The Birth of Mass Unauthorized Immigration in the United States

BY ELIZABETH U. CASCIO, ETHAN G. LEWIS, AND ARYEN SHRESTHA*

January 2026

Abstract

The Immigration and Nationality Act of 1965 imposed, for the first time in U.S. history, annual numerical restrictions on lawful immigration from the Western Hemisphere. This paper introduces and implements a method for estimating highly granular local unauthorized rates in the wake of the surge in Latin American immigration that ensued. Using within-state, cross-county variation in these estimated unauthorized rates for foreign-born Mexican women and multiple comparison groups, we then estimate how maternal legal status affects the health of U.S. born – and thus U.S. citizen – children. We find that maternal authorization increases birth weight in the second generation.

* Cascio: Dartmouth College and NBER (email: elizabeth.u.cascio@dartmouth.edu). Lewis: Dartmouth College and NBER (email: ethan.g.lewis@dartmouth.edu). Shrestha: Dartmouth College (email: aryen.s.shrestha@dartmouth.edu). We thank the Dean of the Faculty and the Davidson Institute for Global Security at Dartmouth College for generous funding support.

The Birth of Mass Unauthorized Immigration in the United States

BY ELIZABETH U. CASCIO, ETHAN G. LEWIS, AND ARYEN SHRESTHA

The long-term unauthorized population in the United States faces restrictions on jobs, travel, and program access that may inhibit not just their own economic mobility, but that of their children. The issue is salient: in 2023, 4.6 million U.S. born children had unauthorized parents – nearly the highest estimate on record (Passel and Krogstad, 2025). The intergenerational impacts of immigrant legal status are nevertheless understudied. In part, this may reflect the fact that legal status is not reported in U.S. administrative data, and self-reports of or proxies for status in U.S. survey data are measured with error. Even if observable, true status may also be correlated with unobserved determinants of child well-being.

We address both challenges, focusing on the decade that marked the rise of mass unauthorized immigration in the U.S. – the 1970s. The Immigration and Nationality Act of 1965 (INA) set the first-ever numerical limits on lawful entry from Mexico and other Latin American countries.[1] Amendments to the INA in 1976 then extended country-specific annual quotas to the region.[2] The effects on unauthorized immigration from Mexico are illustrated in Figure 1, which plots lawful and total Mexican immigrants among U.S. residents in early 1980, by year of entry. A measure of unauthorized arrivals (Cascio and Lewis, 2025), the gap between total and lawful Mexican inflows began an explosive expansion in the late 1960s. Mexican arrivals to the U.S. in the late 1970s were more likely to be unauthorized than not.

Building on this logic, we introduce and implement a method for estimating highly granular local unauthorized rates in 1979, in the wake of the post-INA surge in Mexican unauthorized

[1] Mexico dominated immigration from Latin America during this period, accounting for half of immigrants from Latin America and 61 percent of Latin American parents of U.S. born children in early 1980 (Ruggles et al., 2025).
[2] See Supplemental Appendix for further historical background on Mexican immigration to the U.S. through the 1970s.

immigration. Using within-state, cross-county variation in these estimated unauthorized rates for foreign-born Mexican women and multiple comparison groups, we then estimate how maternal legal status affects the health of U.S. born – and thus U.S. citizen – children. We find that the rise of mass unauthorized immigration left a mark on births in the U.S., lowering birth weight relative to a counterfactual where new arrivals were lawful residents.

I. Data and Sample

A. Unauthorized rates

We define the unauthorized rate as one minus the authorized rate, where the authorized rate is the share of the total foreign-born population that is naturalized or otherwise lawfully resident in the U.S., either permanently (via a Green Card) or temporarily (via a visa). For members of foreign-born group *j* born in year *y* residing in county *c* in year *t*, the unauthorized rate is thus:

$$u_{ct}^{jy} = 1 - nat_{ct}^{jy} - olr_{ct}^{jy}, \tag{1}$$

where nat_{ct}^{jy} is the naturalization rate and olr_{ct}^{jy} is the (non-citizen) lawful resident rate. During the period we study, the vast majority of the unauthorized would have been at risk for deportation.

We estimate the components of equation (1) for Mexican women (*j* = *MEXF*) in *t* = 1979 using data from the *Alien Address Reports 1980 Public Use File* (U.S. Department of Justice, 1992) and published tabulations and public-use microdata from the 1980 Census (Manson et al., 2024, Ruggles et al., 2025).[3] Figure 2 shows that 1979 unauthorized rates were generally rising across cohorts of foreign-born Mexican women of childbearing age. These patterns reflect the rise in unauthorized rates across entry cohorts into the 1970s and the relative youth of new arrivals.

[3] Full details on the calculations of unauthorized rates are in the Supplemental Appendix. Unauthorized rates are for 1979 instead of 1980 because neither source covers the full 1980 calendar year. Unauthorized rates are slightly lower for women than men (Appendix Figure 1). The peak unauthorized rate occurred among women born in the late 1950s, the most represented cohorts among foreign-born Mexican women residing in the U.S. as of early 1980 (Appendix Figure 2). Among non-citizen foreign-born Mexican women who are lawful residents, 97.5% held Green Cards.

To estimate the unauthorized rate for Mexican mothers giving birth in county c in 1979, we aggregate estimates of $u_{c,1979}^{MEXF,y}$ from equation (1) across cohorts to the county level, $u_{c,1979}^{MEXF}$, using weights constructed from 1979 birth records. The average Mexican woman giving birth in 1979 resided in a county where 31% of new Mexican mothers were unauthorized, but there was substantial variation in unauthorized rates.[4]

B. Birth outcomes

Outcomes come from Vital Statistics Natality Detail Data, which contain individual birth records for either the universe or a 50% random sample of births, depending on the state of occurrence and year.[5] We restrict the data to two years: 1979 (to match unauthorized rates) and 1970 (the first year in which foreign-born mothers are identified). We collapse birth outcomes (birth weight (in grams), the natural log of birth weight, and indicators for low and high birth weight) and maternal and child characteristics (maternal age and indicators for child sex and parity) to the maternal county of residence level, separately by child year of birth for foreign-born Mexican and U.S. born mothers.[6]

C. Sample and descriptive statistics

To define the analysis sample, we start with the top 100 counties as ranked by the number of births to foreign-born Mexican women in 1970. From there, we first limit attention to states with at least four counties in this group, to facilitate within-state estimation. We then drop two counties that have inadequate data and a third county – Los Angeles (LA) – whose size and high

[4] About half of the variation in county-level 1979 unauthorized rates is within state. Counties in California and Illinois on average have significantly higher unauthorized rates: 44.4% and 48.4%, respectively, compared to Arizona (21.5%), New Mexico (23.9%), and Texas (16%).

