

## **Opening the Door: Migration and Self-Selection in a Restrictive Legal Immigration Regime**

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March 1<sup>st</sup>, 2021

### **Abstract**

We examine how the legalization programs of the Immigration Reform and Control Act of 1986 (IRCA) have affected the scale and character of immigration to the United States since the late 1980s. Our empirical approach exploits variation in IRCA's timing and the magnitude of the legalization shock across both countries and metropolitan areas for the one country – Mexico – that dominated the legalized population. We find that “opening the door” to family sponsored admissions has indeed increased legal immigration by family members: To date, each IRCA admit can account for the admission of between 1 (cross-metro area analysis) and 1.5 (cross-country analysis) lawful permanent residents through family-sponsorship channels. The vast majority of marginal admissions have been immediate family, however, inconsistent with “explosive” chain migration. In addition, these marginal admissions have changed the legal composition of immigrant arrivals overall without affecting their educational attainment or use of public assistance, suggesting that they were neither “negatively selected” nor increased fiscal burdens. We also find suggestive evidence that IRCA's legalization programs have reduced unauthorized immigration from Mexico in the past decade.

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## I. Introduction

An estimated 10.5 million unauthorized immigrants reside in the United States today (Passel and Cohn, 2018). Despite heightened immigration enforcement and efforts to curb even legal immigration in recent years, expansive legalization efforts are not without precedent. In 1986, President Ronald Reagan signed into law a comprehensive immigration reform – the Immigration Reform and Control Act (IRCA) – one pillar of which was a set of legalization programs that allowed nearly 3 million unauthorized immigrants at the time to become lawful permanent residents (LPRs).<sup>1</sup> Since then, several immigration reform bills with legalization provisions similar to IRCA have been proposed, but none have made it through Congress.

A key obstacle to mass legalization in the U.S. over the past 30 years has been a concern over how it might affect *future* immigration flows, given peculiar features of the U.S. legal immigration system. A hallmark of that system, put in place by the Immigration and Nationality Act of 1965, has been prioritization of family reunification over other considerations. In fiscal 2018, two-thirds of the 1.1 million immigrants to the U.S. gaining “admission” – the same as becoming an LPR or obtaining a so-called “Green Card” – did so through a family tie (U.S. Department of Homeland Security, 2019). Thus, large-scale legalization policies can *in effect* legalize many more immigrants than those who are directly affected themselves: The initial wave of legalized immigrants can bring their spouses, children, parents, and siblings; siblings can bring their spouses and children; and so on. Such “chain migration” is controversial not only due to its perceived scale but also because family-sponsored migrants appear to impose a fiscal burden, since they may be less likely to be working age and are not selected on skill.

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<sup>1</sup> Past research using policy variation from IRCA’s legalization programs has shown them not only to have improved labor market outcomes (Phillips and Massey, 1999; Kossoudji and Cobb-Clark, 2002; Amuedo-Dorantes, Bansak, and Raphael, 2007; Pan, 2012; Steigleder and Sparber, 2017), but also to have reduced crime (Baker, 2015; Freedman, Owens, and Bohn, 2018) and increased filing of personal income tax returns (Cascio and Lewis, 2019).

Empirically, however, we know little about the true scale of chain migration, let alone its character. Existing studies of chain migration consist of accounting exercises that make heroic assumptions about who can start a “chain” and the amount of time that can transpire between this initiating admit and subsequent family sponsorship. These assumptions can greatly affect estimates of what this literature calls the “immigration multiplier” – the number of family sponsored admissions per initiating admit.<sup>2,3</sup> Moreover, no existing studies exploit exogenous variation in that first admission, despite the possibility that the same “push” and “pull” factors may affect them and the family members whose admissions they may later sponsor. Further, in the absence of a legalized relative, family members may immigrate to the U.S. through other channels – legal (temporary visas) or not (visa overstays or unauthorized border crossing). Various migratory pathways to the U.S. could be substitutes, so that studying admissions in isolation may overstate the “true” immigration multiplier.

We address these limitations by combining survey and newly collected administrative data with variation in the magnitude of the legalization shock brought about by IRCA’s legalization programs. Figure 1 shows that these programs, which targeted the long-term unauthorized and seasonal agricultural workers, generated 2.7 million “excess” admissions over the narrow time frame from 1989 and 1991. Though countries across the world contributed to this admissions spike, nearly three-quarters of the IRCA admissions were from Mexico. We focus on Mexico in our preferred analysis, exploiting variation across metropolitan areas in the

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<sup>2</sup> Though the idea that family sponsorship leads to multiplying “chains” of migrants is older, the term “immigration multiplier” as we use it seems to originate with Jasso and Rosenzweig (1986) as clarified in their 1989 article. They also provide the first serious attempt to estimate it.

<sup>3</sup> Yu (2008), Carr and Tienda (2013), and Tienda (2018) assume that family admissions are sponsored by non-family admissions who came a fixed number of years prior. This approach can lead to misleadingly high estimates of the immigration multiplier. For example, Tienda (2018) estimates that every Mexican admission in the late 1990s subsequently sponsored the admission of 6.38 family members. However, this figure assumes that all family admissions from Mexico in the early 2000s were sponsored by a small number of employer-sponsored Mexican admissions in the late 1990s, not the much larger IRCA cohort admitted a decade before.

“legalization ratio” of Mexican IRCA admissions to the pre-existing stock of legalized Mexican immigrants. In particular, our approach posits larger increases in family-sponsored admissions of Mexicans (and larger changes in other Mexican arrivals) after the IRCA cohort was admitted for metropolitan areas where the scope for family sponsorship changed more as a result of the law. Moreover, we expect even larger impacts after the IRCA cohort was eligible to naturalize, given that citizenship affords the broadest family sponsorship rights. We also apply a similar approach using variation in the magnitude of the admissions spike across countries for the U.S. as a whole. In neither case do we cap the length of time it may take family members to follow.

Our first set of estimates comes from newly compiled, detailed data on immigrant admissions. We find that through 2019 – a full 30 years after the initial legalization event – the average Mexican immigrant awarded a Green Card through IRCA was responsible for just over one additional admission. Eighty percent of this effect is accounted for by spouses and unmarried children of a sponsor and the remaining portion mostly by a sponsor’s parents. That far fewer than one non-immediate relative was sponsored over such a long timeframe means that chain migration is “non-explosive.” The estimates are also highly robust: They are not sensitive to controls for “demand shocks” for Mexicans and or traditional “enclave” measures used to predict where future Mexicans will settle. (Our identifying variation is in fact unrelated to both.) More affected areas also did not see larger changes over time in admissions under other “initiating” sponsor categories (e.g., employer-sponsored admissions), which would otherwise interfere with our ability to attribute the observed increase in family sponsorship to IRCA.

Our complementary analysis exploiting cross-country variation produces slightly larger estimates – around 1.5 relatives sponsored through 2016 (the last year of detailed data available at the country level), with about two-thirds coming from spouses and children and thus a larger

portion coming from parents and other relatives. The multiplier for other relatives is, however, still well below one. Moreover, the results are similar to those for Mexico for the subset of countries that, like Mexico, have low naturalization rates and thus less scope for citizen sponsorship. The cross-country estimates are also robust to controls for country “push” factors and are not confounded by changes in non-family sponsorship categories.

Our second set of estimates suggests that a multiplier estimate based on admissions alone may somewhat overstate the “true” immigration multiplier in the very long run. Here, we turn to counts of total immigrant arrivals from the Decennial Census and American Community Survey (ACS), sources that should capture not just admissions, but also unauthorized immigrants and immigrants on temporary visas. Application of our cross-metro area approach to these data suggests that total Mexican arrivals have increased essentially one-for-one with admissions since IRCA. In the past decade, however, the admissions response of Mexicans has significantly exceeded the change in total Mexican immigrant arrivals. In the cross-country analysis, the response of legal admissions also consistently exceeds that of total arrivals. Though that gap is not statistically significant, the cross-country approach allows us to show that IRCA did not reduce the number of temporary visas issued at foreign consulates. Together with the cross-metro findings, this result suggests that IRCA’s expansion of legal immigration possibilities may have reduced unauthorized immigration, particularly from Mexico, in recent years.

In the third and final part of the analysis, we use the same sources of identifying variation to explore how IRCA’s legalization programs have affected the characteristics of immigrant arrivals in the Census and ACS over the past three decades. The upshot of this analysis is that changes in the characteristics of arrivals since the late 1980s do not strongly covary with the intensity of the IRCA legalization shock. The family admissions induced by IRCA do not appear

to have been negatively selected on education; if anything, the marginal family-sponsored admit is actually more likely to be a high school graduate. Moreover, despite the fact that Green Card holders are eligible for public programs that temporary visa holders and unauthorized immigrants are not, we find no impact of IRCA on the likelihood that new arrivals receive public assistance, suggesting that they are not imposing more of a fiscal burden.

This is the first paper to rigorously examine how legalization opportunities reverberate through the American immigration system. Our estimates suggest that in practice, the current system results in migration by nuclear families, with few bringing distant relatives: Migratory “chains” die out.<sup>4</sup> In addition, we present evidence of substitution between family-sponsored admission and other means of entering the U.S. To our knowledge, we are the first to explore this substitution using variation from a policy change using more than time-series variation.<sup>5</sup>

The paper is also a novel addition to the migrant selection literature. Seminal work has considered migrant selection in the context of fixed legal immigration regimes (Borjas, 1987; Chiquiar and Hanson, 2005; Abramitsky, Boustan, and Eriksson, 2012). By contrast, we estimate the selection effects of expanding the set of countries with access to the legal immigration system.<sup>6</sup> In addition, the few existing studies using policy variation to explore migrant selection (Chen, 2015; Spitzer and Zimran, 2018; Massey, 2016; Greenwood and Ward, 2015) are situated

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<sup>4</sup> The system builds in a number of barriers to chain migration. It is not easy to become a naturalized citizen, and Green Card holders from many countries naturalize at low rates despite the fact that citizenship confers the opportunity to sponsor more relatives. In addition, as we discuss in Section II, there are low annual quotas on the admissions classes that can generate “chains,” as well as country-specific annual limits on the overall number of admissions. While there may thus still be relatives on a wait list, now 35 years after IRCA there seems little prospect of “out-of-control” chain migration. Still, the value of this multiplier is an empirical question.

<sup>5</sup> Time series evidence also suggest that IRCA may have reduced unauthorized arrivals (Woodrow and Passel, 1990; Orrenius and Zavodny, 2003; Massey and Pren, 2012).

<sup>6</sup> Unlike prior studies, our estimates do not compare directly to the sending country population, but rather to the counterfactual under a policy in which this change in access had not occurred. Under the assumption that sending country characteristics did not change as a result of IRCA, however, these are one and the same. For most countries the population legalized by IRCA is a miniscule share of the origin country population: for the median country, it is below 0.2%, and it maxes out at 3% for a handful of countries.

in economic history, whereas the present study reflects modern U.S. policy.<sup>7</sup> In this context, our findings suggest that the legal status of immigrant arrivals can change without much change in their observed characteristics. This result casts doubt on the ability to develop reliable proxies for legal status based on observed characteristics (Borjas, 2017), at least for recent arrivals from countries where unauthorized immigration remains salient.

## II. Background and Data

For our purposes, there are two types of immigrant *arrivals* – legal (authorized) arrivals and unauthorized arrivals. In Immigration and Naturalization Service (INS) terms, legal immigration consists of *immigrant admissions* – foreign nationals admitted to the U.S. as LPRs, or with so-called Green Cards – and *non-immigrant admissions* – foreign citizens permitted to enter the U.S. on a temporary basis, such as with student or employment visas. From here forward, we refer to immigrant admissions as simply “admissions” and non-immigrant admissions as “visitors” or “temporary visas.” Unauthorized immigrants consist of those who overstayed a temporary visa or entered the country without authorization. This section provides background on the rules governing immigrant admissions since 1965, since admissions are the focus of this paper, and on our sources of immigration data (see Appendix A for more details).

### A. Admissions Programs

Since 1965, three major groups have been eligible to sponsor admissions – American citizens, current Green Card holders/LPRs, and employers. The first two groups can sponsor family members. Both citizens and current LPRs can sponsor admission of their spouses and

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<sup>7</sup> Chen (2015) finds that the Chinese Exclusion Act resulted in more negative selection of Chinese migrants, the opposite of the stated purpose of that law. Massey (2016) finds that the immigration quotas of the 1920s induced more positive selection of migrants, though Greenwood and Ward (2015) find, in contrast, that the quotas induced the least skilled migrants to differentially reduce their emigration rates. Spitzer and Zimran (2018) find evidence of increased positive selection of Italians after the 1917 literacy test. And while theory suggests that allowing more immigrants in induces negative selection (e.g., Belletini and Ceroni, 2007; Lazear, 2018), these results remind us that how immigration actually responds to particular immigration restrictions in practice is an empirical question.

minor (under age 21) or unmarried children. Only citizens can sponsor their parents, married children, and siblings – what is typically thought of as “chain migration.”

Citizens can sponsor their spouses, minor children, and parents in unlimited numbers. However, other family sponsorship is quota restricted. In particular, LPRs may sponsor children and spouses, but only up to an annual quota of 226,000,<sup>8</sup> and since the Immigration Act of 1990, citizen-sponsored admissions of adult and married children and of siblings have been capped at 46,800 and 65,000, respectively. For the most part, naturalized citizens of all countries compete equally for these slots, but large sending countries face an additional 7% cap on how much of any category-specific quota they may use (e.g., naturalized citizens for any given country can sponsor no more than 4,550 siblings per year). The 7% cap also applies to the quota on LPR sponsorship of their spouses and children. Our estimates may therefore be lower than they would be under a counterfactual of no admissions quotas.

There are other pathways to admission that do not rely on sponsorship. For example, refugees can become LPRs, as can winners of the diversity visa lottery, which was established in the 1990s. Special, limited-time programs have also been periodically established by law. The historically most significant of these and the programs of study in the present paper – the General Legalization Program (GLP) and the Seasonal Agricultural Workers (SAW) program – were authorized by IRCA in 1986.<sup>9</sup> IRCA’s GLP targeted the long-term unauthorized, defined as those who at the time of application could demonstrate continuous residency in the U.S. since prior to 1982. The SAW program, by contrast, targeted immigrants who could demonstrate 90

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<sup>8</sup> In theory, a larger annual admission is possible under the law if few close relatives of citizens are admitted in a year, but this does not happen. The Immigration Act of 1990 also temporarily expanded this quota expressly for the dependents of those legalized under IRCA.

<sup>9</sup> The Nicaraguan Adjustment and Central American Relief Act (NACARA), passed in 1997, did something on a much smaller scale for registered asylum seekers from Nicaragua, Cuba, El Salvador, Guatemala, and the former Soviet Union. El Salvador and Guatemala also experienced large admissions spikes from IRCA, and thus appear in our sample. Our estimates are robust to incorporating controls for NACARA and to dropping these two countries.



days of employment in seasonal agriculture (for certain USDA-defined crops) in the year running up to May 1, 1986 and required no more in the way of residency. Once a Green Card was awarded through either IRCA program, the awardee was eligible to naturalize just as any person who obtained a Green Card through the more standard, sponsorship-based channels.

## *B. Data on Immigration*

*Data on Admissions.* Our admissions analysis relies on administrative data published either as anonymized INS microdata (fiscal years 1983 through 2004) or in tables published by the Department of Homeland Security (for more recent years).<sup>10</sup> The microdata include class of admission, country of birth, age, as well as zip code or area of intended residence. The tables allow us to produce annual counts of Mexican admissions for all key admission categories from 2007 to 2019 for the top 200 receiving counties in each year.<sup>11</sup> We aggregate county counts to 1999 PMSA/MSA county boundaries (NECMAs for New England) – hereafter referred to as the metro area level.<sup>12</sup> Country (of origin)-level tables are available from 2005 in the *Yearbook of Immigration Statistics*, but detailed visa categories are from a different source which is tabulated only through 2016.<sup>13</sup>

A limitation of these data is that they exclude IRCA admissions. We obtain this information from the Legalization Applications Processing System (LAPS), which provides anonymized data on all IRCA legalization applicants (through the GLP and SAW program) through the end of the 1992 fiscal year.<sup>14</sup> Like the admissions microdata, the LAPS data include information on country of origin and zip code of U.S. residence, which we code to metro areas.

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<sup>10</sup> Microdata are available before 1983 but lack enough geographic information to identify metropolitan areas.

<sup>11</sup> <https://www.dhs.gov/immigration-statistics/readingroom/LPR/LPRcounty>, accessed 2/17/2021.

<sup>12</sup> See June 30, 1999 definition at <https://www.census.gov/geographies/reference-files/time-series/demo/metro-micro/historical-delineation-files.html>.

<sup>13</sup> <https://www.dhs.gov/immigration-statistics/readingroom/LPR/LPR-by-major-class-and-country>.

<sup>14</sup> Only 1.1% of GLP and SAW program applicants received a Green Card after 1992 (Rytina, 2002).

We calculate the number of Mexican IRCA admissions by metro area, as well as the number of IRCA admissions to the U.S. as a whole by country of origin.<sup>15</sup>

*Data on Pre-Existing Stock of Legalized Immigrants.* The treatment variable in our identification strategy – the legalization ratio – is the number of IRCA admissions *relative to* the pre-existing stock of legalized immigrants. We obtain information on the number of existing LPRs by country of origin and, for Mexicans, by metro area, using an anonymized 1980 registry of Green Card holders (“Alien Address Reports”) compiled and distributed by the INS (United States Department of Justice, 1992). Like the anonymized microdata sources described above, this registry gives information on country of origin and zip code of U.S. residence, which we code to metro areas. A similar registry is not available for citizens, so we estimate the number of citizens for the same categories using the 5% public use sample of the 1980 Census of Population (Ruggles, et al, 2020).

