon_{c,t} \forall o, \tau \leq t. \tag{7}$$

This requires that any confounding factors that drive temporary increases in a given county's financial situation post-1985 ($\epsilon_{c,t}$) do not systematically correlate with pre-1985 immigration from a given origin to other regions with the United States ($\mathrm{I}_{o,-r(c)}$) interacted with the simultaneous settlement of European migrants in that US destination ($\frac{I_{Europe,c,\tau}}{I_{Europe,\tau}}$).[16] Satisfying this condition implies the ancestry variable used to predict immigration in Equation 6 is exogenous.

Combining the previous two steps, to correct for the non-random flows of immigration into county c, I instrument for immigration into a given county using an instrumental variables framework with the following first-stage equation:

$$\begin{aligned} Immigration_{c,[t-5,t]} = \beta_0 + \beta_1 \hat{Immigration}_{c,[t-5,t]} + \tau' \times \text{Bond Controls}_{i,t} \\ + \rho' \times \text{County Controls}_{c,t-5} + \delta_t + \gamma_c + \epsilon_{i,c,t} \end{aligned} \tag{8}$$

[16] I use the first difference in yield spread as a robustness measure as it has a weaker exogeneity assumption in implying the interaction of the historic push and pull instruments cannot be correlated with *changes* in financial conditions rather than the *levels* of financial conditions.

While the second-stage regression below identifies the effect of immigration on municipal bond yields.

$$\begin{aligned}\text{Yield Spread}_{i,c,t} = \beta_0 + \beta_1 \widehat{Immigration}_{c,[t-5,t]} + \tau' \times \text{Bond Controls}_{i,t} \\ + \rho' \times \text{County Controls}_{c,t-5} + \delta_t + \gamma_c + \epsilon_{i,c,t}\end{aligned} \tag{9}$$

3 Main Results

The results in Table 3 examine the effects of immigration on municipal bond yields using the instrumental variables (IV) approach. The IV approach provides strong evidence that increasing immigration improves a county's access to finance by lowering its municipal bond yields. The baseline specification in column (5) shows that a one-standard deviation increase in immigration inflows (about 20,000 people) reduces a county's borrowing cost by about 6 basis points. These effect sizes are closer to 15 basis points for larger counties where the majority of immigration inflows occur. The first stage F-statistics are above 200 indicating the predicted ancestry linked with the flow of country specific immigrants are strong predictors of subsequent immigrant inflows. The effects are also robust to modeling the change in municipal bond yields which has a weaker exclusion restriction than modeling the level of municipal bond yields.

In terms of economic magnitude, the average issuer experiencing a one-standard deviation increase in the flow of immigrants would save nearly $200,000 in interest expense payments over the lifetime of the average bond it issues. With the average county issuer, issuing 6.65 bond issuances per year, the estimated annual savings are over $1 million in interest payments over the lifetime of these issuances.[17] It is important to note these estimated effect sizes of immigration reflect investors pricing in both potential increased economic growth and increased expenses on public and social

[17] This saving in interest payments is computed as 6 basis points × $21.22 million (mean issue amount for county issuers) × 14.74 years = $187,670.

goods. These positive effects stemming from increased labor supply might be particularly beneficial for counties facing labor shortages or where the labor skill mix of immigrants better matches leading to further reduction in yields. Similarly, the increased costs of immigration stemming from the provision of public goods and social services might be less costly in areas insulated from immigrants that desire to free ride.

3.1 Secure Communities Event Study

Thus far, I have documented the positive effects of immigration in improving local communities access to finance; however, it is possible that my design understates the potential downsides of undocumented immigration.[18] To support the inference of my main design, I exploit the staggered policy adoption of the Secure Communities Act from 2008 to 2014 as shown in Figure 4. The Secure Communities Act increased information sharing between the local county police and the Department of Homeland Security resulting in an additional detainment of over 450,000 undocumented immigrants (primarily Mexican) during this period. This act decreased the stock and flow of subsequent immigration, and was rolled out nationwide based on a county's distance to the border and proportion of Mexican residents rather than changing, time-varying economic conditions (East et al., 2023).

The results are displayed in Table 6 with the reduction in the stock and flow of undocumented immigrants leading to increases in the cost of borrowing for local communities. These effect sizes are comparable in magnitude with my main design with the adoption of the policy increasing municipal bond yield spreads by about 8 basis points following the adoption of the policy. Figure 5 shows the policy had significant increases in a county's cost of borrowing beginning about six months after the

[18] Pew Research Center (2019) estimates the gap of undocumented immigrants to be between 5 to 15 percent of Census respondents from countries with more undocumented individuals. The U.S. Census Bureau found in a simulated headcount across administrative records that about 20 percent of non-citizens had addresses that couldn't be matched in the 2020 Census versus 5.4 percent for citizens (Stephen and Lo Wang, 2024).

passage of the policy with the largest effects stemming about two years afterwards.[19] These results are consistent with East et al. (2023) which find the passage of this policy resulted in increased labor costs that reduced employment and wages for both undocumented and native residents and a reduction in local consumption which all represent a reduction to local county revenues.

3.2 Heterogeneous County Effects

While, on average, immigration improves a county's access to finance, it is likely that immigration is particularly valuable to counties in need of additional labor supply or counties that are better able to help immigrants assimilate into their communities. Table 5 examines the heterogeneous impact of immigration on a county's yield spread interacting different county characteristics with the instrumented flow of immigrants.[20] The results in column (1) show that there are stronger effects of immigration for counties located further away from the southern border suggesting the marginal benefit of the flow of immigrants is higher in areas less exposed to traditional migration paths.[21] The results in columns (2) and (3) show that the positive benefits of immigration in reducing a county's municipal yield spread are concentrated in areas have pro-immigration policies such as Sanctuary City policies. I find that wealthier counties benefit more from immigration proxied through using either the percent of residents below the poverty line (column (4)) or the county's net income margin (column (5)). Consistent with the benefits immigrants provide in augmenting an aging labor force, I find stronger effects of immigration in reducing a county's borrowing cost in column (6) while column (7) finds no evidence regarding a county's labor force composition and the effects of immigrant inflows.

[19] This figure also confirms the pre-trends of the policy are relatively stable as shown in East et al. (2023).

[20] The instrumental variables model, now includes two exogenous terms to instrument for the main effect of the immigrant inflow and the immigrant flow × county characteristic. The instruments are constructed as the exogenous inflow of immigrants over the last five years as described in Equation 6 and the interaction of this term with the county characteristic.

[21] I find similar effects using a county's distance to any border of the United States.

3.3 Heterogeneous Immigrant Effects

The ability level of immigrants is also an important factor that impacts the effect of immigrants on the communities they settle in. To proxy for an immigrant's ability, I use an immigrants level of education conditioning my sample down to only older residents whose level of education is likely fixed upon entering the United States.[22] I modify my design to use variation in a county's exposure to varying ancestry groups which have different levels of education. For example, a county with higher Asian ancestry weights would be exposed to immigrants with higher average education levels than a comparable county with higher Mexican weights. In practice, I now use *individual* instruments from the top-20 sending countries to instrument for the flow of immigrants over 25 years old, the immigrants' average level of education, and interaction of the two.

Table 6 displays the heterogeneous effects of immigrant inflows across varying levels of education on a county's yield spread. The results in columns (1) and (2) replicate the baseline result with state and year fixed effects and county and year fixed effects, respectively using the *individual* country instruments and find similar results. Consistent with immigrants of higher education providing additional benefits to the counties they enter, column (3) finds a significant reduction in the cost of borrowing per additional year of immigrant schooling while these effects are more muted in column (4) when including county fixed effects. These results complement recent work by Colas and Sachs (2024) which finds that low-skilled immigrants with only a high-school level of education provide a fiscal benefit to public finance when considering positive spillover effects from their employment. When examining effects for immigrants' level of college education, I find much stronger effects in reducing borrowing costs with an additional year of immigrants' level of college education reducing yields by about an additional 50 percent relative to the conditional effect at the average level of

[22] I use an immigrant's education rather than occupation to proxy for ability as an immigrant's listed job status might be endogenously determined by the community they enter. For example, immigrants might end up in higher-skilled occupations if there are better jobs available within a community while they might settle for lower-quality occupations if a county is trending downward.

education.[23,24]

3.4 Robustness & Additional Tests

I run several robustness tests to ensure that my results are not sensitive to my sampling choices and variable construction. Table A.2 presents the results. I indicate my baseline result in the top row for easy comparison to the robustness test results. Turning first to sampling choices, I show that my results are robust to using the logarithm of yield spread as the dependent variable. In row 2B, I weight the regression by the initial county populations to not allow population growth or the propensity of counties to access financial markets, and I find economically similar results. In row 2C, I control for the Census flow of internal migration and similarly find that the results remain largely unchanged. In row 2D, I backfill immigration data (e.g. fill 1981 bond issuances with the total immigration from 1985) which expands the sample, and I still find a strong effect of immigration in improving counties' access to finance.[25] In rows 3A and 3B I provide evidence that although counties with larger immigration flows are the strongest driver of the relationship, the relationship between immigration and reduced bond yields holds when excluding the counties in the top percentile of absolute immigration flows or scaling immigration by the county's initial population in 1970. In row 3C, I use the inverse hyperbolic sine transformation to scale yields and immigration, and in row 3D, I account for spatial spillovers by instrumenting for additional immigrant inflows at the state-level.

How does the use of debt proceeds respond to additional immigrant inflows and what is the effect on internal migration? The results in Table A.3 show that the explicit use of proceeds raised in bond

[23] I demean the level of an immigrants' years of schooling and years of college. This results in the main effect being interpretable as the average effect of immigration for immigrants at the average level of education and the interaction term being the effect of an additional year of education above the mean.

[24] Tables IA.1 and IA.2 estimate the effects of immigrants of varying regions and countries, respectively.