[5] We accessed these data through the National Vital Statistics System repository at the National Bureau of Economic Research (https://www.nber.org/research/data/vital-statistics-natality-birth-data).

[6] Only three foreign countries of origin were identified in Natality Detail Data in the 1970s: Canada, Cuba, and Mexico. Other characteristics commonly explored in studies using Natality Detail Data, like frequency and timing of prenatal care visits and maternal educational attainment, are not reported for all states during the 1970s.

unauthorized rate make it exceedingly influential in weighted estimation. Our final analysis sample includes 79 counties across five states (California, Texas, Illinois, Arizona, and New Mexico), which represent nearly 84% of 1970 births to Mexican mothers in the U.S., exclusive of LA county. Appendix Table 1 shows that foreign-born Mexican mothers in our sample gave birth to heavier babies than U.S. born mothers in both 1970 and 1979, but the gap in birth weight narrowed over the decade, as unauthorized immigration expanded.[7]

II. Results

County-level unauthorized rates in 1979 were not randomly assigned (Appendix Table 2). Our empirical approach must therefore address potential bias from correlation between 1979 unauthorized rates and unobserved determinants of contemporaneous birth outcomes for Mexican mothers. We attempt to do this by incorporating data on birth outcomes for U.S. born mothers in the same counties at the same time, as well as data from 1970.

We begin with the following difference-in-differences specification for 1979 births:

$$bw_{jc(s)} = \theta^{DD} u_{c,1979}^{MEXF} \times D_j^{MEXF} + \delta_c + \gamma_{js} + \varepsilon_{jc(s)}, \quad (2)$$

where $bw_{jc(s)}$ represents an average birth weight outcome for children born in 1979 to mothers of group *j* residing in county *c* (in state *s*); $u_{c,1979}^{MEXF}$ is the 1979 unauthorized rate for new Mexican mothers; and D_j^{MEXF} is a dummy variable set to one if group *j* consists of births to Mexican mothers, zero if births to U.S. born mothers. Pooling data for the two groups, we can include county fixed effects, δ_c, which remove bias from shared county-specific shocks to birth weight. The model also includes group-by-state fixed effects, γ_{js}.

The first column of Table 1 reports the least squares estimate of θ^{DD}, the parameter of interest in equation (2), from a model where county average birth weight (in grams) is the

[7] More details, including a county list, are in the Supplemental Appendix.

outcome.[8] Mechanically, this estimate captures how much more, on average, the 1979 unauthorized rate affected 1979 birth outcomes for Mexican mothers than U.S. born mothers in the same state. In the absence of spillovers, this estimate may also be interpreted as the effect of maternal unauthorized status on birth weight at the level of the individual child. Among Mexican mothers, having authorization to be in the U.S. increases birth weight by 115 grams on average.

For this estimate to have a causal interpretation, unobservables cannot vary differently with $u_{c,1979}^{MEXF}$ across groups. Column 2 of Table 1 re-estimates model (2) for births in 1970, before unauthorized immigration from Mexico had significantly grown (Figure 1), but when unobserved local drivers of differential outcomes across Mexican and U.S. born mothers may have already been present. The estimate of θ^{DD} is positive and much smaller, at an insignificant 8 grams. Columns 3 and 4 of Table 1 show that the difference in the column 1 and 2 coefficients – a triple difference estimate – is not just statistically significant, but also largely insensitive to controls for maternal age and indicators for child sex and parity – strong predictors of birthweight.[9] To the extent that maternal unobservables and observables are positively correlated, this finding suggests that selection on unobservables is not biasing our estimates upward in magnitude.[10]

Table 2 Panel A repeats the specification in the last column of Table 1 for the county-level average of the natural log of birth weight (column 2) and low birth weight (<2500 grams) and high birth weight (>4000 gram) shares (columns 3 and 4). Though robust to functional form, the estimates imply that effects are driven by reductions in birth weight in the upper end of the

[8] We weight by the group-specific county share of 1970 births in the sample. Within each group (Mexican mothers, U.S. born mothers), we thus give more weight to counties with more births in 1970. In any combined sample, however, each group overall gets equal weight. We use 1970 data for weighting since fertility could be endogenous.
[9] We allow the coefficients on these controls to vary both over time and across groups. The data reject the equality of coefficients ($p = 0.0034$), mostly due to significant heterogeneity in coefficients across groups in 1970 ($p = 0.0065$).
[10] We also estimate model (2) using predicted birth weight as the outcome, where the prediction is based on group-specific relationships in 1970 between birth weight and maternal and child observables. The estimates of θ^{DD} (and θ^{DDD} in model (3)) for predicted birth weight are positive (and statistically significant in the case of θ^{DDD}), suggesting that higher unauthorized shares shift birth composition to favor heavier infants (Appendix Table 3).

distribution. This conclusion is echoed in Figure 3, which presents estimates for the share of 1979 births in each quartile of the 1970 Mexican birth weight distribution. The hollow dots, corresponding to the Panel A specification, nonetheless suggest that some reductions in birth weight occurred below the high birth weight threshold. Lower birth weight is associated with poorer academic achievement across the birth weight distribution (Figlio et al., 2014).

The remaining panels of Table 2 present estimates from alternative triple-difference specifications, based on the model (additional controls suppressed):

$$bw_{jc(s)t} = \theta^{DDD} u_{c,1979}^{MEXF} \times D_j^{MEXF} \times T_t^{1979} + \delta_{ct} + \gamma_{jst} + \tau_{jc} + \varepsilon_{jc(s)t}, \quad (3)$$

where T_t^{1979} is a dummy equal to one if t = 1979, zero if t = 1970, and δ_{ct}, γ_{jst}, and τ_{jc} are vectors of county-by-year, group-by-state-by-year, and group-by-county fixed effects, respectively. The τ_{jc} replace the direct effect of $u_{c,1979}^{MEXF} \times D_j^{MEXF}$ in the otherwise equivalent model that is presented in Panel A. A benefit of the τ_{jc} is that they control much more flexibly for sources of bias at the county and group level that are fixed over time.