*Data on Immigrant Arrivals.* There is no comparable administrative source on unauthorized immigrants, or on immigrant arrivals overall. For this purpose, we rely on the best available data that include all long-term resident immigrants – public-use microdata from the Decennial Census (5% samples from 1990 and 2000) and the ACS (for 2006 to 2019) – focusing focus on the 1982 to 2018 arrival cohorts.<sup>16</sup> Because we do not have counts of total arrivals at the time of arrival for all cohorts, we estimate them from our observation of the same arrival cohort in multiple years.<sup>17</sup> We focus on the prediction of *total* arrivals, by cohort, as well as the

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<sup>15</sup> We add in Green Cards awarded through two much smaller one-time legalization programs authorized by IRCA – one for unauthorized Cubans or Haitians and the other for migrants who had been in the U.S. since at least 1972. Successful adjustments of status under these programs are reported in the admissions files described above.

<sup>16</sup> We have only a partial arrival cohort for 2019, given the timing of the ACS. The ACS was carried out between 2001 and 2005 but does not include individuals living in group quarters in those years. We drop relatively rare cases of persons born abroad to U.S. citizens.

<sup>17</sup> Intuitively, we predict the size of a given cohort in its year of arrival through extrapolation, i.e., from the speed at which the average arrival cohort shrinks over time, due to mortality and return migration. See Appendix A.

difference between total arrivals and family-sponsored admissions (“other arrivals”), for the groups of interest. To address noise from sample data and potential heaping in reported arrival year, we aggregate arrival year into bins. These bins mirror arrival groups in the 1990 census (1982-84, 85-86, 87-89) and are in five-year groups after.<sup>18</sup>

*Data on Temporary Visas.* Other arrivals in the Census/ACS include unauthorized immigrants *and* foreign citizens residing in the U.S. with temporary visas who respond to these surveys; lacking reports of legal status of non-citizens, we cannot distinguish between unauthorized and other legal immigrants in those data. We therefore complement the analysis with published statistics on temporary visas issued by the State Department at foreign consulates, available for most years between 1983 and 2016.<sup>19</sup> These statistics are tabulated at the country level but are unavailable at the metro-area level.

### **III. Identification Strategy**

#### *A. Timing of Status Adjustment Under IRCA*

Together, IRCA’s GLP and SAW program generated the spike in admissions between 1989 and 1991 shown in Figure 1. Ultimately 2.69 of approximately 3.04 million applicants were awarded Green Cards through these two IRCA programs alone (Rytina, 2002). This was the culmination of a multi-step process that began with application for temporary status and continued with temporary admission before the Green Card award. IRCA Green Card holders were eligible to naturalize starting five years after the Green Card award, i.e., starting in 1994 for the earliest awardees. By the end of the 2001 fiscal year, nearly 890,000 applicants under the two

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<sup>18</sup> All bins are inflated to represent five-year equivalents, including when not all five relevant years of data are observed.

<sup>19</sup> Figures come from an annual state department publication called the *Report of the Visa Office*. These data include counts of visas issued by country and visa type, designated as a letter. We separate visas into what we call “short-term visitors” – those who come on “B” visas (tourist visas), border crossing cards, “C” (transit aliens), and “D” (crewmember) visas – and “long-term visitors.” The latter includes the well-known F, J, and M visas, as well as the rapidly growing H-visas.

programs combined – 33% of IRCA Green Card holders and 29% of the original applicant pool – had become naturalized citizens.

We show the precise timing of the last two transitions for the IRCA GLP and SAW applicant pools – to permanent residency and citizenship – in Figure 2, based on statistics from Rytina (2002), who used internal INS data extending beyond the LAPS. The sharp timing of IRCA and the fact that citizens enjoy broader family sponsorship rights comprise the first element of our identification strategy. That is, we expect chain migration to manifest in changes in subsequent category-specific admissions that align with IRCA applicants’ transitions to sponsorship status. For example, because “family 4<sup>th</sup> preference” visas (for siblings) require citizen sponsorship, we expect to observe changes in admissions under this category only after 1994. Similarly, parents can only be sponsored by citizens, so their numbers should only rise after 1994, but spouses and minor or unmarried children, who can be sponsored by LPRs, can see their numbers rise soon after 1989.

To demonstrate this aspect of our identification strategy, Figure 3 shows admissions through IRCA’s legalization programs and other admissions classes over time for Mexico, which accounted for roughly 75% of IRCA LPRs and is the focus of our metro-area analysis (Panel A).<sup>20</sup> Consistent with expectations, Green Card-sponsored admissions rose after 1991, whereas citizen-sponsored admissions began to rise in the mid-1990s (Panel B). Also consistent with visa rules, it is also only after the mid-1990s that admissions of parents and non-immediate relatives from Mexico start to rise, though arrivals of spouses and children begin after 1991 (Panel C).<sup>21</sup>

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<sup>20</sup> The data are from the Legalization Application Processing System (LAPS) (for IRCA GLP and SAW admissions) and published anonymized admissions records and tables (for all other admissions). More details are provided in Section III and Appendix A.

<sup>21</sup> Some of the earliest arrivals were likely admitted as “legalization beneficiaries,” which were 55,000 extra green-card-sponsored slots per year in fiscal 1992, 1993, and 1994 (allocated by the Immigration Act of 1990) for spouses and dependents of those legalized under IRCA.

To estimate a preliminary “long-run immigration multiplier” for Mexico – the total or cumulative family-sponsored admissions for each IRCA admission – we take post-pre differences of each normalized series (Panel B) around 1988, then multiply each of these differences by 28 (years), to accumulate the predicted change in annual admissions through 2016. This approach delivers a long-run multiplier estimate of 0.93 (0.12) – 0.43 (s.e.=0.06) of an admission through Green Card sponsorship and 0.50 (s.e.=0.09) of an admission through citizen sponsorship – for each Mexican admission through IRCA. About 75% of all of these admissions were spouses and unmarried children (coef.=0.70 (s.e.=0.10)), what we will call “spouses and kids” in tables and figures for the rest of the paper.<sup>22</sup>

*B. IRCA’s Metro Area Variation*

A drawback of relying only on the timing of specific sponsorship patterns, as in the exercise above, is that other factors affecting admissions could be changing over time. For example, the Mexican peso crisis unfolded in the mid-1990s, just as Mexicans obtaining Green Cards through IRCA would have been able to naturalize and sponsor the admission of a broader set of family members. Our research design therefore also uses variation across metropolitan areas (and later, across countries) in the intensity of IRCA as a legalization shock. Intuitively, areas for which IRCA admissions were large relative to pre-existing stocks of legal residents (LPRs and citizens) should have experienced proportionally larger Green Card- (and citizen-) sponsored admissions following the 1989 to 1991 spike in IRCA Green Card awards. Such areas experienced larger proportional increases in potential future sponsorship, due to IRCA.

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<sup>22</sup> This count combines two citizen-sponsored categories (spouses of citizens and minor children of citizens) and the quota-restricted green-card sponsored category called “family second preference.” The second preference category allows spouses, minor children and a smaller number of adult children (which have their own quota), but they must be unmarried. An “adult” is someone over age 21 in the U.S. immigration system.

Our preferred analysis is the one exploiting variation across metro areas in the magnitude of the legalization shock for Mexicans. While limited by the availability of tabulated data post-2004, we still have a reasonably large sample – 66 areas of reasonably consistent geography over the period 1983-2019, representing 61% of Mexican LPRs admitted through IRCA.<sup>23</sup>

Table 1 Panel A lists areas with the top “legalization ratios” in this sample, in descending order by the ratio’s value. As alluded, the legalization ratio – the number of Green Cards awarded through IRCA relative to the sum of the pre-existing stock of Green Card holders and Mexican citizens – is our treatment variable. While Los Angeles was residence of the largest *number* of Green Cards recipients awarded under IRCA, it did not have anywhere near the highest legalization ratio. Indeed, areas in Florida, rather than California, dominate the top-ten list. Put differently, Florida MSAs were the ones that had particularly large numbers legalizing as a proportion of the stock of legally residing Mexicans, a denominator which tended to be small in most Florida MSAs (and much higher in California enclaves). This raises the concern and that these areas may be subject to other common shocks. Our preferred specification therefore allows for year fixed effects that vary across states.

Panel B more systematically explores the relationship between the legalization ratio and correlates of Mexican settlement patterns. One concern is that the treatment may be correlated with the location Mexican enclaves, in which case the spread of new Mexican arrivals beyond traditional enclaves in the 1990s would bias our estimates. The 1980 density of Mexicans, which is a strong predictor of this spread (e.g., Card and Lewis, 2007), is if anything negatively related

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<sup>23</sup> To ensure accurate measurement of the treatment variable, we also required that the area have at least 20 registered Mexican green-card holders in 1980. This eliminated only one metro area: Trenton, NJ. No data are available for 2005-2006, and the geographic identifiers pre-1983 are not rich enough to continue the sample earlier.

to the treatment, as was suggested in Panel A.<sup>24</sup> However, this small correlation is smaller and not significant within state (column 3). Another concern is that the treatment may pick up growth in where newly (legally) admitted Mexicans were already settling. Because Mexican settlement patterns are particularly responsive to local economic conditions (Cadena and Kovak, 2016), we created two measures to control for this. The first, job growth leading up to IRCA (data from County Business Patterns) is not correlated with the legalization ratio within state. Second, we created a “Bartik”-style predictor of Mexican job growth through 2019 based on 1980 occupation mix (see Appendix A for details). This does predict where Mexicans settled, but it is not significantly related to the legalization ratio. Column 4 shows that these variables are also jointly insignificantly related to the treatment within state.

### C. *IRCA’s Cross-Country Variation*

Table 2 is similar to Table 1 but pertains to the cross-country variation in the legalization shock from IRCA. We restrict this analysis to the 29 countries where IRCA accounted for at least a third of all admissions across the IRCA, refugee, and diversity visa categories combined over our study time frame, 1982 to 2016 (Figure A1) and which have a legalization ratio of at least 0.1 (that is, IRCA increased the number of legal residents from a country by at least 10%).<sup>25</sup> Despite these restrictions, the 29 countries in our final sample cover over 90% of those legalized under IRCA. The variation across countries is nevertheless much lower than the cross-metro area variation for Mexico, so precision is correspondingly lower in this approach.

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<sup>24</sup> Note that this is not a purely mechanical negative correlation: The density measure in row a of panel B includes all Mexicans, not just citizens and LPRs. It was measured using tabulations from the 20% count data (Manson et al., 2020).

<sup>25</sup> The former restriction is important because both diversity visas and refugee flows can generate large spikes in new green card holders – so potential sponsors – that could confound our ability to attribute the post-IRCA increase in family-sponsored admissions to IRCA. In practice, most of the countries below the one-third threshold also do not meet the 0.1 treatment threshold. For comparison, in the metro area analysis, only one metro area had a legalization ratio below 0.1 (Detroit). Like in the metro analysis, we also required that the country have at least 20 green-card holders in 1980. This eliminated only one country, Dominica.

Table 2 Panel A shows that legalization ratios are particularly high for many Central American countries. However, Mexico, despite being at the top in terms of raw numbers of legalizations, has only the fourth-highest legalization ratio. Panel B examines correlates of the cross-country variation in legalization ratios. Even within world region, countries with higher legalization ratios, like Mexico, tended to have a below average propensity to naturalize, which is relevant to their ability to sponsor relatives.<sup>26</sup> They do not, however, see systematically faster growth in legal admissions prior to IRCA, though they are (weakly) lower income. Legalization ratios are unrelated to two time-varying predictors of immigrant arrivals (“push factors”) suggested by previous research (Yang, 2006; Llull 2018) – the real exchange rate and growth in the origin country population – entered in Table 2 as long-differences.

#### IV. IRCA Legalizations and Subsequent Admissions

##### A. Baseline Event-Study and Multiplier Estimates: Cross-Metro Area Analysis

We begin with a specification that exploits the timing of sponsorship transitions by IRCA applicants and variation across metro areas within the same state in the intensity of IRCA as a legalization shock for Mexicans. The model is given by:

$$\frac{a_{cst}}{legal_{c,1980}} = \delta_c + \gamma_{st} + \sum_{\tau \neq 1988} \theta_{\tau} D_t^{\tau} \left( \frac{lpr_{c,IRCA}}{legal_{c,1980}} \right) + \varepsilon_{cst} \quad (1)$$

where  $a_{cst}$  represents Mexican admissions in a specific category (e.g., Green Card-sponsored) settling in metro area  $c$  in state  $s$  in (fiscal) year  $t$ ;  $lpr_{c,IRCA}$  is the number of Mexicans in  $c$  receiving Green Cards through IRCA, and  $legal_{c,1980}$  is the number of legal Mexican residents –

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<sup>26</sup> Actual naturalization shares for IRCA immigrants are not available for any individual country except Mexico (Rytina, 2002). We therefore estimate them using 2000 Census microdata (5% sample), restricting attention to foreign-born arrivals between 1971 and 1986. The idea is that migrants in these cohorts are likely legal by 2000 and thus can naturalize. The census-estimated naturalization rate for Mexico (36%) is similar to that reported by Rytina (2002) based on administrative data. Across countries, they are correlated with administratively measured naturalization rates by country reported occasionally in INS publications. For example, naturalization rates for the 1977 admission cohort (by 1992), listed in U.S. INS (1993), page 803, have a similar cross-country ranking, with Guyana near the top and Mexico at the bottom.



both LPR registered with the INS and citizens reporting in the Census – in  $c$  in 1980. Because we reject balance on observables across but not within state (Table 1), our baseline specification includes state-by-year fixed effects,  $\gamma_{st}$ . We also include a vector of metro area fixed effects,  $\delta_c$ .

The coefficients of interest in (1) are the  $\theta_\tau$ , or those on the interactions between the legalization ratio,  $lpr_{c,IRCA}/legal_{c,1980}$ , and the  $D_t^\tau$ , a set of indicator variables set to one if  $t = \tau$ , for  $\tau \neq 1988$ . For any given  $\tau$ ,  $\theta_\tau$  gives the predicted difference in admissions between  $\tau$  and the omitted year, 1988, for every unit increase in the legalization ratio. Under weak assumptions,  $\theta_\tau$  is equivalent to the predicted number of admissions in  $\tau$  per IRCA Green Card holder, i.e., an intent-to-treat effect relating the change in LPRs in  $\tau$  to an initial IRCA admission.<sup>27,28</sup> Even for Green Card-sponsored visas, we do not expect much difference as early as 1989, and we do not see one in practice; we take this approach to be conservative. Moreover, omitting the 1988 interaction for all outcome variables, including citizen-sponsored admissions where we (expect to) see effects only later, allows coefficients for mutually exclusive subcategories of admissions to sum to the coefficient for the total, which simplifies our analysis going forward.

Figure 4 Panel A presents estimates of the  $\theta_\tau$ , along with 90% confidence intervals (with standard errors clustered on county), for each of the two main family sponsorship categories – Green Card and citizen – and for their sum, capturing total family sponsorship.<sup>29</sup> Consistent with expectations, Green Card sponsored admissions rise after the spike in IRCA Green Card awards (which culminated in 1991), with the first statistically significant coefficient arising in 1993.

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<sup>27</sup> Intuitively, model (1) is a rescaled (by  $legal_{c,1980}$ ) version of a comparable model in levels, i.e., one where admissions ( $a_{ct}$ ) are regressed on IRCA LPRs ( $lpr_{c,IRCA}$ ) and pre-IRCA legal residents ( $legal_{c,1980}$ ), who are also able to sponsor the Green Card applications of family members. The coefficient on  $lpr_{c,IRCA}$  is preserved in the rescaling. See Appendix B.

<sup>28</sup> If all did remain, however, this coefficient would also represent the effect of the treatment on the treated. Unfortunately, we do not observe the extent to which IRCA admissions remain in the U.S. but return migration of LPRs in general is low – on the order of 1% a year (Baker and Rytina, 2013).

<sup>29</sup> Critical values are adjusted for small numbers of clusters, per Cameron and Miller’s rule of thumb, which is to use the number of clusters minus two (64).

Increases in citizen-sponsored admissions do not emerge until later (the first IRCA LPRs would have naturalized in 1994) and are not significant until 1999.<sup>30</sup> After that both series fluctuate up and down for about 10 years before trending downward thereafter, though citizen-sponsored flows remain relatively high through the end of the period. The pattern is somewhat similar to the simple time series for Mexico (Figure 3).

Table 3 summarizes these estimates with long-run multipliers, which in this case sum the post-1988 coefficients separately for each visa category (i.e.,  $\sum_{\tau>1988} \hat{\theta}_{\tau}$ ). Because  $\theta_{\tau}$  can be interpreted as the predicted IRCA-sponsored family admissions in  $\tau$  for each original IRCA Green Card holder, accumulating across years we arrive at a prediction of the stock of IRCA-sponsored family admissions as of 2019 relative to the number of original IRCA LPRs, assuming no return migration or mortality. That event-study coefficients for citizen-sponsored admissions remain substantial and statistically significant in 2019 suggests that these multiplier estimates would likely continue to grow over time and so should be viewed as a lower bound.