[25] The coefficient estimate is about half the magnitude as the main result due to an attenuation bias from measurement error.

issuances remains largely unchanged. I find evidence that counties increase their debt issuances tied to more general uses while all other use cases (e.g., transportation, utilities, education, or healthcare) remain largely unchanged. In Table A.4, I examine how internal migration and population changes in response to immigration inflows as many anecdotal debates often pit immigrants as crowding out native residents. The results in column (1) shows that domestic residents are more likely to stay in a given county following immigration inflows rather than leave perhaps because economic and county financial conditions are improving. Does immigration complement or substitute for internal migration? The results in column (2) suggests that immigrants crowd out internal migration as counties that experience immigrant inflows receive a smaller proportion of U.S. domestic migrants. Overall, the results in column (3) suggests that these two forces offset one another and column (4) shows that increasing immigration increases the overall population.

4 County Real Outcomes

Thus far, I have shown that counties exposed to increasing immigration benefit from improved access to finance as evidenced by a reduction in their cost of borrowing. I find evidence of heterogeneous impacts across communities with counties with more likely labor shortages and more financial slack experiencing stronger effects. Additionally, these positive effects of immigration are higher for immigrants with higher levels of education with additional years of college education being particularly valuable. Building on the notion that municipal bond yields reflect the markets' expectations of future financial risks to local economies, immigration might improve the credit risk of a given county through several different channels. For example, immigration might improve the local economy and taxable base sufficiently to offset increased spending on public goods and social services. It is also possible that immigrant inflows lead to an improvement in a county's financial margins as many of the county's expenses might be fixed while revenue growth expands.

The inflows of immigrants might allow counties to make additional investments in physical capital and infrastructure which serves as collateral for the county to take out cheaper debt and more debt.

The results in Table 7 provide evidence that immigration results in significant growth in the local labor market. Consistent with immigrants being more likely to serve as entrepreneurs and innovators (Bernstein et al., 2022), a one standard deviation increase in immigrants leads to a 3.31 percent increase in the number of establishments as shown in column (1).[26] Overall, I find a larger effect of immigration on employment (column (2)) and total wages (column (3)) in the community with an estimated effect size increase of 5.30 percent and 5.56 percent, respectively. In terms of economic magnitude, the effects of immigration are quite large with an estimated creation of about 160 additional establishments, 4,300 additional employees, and additional wages of $190 million for the average county. The results in column (4) estimates wage growth increases by a statistically insignificant amount of 1.3 percent. The inflow of immigrants also leads to a growth in the financial sector as I show using county-level data from the IRS that interest and dividends received by county residents both increase by about 5 percent as shown in columns (5) and (6).

How do these gains in the local labor market ultimately flow back to the financial operations of the local county government? Table 8 examines the impact of immigration on a county's top-level income statement and balance sheet items. The results in column (1) finds that increasing immigration flows lead to about a 3.9 percent increase in total revenues which are offset by expense growth of about 4.8 percent as shown in column (2). This results in a decline in a county's net income margin although this effect is estimated to be statistically insignificant as shown in column (3). I find in column (4) that counties take on more debt in response to immigrant inflows with a one-standard deviation increase in the number of immigrants leading to a 8.6 percent increase in the outstanding debt a county carries. Financial assets also increase in column (5) which leaves an overall county's leverage only slightly increased as shown in column (6). These results suggest

[26] $3.31\% = 0.169 \times 100\% \times 19{,}500/100{,}000$ immigrants.

that rather than immigration leading to economies of scale or reducing the need for debt, counties respond to immigrant inflows by running slightly lower margins and taking on more debt.

The results in Table 9 decompose how these immigrant inflows appear in a county's revenues. The composition of a county's government revenue base is made up of about 40 percent taxes from property and sales taxes, 40 percent intergovernmental transfers which are allocated from other governmental levels back to the local county (primarily the state government) based on population or need-based formulas, and the rest is composed of general charges to local residents. The results in columns (1) to (3) examine the impact of immigration on taxes. I find that tax revenue collected increases in response to immigrant inflows as shown in column (1), but this is primarily driven by increases in property taxes (column (2)) than sales and recreational expenses in the local county (column (3)). The results in column (4) show that counties have a slightly higher sensitivity to general charges received following immigrant inflows than taxes. Lastly, the results in column (5) to (8) examine the impact on intergovernmental transfers which help to understand the degree to which other levels of government are helping local communities bear some of the costs from additional immigrant inflows. The results in column (5) shows that intergovernmental transfers increase by about 5 percent with the largest sensitivity estimated for federal (column (6)) and local intergovernmental transfers (column (8)) as opposed to state transfers which make up about 90 percent of intergovernmental transfers.

Table 10 examines how immigration affects the expense patterns of county governments which are spent on various public goods such as infrastructure targeted towards capital projects and roads and more general public goods such as judicial courts, police, and public welfare spending. One key benefit of immigration inflows to a local community is that it might allow the county to spend on long-lasting, infrastructure projects which might increase the productivity and capacity of the local business environment that benefit both incoming immigrants and native residents. The results in column (1) document that a one-standard deviation increase in immigration leads to about an

11 percent increase in capital expenses and column (2) also finds a significant increase in road spending. Columns (3) to (7) examine whether public good expenditures increase at a similar rate in response to immigration. Only judicial spending (column (4)) and police spending (column (6)) have statistically significant increases in spending while the effect sizes are only about half the magnitude of the capital spending sensitivity.

In summary, these results suggest that counties benefit from increasing immigration with its spillover to the local economy stemming from both increases in establishment and employment growth. Rather than immigrants taking jobs or reducing wages for native workers, their inflows lead to *increases* in both establishment, wage, and growth of the financial sector. The improved access of counties to finance following immigrants inflows stems partially from spillovers from economic growth leading to an increase in property tax collection and increasing intergovernmental transfers collected from other levels of government that are distributed back to the local government. Counties do not appear to benefit from economies of scale with increasing profitability as immigrants enter, but rather the inflow of immigrants are used to fund physical capital and infrastructure which is used as collateral to obtain cheaper and more debt.

5 Conclusion

The United States is facing the largest influx of immigrants in its history and many of the effects surrounding immigration remain unclear, especially at the local level. While local officials often argue that immigrants strain public resources, research suggests that they contribute to the economy. These trade-offs have been challenging to evaluate simultaneously due to the complex cash-flow and discount rate assumptions needed to estimate them.

In this paper, I causally examine the impact of immigration on the local governments' access to finance to test this trade-off. I find that increases in immigrant inflows lead to improvement

in a county's access to finance evidenced by a reduction in its cost of borrowing. I instrument for current immigrants' settlement decisions using historical migration patterns of immigrants from 1880 onward, interacted with the flow of incoming immigrants. I find that a one-standard deviation increase in immigrant inflows reduces borrowing costs by approximately 6 basis points, with larger counties–where immigrant inflows are concentrated–experiencing a reduction of nearly 15 basis points. Consistent with immigration helping to offset labor shortages and having stronger effects where free-riding incentives of immigrants are weaker, I find stronger effects of immigration for counties with a lower proportion of working age population and in counties further away from border.

Immigrant inflows lead to robust changes in the local labor market with significant growth in the number of establishments and employment while average wages experience slight increases. These economic gains spillover into the revenue collection of the local county government through an increase in property tax collection and an increase in intergovernmental transfers from other levels of government. Rather than immigration improving a county's operating margins, I find that counties increase their spending on capital projects and infrastructure, which serves as collateral to help them negotiate lower borrowing costs and secure more debt. Understanding other risks that municipalities face, and the broader effects of immigration on the local economy represent interesting future areas of work.

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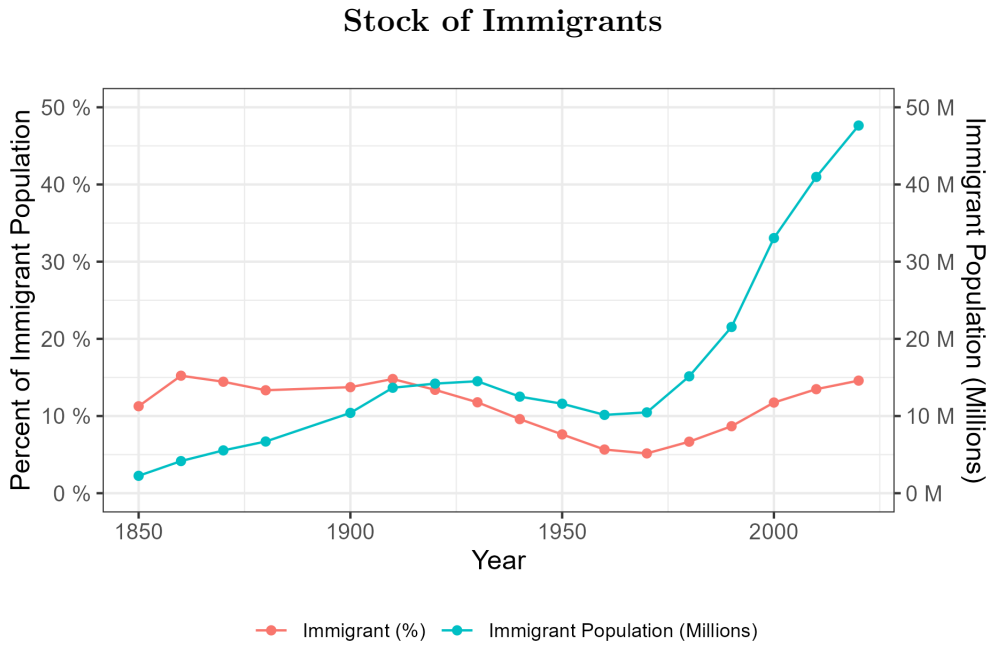
Figure 1: Immigration to the United States Over Time

This figure shows the stock of immigrants in the United States and the flow of immigrants by region over time. Panel A shows the stock of US immigrants over time as a percent of the total population (left-hand axis) and in absolute magnitude (right-hand axis). Panel B provides the composition of the flow of immigrants by their birth continent. Immigration data are based on respondents from the US Census Bureau decennial and American Community Survey. Data from the 1890 Census is unavailable as these records were destroyed in a fire.