Estimates of θ^{DDD} from model (3), shown in Panel B and as the solid dots of Figure 3, are mostly larger in magnitude, suggesting some downward bias in the baseline specification. For example, being authorized to be in the U.S. increases birth weight for the children of Mexican mothers by 177 grams (column 1) and 5.3% (column 2), up from the 134 grams and 4% in Panel A. Adding group- and time-varying effects of 1970 county characteristics to model (3), as shown in Panel C and the solid triangles in Figure 3, raises the coefficients even further, though the additional controls do not add significantly to the explanatory power of the model.

III. Conclusion

Using cross-county variation in unauthorized inflows from Mexico in the years following the INA, this paper has presented novel estimates of the impact of parental legal status on child

health. The magnitude of our findings is significant, more than large enough to explain the narrowing gap in birth weight between the children of Mexican and U.S. born women during the 1970s.[11] Whether effects of this magnitude continue to the present day is an open question.

While our research design aimed to uncover a causal effect, limitations on the available data meant that we could not exploit variation from before versus after the INA. Unlike the Immigration Reform and Control Act of 1986, studied in Cascio, Cornell, and Lewis (2024), the INA also did not change the status of immigrants already resident in the U.S., but rather altered the legal environment in which they would have entered. We therefore cannot rule out that our estimates reflect a change in the characteristics of migrants at the time of entry, though the (lack of) sensitivity to controls for maternal characteristics suggests an interpretation based more on treatment than selection.[12] To the extent that conditions in the U.S. contributed to poor birth outcomes in the second generation, there are also many potential mechanisms – limited job opportunities, stress, low take-up of public benefits, among others – that require additional data and analysis to explore. We leave that exploration to future research.

REFERENCES

Cascio, Elizabeth U., Paul Cornell, and Ethan G. Lewis. 2024. "The Intergenerational Effects of Permanent Legal Status." NBER Working Paper 32635. Cambridge, MA: National Bureau of Economic Research.

[11] Combined with the average unauthorized rate in the sample (31%), the estimates in Panel A suggest that, on average, unauthorized immigration lowered the birth weight for Mexican mothers by 41.5 grams (134 x 0.31). By contrast, the gap in Mexican-U.S. born mother gap in birth weight fell by about 25 grams between 1970 and 1979 (Appendix Table 1).

[12] This finding also argues against the idea that unauthorized status differentially induces childbearing among women who tend to have lower birth weight babies, i.e., increases negative selection into motherhood.

Cascio, Elizabeth U. and Ethan G. Lewis. 2025. "Opening the Door: Immigrant Legalization and Family Reunification in the United States." *Journal of Labor Economics* 43(4): 1101-1133.

Figlio, David, Jonathan Guryan, Krzysztof Karbownik, and Jeffrey Roth. 2014. "The Effects of Poor Neonatal Health on Children's Cognitive Development." *American Economic Review* 104(12): 3921-3955.

Manson, Steven, Jonathan Schroeder, David Van Riper, Katherine Knowles, Tracy Kugler, Finn Roberts, and Steven Ruggles. 2024. IPUMS National Historical Geographic Information System: Version 19.0 [dataset]. Minneapolis, MN: IPUMS. http://doi.org/10.18128/D050.V19.0

Passel, Jeffrey S. and Jens Manuel Krogstad. 2025. "U.S. Unauthorized Immigrant Population Reached a Record 14 Million in 2023." https://www.pewresearch.org/race-and-ethnicity/2025/08/21/u-s-unauthorized-immigrant-population-reached-a-record-14-million-in-2023/ (Accessed September 4, 2025).

Ruggles, Steven, Sarah Flood, Matthew Sobek, Daniel Backman, Grace Cooper, Julia A. Rivera Drew, Stephanie Richards, Renae Rodgers, Jonathan Schroeder, and Kari C.W. Williams. 2025. *IPUMS USA: Version 16.0* [dataset]. Minneapolis, MN: IPUMS. https://doi.org/10.18128/D010.V16.0

United States Department of Justice. Immigration and Naturalization Service. Alien Address Reports, [United States]: 1980 Public Use File. Inter-university Consortium for Political and Social Research [distributor], 1992-02-16. https://doi.org/10.3886/ICPSR07998.v1

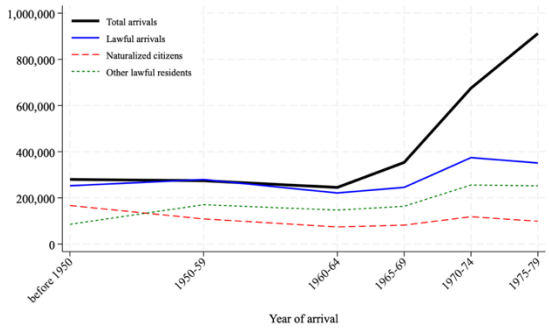


FIGURE 1. TRENDS IN IMMIGRATION FLOWS, BY LEGAL STATUS: 1980 U.S. RESIDENTS BORN IN MEXICO

Note: Total arrivals and naturalized citizens are calculated from 1980 Census 5% public use microdata (Ruggles et al., 2025). Other lawful residents (Green Card and temporary visa holders) are drawn from the *Alien Address Reports 1980 Public Use File* (U.S. Dept. of Justice, 1992). Total arrivals are the sum of naturalized citizens and other lawful residents. Data are restricted to U.S. residents born in Mexico.

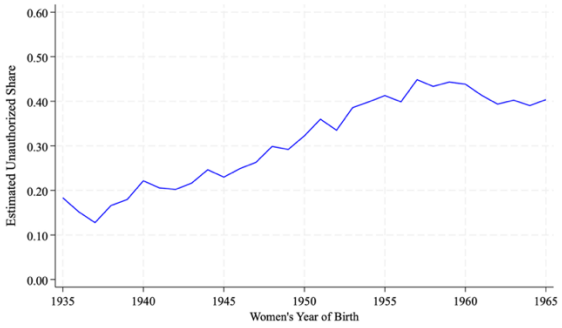


FIGURE 2. TRENDS IN THE ESTIMATED UNAUTHORIZED RATE, BY BIRTH COHORT: 1980 U.S. RESIDENT WOMEN BORN IN MEXICO

Note: Unauthorized rates calculated based on equation (1). Data are from 5% public use microdata (Ruggles et al., 2025) and published tabulations (Manson et al., 2024) of the 1980 Census and the *Alien Address Reports 1980 Public Use File* (U.S. Department of Justice, 1992). See Supplemental Appendix for further details.