Our baseline estimates (column 1) imply 0.48 additional Green Card-sponsored admissions (s.e.=0.09) and 0.55 additional citizen-sponsored admissions (s.e.=0.18) for every immigrant admitted through IRCA, amounting to 1.03 additional family-sponsored Mexican admissions in total (s.e.=0.25).<sup>31</sup> Put differently, our baseline estimates imply that the 2.02 million Mexican IRCA LPRs have been responsible for 2.08 million subsequent admissions (2.02 x long-run multiplier of 1.03) through 2019. This is surprisingly similar to what we obtained from the simple time series. Indeed, if we harmonize the sample with the time-series in Figure 3 by dropping 2017-2019, it is very close: for all family sponsored the regression estimate

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<sup>30</sup> Official statistics in Rytina (2002) do show very small numbers naturalizing before 1994 (shown in Figure 2), for unexplained reasons (which could include, for example, adoptions by citizens).

<sup>31</sup> In this calculation we account for the missing 2005 and 2006 data by interpolating between 2004 and 2007.

is 0.87 vs. 0.93 for the time diff; for green card sponsored it is 0.45 vs. 0.43; and for citizen-sponsored it is 0.42 vs. 0.50. Thus, the bias from a simple time-series calculation may be limited for Mexicans, an observation we return to later.<sup>32</sup>

Table 3 also presents long-run multipliers by relative type. Immediate family members – particularly spouses and children – account for most (96%) of the additional admissions (coef. (s.e.) for spouses and children=0.87 (0.21), for parents=0.12 (0.05)). Figure A2 Panel A shows the timing: admissions of parents did not significantly rise until the late-1990s, consistent with when IRCA naturalizations began (as only citizens can sponsor family members beyond spouses and unmarried children). Still, spouses and kids continue to dominate the remaining arrivals, stabilizing at around 80% by 2019 (Panel B). Other relatives account for a miniscule 3% of IRCA-sponsored family admissions from Mexico (coef. (s.e.) = 0.03(0.02)). The migration “chain” thus appears to end after Mexicans bring immediate family.

#### *B. Robustness of the Cross Metro-Area Estimates*

The estimates can be interpreted causally if trends in family-sponsored admissions would have been the same in the absence of IRCA across metro areas in the same state, but with different legalization ratios. While this is fundamentally unknowable, it is reassuring that areas with relatively high legalization ratios for their state were not already experiencing an upward trend in family-sponsored admissions prior to IRCA (Figure 4 Panel A). Such a trend would likely appear if the legalization ratio were correlated with unobserved drivers of family-preference admissions. Here, we consider additional robustness checks.

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<sup>32</sup> A possible implication of this is that the surge in Mexican immigration in the mid-1990s – at least the legal portion thereof – may be not be the result of the peso crisis but rather a coincidence of timing with IRCA family sponsorship. Our regressions implicitly control for the exchange rate with year effects. In the cross-country analysis below will control for exchange rates, which do not affect our estimates.

*Placebo outcomes.* Our first robustness check is to estimate effects on other admissions categories that should not have been affected by IRCA but could subsequently sponsor family members for admission. Figure 4 Panel B shows no significant change in diversity visa or employer-sponsored admissions for more heavily treated areas after IRCA versus before. Put differently, because there is no systematic change in other potential sponsors after IRCA, the family-sponsored Mexicans arriving after IRCA were very likely sponsored by IRCA Mexicans.

*Controls.* Our second approach is to add the vector of predictors of Mexican arrivals (Table 1 Panel B) interacted with year fixed effects to the baseline model. Consistent with their lack of significance in the balance test, Table 3 column 2 shows that adding these controls has virtually no effect on the estimates, and, if anything, makes the estimates more precise. Not shown is that removing the state-specific trends also has almost no impact on the estimates.<sup>33</sup>

Thus, it appears that these estimates are quite robust. While we cannot completely rule out responses driven by sponsorship by non-IRCA Mexicans, or by Mexicans in different metro areas, this would require the coincidence in both the timing and magnitude of this sponsorship with IRCA legalizations. More realistically, our estimates could be attenuated to the extent that IRCA-sponsored migrants go to metro areas besides where their sponsors legalized. One reassuring point on this front is just how closely the magnitude of the aggregate difference mirrors the metropolitan area responses, including in narrow categories of sponsorship. This suggests that attenuation due to internal migration is not a major issue. In addition, we can take another estimation approach that does not suffer this potential bias: to instead use variation across *countries* (of origin) in the legalization ratio.

### C. *Cross-country Analysis*

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<sup>33</sup> For example, the long-run family-sponsorship multiplier is estimated to be 1.07 (s.e.=0.22) without state-specific trend controls, with 82% coming from spouses and kids.

The cross-country analysis uses equation (1), but now  $c$  indexes country of origin and  $s$  world region.<sup>34</sup> Figure 5 Panel A presents estimates of the  $\theta_\tau$ , along with 95% confidence intervals (with standard errors clustered on origin country). Similar to Figure 4 for Mexico, sponsored admissions do not rise until after the spike in IRCA Green Card awards (which culminated in 1991), and citizen-sponsored admissions do not emerge until later (they are not significant until 1997). The maximum increase in Green Card-sponsored flows relative to 1988 emerges in 1993, with coefficients trending downward thereafter, but citizen-sponsored flows remain relatively high and significant through the end of the period.

Table 4 summarizes these estimates with long-run multipliers, which again sum post-1988 coefficients separately for each visa category (i.e.,  $\sum_{\tau>1988} \hat{\theta}_\tau$ ). Our baseline estimates (column 1) are a little larger than those for Mexico: they imply 0.68 additional Green Card-sponsored admissions (s.e.=0.13) and 0.76 additional citizen-sponsored admissions (s.e.=0.37) for every immigrant admitted through IRCA, amounting to 1.44 additional family-sponsored admissions in total (s.e.=0.39).<sup>35</sup> However, despite Mexico's outsized role in IRCA, these estimates are not driven by Mexico: the estimate is nearly identical without Mexico included in the sample (column 2).

Why is the multiplier larger than that for Mexico despite the estimates being based on three fewer years of data? Given the standard errors, it could just be noise. To the extent that it is not noise, a leading explanation is the low rate of naturalization of Mexicans limits their access to the unrestricted categories of sponsorship. Indeed, column 3 shows that limiting the sample to

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<sup>34</sup> Because there are so few counties in our sample outside of the Americas, we consider three groups – North America, South America, and the rest of the world.

<sup>35</sup> This estimate is similar to that from Jasso and Rosenweig (1989), who study subsequent family sponsorship among one cohort (1971) of employer-sponsored LPRs. However, their estimate is based on a shorter time horizon.

the 14 countries with low naturalization rates produces multiplier estimates closer to that for Mexico alone, with the largest decline coming from citizen-sponsored categories.

Other admissions categories that should not have been affected by IRCA generally show no significant change, though the estimates are noisy with this more limited variation. They include non-trivial positive coefficients on refugee and negative coefficients on employer-sponsored, which are close to offsetting in magnitude.

## V. IRCA Legalizations and Subsequent Immigration

Table 5 shows multiplier estimates for the Mexican cross-area analysis for all arrivals from the Census/ACS, legal admissions, and their difference (other arrivals), both over the entire post-IRCA period and by decade, based on the analysis of data binned on arrival year. The post-IRCA event-study coefficients based on these binned data (shown in Figure 6) imply a long-run arrivals multiplier of 1.42 (s.e.=0.88), and an admissions multiplier of 1.11 (s.e.=0.24). Binning therefore appears to little impact on the admissions multiplier, something we confirm in columns 3 and 4 of Table 2 and in Table A3.<sup>36</sup> The long-run multiplier for other arrivals, 0.32, is not statistically significant (s.e.=0.79), though it is so imprecise that we can rule out neither large positive nor large negative values for other arrivals.

More interesting is the pattern over time. While there is evidence of increased positive other arrivals in the first two decades after IRCA, this is almost entirely offset by a large and significant negative value for other arrivals in the past decade (-1.18 (s.e. = 0.38)), which is also shown in Figure 6, panel A. This opens the possibility that enhanced legal pathways for family members have eventually had the effect of reducing unauthorized immigration from Mexico. Temporary visa data are not tabulated at the metro area level, so we cannot definitively rule out a

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<sup>36</sup> See Figures A2 and A3 for a comparison of the response of the detailed visa categories in the binned and non-binned data.

key alternative interpretation: that the decline is due to a falloff in other legal, but temporary forms of migration. However, working against this alternative is the fact that temporary migration from Mexico has not diminished in the aggregate – it has grown.

Recall that the aggregate time series for Mexican family admissions closely matched the metro-level response to IRCA legalizations. Panel B of Figure 6 shows that this is also true of the gap between legal admissions and total arrivals (i.e., other arrivals), which, after being high for years, has dropped to zero in the past decade. In contrast, arrivals of long-term and short-term visitors from Mexico have grown steadily since the 1980s, showing this drop is likely due to a drop in unauthorized immigration. The rise in Mexican other arrivals in the 2000s, in contrast, could be due to the increase in temporary visas.<sup>37</sup>

Table 6 shows the multiplier estimates for total arrivals based on the cross-country variation, with arrival cohort again in bins. Here, the response of legal admissions is consistently larger than that of total arrivals to legalization, suggesting other forms of immigration were diminished by legalization (coefficient on gap = -0.57), though this is estimated imprecisely (s.e. = 1.14). Column 4 shows that the gap may be due a decline in long-term visitors on temporary visas, which have a negative multiplier (coef = -0.78). However, this coefficient is also imprecisely estimated (s.e. = 0.95). One point of sensitivity here is the legendary growth in long-term visitor visas from India (e.g., the H-visa). India has the fastest growth in long-term visitors but one of the lowest legalization ratios, making it effectively part of the “comparison group.” One might question, however, whether India truly represents the counterfactual growth in long-term visitor visas absent legalization. Without India, the negative association with the growth in

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<sup>37</sup> Indeed, one interpretation of the rise in “other arrivals” is that family members of IRCA admits came to the U.S. as visitors (or possibly unauthorized) in anticipation of getting a green card in the future (e.g., they were on waiting lists to receive it).

long-term visitors in fact disappears (column 6). Figure 7, estimated without India, confirms these patterns visually.

## **VI. IRCA Legalization and Characteristics of Subsequent Immigrants**

The findings thus far suggest that much of subsequent immigration induced by the IRCA legalizations came in the form of family-sponsored admissions. The marginal arrival identified by our empirical approach was therefore essentially a family-sponsored admission. By applying our research design to the characteristics of recent arrivals as observed in the Census/ACS, we can therefore learn about the characteristics of this group relative to status quo immigrants – something that would not normally be possible, since administrative data do not contain characteristics, and survey data do not identify visa type. If family members sponsored by IRCA admits were more negatively selected than status quo arrivals, for example, countries more affected by IRCA should have seen a relative erosion in immigrant human capital upon arrival. We also ask if the new arrivals have been more likely to be a “fiscal burden.”

We evaluate the change in characteristics using the 1990 and 2000 Census and the 2006-2019 ACS, focusing on the same cohorts as in the analysis in the previous section.<sup>38</sup> Our main measure of human capital is (adult) educational attainment. We also consider characteristics that should most distinguish family-sponsored legal admissions from status quo arrivals. Because most of the long-run multiplier for family admissions is accounted for by spouses and kids (Table 3), for example, family admissions as a whole may be more likely to be children, and adult family admissions should be highly likely to be married. We therefore also consider marital status and the presence of children. We also attempt to verify legal status using the Borjas (2017) and Warren and Passel (1987) proxy for “likely legal” immigrants, which in Census/ACS

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<sup>38</sup> We adjust the mean characteristics in the same manner as the ACS/Census counts of arrivals – linearly in years in U.S. – except we now evaluate characteristics at three years in the U.S. (in part to see U.S.-born children).



data is those working in occupations that require licensing, as well as those with public income.<sup>39</sup> Finally, we estimate these responses for 18-64-year-olds, though we separately check if there has been an increase in older adults, as Carr and Tienda (2013) found.

The estimation procedure is the same as the previous section, but now by characteristic. To determine how IRCA changed the selection of arrivals, we normalize the estimated multiplier by the multiplier for all 18-64 year old arrivals, and compare this to the similarly normalized pre-1990 mean.

Table 7 gives the estimates, using the cross-area analysis for Mexicans in panel A and the cross-county analysis in panel B. Column (1) shows that IRCA induced the arrival of few older adults, consistent with the findings for sponsored parents found earlier, though subsequent rows show this to be a slight increase over the historical mean, somewhat substantiating Carr and Tienda (2013). In subsequent columns we consider only adults under age 65. The multiplier for educational attainment – measured as arrivals with less than a high school education – does not suggest an increase in negative selection, but the opposite. To see this note that prior to 1990, half of arrivals were high school dropouts (rows labelled “pre-1990 mean”). In contrast, at 0.62, the multiplier for Mexican high school dropout arrivals is 43% of the multiplier for all 18-65 year-olds. The multiplier does have a large standard error (0.53), but the cross-country multiplier for high school dropouts is even smaller – near zero.

Those with likely legal status also have a multiplier close to zero. However, this is not the same as saying that the new arrivals are “unlikely” to be legal: instead, it shows that the occupational groups identified as likely legal are rare among the immigrants of interest in this analysis (the mean is also quite small); put differently, this proxy is nowhere close to dispositive

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<sup>39</sup> We use Borjas’s definition, minus the inclusion of those with Supplemental Security Income (SSI), which was first asked in the 2000 census. However, the (separate) public income measure we examine should include SSI.

for legal status. One might be concerned that the original version of this proxy (which used the Current Population Survey, not the Census/ACS) also included people with SSI income, but column 5 shows those with any public income also have a multiplier near zero. Thus, at least early in their time in the U.S., there is little evidence that the marginal family admit increases fiscal burdens over other immigrants of the same origin.<sup>40</sup>

Though poorly estimated across countries, among Mexicans, areas with larger legalization ratios see more married arrivals with children relative to the pre-1990 mean, most of which are young U.S.-born children. This is consistent with them being family-sponsored arrivals, providing evidence that the research design is capable of picking up effects where we expect to see them.<sup>41</sup>

## **VII. Discussion and Conclusion**

This paper provides the first estimates of how U.S. family reunification preference works in practice when we temporarily open the door to migrants from countries that otherwise have little access to the system. Our estimates speak to both the scale of chain migration and to the selection it induces – two popular objections to the system.

On the first issue, we find that the magnitude of family sponsorship is relatively modest, and largely concentrated among immediate family. Even 30 years after IRCA, fewer than 1.5 family members have been sponsored per IRCA admission, and fewer than one-third of these are parents or other relatives. Our estimates suggest that immigrants from Mexico, responsible for the vast majority of legalizations under IRCA, have essentially sponsored virtually no non-

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<sup>40</sup> Contrary to commonly held beliefs, the major “fiscal burden” of immigration is not from use of public income support programs – a fact which may be evident from the mean – but rather use of public schools by the children of immigrants.

<sup>41</sup> Per the previous note, the young U.S.-born children raises concerns about fiscal burdens. However, the long-run fiscal impact of the U.S.-born children of immigrants is positive (e.g., National Academy of Sciences, 2016).

immediate family members, suggesting little prospect of additional chain migration. Moreover, our estimates suggest that family migrants may have displaced unauthorized migrants in the past decade.

On the second issue, the opening provided by IRCA appears to have resulted in no change in the selection of migrants, compared to the counterfactual. While the rise in admissions after IRCA resulted in a modest increase in the number of families with children, children of immigrants are a demographic group for whom long-run fiscal consequences are very favorable (National Academy of Sciences, 2016). In addition, neither the average education of nor the average use of public programs by new arrivals has changed differentially since the late 1980s for countries whose stock of potential sponsors rose more as a result of IRCA.

Our variation does not necessarily speak to the impact of larger changes to the immigration system, such as the impact of moving to an entirely “merit” based system or of dramatically reducing the number of visas. However, our findings do speak to the consequences of other proposed openings, such as the legalization program recently proposed by the Biden administration, which contains provisions similar to IRCA’s SAW program and GLP programs. A major argument against this and similar proposed reforms in recent decades has been fear of the consequences. Our estimates find little to substantiate these fears. Indeed, they suggest opening a legal pathway for the unauthorized may contribute to reductions in unauthorized immigration over the very long term.

This paper is part of a broader push to evaluate the impacts of immigration *policy* – not just of the much better studied immigration *flows* – for the host country (e.g., Chen, 2015; Foged and Peri 2016; Dustmann, Schönberg, and Stuhler, 2017; Clemens, Lewis, and Postel, 2018; Allen, Dobbin, and Morten, 2019; Abramitsky et al. 2019; Tabellini, forthcoming). This

literature includes studies of IRCA itself (Baker, 2015; Freedman, Owens, and Bohn 2018; Cascio and Lewis, 2019), to which we add. A hope is that this will lead to better informed debates over immigration policy.