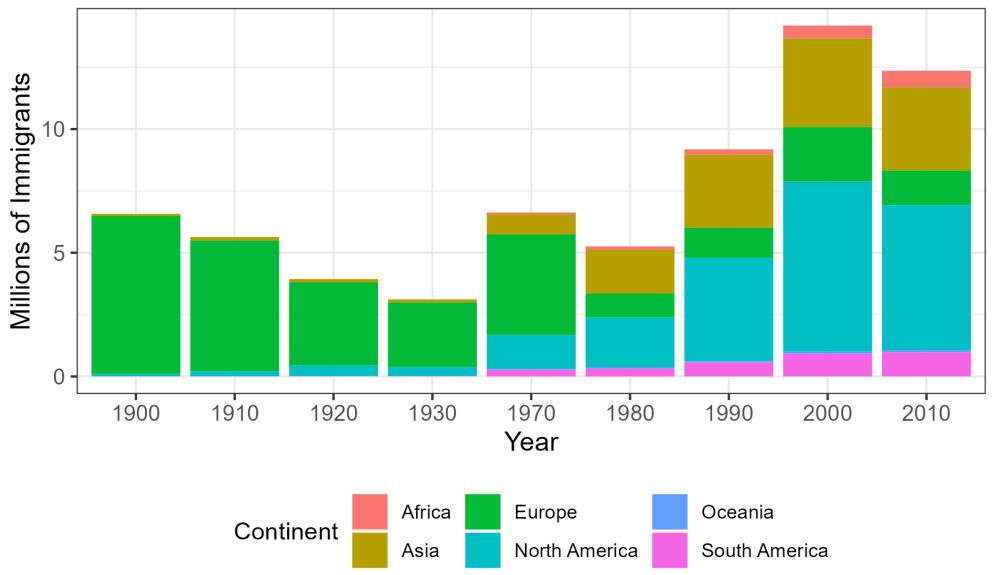


Figure 2: *Push Factor:* Variation in Country-Level Immigration Flows
This figure shows the flow of immigration across the five largest sender countries in the sample. Immigrants are defined as individuals born outside of the United States. Immigration data are based on respondents from the US Census Bureau decennial and American Community Survey. Data from the 1890 Census is unavailable as these records were destroyed in a fire.

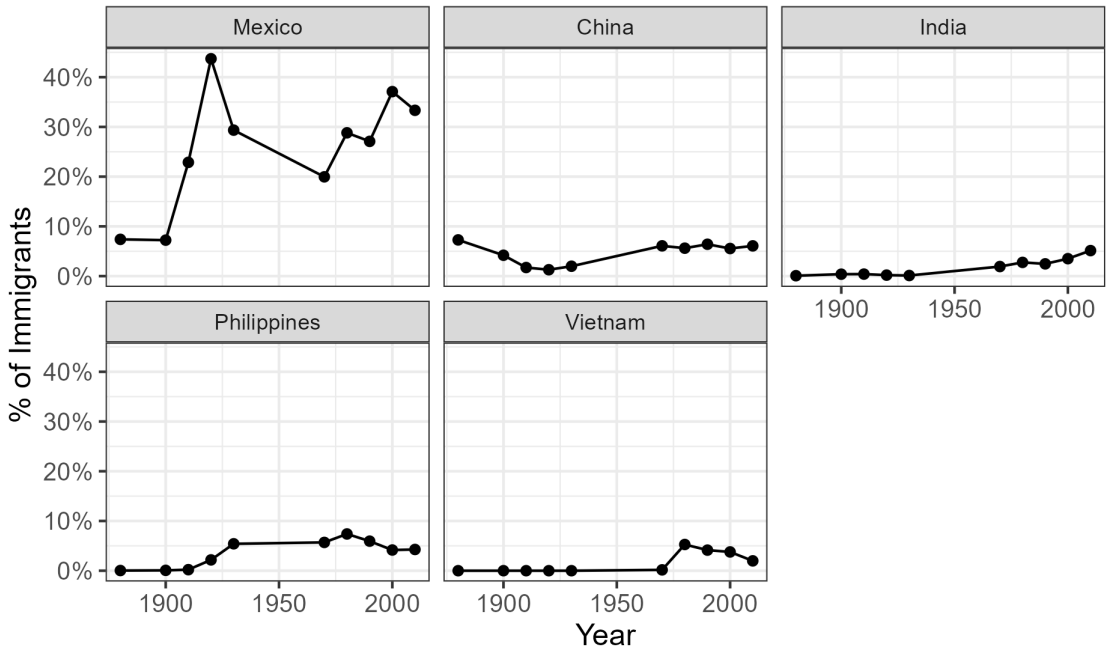


Figure 3: *Pull Factor:* Variation in County-Level Immigration Settlement
This figure shows the desirability of a county to immigrants over time. I regress the number of immigrants into a given county (c) at time (t) onto county and year fixed effects, and calculate the residuals across counties and within Census periods. Darker colors indicate a higher decile ranking. Immigrants are defined as individuals born outside of the United States. Immigration data are based on respondents from the US Census Bureau decennial and American Community Survey. Data from the 1890 Census is unavailable as these records were destroyed in a fire.

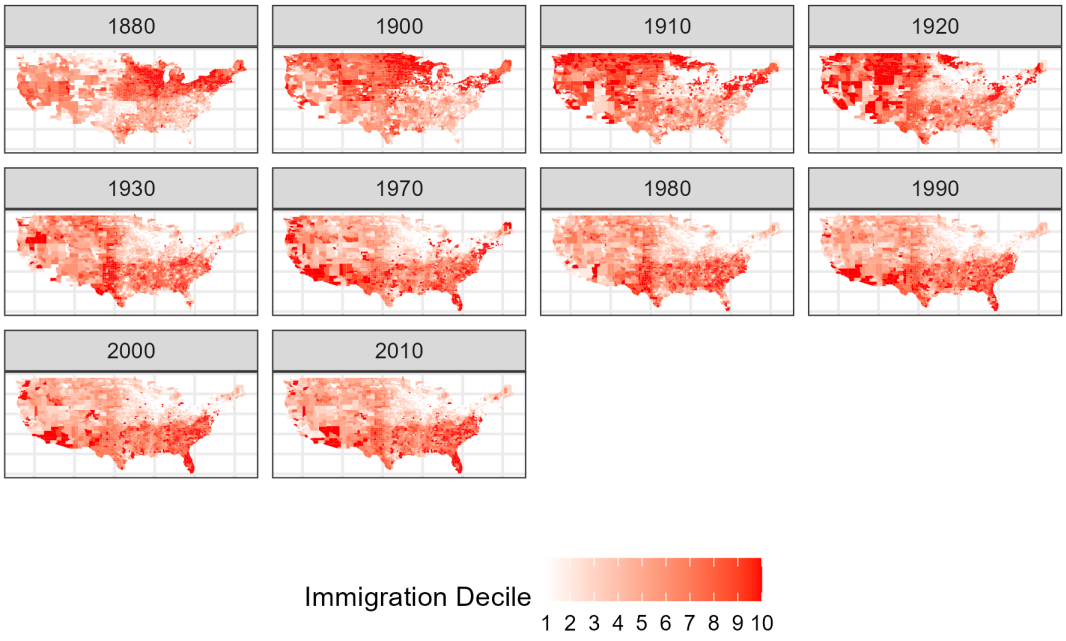


Figure 4: Persistence of Immigration Patterns

This figure shows the persistence of immigration patterns within county and ethnicity over time. Each bar represents the correlation between the proportion of immigrants from a given origin country o in the listed Census period (e.g. 1880) to a given county and the analogous measure in 2010. Immigrants are defined as individuals born outside of the United States. Immigration data are based on respondents from the US Census Bureau decennial and American Community Survey. Data from the 1890 Census is unavailable as these records were destroyed in a fire.

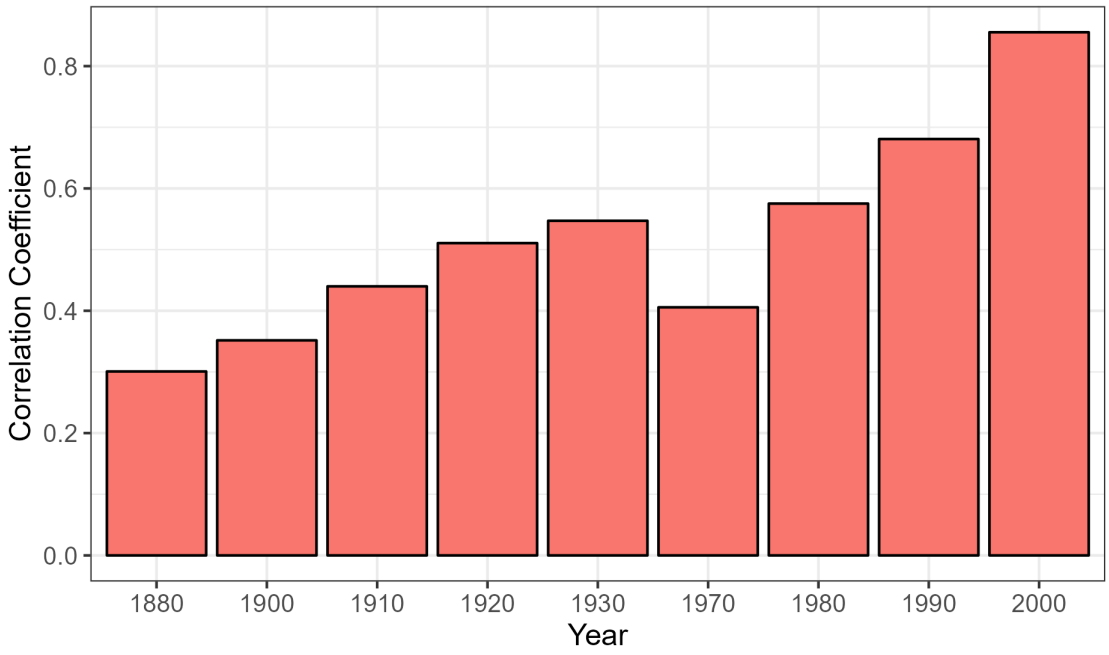


Figure 5: Secure Communities Adoption

This figure shows the timing of adoption of the Secure Communities Act across U.S. counties over time. This act created a partnership between U.S. local law enforcement and the Department of Homeland Security which led to additional detainment of primarily Mexican, undocumented immigrants. The Secure Communities Act was launched as a pilot in 2008 and rolled out nationwide as the Department of Homeland Security was unable to implement it simultaneously nationwide (East et al., 2023). County-level adoption date data are provided by East et al. (2023).