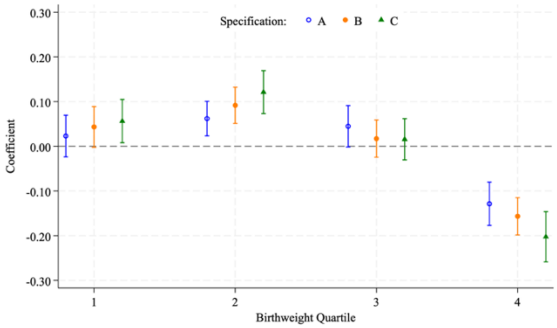


FIGURE 3. TRIPLE DIFFERENCE ESTIMATES BY QUARTILE OF THE 1970 MATERNAL MEXICAN BIRTHWEIGHT DISTRIBUTION

Note: Figure plots triple-difference coefficients that align with the specifications in Panels A-C of Table 2. See Table 2 notes for details. Outcomes are indicators for quartiles of the 1970 distribution of birthweight for Mexican mothers in the counties of our analysis sample. The 2nd, 3rd, and 4th quartiles begin at 3062, 3374, and 3686 grams, respectively.

TABLE 1 – DIFFERENCE-IN-DIFFERENCES AND TRIPLE-DIFFERENCE ESTIMATES OF THE EFFECT OF MATERNAL UNAUTHORIZED STATUS ON BIRTH WEIGHT (IN GRAMS)

	DD: 1979	DD: 1970	DDD: 1979 - 1970	
	(1)	(2)	(3)	(4)
Coefficient	-114.9	8.18	-123.0	-134.0
	(45.7)	(50.3)	(46.8)	(53.1)
Observations	158	158	316	316
R-squared	0.880	0.881	0.892	0.927
County fixed effects	Y	Y	Y	Y
State x *MEXF* fixed effects	Y	Y	Y	Y
State x *MEXF* x 1979 fixed effects	N	N	Y	Y
County x 1979 fixed effects	N	N	Y	Y
birth characteristics x *MEXF* x 1979	N	N	N	Y
p: birth characteristics interactions				0.0034

Note: Columns (1) and (2) present least squares estimates of θ^{DD} from model (2) using Natality Detail Data from 1979 and 1970, respectively. Underlying data are aggregated to the county of maternal residence-by-child birth year-by-group level. Column (3) presents the difference between the column (1) and column (2) estimates, and column (4) regression adjusts that difference for year- by group-specific effects of birth characteristics (maternal age and indicators for child sex and parity). *MEXF*=1 for children born to Mexican women, and *MEXF*=0 for children born to native women. Regression estimates are weighted by the group-specific county share of 1970 births in the sample, and standard errors (in parentheses) are clustered on county. Sample consists of births to Mexican and U.S. born mothers residing in one of 79 counties across five states: California, Texas, Illinois, Arizona, and New Mexico. See text and Supplemental Appendix for more details. DD=difference-in-differences coefficient, DDD=triple differences coefficient.

TABLE 2. TRIPLE-DIFFERENCE ESTIMATES OF THE IMPACT OF MATERNAL UNAUTHORIZED STATUS ON DIFFERENT MEASURES OF BIRTH WEIGHT

Dependent variable:	Birth weight (in grams)	ln (Birth weight)	Low birth weight	High birth weight
	(1)	(2)	(3)	(4)
Panel A. County and state-by-year fixed effects				
$u_{c,1979}$ x *MEXF* x 1979	-134.0	-0.040	-0.0045	-0.069
	(53.1)	(0.016)	(0.0227)	(0.022)
R-squared	0.927	0.928	0.866	0.892
p: birth characteristics interactions	0.003	0.004	0.083	0.000
Panel B. Add county-by-group fixed effects				
$u_{c,1979}$ x *MEXF* x 1979	-176.7	-0.053	0.0088	-0.079
	(44.1)	(0.013)	(0.0191)	(0.018)
R-squared	0.985	0.985	0.954	0.975
p: birth characteristics interactions	0.003	0.004	0.004	0.013
Panel C. Add 1970 county characteristics x MEXF x 1979				
$u_{c,1979}$ x *MEXF* x 1979	-209.7	-0.063	-0.0158	-0.098
	(52.2)	(0.016)	(0.0191)	(0.026)
R-squared	0.987	0.987	0.962	0.977
p: birth characteristics interactions	0.000	0.000	0.013	0.250
p: 1970 county chars x *MEXF* x 1979	0.423	0.436	0.163	0.345

Note: Panel A repeats the specification in Table 1 column (4). Panel B substitutes county-by-group fixed effects for the direct effect of $u_{c,1979}$ x *MEXF* (mode1 (3)), and Panel C adds year and group-varying effects of 1970 county characteristics. Year corresponds to child's year of birth. See Table 1 notes for further details.

Supplemental Appendix

The Birth of Mass Unauthorized Immigration in the United States

BY ELIZABETH U. CASCIO, ETHAN G. LEWIS, AND ARYEN SHRESTHA

I. Historical Background

The Mexican government long discouraged emigration to the U.S., fearing that population loss would endanger its economic development. However, the state changed its position and policies in the 1970s due to a combination of poor local economic conditions and high population growth (Minian, 2018). Mexican inflows to the U.S. skyrocketed. Of the 2.74 million foreign-born Mexicans residing in the U.S. in 1980, more than half – 1.59 million – had arrived in the 1970s, and the pace of arrival accelerated as the decade wore on.

The legal environment in which Mexicans entered the U.S. in the 1970s was very different than it had been through the mid-1960s. Due to a combination of pressure from southwestern agricultural interests and foreign diplomacy (Yang, 2020), immigration from Mexico – and indeed the entirety of the Western Hemisphere – was not quota-restricted under the 1924 Immigration Act, unlike inflows from Europe and the rest of the world. Mexican arrivals were, however, not always welcomed or lawful after 1924: due to concerns over competition with native workers, Mexicans were repatriated in large numbers during the Great Depression, and from 1953 to 1954, "Operation Wetback" deported an estimated one million Mexicans, some with U.S. citizenship. Still, starting during World War II, Mexican men routinely came to the U.S. both temporarily and lawfully as agricultural contract labor ("Braceros"), establishing a pattern of circular migration for men from rural areas in central Mexico (Minian, 2018).