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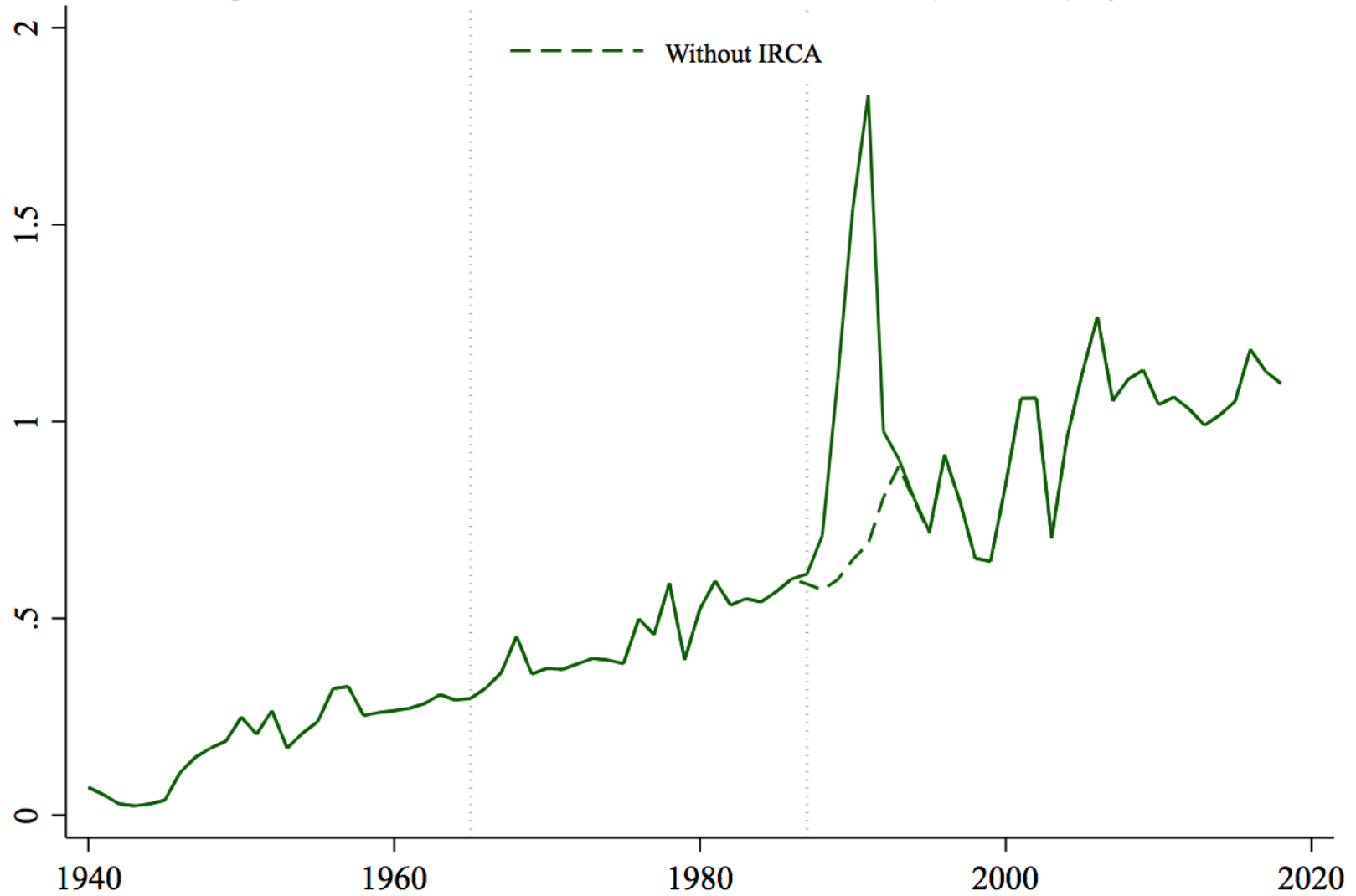
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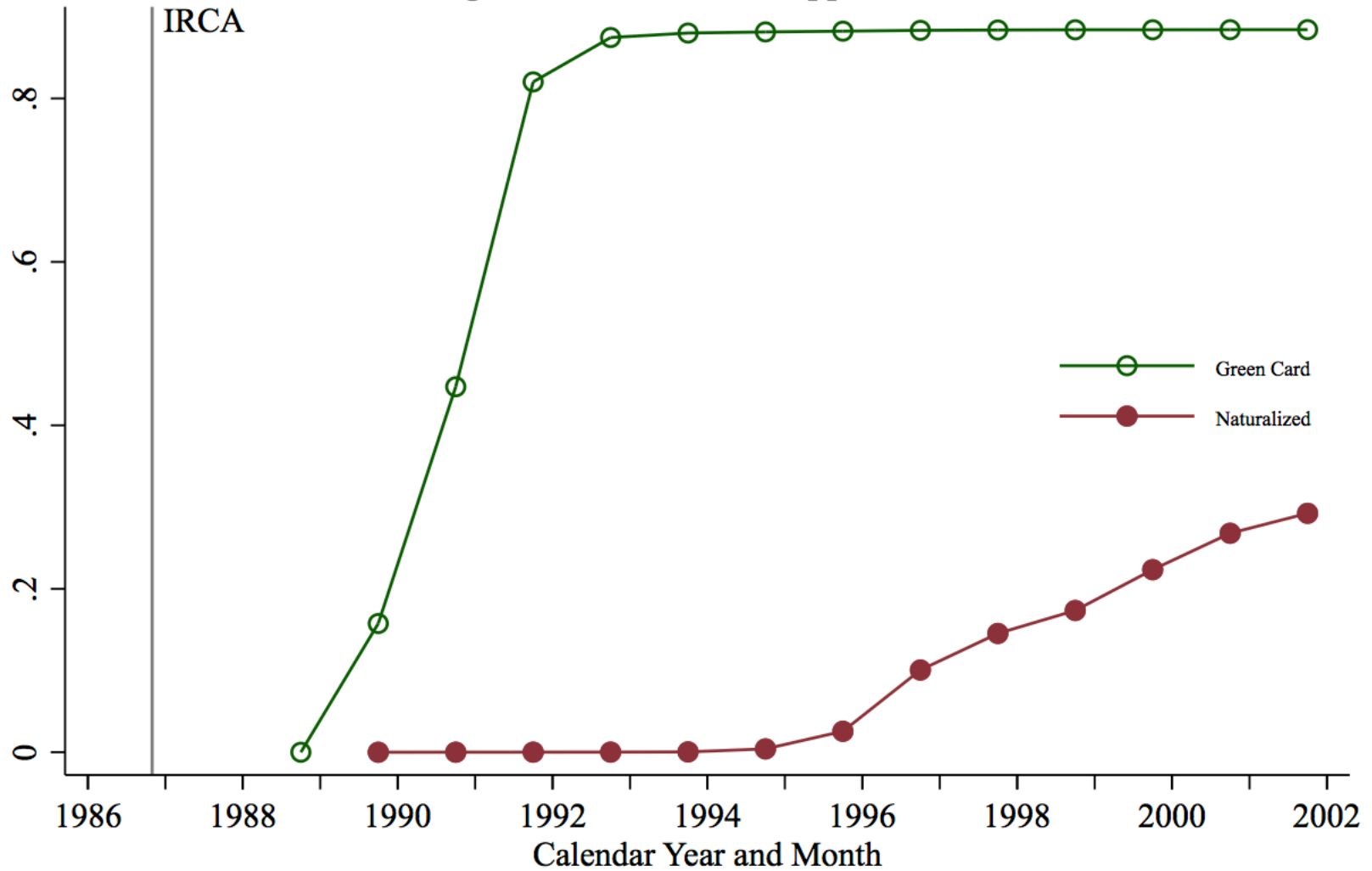
Figure 1. U.S. Admissions: Green Cards Issued (Millions) by Year



Source: Table 1 of the 2018 Yearbook of Immigration Statistics (<https://www.dhs.gov/immigration-statistics/yearbook/2018/table1>).

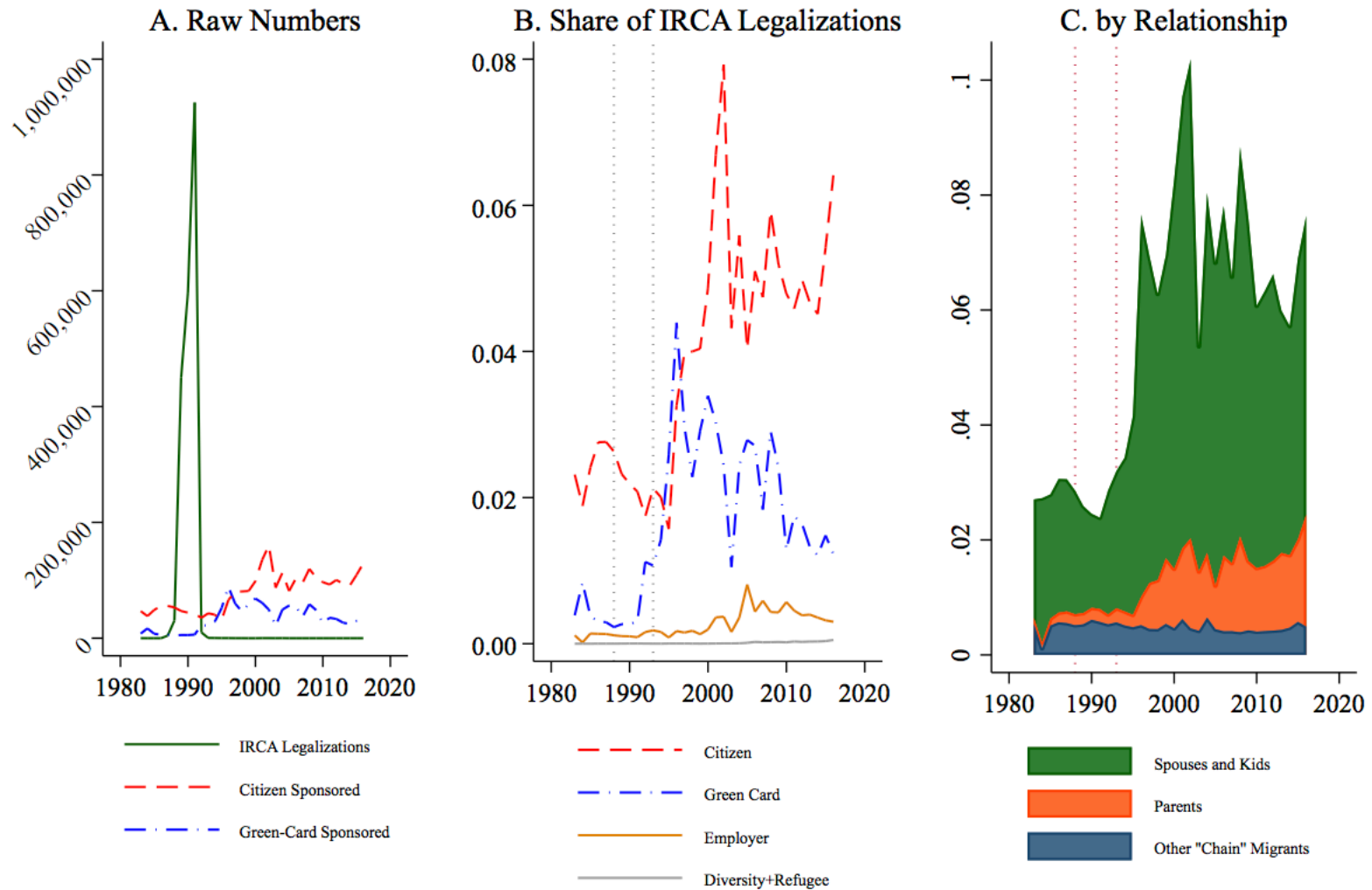


Figure 2. Cumulative Legal Status of IRCA  
 General Legalization and SAW Applicants Over Time



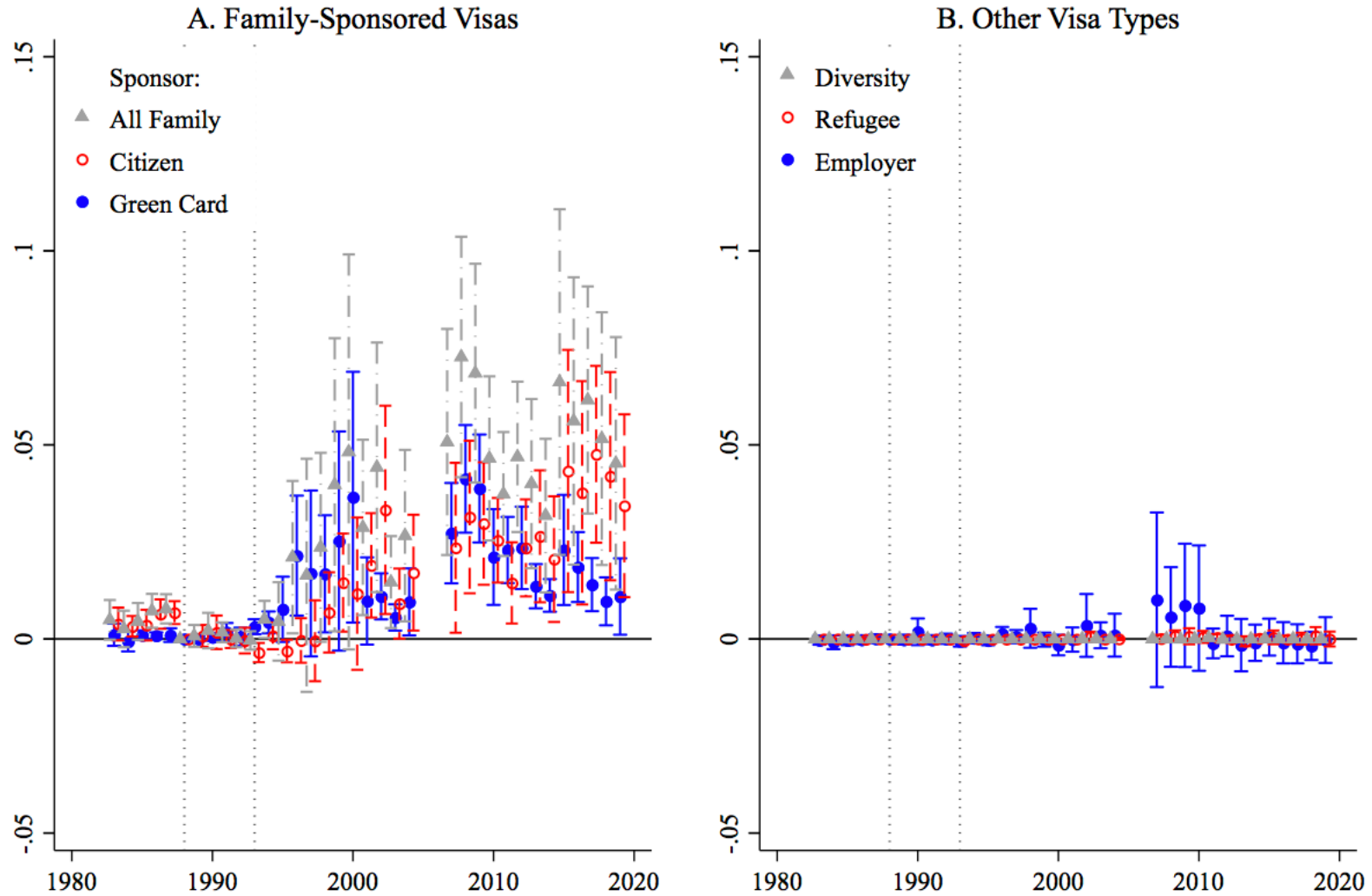
Source: Rytina (2002). Data on Green Cards and naturalizations are available for fiscal years.

Figure 3. Selected Mexican Admission Classes Over Time



Sources: Legalization Applications Processing System (LAPS) for IRCA legalizations and *Immigrants Admitted to the United States* (FY 1983-2004), *Yearbook of Immigration Statistics*, and <https://www.dhs.gov/immigration-statistics/readingroom/LPR/LPR-by-major-class-and-country> (FY 2005-2016) for all remaining variables. See Appendix A.