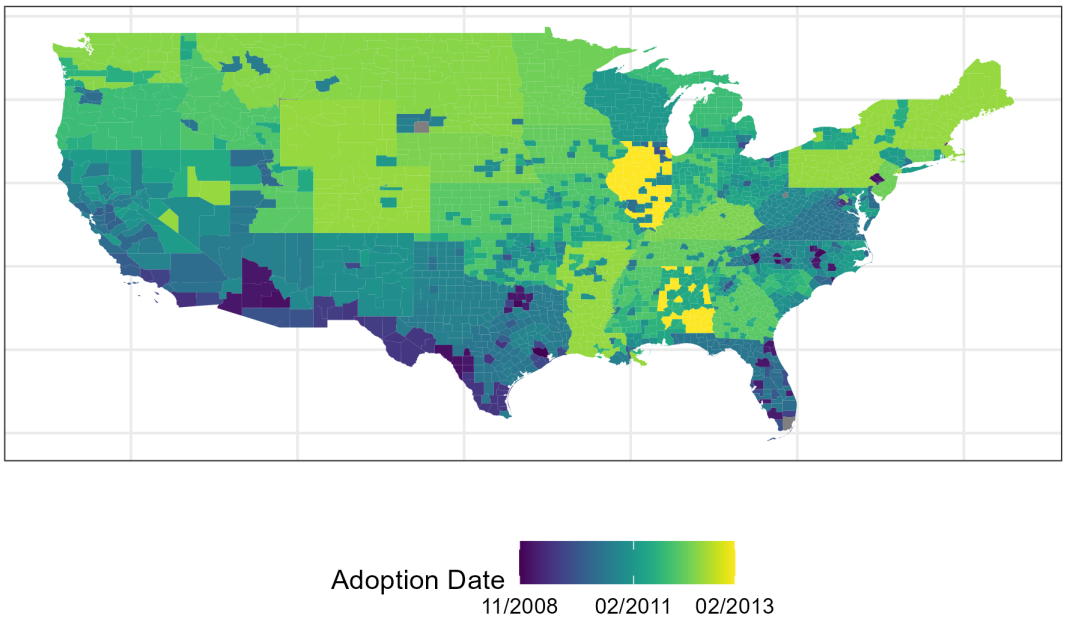


Figure 6: Secure Communities Time-Varying Effect

This figure shows the effect of the Secure Communities Act on municipal bond yield spreads over time. The coefficient estimates and 95 percent confidence intervals are obtained from regressing a municipal bond's *Yield Spread* onto ranges of time before and after the policy with the omitted group of six months prior to the passage of the Secure Communities Act. The regressions include county and issue month × issue year fixed effects. Standard errors are clustered at the county level. County-level adoption date of the Secure Communities Act are provided by East et al. (2023).

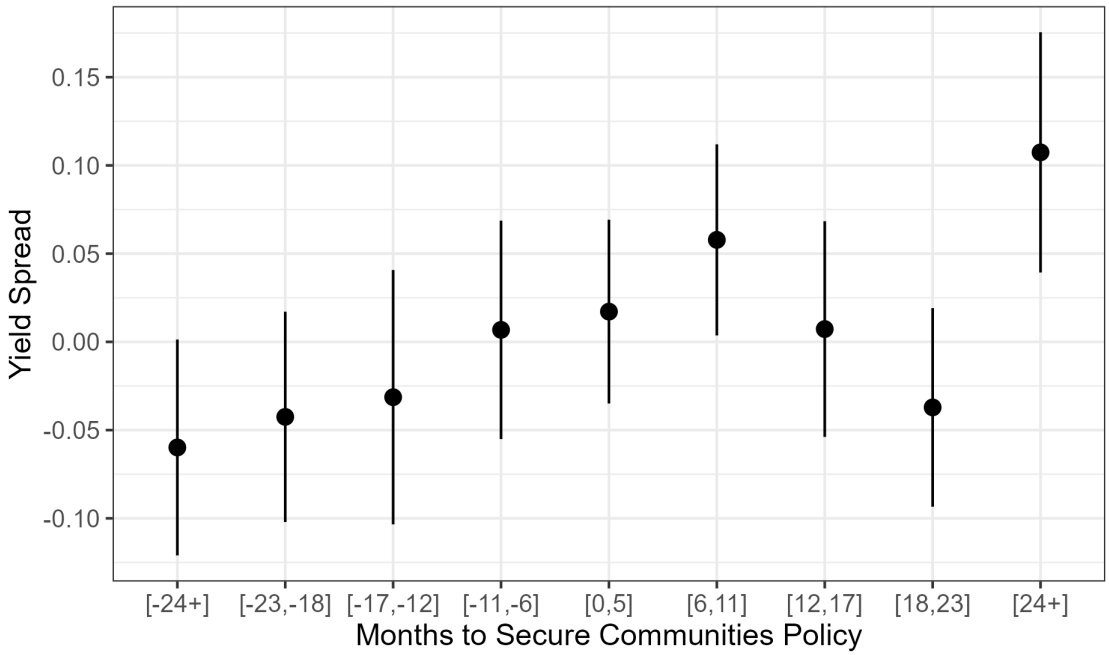


Table 1: Summary Statistics

This table presents the summary statistics for the sample of bond issuances and the underlying county issuer. Panel A describes the characteristics at the bond issuance level including its yield, features, and rating. Panel B describes the characteristics of county issuer including its demographics, average income, and labor-force composition at the county × year level. Panel C contains information on employment including establishments, number of employees, average annual pay, and total wages at the county × year level. Panel D contains information on the income state and balance sheet of county governments at the county × year level.

	Panel A: Bond Characteristics							
	N	Mean	SD	p1	p25	Median	p75	p99
Yield Spread (%)	42637	2.33	1.41	-0.18	1.36	2.14	3.08	6.92
Δ Yield Spread (%)	42637	-0.56	2.02	-4.94	-1.59	-0.53	0.72	4.35
Years to Maturity	42637	14.74	9.27	0.75	7.75	15.01	20.10	35.00
Total Issue Amount ($ Million)	42637	21.22	55.58	0.20	2.21	5.90	16.00	300.00
Callable Issue	42637	0.69	0.46	0.00	0.00	1.00	1.00	1.00
Insured	42637	0.27	0.44	0.00	0.00	0.00	1.00	1.00
Negotiated Bid	42637	0.57	0.49	0.00	0.00	1.00	1.00	1.00
Revenue Bond	42637	0.33	0.47	0.00	0.00	0.00	1.00	1.00
Tax-Exempt	42637	0.88	0.32	0.00	1.00	1.00	1.00	1.00
Ratings Combined	42636	3.67	3.15	0.00	0.00	5.00	7.00	7.00
Sinking Fund	42637	0.28	0.45	0.00	0.00	0.00	1.00	1.00
Refinancing Flag	42637	0.27	0.44	0.00	0.00	0.00	1.00	1.00
	Panel B: County Census Characteristics							
Total Population (000'000s)	6302	1.79	4.32	0.06	0.32	0.66	1.60	15.45
Total Immigration (000's)	6302	3.82	21.09	0.01	0.11	0.33	1.48	53.06
Non-European Immigration (000's)	6302	3.39	19.50	0.01	0.09	0.27	1.23	48.48
Population Change (000's)	6302	10.05	32.26	-11.74	0.13	1.97	8.70	128.76
IRS Net Flow (000's)	6065	0.17	4.68	-8.73	-0.17	0.04	0.45	9.59
% Below Poverty	6302	0.12	0.05	0.03	0.08	0.11	0.14	0.27
Average Income	6302	16.66	5.03	7.26	12.89	16.78	19.34	32.40
% Ages (18-65)	6302	0.61	0.04	0.54	0.58	0.61	0.63	0.72
Median Age	6302	35.84	4.23	27.00	33.00	36.00	38.00	47.00
% Labor-Intensive	6302	0.71	0.08	0.51	0.66	0.72	0.77	0.86

(Continued on next page)

Table 1 (*continued*)