The situation changed starkly in the mid-1960s. Motivated again by concerns over domestic employment, President Johnson ended the Bracero program in 1964.[1] In 1965, the INA

[1] Existing evidence suggests that these concerns were misplaced: neither the Bracero exclusion (Clemens, Lewis, and Postel, 2018) nor Mexican repatriations during the Great Depression (Lee, Peri, and Yasenov, 2022) increased the employment of U.S. born workers.

then established the first-ever quota (of 120,000 entrants annually) on immigration from the Western Hemisphere. The law also abolished the national-origins quota system imposed on the Eastern Hemisphere in 1924, replacing it with a higher worldwide limit on lawful immigration, a preference system favoring family reunification and skill, and 20,000-person annual country-specific limits. The preference system and the 20,000 annual limits were extended to Mexico and the rest of the Western Hemisphere in the 1976 amendments to the INA. The 1976 amendments also ended the labor certification exemption for parents of U.S. born children that had long applied to the Western Hemisphere (Legomsky and Gravo, 1976).

The combination of increasing Mexican inflows and more restrictions on lawful pathways to entry meant that most of the new Mexican arrivals by the late 1970s did not have authorization. Indeed, taking the gap between total and lawful arrivals as an estimate of unauthorized flows, the counts plotted in Figure 1 suggest that 61% of 1975-79 Mexican arrivals residing in the U.S. in 1980 were unauthorized,[2] compared to 45% for 1970-74 arrivals, 30% for 1965-69 arrivals, and 10% for 1960-64 arrivals. Overall, 37% of foreign-born Mexican U.S. residents in 1980 were in the country unlawfully.

[2] The "other lawful residents" figure for 1975-79 Mexican arrivals may exceed expectations based on a 20,000 annual quota on Mexico since some categories of non-citizen lawful entrants are not quota restricted. For example, naturalized citizens can sponsor certain categories of migrants (like spouses and parents) in unlimited numbers.

II. Treatment Definition

A. Unauthorized Share of Foreign-Born Mexican Mothers

Our treatment variable is $u^{MEXF}_{c(s),1979}$ – the unauthorized share among foreign-born Mexican women residing in U.S. county *c* in state *s* and giving birth in 1979.[3] We estimate this as:

$$u^{MEXF}_{c(s),1979} = \sum_y \omega^{MEXF,y}_{c,1979} u^{MEXF,y}_{c(s),1979}, \quad \text{(A1)}$$

where $u^{MEXF,y}_{c(s),1979}$ is the 1979 unauthorized share among foreign-born Mexican women born in year *y* and residing in county *c* in state *s*. We restrict *y* to be between 1935 and 1965 (inclusive), which keeps only women between the ages of 15 and 45 in our sample.[4] Construction of this variable is described in Appendix Section II.B.

$\omega^{MEXF,y}_{c,1979}$ is then the share of U.S. born children in 1979 who have foreign-born Mexican mothers, in county *c* and birth cohort *y*, relative to the total number of such children in county *c* across the 1935 to 1965 maternal birth cohorts of foreign-born Mexicans.[5] That is, $\omega^{MEXF,y}_{c,1979} = N^{MEXF,y}_{c,1979} / \sum_{y\in[35,65]} N^{MEXF,y}_{c,1979}$, where $N^{MEXF,y}_{c,1979}$ is the count of children born in 1979 to foreign-born Mexican women (themselves born in year *y*) residing in county *c*. Counts of U.S. born children come from Natality Detail Data, which contain individual birth records for either the universe or a 50% random sample of births, depending on state and year.[6] Equation (A1) thus estimates the unauthorized rate across all foreign-born Mexican women giving birth in 1979 in county *c* by taking a weighted average of county- and cohort-specific unauthorized rates.

[3] For expository ease, we include the "s" subscript in this appendix only on terms where state-level data are relevant in their estimation.

[4] These ages represent, respectively, the 1st and 99th percentiles of maternal age for foreign-born Mexican women giving birth in the U.S. in 1979.

[5] Thus, by construction, $\sum_y \omega^{MEXF,y}_{c,1979} = 1$ for all *c*.

[6] All states in our sample have 50% samples in 1970. In 1979, IL and TX data are the universe of births, but data for the remaining three states (AZ, CA, NM) remain 50% random samples.

B. Estimating County- and Cohort-Specific Unauthorized Rates

The 1979 unauthorized share of foreign-born Mexican women born in year *y* residing in county *c* in state *s*, $u_{c(s),1979}^{MEXF,y}$, is defined as a residual, i.e., as one minus the authorized share for this group. We estimate the authorized share for this group as the sum of two quantities: (i) the share of this group who are naturalized citizens ($nat_{c(s),1979}^{MEXF,y}$); and (ii) the share of this group who are otherwise lawful residents ($olr_{c(s),1979}^{MEXF,y}$):

$$u_{c(s),1979}^{MEXF,y} \approx 1 - \left(nat_{c(s),1979}^{MEXF,y} + olr_{c(s),1979}^{MEXF,y} \right). \quad \text{(A2)}$$

Other Lawful Residents

The lawful resident share of this group is given by

$$olr_{c(s),1979}^{MEXF,y} \equiv \frac{OLR_{c,1979}^{MEXF,y}}{POP_{c(s),1979}^{MEXF,y}}, \quad \text{(A3)}$$

where $OLR_{c,1979}^{MEXF,y}$ is the number of female Mexican Green Card and temporary visa holders (and $olr_{c(s),1979}^{MEXF,y}$ is the rate) born in year *y* and residing in county *c* in 1979, and $POP_{c(s),1979}^{MEXF,y}$ is the number of foreign-born Mexican females in the same cohort and county, also in 1979. We obtain $OLR_{c,1979}^{MEXF,y}$ using the *Alien Address Reports 1980 Public Use File* (U.S. Department of Justice, 1992), which record the sex, country of origin, year of birth, and zip code of residence (which we code to counties) for all foreign-born migrants lawfully resident in the U.S. in early 1980.[7]

We obtain $POP_{c(s),1979}^{MEXF,y}$ via approximation from the Census taken April 1, 1980:[8]

[7] While the data release is technically for 1980, very few lawful residents report entering in 1980 relative to 1979 or earlier: among Mexican women born 1935 to 1965, only 0.27% entered the U.S. in 1980, compared to 3.52% in 1979. In this subsample of interest, 97.3% were lawful permanent residents or held Green Cards.

[8] Note that the timing of the 1980 Census is comparable to that of *Alien Address Reports 1980 Public Use Data*. Throughout, we adjust for a projected 25% Census undercount of Mexicans in the 1980 Census (Borjas, Freeman, and Lang, 1991).