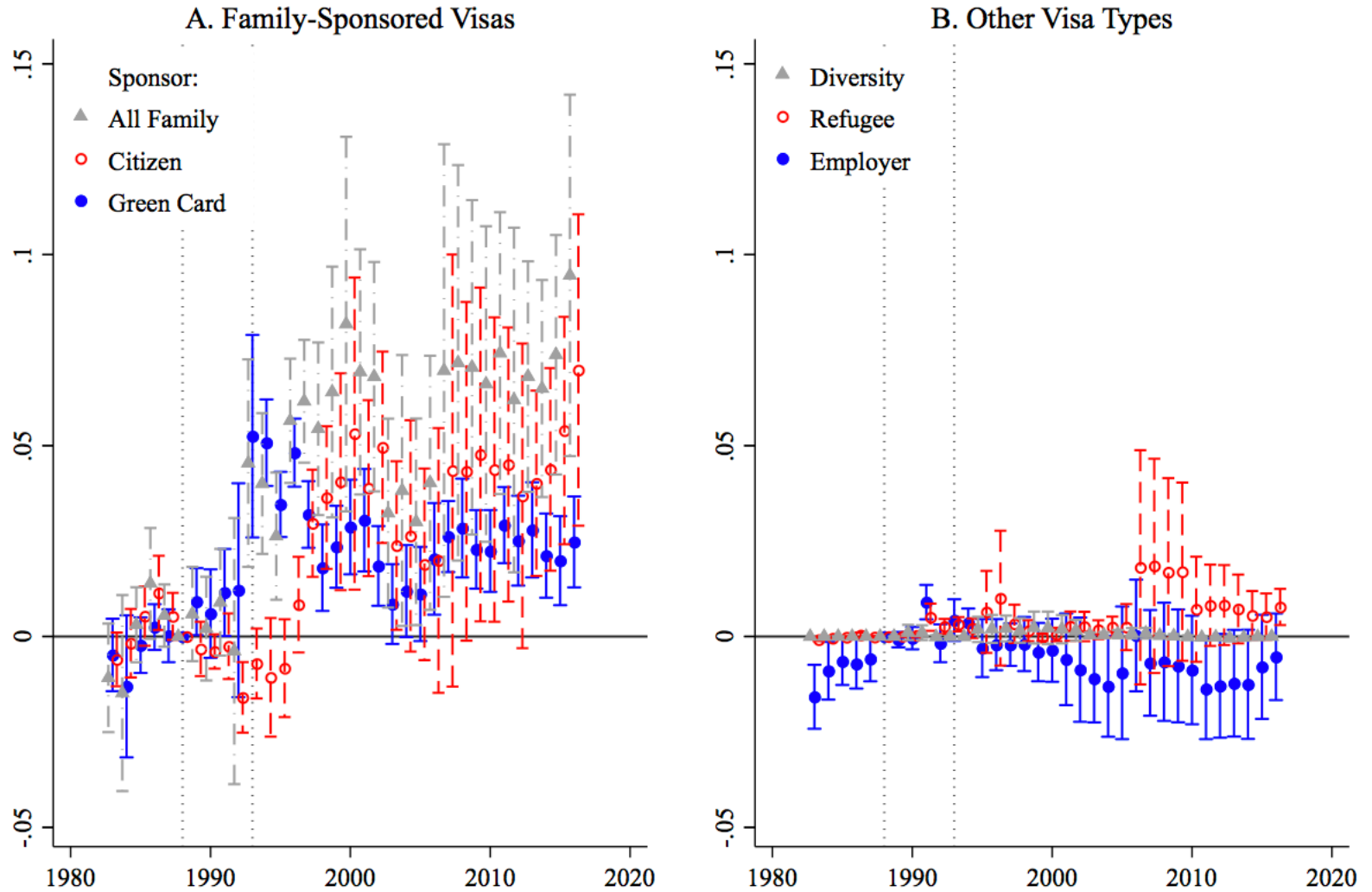
Figure 4. Response to Mexican IRCA Legalizations, by Visa Type and Year



Sources: Source list in notes to Figure 3 and *Alien Address Reports, [United States], 1980 Public Use File* and 1980 Census PUMS (Ruggles et al., 2020) for the denominator of the legalization ratio; and <https://www.dhs.gov/immigration-statistics/readingroom/LPR/LPRcounty> (FY 2007-2019). See Appendix A.

Notes: Figures plot coefficients (with 95% confidence intervals) on the Mexican legalization ratio ( $lpr_{c,IRCA}/legal_{c,1980}$ ) interacted with year dummies from a regression that also includes metro area and year-by-state fixed effects; the interaction between the legalization ratio and the dummy for 1988 is omitted to identify the model (model (1)). Regressions give each metro area equal weight, and standard errors are clustered on metro area. Estimation sample includes the 66 areas listed in Table A1.

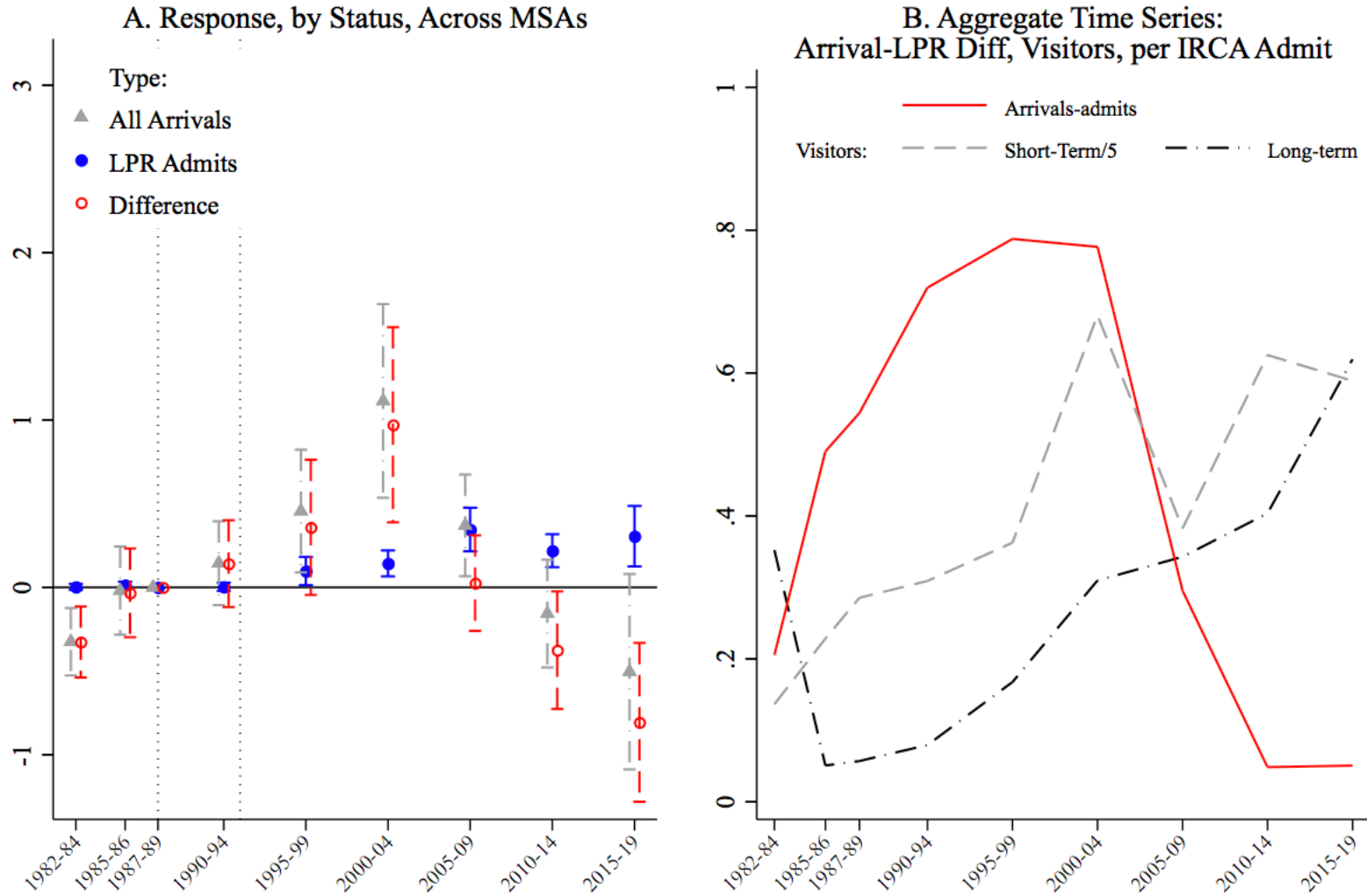
Figure 5. Response to IRCA Legalizations Across Countries, by Visa Type and Year



Sources: Source list in notes to Figure 3 and *Alien Address Reports, [United States], 1980 Public Use File* and 1980 Census PUMS (Ruggles et al., 2020) for the denominator of the legalization ratio. See Appendix A.

Notes: Figures plot coefficients (with 95% confidence intervals) on the legalization ratio ( $lpr_{c,IRCA}/legal_{c,1980}$ ) interacted with year dummies from a regression that also includes country and year-by-world region fixed effects; the interaction between the legalization ratio and the dummy for 1988 is omitted to identify the model (model (1)). Regressions give each country area equal weight, and standard errors are clustered on country. Estimation sample includes the 29 countries listed in Table A2.

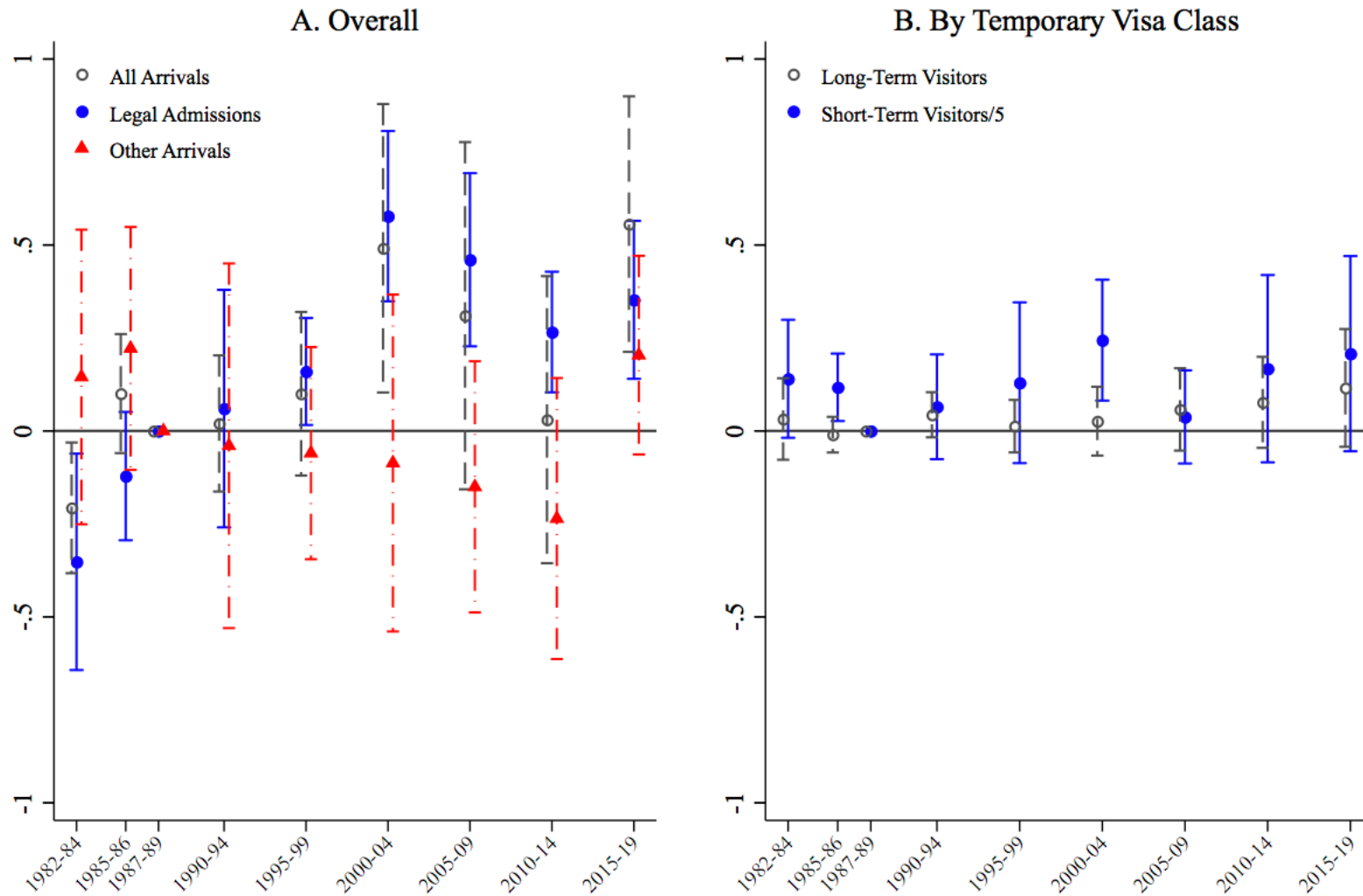
Figure 6. Mexican Arrivals, Response to IRCA Legalizations, by Status



Sources: Sources in notes to Figure 4, microdata from the Census and American Community Survey (Ruggles, et al., 2020) for all and other arrivals; and *Report of the Visa Office* (1983-1996) and <https://travel.state.gov/content/travel/en/legal/visa-law0/visa-statistics/nonimmigrant-visa-statistics.html> (1997-2016) for temporary visitors, and in notes to Table 2 for controls. See Appendix A.

Notes: Figures plot coefficients (with 95% confidence intervals) on area's legalization ratio interacted with year group dummies from a regression that also includes controls listed in Table 2, in addition to area and year group-by-state fixed effects; the interaction between the legalization ratio and the dummy for 1987-89 is omitted to identify the model. Regressions give each area equal weight, and standard errors are clustered on area. Estimation sample includes 66 areas listed in Table A1.

Figure 7. Response to IRCA Legalizations Across Countries, by Status



Sources: Source list in notes to Figure 4; microdata from the Census and American Community Survey (Ruggles, et al., 2020) for all and other arrivals; and *Report of the Visa Office* (1983-1996) and <https://travel.state.gov/content/travel/en/legal/visa-law0/visa-statistics/nonimmigrant-visa-statistics.html> (1997-2016) for temporary visitors. See Appendix A.

Notes: Figures plot coefficients (with 95% confidence intervals) on the mean of the legalization ratio for the group to which the country belongs (above or below median) interacted with year group dummies from a regression that also includes country and year group-by-region fixed effects; the interaction between the legalization ratio and the dummy for 1987-89 is omitted to identify the model. Regressions give each country equal weight, and standard errors are clustered on country. Estimation sample includes 28 of the areas listed in Table A1, minus India.

**Table 1. Cross-Area Treatment variation Among Mexicans**

<i>Panel A: Top MSAs on Mexican Legalization Ratio</i>				
Metro Area	Legalization Ratio: (2)/(3)	Legalized by IRCA	Legal Immigrants, 1980	%of Legalizations
	(1)	(2)	(3)	(4)
1 Lakeland-Winter Haven, FL	8.4	4,162	495	0.21
2 Fort Myers-Cape Coral, FL	6.9	1,958	282	0.10
3 Fort Pierce-Port St. Lucie, FL	5.7	898	157	0.04
4 Reno, NV	5.0	3,377	676	0.17
5 Naples, FL	4.4	5,428	1,241	0.27
6 West Palm Beach-Boca Raton, FL	3.8	4,103	1,077	0.20
7 Sarasota-Bradenton, FL	3.6	1,286	362	0.06
8 Fort Lauderdale, FL	3.4	1	432	0.07
9 Santa Rosa, CA	3.1	8,362	2,675	0.41
10 Monmouth-Ocean, NJ	2.7	300	110	0.01
16 Los Angeles-Long Beach, CA	1.7	560,289	329,865	27.8

<i>Panel B: Correlates of the Legalization Ratio</i>				
Characteristic	Mean	Regressions on Leg. Ratio		Reverse
	(1)	(2)	(3)	(4)
(a) Mexicans/Population, 1980	0.0290	-0.00465 (0.00211)	0.00106 (0.00157)	1.719 (2.297)
(b) Mexicans Admitted, 1983-87 /Legal Mexicans, 1980	3.844	0.0149 (0.488)	0.649 (0.488)	0.0124 (0.0196)
(c) Employment Growth, 1980-87	0.258	0.0412 (0.0188)	-0.0109 (0.0230)	-1.013 (2.164)
(d) Mex Emp Growth, 1980-2019 predicted from 1980 Occ Mix	5.452	-0.195 (0.492)	0.441 (0.755)	0.0151 (0.0330)
State Effects?		No	Yes	Yes
F-stat				0.578

Data sources for listed variables in panel b: (a) Census tabulations from Manson et al. (2020); (b) Immigrant admissions files (numerator) and 1980 PUMS (Ruggles et al., 2020) immigrant registry for legal Mexicans in the denominator; (c) *County Business Patterns*; (d) Bartik-style instrument -- see Appendix A -- constructed from 1980 Census PUMS and 2018-9 American Community Surveys. Unit of observation is a metro area, constructed to match its 1999 definition. Columns (2) and (3) show the coefficient from a regression of the listed variable on the "legalization ratio," shown in panel A, which is the number of Mexican immigrants granted permanent residence by IRCA listing that MSA as their intended residence (from Legalization Applications Processing data, plus a small number admitted under other programs created by IRCA) per 1980 legal Mexican immigrant. Column (3) also includes a control for dummies for the main state the MSAs population was located in 1986. Column (4) shows the slope coefficients from a multivariate regression of the legalization ratio on the listed variables plus state dummies. The F-stat is on the joint significance of the listed variables.

**Table 2. Cross-Country Treatment variation**

<i>Panel A: Top Countries on Legalization Ratio</i>				
Country	Legalization Ratio: (2)/(3)	Legalized by IRCA	Legal Immigrants, 1980	%of Legalizations
	(1)	(2)	(3)	(4)
<b>4 Mexico</b>	<b>1.30</b>	<b>2,019,353</b>	<b>1,548,438</b>	75.1
<i>Other 28 Countries in sample</i>		<i>512,056</i>	<i>1,156,230</i>	19.0
1 <b>El Salvador</b>	3.17	151,880	47,913	5.6
2 Haiti	1.95	88,284	45,209	3.3
3 <b>Guatemala</b>	1.64	63,663	38,742	2.4
5 <b>Tonga</b>	0.89	3,186	3,593	0.1
6 Pakistan	0.79	1	21,654	0.6
7 <b>Belize</b>	0.66	6,035	9,155	0.2
8 <b>Honduras</b>	0.51	16,055	31,422	0.6
9 <b>Bolivia</b>	0.45	4,337	9,666	0.2
10 <b>Peru</b>	0.44	18,264	41,522	0.7

<i>Panel B: Correlates of the Legalization Ratio</i>			
Characteristic	Mean	Regressed on Leg. Ratio	
	(1)	(2)	(3)
(a) <60% of 1971-1986 Arrivals Naturalized by 2000	0.483	0.190 (0.108)	0.202 (0.120)
(b) Admissions 1983-87/1980 Legal Immigrants	0.980	0.126 (0.102)	0.0162 (0.127)
(c) Upper Income Country	0.310	-0.137 (0.0783)	-0.143 (0.0874)
(d) Missing Country Controls (in (e) and (f))	0.0690	-0.00315 (0.0428)	0.00412 (0.0325)
(e) $\Delta \ln(\text{Real Exchange Rate})$ , 1987-2018	2.930	-0.874 (0.554)	0.238 (0.357)
(f) $\Delta$ Country Pop, 1987-2018 /1K Legal Imms, 1980	0.537	-0.0828 (0.166)	0.0811 (0.0689)
Dummy Controls:			
North America		No	Yes
South America		No	Yes

Data sources: (a) 2000 Census PUMS (Ruggles et al, 2020). Countries that fit this criteria appear in bold in panel A. (b) Numerator: Immigrant admissions files; denominator (column 3 of panel A): 1980 PUMS (Ruggles et al., 2020) immigrant registry (Immigration and Naturalization Service, 1992); (c) UN World Development Indicators (d)-(f) Penn World Tables 10.0 (Feenstra et al., 2018). Legalizations in column (2) of Panel A are the sum of LPR counts from the Legalization Application Processing System and admissions under the pre-72 and Cuban-Haitian categories after 1986 in the immigrant admissions files.