	Panel C: County Census Employment and Wages							
	N	Mean	SD	p1	p25	Median	p75	p99
Establishment Count (000's)	6302	4.80	12.68	0.20	0.76	1.61	4.15	47.13
Number of Employees (000's)	6302	81.14	205.81	1.93	10.58	24.59	66.92	789.85
Total Annual Wages ($ Billions)	6302	3.47	10.24	0.05	0.33	0.83	2.47	39.48
Average Annual Pay (000's)	6302	34.74	6.96	24.99	30.07	33.46	37.93	58.39
	Panel D: County Financial Characteristics ($ Millions)							
Revenue Composition								
Total Revenue	6302	174.06	632.44	3.54	15.67	39.93	121.18	2,324.79
Total Taxes	6302	61.47	181.78	1.45	5.53	14.01	43.20	852.24
Property Taxes	6302	43.58	133.81	0.73	4.06	9.98	30.54	571.03
Total Sales & Recreation Tax	6302	12.60	50.05	0.00	0.00	0.95	7.12	195.62
Total Intergovernmental	6302	60.43	294.13	0.38	3.77	11.26	35.47	830.62
Federal Intergovernmental	6302	4.75	17.46	0.00	0.00	0.41	2.60	73.22
State Intergovernmental	6302	52.51	268.05	0.15	3.06	9.10	29.70	752.40
Local Intergovernmental	6302	3.11	14.98	0.00	0.00	0.22	1.34	56.56
Expense Composition								
Total Expenses	6302	171.93	590.35	3.71	15.79	40.44	120.00	2,211.97
Capital Outlays	6302	17.07	50.63	0.00	0.80	3.29	11.45	233.43
Total Highway Expenses	6302	9.84	22.60	0.00	2.13	4.36	9.24	94.91
Parks & Recreation	6302	3.37	14.83	0.00	0.00	0.21	1.27	57.56
Judicial Expenses	6302	8.57	38.10	0.00	0.52	1.50	5.11	114.05
Health Expenses	6302	13.64	56.50	0.00	0.39	1.91	8.96	200.06
Police Expenses	6302	10.18	40.65	0.00	0.92	2.41	6.84	133.35
Public Welfare Expenses	6302	23.49	136.49	0.00	0.10	1.67	11.50	392.66
Profitability								
Net Income Margin	6302	-0.01	0.14	-0.50	-0.08	-0.00	0.07	0.34
Balance Sheet								
Total Debt	6302	139.75	467.55	0.00	1.95	14.63	78.41	2,287.67
Total Long-Term Debt	6302	136.32	457.11	0.00	1.91	14.33	76.25	2,236.07
Financial Assets	6302	354.94	1,395.68	0.47	18.15	57.16	214.31	4,830.52
Total Cash Securities	6302	182.61	896.18	0.20	6.57	22.00	90.61	2,643.16
Non-Insured Trust Cash Securities	6302	118.24	365.16	0.00	6.09	19.83	78.94	1,736.33
Other Non-Insured Trust Cash Securities	6302	52.43	169.64	0.00	4.48	12.29	37.23	717.48
Leverage	6252	0.36	0.41	0.00	0.08	0.27	0.48	2.43

Table 2: OLS: Effect of Immigration on Municipal Bond Yield Spreads

This table presents OLS estimates of the relationship between immigration and a municipal bond's yield spread. The dependent variable *Yield Spread* is a municipality's issuing yield adjusted based on its tax-exemption less the maturity matched treasury rate used in columns (1) to (5) and Δ *Yield Spread* is the bond's yield spread less the county's average yield spread from 5 years prior. *Immigration* is per an additional 100,000 non-European immigrants entering a county over the last five years. Bond controls include the bond's maturity, amount, whether the bond is callable, insured, a negotiated bid, a revenue bond, tax-exempt, has a sinking fund, is refinancing an existing issuance, and its rating. County controls are lagged from five years prior and include population, percent of working population, percent below the poverty line, average income, median age, total employment, and percent working in labor-intensive industries. Fixed effects and controls are denoted in the table while standard errors are clustered at the state level. ***, **, * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

	Yield Spread					Δ Yield Spread		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Immigration	-0.082***	-0.041***	-0.090***	-0.103***	-0.240***	-0.026**	-0.039	-0.218**
	[0.014]	[0.014]	[0.032]	[0.022]	[0.045]	[0.011]	[0.068]	[0.092]
Observations	42637	42636	42637	42636	42396	42637	42636	42396
State F.E.	Yes	Yes	Yes	Yes	No	Yes	Yes	No
County F.E.	No	No	No	No	Yes	No	No	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bond Controls	No	Yes	No	Yes	Yes	No	Yes	Yes
County Controls	No	No	Yes	Yes	Yes	No	Yes	Yes

Table 3: IV: Effect of Immigration on Yield Spreads

This table presents estimates of the relationship between immigration and a municipal bond's yield spread. The table displays the IV second-stage results from regressing a municipality's Yield Spread onto the inflow of immigrants, *Immigration*, which is instrumented by the exogenous inflow of immigrants over the last five years as described in Equation 6. The dependent variable *Yield Spread* is a municipality's issuing yield adjusted based on its tax-exemption less the maturity matched treasury rate used in columns (1) to (5) and Δ *Yield Spread* is the bond's yield spread less the county's average yield spread from 5 years prior. *Immigration* is per an additional 100,000 non-European immigrants entering a county over the last five years. Bond controls include the bond's maturity, amount, whether the bond is callable, insured, a negotiated bid, a revenue bond, tax-exempt, has a sinking fund, is refinancing an existing issuance, and its rating. County controls are lagged from five years prior and include population, percent of working population, percent below the poverty line, average income, median age, total employment, and percent working in labor-intensive industries. Fixed effects and controls are denoted in the table while standard errors are clustered at the state level. ***, **, * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

	Yield Spread					Δ Yield Spread		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Immigration	-0.090***	-0.054***	-0.140**	-0.140***	-0.288**	-0.057**	-0.123***	-0.488***
	[0.010]	[0.011]	[0.053]	[0.031]	[0.116]	[0.024]	[0.031]	[0.149]
F-Statistic	2820.03	2981.95	205.19	204.97	434.11	2820.03	204.97	434.11
Observations	42637	42636	42637	42636	42396	42637	42636	42396
State F.E.	Yes	Yes	Yes	Yes	No	Yes	Yes	No
County F.E.	No	No	No	No	Yes	No	No	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bond Controls	No	Yes	No	Yes	Yes	No	Yes	Yes
County Controls	No	No	Yes	Yes	Yes	No	Yes	Yes

Table 4: Differences-in-Differences: Effects of the Secure Communities Act on Municipal Bond Yields

This table presents estimates of the relationship between the passage of the Secure Communities Act and a municipal bond's yield spread. The dependent variable *Yield Spread* is a municipality's issuing yield adjusted based on its tax-exemption less the maturity matched treasury rate. The Secure Communities Act is an indicator denoting the interaction of policy passage in a given county *Treat* and the given bond being issued following the policy *Post*. The created a partnership between U.S. local law enforcement and the Department of Homeland Security which led to additional detainment of primarily Mexican, undocumented immigrants. The Secure Communities Act was launched as a pilot in 2008 and rolled out nationwide as the Department of Homeland Security was unable to implement it simultaneously nationwide (East et al., 2023). County-level adoption date data are provided by East et al. (2023). Bond controls include the bond's maturity, amount, whether the bond is callable, insured, a negotiated bid, a revenue bond, tax-exempt, has a sinking fund, is refinancing an existing issuance, and its rating. County controls are related to the presence of a county's collaboration with Immigration Customs and Enforcement (ICE) through the 287(g) program or the presence of E-verify employment verification. Fixed effects and controls are denoted in the table while standard errors are clustered at the state level. ***, **, * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

	Yield Spread				
	(1)	(2)	(3)	(4)	(5)
Secure Communities Act	0.074*	0.112***	0.083**	0.086**	0.061*
	[0.044]	[0.038]	[0.038]	[0.038]	[0.036]
Observations	182804	182794	182794	182627	182627
State F.E.	Yes	Yes	Yes	No	No
County F.E.	No	No	No	Yes	Yes
Month × Year F.E.	Yes	Yes	Yes	Yes	Yes
Bond Controls	No	Yes	Yes	Yes	Yes
County Controls	No	No	Yes	No	Yes

Table 5: IV: Heterogeneous County Effects of Immigration on Yield Spreads

This table presents estimates of the heterogeneous relationship between immigration and a municipal bond's yield spread across different county characteristics. The table displays the IV second-stage results from regressing a municipality's Yield Spread onto the inflow of immigrants, *Immigration*, and *Immigration* × *County Characteristic*, which are instrumented by the exogenous inflow of immigrants over the last five years as described in Equation 6 and the interaction of the exogenous inflow of immigrants and the county characteristic, respectively. The dependent variable *Yield Spread* is a municipality's issuing yield adjusted based on its tax-exemption less the maturity matched treasury rate used in columns (1) to (5) and Δ *Yield Spread* is the bond's yield spread less the county's average yield spread from 5 years prior. County characteristics include whether a county is above the median county characteristic across measures of location, immigration policy adoption, county wealth, and demographic characteristics. *Immigration* is per an additional 100,000 non-European immigrants entering a county over the last five years. Bond controls include the bond's maturity, amount, whether the bond is callable, insured, a negotiated bid, a revenue bond, tax-exempt, has a sinking fund, is refinancing an existing issuance, and its rating. County controls are lagged from five years prior and include population, percent of working population, percent below the poverty line, average income, median age, total employment, and percent working in labor-intensive industries. Fixed effects and controls are denoted in the table while standard errors are clustered at the state level. ***, **, * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

	Yield Spread						
	Distance	Pro-Immigration		County Wealth		Demographics	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Immigration	-0.170***	-0.112***	0.219*	-0.450***	-0.137***	-0.411***	-0.141***
	[0.036]	[0.032]	[0.112]	[0.066]	[0.031]	[0.082]	[0.031]
Immigration × I(Distance to Border)	-0.330***						
	[0.077]						
Immigration × I(Slave State)		0.350***					
		[0.045]					
Immigration × I(Sanctuary Policy)			-0.313***				
			[0.094]				
Immigration × I(% Below Poverty)				0.308***			
				[0.046]			
Immigration × I(Net Income Margin)					-0.063**		
					[0.027]		
Immigration × I(% Population 18-65)						0.261***	
						[0.059]	
Immigration × I(% Labor Intensive)							0.006
							[0.035]
F-Statistic	77.68	25.19	17.52	395.16	106.70	65.08	556.47
Observations	42636	42636	42636	42636	42636	42636	42636
State F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County F.E.	No	No	No	No	No	No	No
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bond Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 6: IV: Heterogeneous Immigrant Effects on Yield Spreads