(A4) $$POP^{MEXF,y}_{c(s),1979} \approx POP^{HISPF,y}_{c,1980}\left(\frac{POP^{MEX,y}_{s,1980}}{POP^{HISP,y}_{s,1980}}\right)\left(\frac{\frac{POP^{MEX}_{c,1980}}{POP^{HISP}_{c,1980}}}{\frac{POP^{MEX}_{s,1980}}{POP^{HISP}_{s,1980}}}\right),$$

where $POP^{HISPF,y}_{c,1980}$ is the number of Hispanic women in county *c* born in year *y* in 1980, from Census tabulations distributed by NHGIS (Manson, et al., 2024). The second term represents the Mexican share among Hispanics in state *s* in birth cohort *y*, which we estimate from the 5% public-use microdata sample (PUMS) of the 1980 Census (Ruggles et al., 2025). This term thus scales down Hispanic female population in the county and cohort by the Mexican share among Hispanics in that cohort in the state as a whole. To account for the fact that some counties have higher foreign-born Mexican population shares than others, the final term then scales by the share of foreign-born Mexicans among Hispanics at the county level relative to the state level, using county-level figures reported by NHGIS (Manson, et al., 2024).[9]

Naturalized Citizens

Lastly, the naturalized share of this group is defined as:

(A5) $$nat^{MEXF,y}_{c(s),1979} \equiv \frac{NAT^{MEXF,y}_{c(s),1979}}{POP^{MEXF,y}_{c(s),1979}}$$

where $NAT^{MEXF,y}_{c(s),1979}$ is the number of female Mexican naturalized citizens born in year *y* and residing in county *c*. Unlike $OLR^{MEXF,y}_{c(s),1979}$, $NAT^{MEXF,y}_{c(s),1979}$ is not observable in administrative data. In this case, we estimate the rate directly rather than separately estimating its components:

(A6) $$nat^{MEXF,y}_{c(s),1979} \approx nat^{MEXF,y}_{s,1980}\left(\frac{\frac{NAT^{HISP,y}_{c,1980}}{POP^{HISP,y}_{c,1980}}}{\frac{NAT^{HISP,y}_{s,1980}}{POP^{HISP,y}_{s,1980}}}\right).$$

[9] Census tabulations are based on larger samples than the PUMS, so are preferable to use where available.

The first term is the naturalized share among foreign-born Mexican women born in year *y* residing in early 1980 in state *s*, which we estimate from the 5% 1980 Census PUMS (Ruggles, et al., 2025). The second term accounts for the fact that naturalization rates vary across counties; because we cannot observe county-level naturalization rates for Mexicans (even overall), we scale by the Hispanic naturalization rate at the county relative to the state level, using county-level naturalized citizen and population counts reported by NHGIS (Manson, et al., 2024).

III. Sample Definition

We first restrict our sample to the top 100 U.S. counties ranked by the number of births to foreign-born Mexican mothers in 1970. Out of the total 45,060 such births, these counties account for 92.4%. From this group, we drop Los Angeles County because it is an extreme outlier: in 1970, it alone had 15,212 births to foreign-born Mexican mothers (33.8% of such births in the top-100 sample),[10] and an estimated unauthorized rate nearly twice the average as in our ultimate estimation sample.

We then drop states with fewer than four counties in the sample. This yields 81 counties across five states: California, Texas, Arizona, New Mexico, and Illinois. Together, these represent 85.1% of births to foreign-born Mexican mothers in 1970 (excluding LA County). Finally, we drop two counties for which we cannot compute $u_{c(s),1979}^{MEXF,y}$ for *all* maternal birth cohorts.[11] This reduces the final sample to 79 counties across 5 states,[12] which account for 84.4% of births to foreign-born Mexican mothers in 1970 (excluding LA).

[10] The next largest county (Harris County, IL) accounted for only about 6%.

[11] The two dropped counties are both in New Mexico. De Baca county reports that $POP_{c,1980}^{HISPF,y} = 0$ for three maternal birth cohorts (y), and Los Alamos county reports that $POP_{c,1980}^{MEX} = 0$, which affects the construction of the estimated unauthorized rate across all maternal birth cohorts y (equation (A4)).

[12] They are, in **Arizona** (6): Cochise, Maricopa, Pima, Pinal, Santa Cruz, Yuma; **California** (32): Alameda, Colusa, Contra Costa, Fresno, Imperial, Kern, Kings, Madera, Merced, Monterey, Orange, Placer, Riverside, Sacramento, San Benito, San Bernardino, San Diego, San Francisco, San Joaquin, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Solano, Sonoma, Stanislaus, Sutter, Tulare, Ventura, Yolo, Yuba; **Illinois** (6): Cook, Du Page, Kane, Lake, Rock Island, Will; **New Mexico** (5): Bernalillo, Chaves, Dona Ana, Hidalgo, Mora; **Texas** (30): Bell, Bexar, Brazoria, Cameron, Culberson, Dallas, Deaf Smith, Dimmit, Ector, El Paso, Fort Bend, Galveston, Guadalupe, Harris, Hidalgo, Lubbock, Maverick, Nueces, Pecos, Presidio, Reeves, Starr, Tarrant, Tom Green, Travis, Uvalde, Val Verde, Webb, Willacy, Zavala.

IV. References

Borjas, George J., Richard B. Freeman, and Kevin Lang. 1991. "Undocumented Mexican-Born Workers in the United States: How Many, How Permanent?" In John M. Abowd and Richard B. Freeman (eds.) *Immigration, Trade, and the Labor Market*. Chicago: University of Chicago Press.

Clemens, Michael A., Ethan G. Lewis, and Hannah M. Postel. 2018. "Immigration Restrictions as Active Labor Market Policy: Evidence from the Bracero Exclusion." *American Economic Review* 108(6): 1468-87.

Lee, Jongkwan, Giovanni Peri, and Vasil Yasenov. 2022. "The Labor Market Effects of Mexican Repatriations: Longitudinal Evidence from the 1930s" *Journal of Public Economics* 205, 104558.

Legomsky, Stephen H. and Mitchell D. Gravo. 1976. "Afterword: The Immigration and Nationality Act Amendments of 1976." *San Diego Law Review* 14: 326-335.

Manson, Steven, Jonathan Schroeder, David Van Riper, Katherine Knowles, Tracy Kugler, Finn Roberts, and Steven Ruggles. 2024. IPUMS National Historical Geographic Information System: Version 19.0 [dataset]. Minneapolis, MN: IPUMS. http://doi.org/10.18128/D050.V19.0

Minian, Ana Raquel. 2018. *Undocumented Lives: The Untold Story of Mexican Migration*. Cambridge: Harvard University Press.