Table 3. Long-Run Mexican Immigration Multipliers, 1989-2019, By Visa

	Baseline		"Binned" arrival year <sup>c</sup>	
	(1)	(2)	(3)	(4)
Overall Family Sponsored	1.03 (0.25)	1.01 (0.20)	1.01 (0.25)	1.02 (0.20)
<i>By Family Sponsorship Type</i>				
Green-Card Sponsored	0.48 (0.09)	0.49 (0.08)	0.51 (0.09)	0.52 (0.08)
Citizen-Sponsored	0.55 (0.18)	0.52 (0.15)	0.49 (0.18)	0.50 (0.14)
<i>By Relative Type</i>				
Spouses and Kids <sup>a</sup>	0.87 (0.20)	0.84 (0.16)	0.85 (0.21)	0.86 (0.16)
Parents	0.12 (0.05)	0.13 (0.04)	0.12 (0.05)	0.13 (0.04)
Other ("Chain" Migrants)	0.03 (0.02)	0.03 (0.01)	0.03 (0.01)	0.03 (0.01)
<i>Other Major Categories</i>				
Employer Sponsored	0.05 (0.09)	0.02 (0.05)	0.05 (0.10)	0.03 (0.06)
Refugees	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)
Diversity	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
MSAs:	66	66	66	66
Controls				
State x Year	Yes	Yes	Yes	Yes
Other Controls <sup>b</sup>	No	Yes	No	Yes

Notes: Each cell gives long-run "multiplier" (sum of post-1988 arrival year-specific coefficients) from a regression of the referenced immigration variable on the legalization ratio (IRCA legalized immigrants/(1980 LPR+Citizens). Standard errors, in parentheses, clustered on metro area. <sup>a</sup>Sum of citizen-sponsored spouses and minor children and green-card sponsored spouses and unmarried children. <sup>b</sup>Listed in Table 1, panel B. <sup>c</sup>Excludes 2019. In columns 3-4, data are collapsed into 5-year arrival bins 1990-2014 + the bins 1982-84, 1985-86, 1987-89, and 2015-2018 to match what is available/feasible in ACS/Census data. The shorter bins are proportionately inflated to five-year equivalent counts.

Table 4. Immigration Multipliers Estimated Across Countries, 1989-2016

	Baseline	Dropping Mexico	<60% Citizens by 2000	Nonmissing Controls	w/controls
	(1)	(2)	(3)	(4)	(5)
Overall Family Sponsored	1.44 (0.39)	1.46 (0.41)	0.91 (0.19)	1.52 (0.40)	1.39 (0.34)
<i>By Family Sponsorship Type</i>					
Green-Card Sponsored	0.68 (0.13)	0.63 (0.11)	0.46 (0.09)	0.71 (0.14)	0.69 (0.05)
Citizen-Sponsored	0.76 (0.37)	0.83 (0.41)	0.46 (0.21)	0.81 (0.37)	0.70 (0.33)
<i>By Relative Type</i>					
Spouses and Kids <sup>a</sup>	1.03 (0.28)	1.03 (0.29)	0.67 (0.18)	1.08 (0.85)	1.01 (0.86)
Parents	0.22 (0.07)	0.22 (0.07)	0.15 (0.05)	0.23 (0.07)	0.20 (0.06)
Other ("Chain" Migrants)	0.18 (0.09)	0.20 (0.09)	0.10 (0.09)	0.21 (0.08)	0.18 (0.07)
<i>Other Major Categories</i>					
Employer Sponsored	-0.15 (0.16)	-0.16 (0.15)	-0.30 (0.11)	-0.14 (0.13)	-0.19 (0.10)
Refugees	0.17 (0.13)	0.18 (0.14)	0.05 (0.04)	0.17 (0.13)	0.16 (0.13)
Diversity	0.02 (0.02)	0.02 (0.02)	0.00 (0.00)	0.02 (0.02)	0.02 (0.02)
Countries:	29	28	14	27	27
Fixed Effects					
Country	Yes	Yes	Yes	Yes	Yes
Region x Year	Yes	Yes	Yes	Yes	Yes
Baseline Controls x Year <sup>b</sup>	No	No	No	No	Yes
Time-Varying Controls <sup>c</sup>	No	No	No	No	Yes

Notes: Each cell gives long-run "multiplier" (sum of post-1988 arrival year-specific coefficients) from a regression of the referenced immigration variable on the legalization ratio (IRCA legalized immigrants/(1980 LPR+Citizens). Standard errors, in parentheses, clustered on metro country. <sup>a</sup>sum of citizen-sponsored spouses and minor children and green-card sponsored spouses and unmarried children. <sup>b</sup>1983-87 LPR admissions per 1980 legal immigrant and a dummy for upper income country. <sup>c</sup>Annually varying real exchange rate and population per 1980 legal immigrant (citizens and registered green card holders).

Table 5. Mexican Multipliers, by Arrival Type and Decade

	All Arrivals <sup>b</sup>	Legal Admissions <sup>c</sup>	Other Arrivals, (1)-(2)
	(1)	(2)	(3)
Multiplier	1.42 (0.88)	1.11 (0.24)	0.32 (0.79)
<i>By Decade</i>			
1990-1999	0.60 (0.34)	0.10 (0.06)	0.50 (0.36)
2000-2009	1.48 (0.46)	0.49 (0.11)	1.00 (0.42)
2010-2018	-0.66 (0.44)	0.52 (0.15)	-1.18 (0.38)
Controls		0.85000002	
State x Year?	Yes	Yes	Yes
Other Controls? <sup>e</sup>	Yes	Yes	Yes

Notes Each cell gives long-run "multiplier" (sum of post-1990 year-of-arrival-specific coefficients) from a regression of the immigration variable referenced in the column header on the Mexican legalization ratio (IRCA legalized Mexicans/Legal Mexicans in 1980, denominator = 1980 Mexican-born U.S. citizens + green card holders) interacted with year of arrival bins 1982-84, 1985-86, 1987-89, and five-year bins thereafter (except for 2015-2018). Standard errors, in parentheses, clustered on metro areas. <sup>a</sup>Listed in table 1b. <sup>b</sup>1990 and 2000 Census and 2016-2019 ACS data were used to compute arrivals in columns 1 and 2, which were normalized by legal Mexicans in 1980 and adjusted for linear years in the U.S. <sup>c</sup>Family admissions data (column 3) unavailable for 2001-2006, and the 2000-2004 and 2005-2009 bins are inflated proportionately to a five-year equivalent counts.

**Table 6. Multipliers Estimated Across Country, by Arrival Type and Decade**

	<u>Full Sample (columns 1-4)</u>				<u>Dropping India</u>	
	All Arrivals <sup>a</sup>	Legal Admissions <sup>b</sup>	Other Arrivals, (1)-(2)	Long-Term Visitors <sup>c</sup>	Other Arrivals	Long-Term Visitors <sup>c</sup>
	(1)	(2)	(3)	(4)	(5)	(6)
Multiplier	1.24 (1.00)	1.80 (0.67)	-0.57 (1.14)	-0.78 (0.95)	-0.37 (1.21)	0.08 (0.29)
<i>By Decade</i>						
1990-1999	0.10 (0.22)	0.22 (0.26)	-0.12 (0.44)	-0.13 (0.09)	-0.10 (0.45)	-0.06 (0.03)
2000-2009	0.73 (0.47)	1.00 (0.24)	-0.27 (0.44)	-0.27 (0.30)	-0.24 (0.46)	0.00 (0.11)
2010-2016	0.41 (0.39)	0.59 (0.24)	-0.17 0.85	-0.37 0.86	-0.03 (0.36)	0.13 (0.16)
Controls						
Region x Year?	Yes	Yes	Yes	Yes	Yes	Yes

Notes Each cell gives long-run "multiplier" (sum of post-1990 year-of-arrival-specific coefficients) from a regression of the immigration variable referenced in the column header on the legalization ratio (IRCA legalized immigrants/legal immigrants in 1980, denominator = 1980 foreign-born U.S. citizens + green card holders) interacted with year of arrival bins 1982-84, 1985-86, 1987-89, and five-year bins thereafter (except for 2015-2016). Counts in bins shorter than five years inflated proportionately to a five-year equivalent count. Standard errors, in parentheses, clustered on country. <sup>a</sup>1990 and 2000 Census and 2016-2019 ACS data were used to compute arrivals in columns 1 and 2, which were normalized by legal immigrants in 1980 and adjusted for linear years in the U.S. <sup>b</sup>Admissions data unavailable after 2016 and the 2015-2016 bin is inflated proportionately to a five-year equivalent count. <sup>c</sup>The outcome is counts of visitors coming on visas other than B, C, and D visas per 1980 legal immigrant, inflated to five-year counts to adjust for missing years (1982, 1991, 1994, 1995).

Table 7. Multipliers by Characteristics

	Age 18-64 (columns 2-8)							
	All Age 65+	All Age 18-64	HS Dropout	"Likely Legal" <sup>b</sup>	w/Any Public Income	Married	Any Kids Under 18	US-Born Kid Under 6
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>A. Cross-Metropolitan Area Estimates for Mexico</b>								
Multiplier	0.02 (0.03)	1.44 (0.86)	0.62 (0.53)	0.02 (0.05)	0.00 (0.03)	0.60 (0.41)	0.70 (0.34)	0.52 (0.26)
<i>Relative to Value for 18-64 Arrivals:</i>								
<b>Multiplier</b>	<b>0.01</b>	<b>1.00</b>	<b>0.43</b>	<b>0.02</b>	<b>0.00</b>	<b>0.41</b>	<b>0.48</b>	<b>0.36</b>
<b>Pre-1990 Mean</b>	<b>0.00</b>	<b>1.00</b>	<b>0.50</b>	<b>0.01</b>	<b>0.01</b>	<b>0.30</b>	<b>0.47</b>	<b>0.33</b>
<b>B. Cross-Country Estimates</b>								
Multiplier	0.05 (0.04)	1.21 (0.99)	0.09 (0.73)	0.05 (0.06)	-0.02 (0.01)	0.16 (0.33)	0.16 (0.20)	0.05 (0.14)
<i>Relative to Value for 18-64 Arrivals:</i>								
<b>Multiplier</b>	<b>0.04</b>	<b>1.00</b>	<b>0.08</b>	<b>0.04</b>	<b>-0.01</b>	<b>0.13</b>	<b>0.13</b>	<b>0.05</b>
<b>Pre-1990 Mean</b>	<b>0.02</b>	<b>1.00</b>	<b>0.53</b>	<b>0.07</b>	<b>0.01</b>	<b>0.33</b>	<b>0.42</b>	<b>0.24</b>
<i>Controls in Panel A:</i>								
State x Year?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other Controls? <sup>e</sup>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Controls in Panel B:</i>								
Region x Year?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: 1990 and 2000 Census and 2006-2019 ACS data were used to compute arrivals used in all columns. The "multiplier" is sum of post-1990 year-of-arrival-specific coefficients from a regression of a count of arrivals with the characteristic referenced in the column header on the number legalized by IRCA, interacted with year of arrival bins 1982-84, 1985-86, 1987-89, and five-year bins thereafter (except for post 2015, which is 2015-18 for Mexico and 2015-6 for the cross-county estimates). Both are first normalized by legal immigrants in 1980 (IRCA (legal foreign-born U.S. citizens + green card holders in 1980)), and bins shorter than five years are inflated to represent 5-year equivalent counts. Counts per 1980 legal immigrant were adjusted linearly to represent the average at 3 years in the U.S. before estimating the regressions. Regressions are cross metropolitan areas using Mexicans in panel a, and across countries in panel b. Standard errors, in parentheses, clustered on metro areas in panel A and on country in panel B. <sup>a</sup>Listed in table 1b. <sup>c</sup>Based on occupations and classes of workers defined in Borjas (2017) (expanding from Warren and Passel, 1987) as likely to be legal workers.

## Appendix A. Data

### I. Treatment Variable: Legalization Ratios

#### A. *Legalization Applications Processing System (LAPS) data*

The SAW and GLP admissions that enter the numerator of the legalization ratio were taken from the Legalization Applications Processing System (LAPS), available from the National Archives. These public-use microdata consist of selected fields from anonymized records from all forms I-687 (application for temporary legal status under IRCA's general legalization program) and forms I-700 (application for temporary legal status under IRCA's SAW program) received by the Immigration and Naturalization Service (INS), consisting of 3,040,948 records in total.

These fields describe some outcomes of the application process, including when a Green Card was awarded, through the end of the 1992 fiscal year.<sup>1</sup> This is critical to establishing the timing for our event-study model, as outlined in Figure 2. These fields also include the applicant's country of birth and state and county of intended residence within the U.S. (current U.S. address) at the time of application (imputed from zip code of intended residence). For the metro area-level analysis for Mexican admissions, we focus on 66 metropolitan areas (by 1999 definitions) that are observable in admissions statistics published by DHS for years 2001 and later.<sup>2</sup> For the country-level analysis, we focus on 66 countries where IRCA admissions represented at least a third of total admissions also including refugees and the diversity visa, over 1983 to 2016. Section II describes these other admissions data in more detail.

The LAPS fields also include the applicant's reported year of arrival in the U.S. and (for GLP applicants) whether the unauthorized status was the result of a visa overstay. We use this information to inform the analysis of visa overstays in Section IV.

#### B. *Immigrants Admitted to the United States*

For the two much smaller legalization programs authorized by IRCA – the Cuban-Haitian Adjustment and Pre-1972 Arrivals programs – we obtain total admissions by country (29 sample countries) and metro area (for Mexicans only) across the 1987 to 2004 fiscal years from the 1987 to 2004 *Immigrants Admitted to the United States* microdata, available on ICPSR (1987-2000) and provided by the National Archives (2001-2004).<sup>3</sup> Like the LAPS, these data provide selected fields from anonymized records for Green Card admissions under all programs except the GLP and the SAW program. Because these data include detailed class of admission (identifying the relevant program), country of birth, and location within the U.S. at the time of admission, we are able to adjust the numerator of the legalization ratio for these two smaller legalization programs. We describe these data further in Section II of this Appendix.

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<sup>1</sup> Statistics on IRCA admissions through fiscal year 2001, reported in Rytina (2002), show that nearly all IRCA admissions had occurred by the end of the 1992 fiscal year.

<sup>2</sup> Because we focus on these 66 relatively large metro areas, the estimates are unaffected by the fact that county is suppressed in the LAPS for applicants in counties with under 100,000 population (as of the 1990 census) or with fewer than 25 applications.

<sup>3</sup> These visa categories are not separately identified, however, in the 1999 and 2000 files, but their numbers are very small in adjacent years.

### C. *Alien Address Reports*

We obtain part of the denominator of the legalization ratio from *Alien Address Reports, [United States], 1980 Public Use File*, available at ICPSR. These public-use microdata consist of selected fields from anonymized records of registered aliens in the U.S. in 1980. LPRs residents are separately identified, which is what we use. These data were collected as part of the Immigration and Naturalization Service’s alien address reporting program for 1980 and were used at the time to estimate unauthorized immigration in conjunction with the 1980 Census. The fields include country of birth and state and zip code of residence within the U.S., which we use to map to counties, and then to metro areas (1999 definitions).<sup>4</sup>

### D. *Citizen Count*

The denominator of the legalization ratio is the sum of the LPR count from I.C plus a count of citizens from the 1980 Census PUMS (Ruggles et al., 2020). County groups in these data were matched to metro areas according to their 1999 definitions.

### E. *Descriptive Statistics*

Table A1 shows how we arrived at the legalization ratio for each sampled area, by state. We show both the numerator (from sources I.A and I.B; column 2) and the denominator (from sources I.C, I.D; column 3) in addition to the ratio itself (column 1). We also show the share of IRCA admissions accounted for by each country (column 4). Table A2 shows how we arrived at the legalization ratio for each sampled country, by world region. We show both the numerator (from sources I.A and I.B; column 2) and the denominator (from source I.C; column 3) in addition to the ratio itself (column 1). We also show the share of IRCA admissions accounted for by each country (column 4).

## II. **Outcomes Data: Immigrant Admissions**

### A. *Immigrants Admitted to the United States*

We calculate the first half of our country and metro-area panel on admissions by sponsor, relative type, and age from *Immigrants Admitted to the United States* microdata, available on ICPSR, for fiscal years 1983 through 2000, and from the National Archives 2001-2004. These data provide selected fields from anonymized records for Green Card admissions under all programs except the GLP and the SAW program. These fields include detailed class of admission (identifying the relevant program), country of birth, and age and location within the U.S. at the time of admission.<sup>5</sup> In addition to identifying admissions under the Cuban-Haitian Adjustment and Pre-1972 Arrivals programs (see Section I.B of this Appendix), these data identify a variety of family-sponsorship visas, employer visas, diversity visas, and refugee visas.