This table presents estimates of the heterogeneous relationship between immigration education and a municipal bond's yield spread. The table displays the IV second-stage results from regressing a municipality's Yield Spread onto *Immigrants over 25*, *Immigrants over 25* × *Education Level*, and *Education Level*, which are instrumented by the exogenous inflow of immigrants over the last five years as described in Equation 6 at the origin country o × county c level for the top 20 origin nations as a joint set of instruments. The dependent variable *Yield Spread* is a municipality's issuing yield adjusted based on its tax-exemption less the maturity matched treasury rate. *Years School* and *Years College* are demeaned so that the interacted effect is for an additional year of education above the average, and the main effect of *Immigrants over 25* reflects the average effect per immigrants over 25 at the average level of education. *Immigration* is per an additional 100,000 non-European immigrants entering a county over the last five years. Bond controls include the bond's maturity, amount, whether the bond is callable, insured, a negotiated bid, a revenue bond, tax-exempt, has a sinking fund, is refinancing an existing issuance, and its rating. County controls are lagged from five years prior and include population, percent of working population, percent below the poverty line, average income, median age, total employment, and percent working in labor-intensive industries. Fixed effects and controls are denoted in the table while standard errors are clustered at the state level. ***, **, * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

	Yield Spread					
	(1)	(2)	(3)	(4)	(5)	(6)
Immigrants over 25	-0.251***	-0.565***	-0.894***	-0.801***	-0.854***	-0.879***
	[0.062]	[0.167]	[0.231]	[0.113]	[0.246]	[0.148]
Immigrants over 25 × Years School			-0.287***	-0.097		
			[0.088]	[0.065]		
Immigrants over 25 × Years College					-0.703***	-0.406**
					[0.236]	[0.190]
F-Statistic	> 200	> 200	32.13	50.98	31.62	33.81
Observations	42366	42135	42366	42135	42366	42135
State F.E.	Yes	No	Yes	No	Yes	No
County F.E.	No	Yes	No	Yes	No	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Bond Controls	Yes	Yes	Yes	Yes	Yes	Yes
County Controls	Yes	Yes	Yes	Yes	Yes	Yes

Table 7: IV: Effect of Immigration on Labor Market, Saving, and Investing

This table presents estimates of the relationship between immigration and a municipality's labor market and household finances. The table displays the IV second-stage results from regressing a municipality's labor market and household finances onto the inflow of immigrants, *Immigration*, which is instrumented by the exogenous inflow of immigrants over the last five years as described in Equation 6. The dependent variables include the logarithm of the number of *Establishments*, *Employment*, *Total Wages*, *Average Wages*, *Dividends*, and *Interest*. *Immigration* is per an additional 100,000 non-European immigrants entering a county over the last five years. Bond controls include the bond's maturity, amount, whether the bond is callable, insured, a negotiated bid, a revenue bond, tax-exempt, has a sinking fund, is refinancing an existing issuance, and its rating. County controls are lagged from five years prior and include population, percent of working population, percent below the poverty line, average income, median age, total employment, and percent working in labor-intensive industries. Data from the local labor market come from the Quarterly Census of Employment and Wages while saving and investing data comes from the IRS' county-level data. Fixed effects and controls are denoted in the table while standard errors are clustered at the state level. ***, **, * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

	Labor Market				Saving & Investing	
	Log(Establishments)	Log(Employment)	Log(Total Wages)	Log(Avg. Wages)	Log(Interest)	Log(Dividends)
	(1)	(2)	(3)	(4)	(5)	(6)
Immigration	0.169**	0.272***	0.285***	0.013	0.242**	0.252**
	[0.064]	[0.083]	[0.082]	[0.009]	[0.111]	[0.122]
F-Statistic	257.07	257.07	257.07	257.07	114.51	114.51
Observations	6313	6313	6313	6313	6073	6073
Adjusted R^2	0.23	0.11	0.14	0.08	0.06	0.14
State F.E.	No	No	No	No	No	No
County F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes
County Controls	Yes	Yes	Yes	Yes	Yes	Yes

Table 8: IV: Effect of Immigration on Operating Margin and Balance Sheet

This table presents estimates of the relationship between immigration and a municipality's operating margin and balance sheet. The table displays the IV second-stage results from regressing a municipality's operating margin and balance sheet items onto the inflow of immigrants, *Immigration*, which is instrumented by the exogenous inflow of immigrants over the last five years as described in Equation 6. The dependent variables include the logarithm of a county's *Total Revenues*, *Total Expenses*, *Net Margin*, *Total Debt*, *Financial Assets*, and *Debt/Financial Assets*. *Immigration* is per an additional 100,000 non-European immigrants entering a county over the last five years. County controls are lagged from five years prior and include population, percent of working population, percent below the poverty line, average income, median age, total employment, and percent working in labor-intensive industries. County financial data comes from U.S. Census of State and Local Governments. Fixed effects and controls are denoted in the table while standard errors are clustered at the state level. ***, **, * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

	Log(Total Revenues)	Log(Total Expenses)	Net Margin	Log(Total Debt)	Log(Fin. Assets)	Debt/ Fin. Assets
	(1)	(2)	(3)	(4)	(5)	(6)
Immigration	0.200***	0.248**	-0.046	0.443***	0.215*	0.129
	[0.068]	[0.095]	[0.036]	[0.160]	[0.126]	[0.092]
F-Statistic	257.88	257.88	257.88	265.09	258.03	258.03
Observations	6302	6302	6302	5347	6237	6237
County F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes
County Controls	Yes	Yes	Yes	Yes	Yes	Yes

Table 9: IV: Effect of Immigration on County Revenues

This table presents estimates of the relationship between immigration and a municipality's revenue sources. The table displays the IV second-stage results from regressing a municipality's revenue sources onto the inflow of immigrants, *Immigration*, which is instrumented by the exogenous inflow of immigrants over the last five years as described in Equation 6. The dependent variables include the logarithm of a county's *Total Taxes*, *Property Taxes*, *Sales Tax*, *Total Intergovernmental Transfers*, *Federal Intergovernmental Transfers*, *State Intergovernmental Transfers*, and *Local Intergovernmental Transfers*. County controls are lagged from five years prior and include population, percent of working population, percent below the poverty line, average income, median age, total employment, and percent working in labor-intensive industries. *Immigration* is per an additional 100,000 non-European immigrants entering a county over the last five years. County financial data comes from U.S. Census of State and Local Governments. Fixed effects and controls are denoted in the table while standard errors are clustered at the state level. ***, **, * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

	Log(Taxes)			Log(General)	Log(Intergovernmental Transfers)			
	Total	Property	Sales & Rec	General	Total	Fed	State	Local
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Immigration	0.230*	0.264*	0.085	0.275**	0.261***	0.613***	0.150*	0.496**
	[0.133]	[0.153]	[0.145]	[0.129]	[0.070]	[0.176]	[0.078]	[0.232]
F-Statistic	258.07	258.14	312.00	258.08	258.06	280.66	258.06	277.70
Observations	6280	6272	4136	6258	6265	4592	6263	4314
County F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 10: IV: Effect of Immigration on County Expenses

This table presents estimates of the relationship between immigration and a municipality's expense sources. The table displays the IV second-stage results from regressing a municipality's expense sources onto the inflow of immigrants, *Immigration*, which is instrumented by the exogenous inflow of immigrants over the last five years as described in Equation 6. The dependent variables include the logarithm of a county's spending on *Capital*, *Roads*, *Parks*, *Judicial*, *Health*, *Police*, and *Public Welfare*. County controls are lagged from five years prior and include population, percent of working population, percent below the poverty line, average income, median age, total employment, and percent working in labor-intensive industries. *Immigration* is per an additional 100,000 non-European immigrants entering a county over the last five years. County financial data comes from U.S. Census of State and Local Governments. Fixed effects and controls are denoted in the table while standard errors are clustered at the state level. ***, **, * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

	Log(Infrastructure)		Log(Public Goods Expenses)				
	Capital	Roads	Parks	Judicial	Health	Police	Welfare
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Immigration	0.593*	0.294**	0.115	0.313***	0.118	0.218**	0.283
	[0.300]	[0.138]	[0.192]	[0.115]	[0.120]	[0.097]	[0.172]
F-Statistic	259.82	261.09	270.32	258.12	262.59	259.23	290.61
Observations	5946	5998	4631	6186	5831	6194	5438
County F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Appendix

History of U.S. Immigration Policy

Although the United States has often been described as a "country of immigrants" or a "melting pot" to reflect the significant role immigrants have played in its development, restrictions on immigration extend back to its origins. The 1790 Naturalization Act required individuals seeking citizenship to have at least one year of residence in the country, be of "good moral character", and be a "free white person" excluding Native Americans, indentured servants, enslaved people, free Africans, Pacific Islanders, and non-White Asians from becoming citizens. In 1798, the Federalist Party aiming to limit immigrant influence, passed the Alien and Sedition Acts, which allowed the president to deport any non-citizen deemed dangerous and allowed the deportation of any non-citizen who came from a country at war with the United States. During the mid-1800s, the United States adopted more welcoming immigration policies to address labor shortages. For example, the Immigration Act of 1864 allowed labor contracts with foreign workers and established a commissioner of immigration. These more open immigration policies were largely restricted to European immigrants as the Chinese Exclusion Act of 1882 banned Chinese laborers from immigrating for the following 10 years, which was later extended until 1943, and authorized deportation of unauthorized, recent Chinese immigrants. From 1850 to 1910, pro-immigration policies led to a rise in the foreign-born population from about 10 percent in 1850 to nearly 15 percent in 1910.