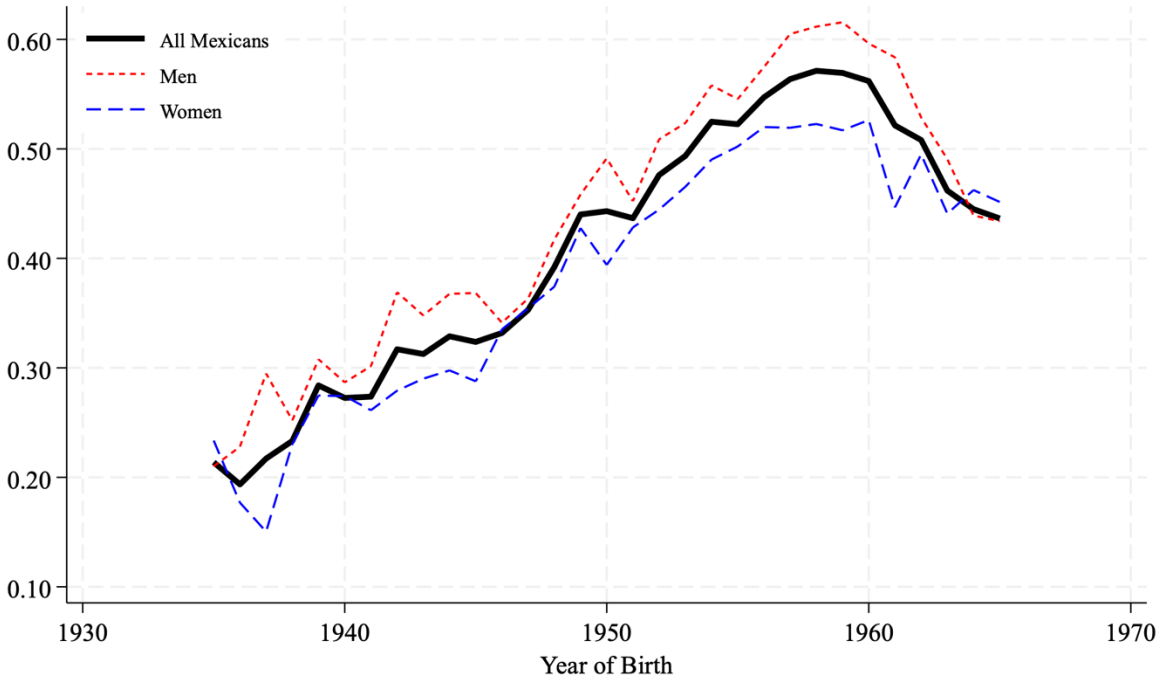
Ruggles, Steven, Sarah Flood, Matthew Sobek, Daniel Backman, Grace Cooper, Julia A. Rivera Drew, Stephanie Richards, Renae Rodgers, Jonathan Schroeder, and Kari C.W. Williams. 2025. *IPUMS USA: Version 16.0* [dataset]. Minneapolis, MN: IPUMS. https://doi.org/10.18128/D010.V16.0

United States Bureau of the Census. *County and City Data Book [United States] Consolidated File: County Data, 1947-1977*. Inter-university Consortium for Political and Social Research [distributor], 2012-09-18. https://doi.org/10.3886/ICPSR07736.v2

United States Department of Justice. Immigration and Naturalization Service. *Alien Address Reports, [United States]: 1980 Public Use File*. Inter-university Consortium for Political and Social Research [distributor], 1992-02-16. https://doi.org/10.3886/ICPSR07998.v1

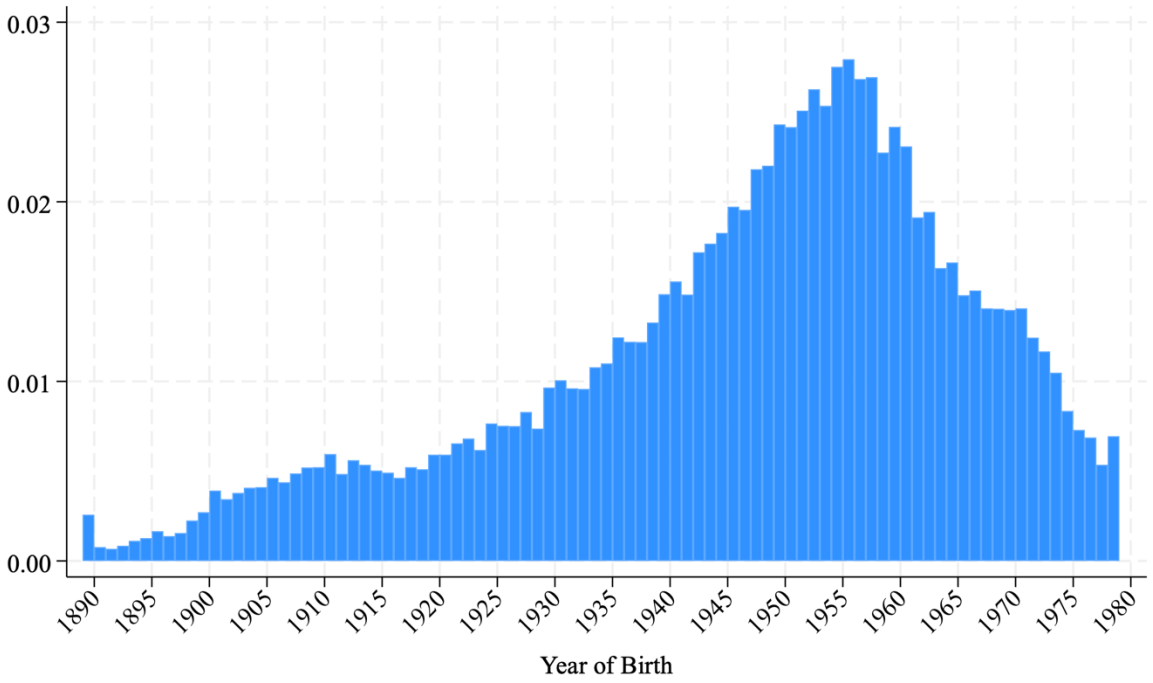
Yang, Jia Lynn. 2020. *One Mighty and Irresistible Tide: The Epic Struggle over American Immigration, 1924-1965*. New York, NY: W.W. Norton & Company.