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<sup>4</sup> See June 30, 1999 definition at <https://www.census.gov/geographies/reference-files/time-series/demo/metro-micro/historical-delineation-files.html>. For New England states we used the “NECMA” definition.

<sup>5</sup> Location is recorded in different ways over time, e.g., initially as zip code and state and later as metropolitan area. We convert all location information to metro areas (by 1999 definitions). Location information is missing in 1998.

We are constrained in what we can do with these data by the published tables that provide our main data source for fiscal years 2004 and 2019 for the metro-level analysis and 2004 to 2016 for the country-level analysis. (see Section II.B). We categorize the family-sponsored visas into two broad groups that align with what is available in later published data – e.g., a Green-Card sponsored category and a citizen-sponsored category. Likewise, among family-sponsored admissions overall, we are able to separate relatives into three categories – spouses and unmarried children of the sponsor, parents of the sponsor, and other relatives of the sponsor.

### *B. Office of Immigration Statistics Tables*

Unfortunately for our study, publication of anonymized admissions microdata ceased after 2004. For the country-level analysis, we have collected tables for 2004 to 2016 from the *Yearbook of Immigration Statistics* and an online DHS database.<sup>6</sup> For the Mexican metro analysis, we relied on another online DHS database which is tabulated at the county level from 2007 to 2019.<sup>7</sup> In addition to the constraints on these data noted in Section II.A, we lack data on Mexican admissions by metropolitan area for 2005-2006.

## **III. Outcomes Data: Non-immigrant Admissions (Visitors)**

### *A. State Department Data*

Through 1996, we use the State Department’s annual publication *Report of the Visa Office* to obtain statistics on new temporary visas issued each year at foreign consulates by visa class and nationality. This generally appears in the report’s Table XVII. Post-1996, these statistics appear in a spreadsheet that is available on-line at the State Department website (as of 9/6/2020 at <https://travel.state.gov/content/travel/en/legal/visa-law0/visa-statistics/nonimmigrant-visa-statistics.html>). We are currently missing the following years: 1982, 1988, 1991, 1994, 1995, and 1996, and so we scaled up the counts to match the number of years in each interval in our data; in addition, all counts are scaled to represent a five-year equivalent count (1982-84 counts are multiplied by 5/2; 1987-89 counts are multiplied by 5/2; 1991-1994 counts are multiplied by 5/4; 1995-1999 counts are multiplied by 5/3.) We also end the sample in 2016, and the counts in 2015- are similarly scaled up by 5/2.

## **IV. Outcomes Data: Total Arrivals**

We estimated counts and characteristics of recent immigrant arrivals by country from the 5% public-use microdata samples of the 1990 and 2000 Decennial Censuses (Ruggles, et al., 2020) and the public-use microdata samples of the 2006-2019 American Community Surveys. We focus on persons born in one of the 29 sample countries.<sup>8</sup> In calculating both the counts and the characteristics, we used survey-provided sampling weights.

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<sup>6</sup> <https://www.dhs.gov/immigration-statistics/readingroom/LPR/LPR-by-major-class-and-country>.

<sup>7</sup> <https://www.dhs.gov/immigration-statistics/readingroom/LPR/LPRcounty>.

<sup>8</sup> We exclude a small number of individuals born to U.S. citizens abroad.



Because the Census is not annual, we do not observe the size of all arrival cohorts at the time of arrival. We instead approximate it through extrapolation, taking advantage of the fact that we observe each cohort at multiple points in time. Specifically, to create the data for the cross-area Mexican analysis, we begin by estimating U.S. resident population counts of immigrant arrivals by survey year  $y$ , arrival year (or cohort)  $t$ , and metro area  $c$ ,  $N_{c yt}$ , for the countries in our sample. We normalize these counts by  $legal_{c,1980}$  – the same denominator as is used for the legalization ratio. We then regress these normalized counts on a vector of area-by-arrival cohort fixed effects a survey-specific effect of years in the U.S.,  $y - t$ :

$$\frac{N_{c yt}}{legal_{c,1980}} = \eta_{ct} + \beta_1(y - t) + \beta_2(y - t) \times D(ACS) + v_{c yt}.$$

...where  $D(ACS)$  is a dummy which indicates data are from the American Community surveys (rather than the 1990 or 2000 Census). To predict (normalized) cohort size at entry, we then evaluate the fit of this model at zero years in the U.S., i.e.,  $\frac{\widehat{N}_{c yt}}{legal_{c,1980}} = \hat{\eta}_{ct}$  when  $y - t = 0$ . The difference  $\hat{\eta}_{ct} - \frac{A_{ct}}{legal_{c,1980}}$ , where  $A_{ct}$  is total family-sponsored (Mexican) LPRs in area  $c$  in arrival cohort  $t$ , then captures arrivals in all other immigrant categories (“other arrivals”). We follow the same procedure outlined to estimate adjusted data from the cross-country analysis substituting country for metro area for the “c” index. Finally, when examining changes in immigrant characteristics in Section VI (Table 7), we do a similar adjustment, but evaluate the fitted model at three years in the U.S. ( $y - t = 3$ ).

## V. Other Data: Other Characteristics

### A. Metro Area-Level Characteristics

We use tabulations of the 1980 Census 20% sample (Manson et al., 2020) to calculate the 1980 percent of a metro area’s population who are Mexicans. To calculate Mexicans admitted between 1983 and 1987 per legal Mexican in 1980, we use sources already described in I.B, I.C, and I.D above. Employment between 1980 and 1987 is calculated using *County Business Patterns* data. We calculate the “Bartik” instrument for Mexican employment growth between 1980 and 2019 as follows:

$$\frac{\sum_o \frac{\Delta E_{o,-c}}{E_{o,-c,1980}} \widehat{Mex}_{oc,1980}}{Mex_{c,1980}}$$

Where  $\frac{\Delta E_{o,-c}}{E_{o,-c,1980}}$  is employment growth in occupation  $o$  in areas besides area  $c$  between 1980 and 2019 and  $Mex_{c,1980}$  is the number of Mexicans in area  $c$  in 1980, and  $\widehat{Mex}_{oc,1980} \equiv E_{oc,1980} \frac{Mex_{o,-c,1980}}{E_{o,-c,1980}}$  is the predicted number of Mexicans working in occupation  $o$  in area  $c$  in 1980 based on the Mexican share of that occupation outside the area,  $\frac{Mex_{o,-c,1980}}{E_{o,-c,1980}}$ , and the 1980 size of the occupation in that area,  $E_{oc,1980}$ . The idea of this measure is to leverage a combination of the local occupation mix and which occupations are growing fastest to predict

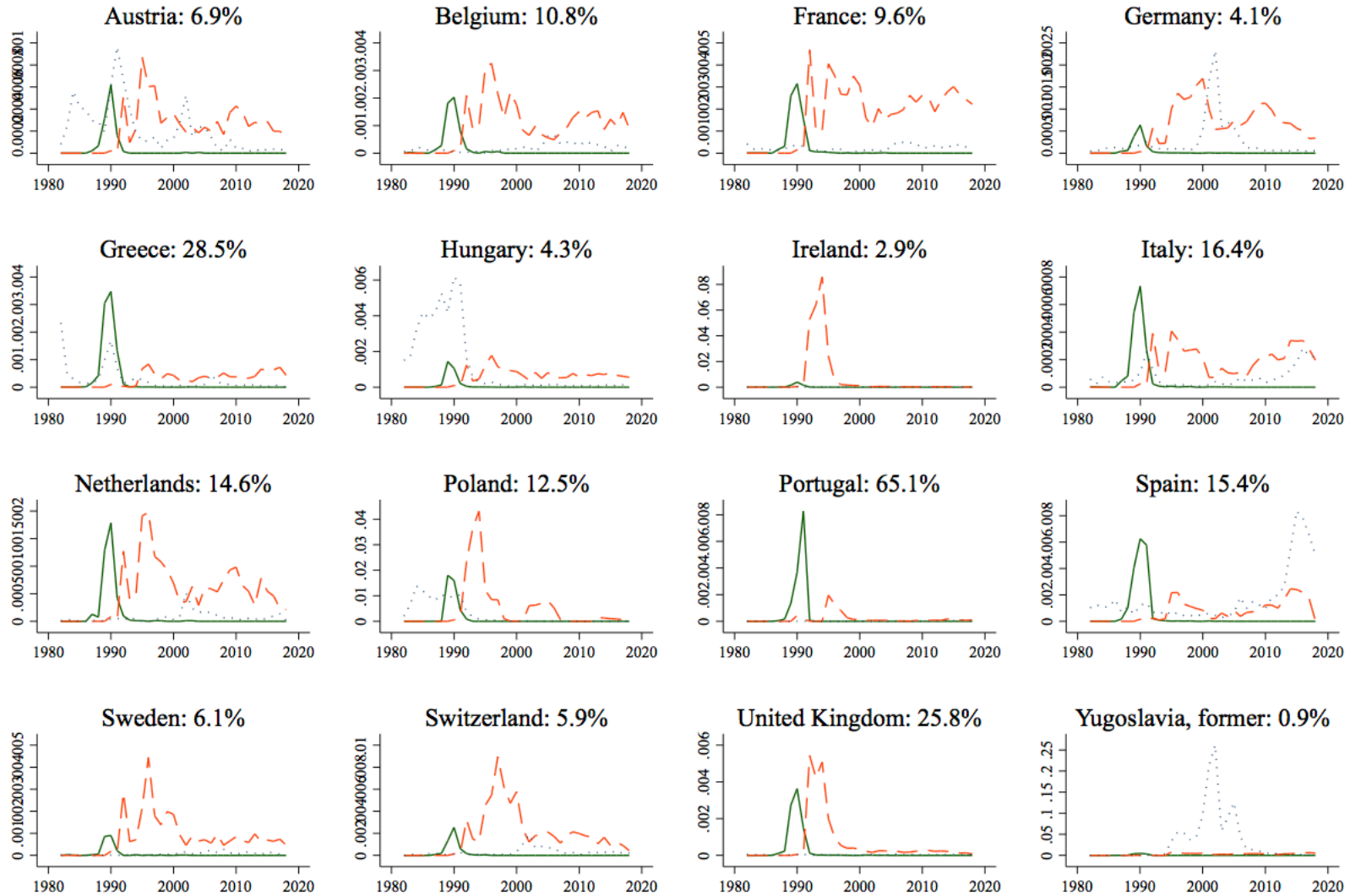
which areas will become most attractive to Mexicans over the period of our study. All figures were computed using 1980 Census/2019 ACS data from Ruggles et al. (2020).

### *B. Country-Level Characteristics*

We used the 2000 Decennial Census (Ruggles et al., 2020) to approximate the naturalization rates of the IRCA cohort (entering 1971 to 1986) by country. For Mexicans in this cohort, we arrive at a naturalization rate of 35.6% – similar to Green Card holders entering the U.S. between 1979 and 1982 (35%), based on internal INS data through 2001. Like Rytina (2002), we also find a considerably higher naturalization rate for non-Mexican IRCA Green Card holders as a group – 55% in the Census versus 52% in the administrative data. For non-Mexicans, naturalization rates of IRCA LPRs were also 7 percentage points below those of LPRs from roughly the same arrival cohort (1979-82) who received Green Cards through other channels, according to Rytina (2002).

To calculate admissions between 1983 and 1987 per legal immigrant in 1980, we use sources already described in I.B, I.C, and I.D above. Upper income countries were identified using the United Nations World Development Indicators. Real exchange rates and population were computed using the Penn World Tables, version 10.0 (Feenstra et al., 2018). The population figures were normalized by the number of legal immigrants in 1980, previously described.

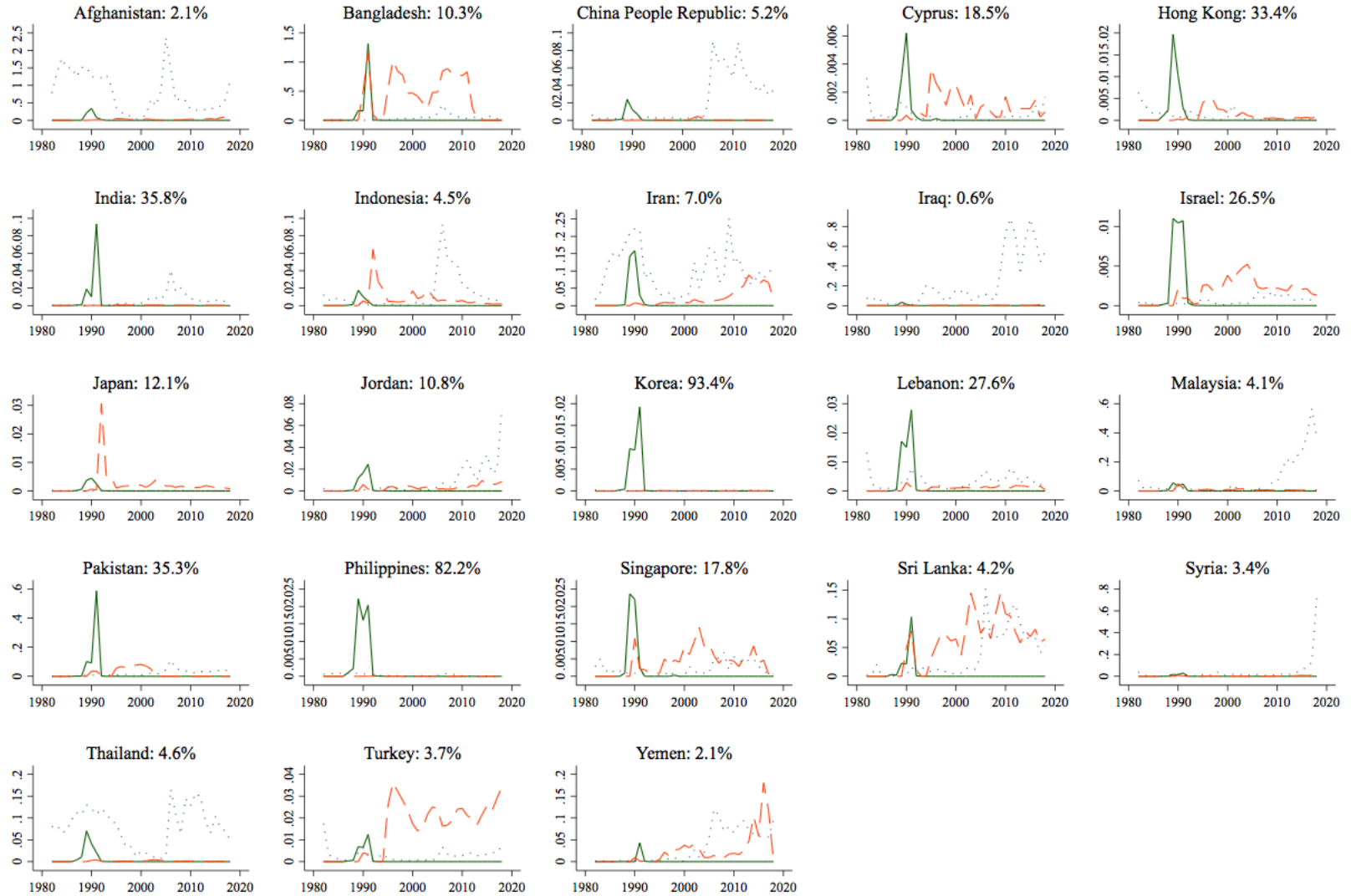
Figure A1a. Europe. IRCA Legalizations, Diversity, Refugees (w/IRCA's %)



Sources: Legalization Applications Processing System (LAPS) for IRCA legalizations and *Immigrants Admitted to the United States* (FY 1982-2004) and *Yearbook of Immigration Statistics* (FY 2005-2019) for remaining variables. See Appendix A.

Notes: Solid green = IRCA legalizations, dashed orange = diversity visas, dotted blue = refugees, per 1980 legal immigrant of that origin.

Figure A1b. Asia. IRCA Legalizations, Diversity, Refugees (w/IRCA's %)



Sources and notes: See Figure A1a.