Following this period of time, immigration policy became more restrictive as evidenced by the 1921 Emergency Quota Act which capped annual, total immigration at 350,000 (later reduced to 165,000 in the Immigration Act of 1924) and also created country quotas. During this period, the percent of the U.S population that is foreign born declined to just 4.7 percent in 1970. Immigration policy took another turn following the Immigration and Nationality Act of 1965 which abolished the quota system, created a preference system prioritizing family reunification, skilled immigrants, and

refugees which resulted in significantly higher immigration from Asia, Latin America, and Africa. This era of pro-immigration policy in the modern era created pathways to permanent residency to unauthorized immigrant workers and protection from deportation through the Immigration Reform and Control Act of 1986. Additionally, the Immigration Act of 1990, created H-1B visas for highly skilled temporary workers and H-2B for seasonal, non-agricultural workers while seeking to limit illegal immigration through increasing enforcement at the border and fences built along the Southwest border (Pew Research Center, 2015). Figure 1 summarizes these historical immigration patterns since 1850 and shows that the United States had its highest absolute number of immigrants in 2020 at nearly 50 million individuals and is also near the maximum proportion of US immigrants in recent history at nearly 15 percent of total residents.

Figure A.1: Composition of County Revenues and Expenses

This figure shows the average composition of revenues and expenses across counties. Panel A provides a decomposition of revenue sources while Panel B provides a decomposition of expense sources.

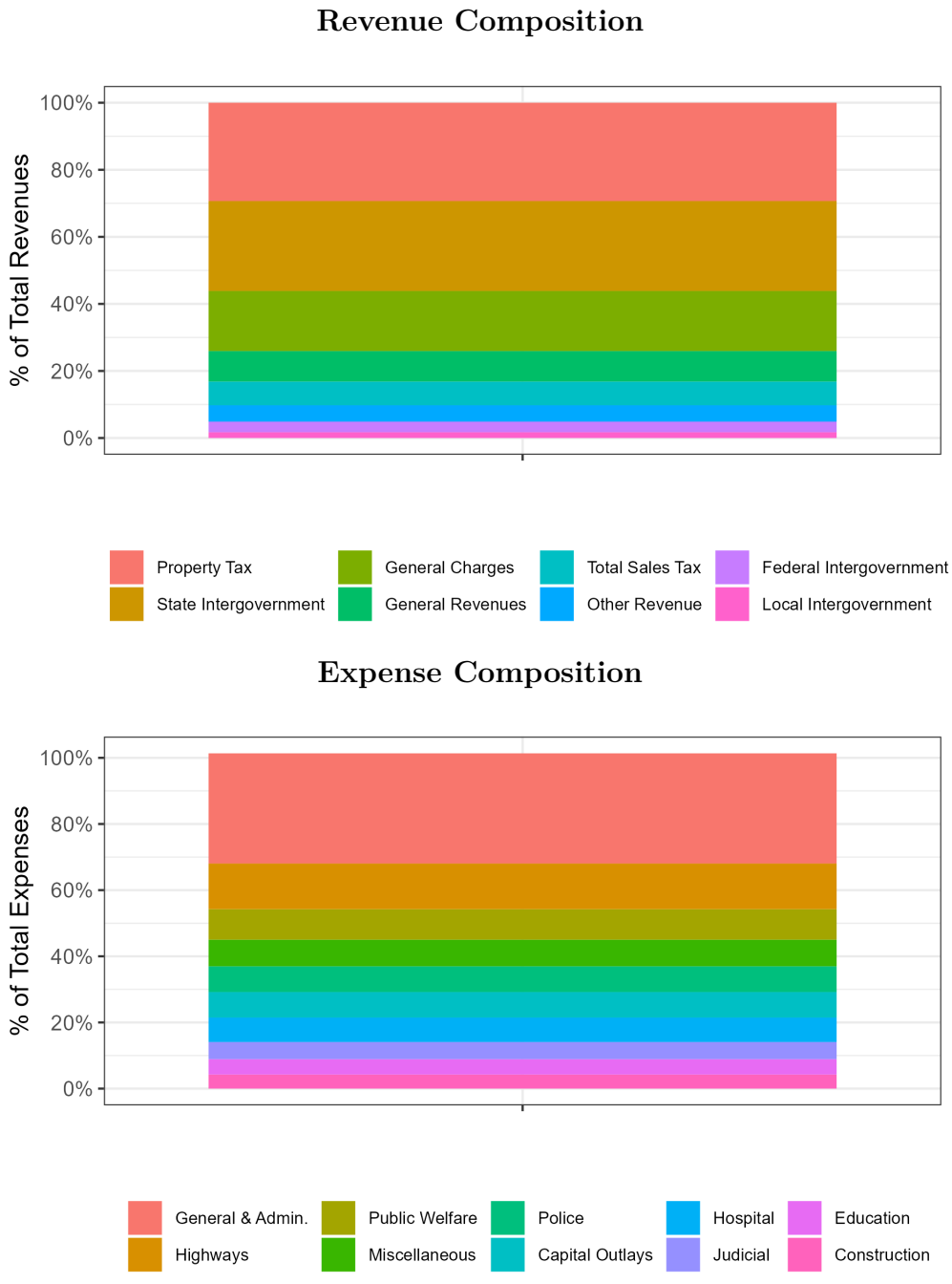


Table A.1: OLS:
Effect of Population Changes and Internal Migration on Municipal Bond Yield Spreads
This table presents OLS estimates of the relationship between population change and internal migration flows and a municipal bond's yield spread. The dependent variable *Yield Spread* is a municipality's issuing yield adjusted based on its tax-exemption less the maturity matched treasury rate used in columns (1) to (5) and Δ *Yield Spread* is the bond's yield spread less the county's average yield spread from 5 years prior. The independent variable of interest in Panel A is *Population Change* which is the change in population at five year intervals and in Panel B is *IRS Inflows* which is the inflow of IRS filers into the county over the last five years. Bond controls include the bond's maturity, amount, whether the bond is callable, insured, a negotiated bid, a revenue bond, tax-exempt, has a sinking fund, is refinancing an existing issuance, and its rating. County controls are lagged from five years prior and include population, percent of working population, percent below the poverty line, average income, median age, total employment, and percent working in labor-intensive industries. Fixed effects and controls are denoted in the table while standard errors are clustered at the state level. ***, **, * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A: OLS: Effect of Population Changes								
	Yield Spread					Δ Yield Spread		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Population Change	-0.023	-0.036	0.007	-0.031	-0.110***	-0.021	-0.048	-0.088
	[0.026]	[0.027]	[0.030]	[0.030]	[0.028]	[0.029]	[0.057]	[0.056]
Observations	42637	42636	42637	42636	42396	42637	42636	42396
State F.E.	Yes	Yes	Yes	Yes	No	Yes	Yes	No
County F.E.	No	No	No	No	Yes	No	No	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bond Controls	No	Yes	No	Yes	Yes	No	Yes	Yes
County Controls	No	No	Yes	Yes	Yes	No	Yes	Yes
Panel B: OLS: Effect of IRS Net Flows Residents								
	Yield Spread					Δ Yield Spread		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
IRS Inflows	-0.015	0.004	0.065**	0.034*	0.018	0.003	0.043	0.136
	[0.013]	[0.009]	[0.026]	[0.019]	[0.059]	[0.010]	[0.049]	[0.094]
Observations	41721	41720	41721	41720	41479	41721	41720	41479
State F.E.	Yes	Yes	Yes	Yes	No	Yes	Yes	No
County F.E.	No	No	No	No	Yes	No	No	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bond Controls	No	Yes	No	Yes	Yes	No	Yes	Yes
County Controls	No	No	Yes	Yes	Yes	No	Yes	Yes

Table A.2: IV: Effect of Immigration on Municipal Bond Yields

This table presents robustness estimates of the relationship between immigration and a municipal bond's yield spread. The table displays the IV second-stage results from regressing a municipal bond's Yield Spread onto the inflow of immigrants, *Immigration*, which is instrumented by the exogenous inflow of immigrants over the last five years as described in Equation 6. The first panel represents the base specification from column (5) of Table 3. The second panel presents results from various sampling choices: Row 2A uses the logarithm of yield as the dependent variable, row 2B weighs observations by the initial county's population in 1970, row 2C controls for the Census flow of internal migration, row 2D uses the full sample of bonds by back-filling immigration date. The third panel presents results from various alterations of the instrument: Row 3A keeps only counties with immigration inflows below the 99th percentile and row 3B scales immigration inflows by the county's initial population in 1970. *Immigration* is per an additional 100,000 non-European immigrants entering a county over the last five years, Row 3C scales a municipal bond's *Yield Spread*, the endogenous immigration inflows, and the instrumented inflows using the inverse hyperbolic sine transformation. Row 3D accounts for spatial spillovers by instrumenting for additional immigrant inflows at the state-level. Bond controls include the bond's maturity, amount, whether the bond is callable, insured, a negotiated bid, a revenue bond, tax-exempt, has a sinking fund, is refinancing an existing issuance, and its rating. County controls are lagged from five years prior and include population, percent of working population, percent below the poverty line, average income, median age, total employment, and percent working in labor-intensive industries. Fixed effects and controls are denoted in the table while standard errors are clustered at the state level. ***, **, * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

	Yield Spread			
Instrument Variable	Coefficient	Standard Error	F-Statistic	Observations
1. Base Specification				
Immigration	-0.288**	0.12	434.11	42,396
2. Sampling Choices				
A. Use Log Dependent Variable				
Immigration	-0.123**	0.05	442.15	41,233
B. Weight by Initial County Population				
Immigration	-0.303***	0.10	715.64	42,396
C. Control Census Flow of Internal Migration				
Immigration	-0.274**	0.10	129.03	41,479
D. Include Full Sample of Bonds and Back-fill Immigration Data				
Immigration	-0.132***	0.02	432.09	248,200
3. Instrument Choices				
A. Immigration $\leq$ 99th Percentile				
Immigration	-0.885***	0.17	55.81	41,940
B. Scale Immigration by Initial County Population				
Immigration	-0.221***	0.08	18.62	42,396
C. Use Inverse-Hyperbolic Sine Transformation				
Immigration	-0.012*	0.007	53.76	42,636
D. Account for Spatial Spillovers				
Immigration	-0.259**	0.125	17.19	42,396