V. Tables and Figures



APPENDIX FIGURE 1. 1980 MEXICAN UNAUTHORIZED SHARE BY GENDER AND YEAR OF BIRTH

Note: Unauthorized shares calculated as the gap in the share of total and lawful arrivals of Mexican migrants in 1980, by gender and year of birth. Total arrivals and naturalized citizens are calculated from 1980 Census 5% public use microdata (Ruggles et al., 2025). Other lawful residents (Green Card and temporary visa holders) are drawn from the *Alien Address Reports 1980 Public Use* File (U.S. Dept. of Justice, 1992). Total arrivals are the sum of naturalized citizens and other lawful residents. Details on calculation of these figures are given in the Supplemental Appendix.



APPENDIX FIGURE 2. BIRTH YEAR FOR 1980 U.S. RESIDENT WOMEN BORN IN MEXICO

Note: Histogram of the 1980 share of foreign-born Mexican women residing in the U.S., by year of birth. Sample restricted to those with non-U.S. born parents. Calculated from the 1980 Census 5% public-use microdata (Ruggles et al., 2025).

APPENDIX TABLE 1 – SUMMARY STATISTICS BY CHILD'S YEAR OF BIRTH AND MOTHER'S ETHNICITY

	1979		1970	
Mother's ethnicity:	*MEXF*	*NATIVEF*	*MEXF*	*NATIVEF*
Birth weight	3,389	3,327	3,357	3,275
	[45.4]	[62.1]	[55.3]	[48.9]
Ln of birth weight	8.13	8.11	8.12	8.09
	[0.01]	[0.02]	[0.02]	[0.02]
Low birth weight share	0.05	0.07	0.06	0.08
	[0.01]	[0.02]	[0.02]	[0.01]
High birth weight share	0.11	0.10	0.10	0.08
	[0.02]	[0.02]	[0.03]	[0.01]
Mother's age	25.63	24.76	26.81	24.35
	[0.62]	[0.62]	[0.65]	[0.56]
Male share	0.51	0.51	0.52	0.51
	[0.02]	[0.01]	[0.04]	[0.01]
Second child share	0.26	0.32	0.21	0.28
	[0.03]	[0.01]	[0.03]	[0.02]
Third child share	0.17	0.15	0.20	0.20
	[0.02]	[0.01]	[0.03]	[0.01]
Fourth or more child share	0.24	0.10	0.36	0.17
	[0.05]	[0.03]	[0.06]	[0.04]
Number of births	2,481	25,266	1,258	29,742
	[2,178]	[24,597]	[986]	[33,245]
Observations	79	79	79	79

Note: Means are reported with standard deviations in brackets and are sourced from Natality Detail Data, which contain individual birth records for either the universe or a 50% random sample of births, depending on state and year. Data are aggregated to group-by-county of maternal residence-by-child birth year averages, and statistics are weighted by the group-specific county share of 1970 births in the sample. Birth outcomes include average birth weight (in grams) and natural log of birth weight and shares low birth weight (<2500 grams) or high birth weight (>4000 grams). Birth characteristics include maternal average age at childbirth and the share of children who were male at birth. Parity variables indicate the shares of children who were second, third, or fourth (or higher) birth order.

APPENDIX TABLE 2 – CORRELATES OF 1980 UNAUTHORIZED RATES

	Unauthorized Rate (x100)
Hispanic share (1970)	-0.645
	(0.239)
Unemployed share (1970)	-1.011
	(1.615)
Population per square mile (1970)	-0.000236
	(0.000963)
Urban population share (1970)	0.0190
	(0.125)
Population percentage change (1960-1970)	0.153
	(0.120)
Population percentage, 18 or older (1970)	0.126
	(1.291)
Population percentage, 25 or older with high school (1970)	-0.385
	(0.466)
Services employment share (1970)	0.558
	(1.563)
Construction employment share (1970)	-1.603
	(2.103)
Families with income < $3000 share (1970)	0.341
	(0.652)
Constant	50.90
	(74.21)
Observations	79
R-squared	0.750
State fixed effects	Yes
F: 1970 county chars.	3.588
p: 1970 county chars.	0.000594

Note: Table reports the coefficients from a regression of the estimated 1980 unauthorized share (multiplied by 100) on 1970 county characteristics and state fixed effects. Robust standard errors are in parentheses. Regression is weighted by the number of births to foreign-born Mexican women in 1970. Characteristics are sourced from the County and City Data Book (United States Bureau of the Census, 2012).

APPENDIX TABLE 3 – DIFFERENCE-IN-DIFFERENCES AND TRIPLE-DIFFERENCE ESTIMATES OF THE EFFECT OF MATERNAL UNAUTHORIZED STATUS ON PREDICTED BIRTH WEIGHT (IN GRAMS)

	DD: 1979	DD: 1970	DDD: 1979 - 1970	
	(1)	(2)	(3)	(4)
Coefficient	2.6	-13.4	16.0	17.3
	(7.9)	(9.0)	(6.6)	(7.9)
Observations	158	158	316	316
R-squared	0.983	0.989	0.987	0.997
County fixed effects	Y	Y	Y	Y
State x *MEXF* fixed effects	Y	Y	Y	Y
State x *MEXF* x 1979 fixed effects	N	N	Y	Y
County x 1979 fixed effects	N	N	Y	Y
County x *MEXF* fixed effects	N	N	N	Y
1970 county chars x *MEXF* x 1979	N	N	N	Y
p: 1970 county chars x *MEXF* x 1979				0.373

Note: Outcome is predicted birth weight (in grams), where the prediction is based on the group-specific 1970 relationship between birth weight and a cubic in maternal age, indicators for second, third, and fourth or higher parity, and an indicator for child sex. Columns (1) and (2) present least squares estimates of θ^{DD} from model (2) using Natality Detail Data from 1979 and 1970, respectively. Underlying data are aggregated to the county of maternal residence-by-child birth year-by-group level. Column (3) presents the difference between the column (1) and column (2) estimates, and column (4) regression adjusts that difference for county-by-group fixed effects and year- by group-specific effects of the 1970 county characteristics listed in Appendix Table 2. *MEXF*=1 for children born to Mexican women, and *MEXF*=0 for children born to native women. Regression estimates are weighted by the group-specific county share of 1970 births in the sample, and standard errors (in parentheses) are clustered on county. Sample consists of births to Mexican and U.S. born mothers residing in one of 79 counties across five states: California, Texas, Illinois, Arizona, and New Mexico. DD=difference-in-differences coefficient, DDD=triple differences coefficient.