Table A.3: IV: Effect of Immigration on Use of Bond Proceeds

This table presents estimates of the relationship between immigration and a municipal bond's stated use of bond proceeds. The table displays the IV second-stage results from regressing a municipal bond's *Use of Bond Proceeds* onto the inflow of immigrants, *Immigration*, which is instrumented by the exogenous inflow of immigrants over the last five years as described in Equation 6. The dependent variables include uses across *Transportation*, *Utilities*, *Economic Development*, *Education*, *General*, *Healthcare*, and *Housing*. *Immigration* is per an additional 100,000 non-European immigrants entering a county over the last five years. Bond controls include the bond's maturity, amount, whether the bond is callable, insured, a negotiated bid, a revenue bond, tax-exempt, has a sinking fund, is refinancing an existing issuance, and its rating. County controls are lagged from five years prior and include population, percent of working population, percent below the poverty line, average income, median age, total employment, and percent working in labor-intensive industries. Data from the local labor market come from the Quarterly Census of Employment and Wages while saving and investing data comes from the IRS' county-level data. Fixed effects and controls are denoted in the table while standard errors are clustered at the state level. ***, **, * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

	Transportation	Utilities	Economic Dev.	Education	General	Healthcare	Housing
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Immigration	-0.002	0.001	0.009	0.021	0.014**	-0.022	-0.018
	[0.006]	[0.006]	[0.008]	[0.016]	[0.006]	[0.019]	[0.016]
F-Statistic	434.11	436.39	436.39	436.39	436.39	436.39	436.39
Observations	42396	42396	42396	42396	42396	42396	42396
State F.E.	No	No	No	No	No	No	No
County F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bond Controls	No	No	No	No	No	No	No
County Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table A.4: IV: Effects on Immigration on Internal Migration and Population Change

This table presents estimates of the relationship between immigration and internal migration and population change. The table displays the IV second-stage results from regressing measures of internal migration and population onto the inflow of immigrants, *Immigration*, which is instrumented by the exogenous inflow of immigrants over the last five years as described in Equation 6. The dependent variables include *% Stayers* which is the percent of returning residents from a given county, *% Joiners* is the inflow of domestic residents scaled by the previous year's population, *% Net Flow* is the inflow of domestic residents (those who join less those who leave) scaled by the previous year's population, and *Log(Population)* is the logarithm of population. *Immigration* is per an additional 100,000 non-European immigrants entering a county over the last five years. Bond controls include the bond's maturity, amount, whether the bond is callable, insured, a negotiated bid, a revenue bond, tax-exempt, has a sinking fund, is refinancing an existing issuance, and its rating. County controls are lagged from five years prior and include population, percent of working population, percent below the poverty line, average income, median age, total employment, and percent working in labor-intensive industries. Data from the local labor market come from the Quarterly Census of Employment and Wages while saving and investing data comes from the IRS' county-level data. Fixed effects and controls are denoted in the table while standard errors are clustered at the state level. ***, **, * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

	% Stayers	% Joiners	% Net Flow	Log(Population)
	(1)	(2)	(3)	(4)
Immigration	0.010***	-0.015***	-0.005	0.365***
	[0.003]	[0.005]	[0.005]	[0.106]
F-Statistic	97.38	97.38	97.38	246.02
Observations	6073	6073	6073	6302
State F.E.	No	No	No	No
County F.E.	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes
County Controls	Yes	Yes	Yes	Yes
Y-mean	0.94	0.06	0.01	11.22

Internet Appendix

Figure IA.1: Immigration to the United States Over Time

This figure shows the composition of the flow of immigrants by their birth continent. Immigration data are based on respondents from the US Census Bureau decennial and American Community Survey. Data from the 1890 Census is unavailable as these records were destroyed in a fire.

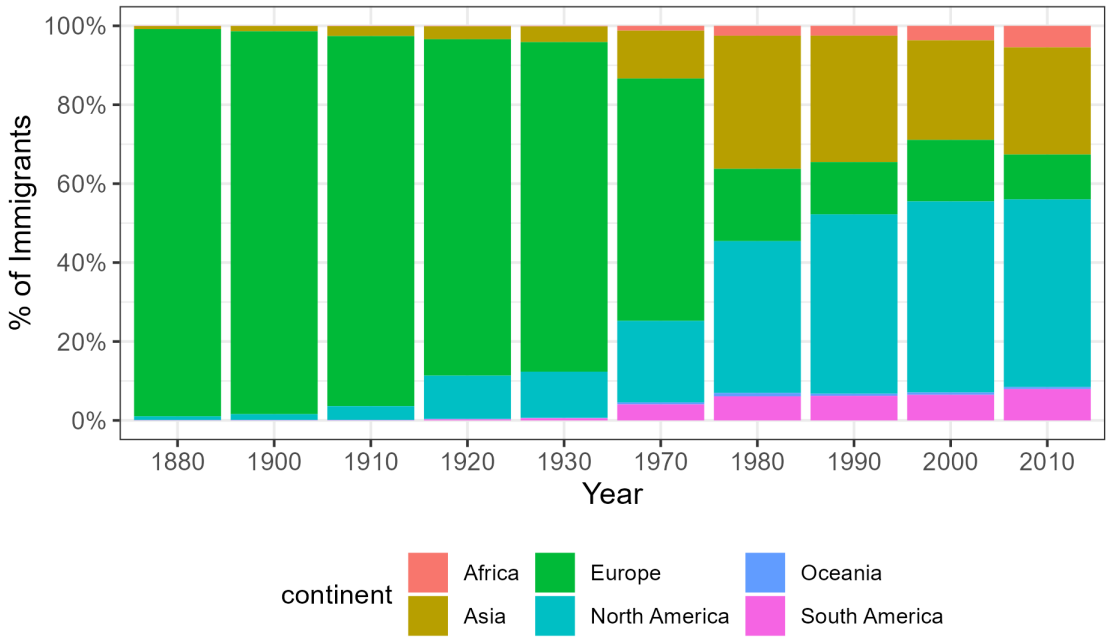


Table IA.1: IV: Heterogeneous Effects of Immigrant Region on Yield Spreads

This table presents estimates of the heterogeneous relationship between immigration region of origin and a municipal bond's yield spread. The table displays the IV second-stage results from regressing a municipal bond's Yield Spread onto various immigrant regions of origin. Immigrants from the given region of origin are instrumented by the exogenous inflow of immigrants over the last five years as described in Equation 6 from origin country $o \times$ county c level for countries within the top 20 origin nations as a joint set of instruments. For example, the Central American Immigrant inflows includes immigrants from Mexico, Guatemala, El Salvador, and Honduras. Bond controls include the bond's maturity, amount, whether the bond is callable, insured, a negotiated bid, a revenue bond, tax-exempt, has a sinking fund, is refinancing an existing issuance, and its rating. County controls are lagged from five years prior and include population, percent of working population, percent below the poverty line, average income, median age, total employment, and percent working in labor-intensive industries. Fixed effects and controls are denoted in the table while standard errors are clustered at the state level. ***, **, * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

	Yield Spread					
	(1)	(2)	(3)	(4)	(5)	(6)
Central American Immigrants	-0.226***	-0.477**				
	[0.058]	[0.178]				
Asian Immigrants			-0.595***	-1.426***		
			[0.111]	[0.473]		
Other Immigrants					-3.374**	-8.407***
					[1.540]	[1.941]
F-Statistic	> 200	> 200	> 200	> 200	> 200	> 200
Observations	42636	42396	42636	42396	42636	42396
State F.E.	Yes	No	Yes	No	Yes	No
County F.E.	No	Yes	No	Yes	No	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Bond Controls	Yes	Yes	Yes	Yes	Yes	Yes
County Controls	Yes	Yes	Yes	Yes	Yes	Yes

Table IA.2: IV: Heterogeneous Effects of Immigrant Country on Yield Spreads
This table presents estimates of the heterogeneous relationship between immigration country of origin and a municipal bond's yield spread. The table displays the IV second-stage results from regressing a municipal bond's Yield Spread onto various immigrant countries of origin. Immigrants from the given country of origin are instrumented by the exogenous inflow of immigrants over the last five years as described in Equation 6 from origin country $o \times$ county c level. *Immigration* is per an additional 100,000 non-European immigrants entering a county over the last five years. Bond controls include the bond's maturity, amount, whether the bond is callable, insured, a negotiated bid, a revenue bond, tax-exempt, has a sinking fund, is refinancing an existing issuance, and its rating. County controls are lagged from five years prior and include population, percent of working population, percent below the poverty line, average income, median age, total employment, and percent working in labor-intensive industries. Fixed effects and controls are denoted in the table while standard errors are clustered at the state level. ***, **, * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

	Yield Spread				
	(1)	(2)	(3)	(4)	(5)
Mexican Immigrants	-0.313***				
	[0.069]				
Chinese Immigrants		-1.678***			
		[0.413]			
Phillippines Immigrants			-1.439**		
			[0.633]		
Indian Immigrants				21.492	
				[28.602]	
Vietnamese Immigrants					-1.349
					[1.052]
F-Statistic	154.71	73.11	45.96	0.86	225.18
Observations	42636	42636	42636	42636	42636
State F.E.	Yes	Yes	Yes	Yes	Yes
County F.E.	No	No	No	No	No
Year F.E.	Yes	Yes	Yes	Yes	Yes
Bond Controls	Yes	Yes	Yes	Yes	Yes
County Controls	Yes	Yes	Yes	Yes	Yes