Figure A1c. Africa. IRCA Legalizations, Diversity, Refugees (w/IRCA's %)



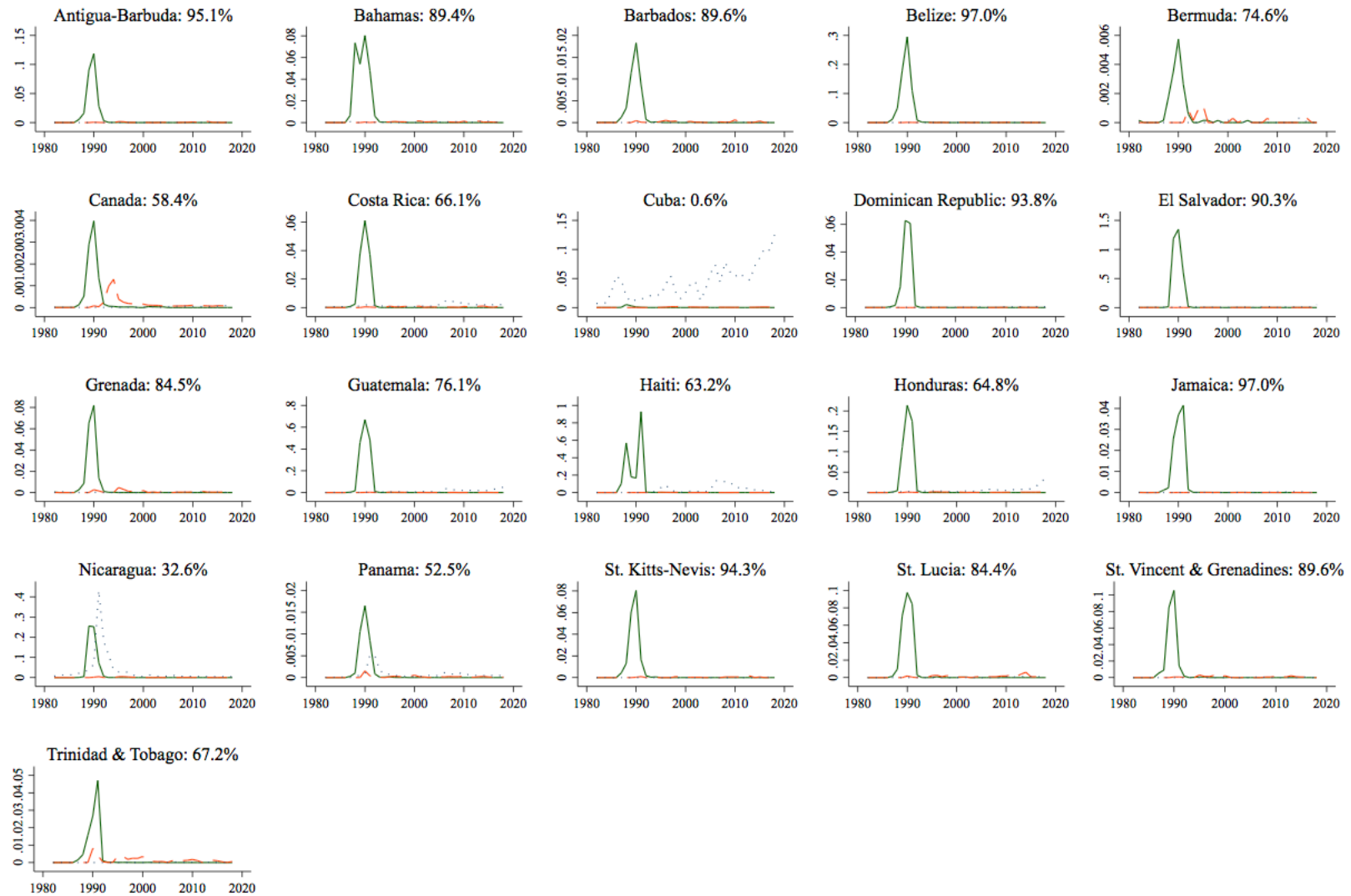
Sources and notes: See Figure A1a.

Figure A1d. Oceania. IRCA Legalizations, Diversity, Refugees (w/IRCA's %)



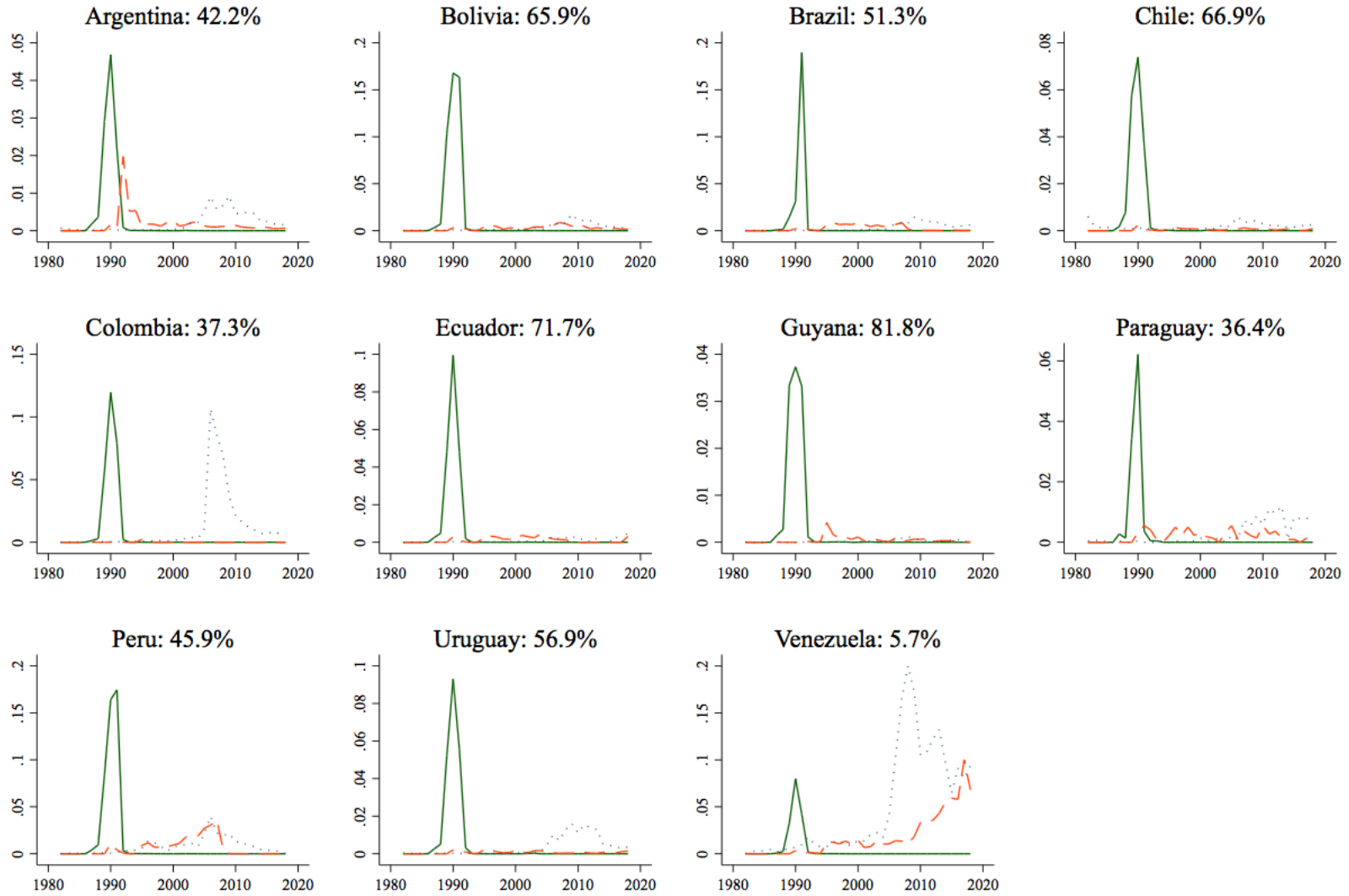
Sources and notes: See Figure A1a.

Figure A1e. Central/North America. IRCA Legalizations, Diversity, Refugees (w/IRCA's %)



Sources and notes: See Figure A1a.

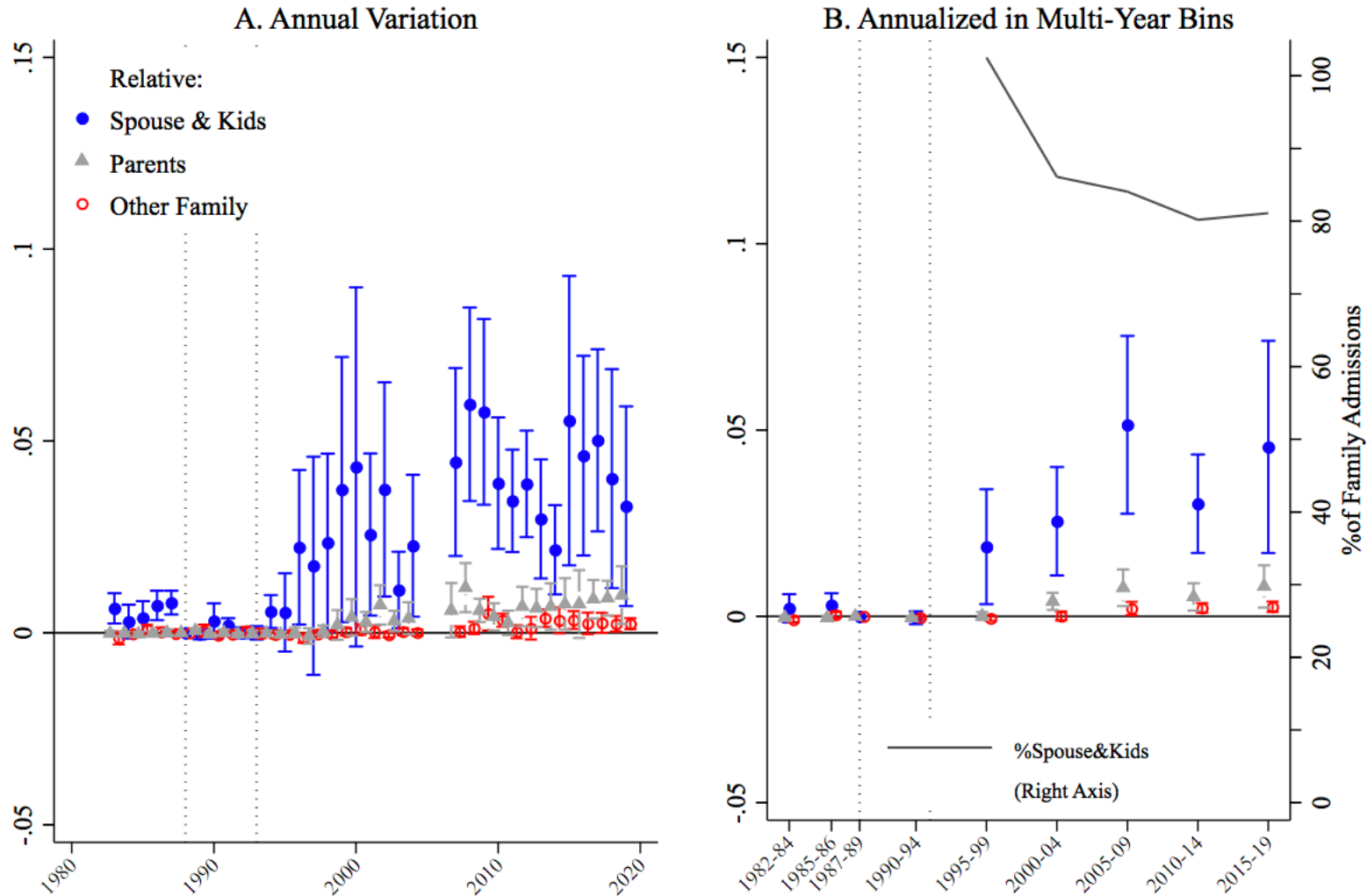
Figure A1f. South America. IRCA Legalizations, Diversity, Refugees (w/IRCA's %)



Sources and notes: See Figure A1a.



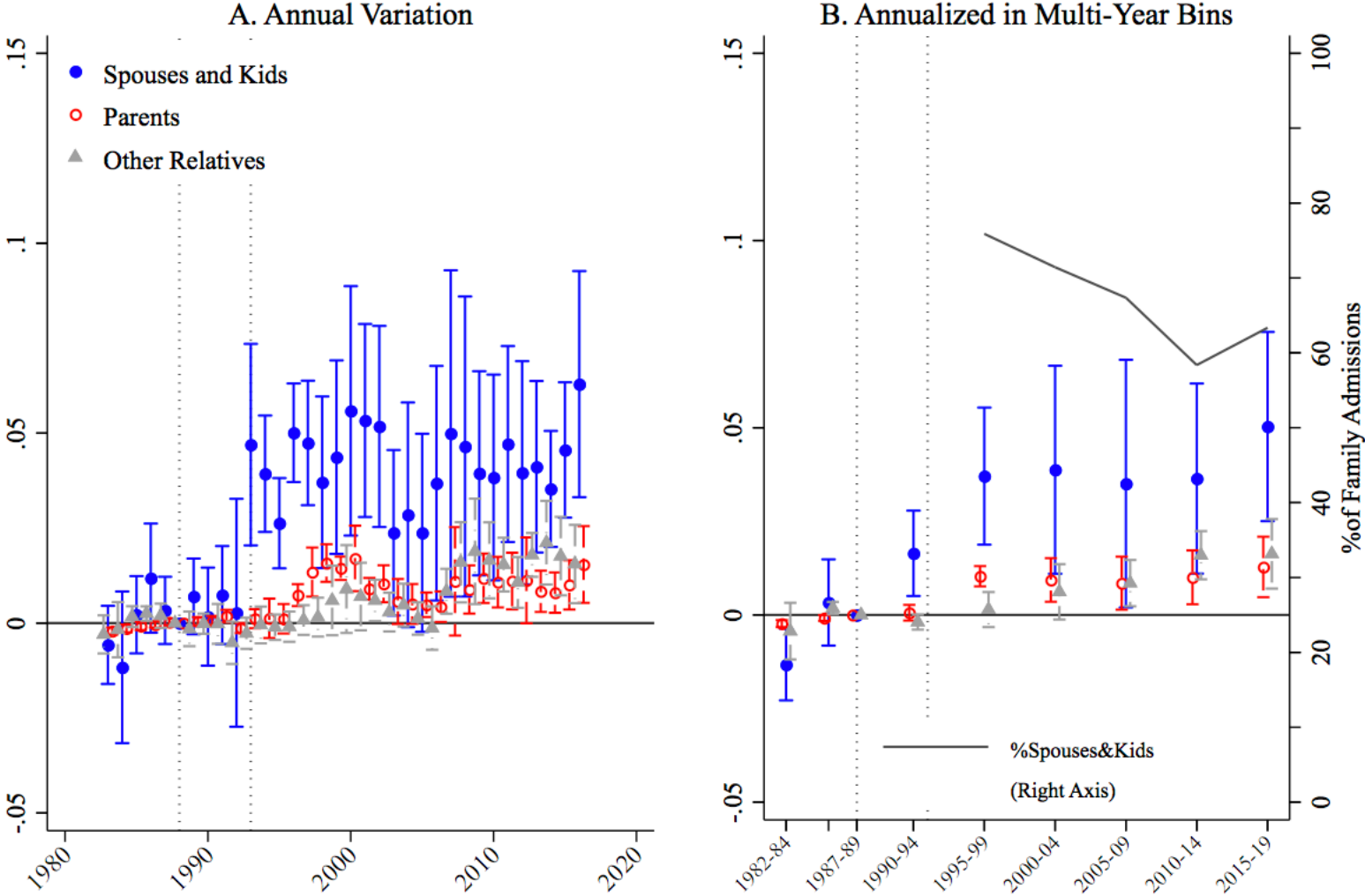
Figure A2. Response to Mexican IRCA Legalizations, by Family Relationship



Sources: Legalization Applications Processing System (LAPS) and *Alien Address Reports, [United States], 1980 Public Use File* and 1980 Census PUMS (Ruggles et al., 2020) for the legalization ratio and *Immigrants Admitted to the United States (FY 1983-2004)* and <https://www.dhs.gov/immigration-statistics/readingroom/LPR/LPRcounty> (FY 2007-2019) for all remaining variables. See Appendix A.

Notes: Panel A plots coefficients (with 95% confidence intervals) on the Mexican legalization ratio ( $lpr_{c,IRCA}/lpr_{c,1980}$ ) interacted with year dummies from a regression that also includes area and year-by-state fixed effects; the interaction between the legalization ratio and the dummy for 1988 is omitted to identify the model (model (1)). Estimation sample includes the 66 areas listed in Table A1. Panel B plots coefficients (with 95% confidence intervals) using data aggregated in the year group shown instead, with the 1987-89 group excluded. Regressions give each area equal weight, and standard errors are clustered on area.

Figure A3. Response to IRCA Legalizations, by Family Relationship, Across Countries



Sources: Legalization Applications Processing System (LAPS) and *Alien Address Reports, [United States], 1980 Public Use File* and 1980 Census PUMS (Ruggles et al., 2020) for the legalization ratio and *Immigrants Admitted to the United States (FY 1983-2004)* and *Yearbook of Immigration Statistics*, and <https://www.dhs.gov/immigration-statistics/readingroom/LPR/LPR-by-major-class-and-country> (FY 2005-2016) for all remaining variables. See Appendix A. Notes: Panel A plots coefficients (with 95% confidence intervals) on the legalization ratio ( $lpr_{c,IRCA}/lpr_{c,1980}$ ) interacted with year dummies from a regression that also includes country and year-by-world region fixed effects; the interaction between the legalization ratio and the dummy for 1988 is omitted to identify the model (model (1)). Estimation sample includes the 29 countries listed in Table A2. Panel B plots coefficients (with 95% confidence intervals) using data aggregated in the year group shown instead, with the 1987-89 group excluded. Each country given equal weight, and standard errors are clustered on country.

**Table A1. Treatment variation and Characteristics of Mexicans, All Areas by State**

State and Metro Area	<u>Treatment:</u>	Number	Existing	% of IRCA	<u>Characteristics</u>	
	Legalization Ratio: (2)/(3)	Legalized by IRCA	Legal Immi- grants, 1980	Legaliza- tions	Mexican Pop %, 1980	% Employmt Growth, 80-87
	(1)	(2)	(3)	(4)	(5)	(6)
<u>Arizona</u>						
Phoenix-Mesa, AZ	0.78	18,248	23,519	0.90	1.81	44.5
Tucson, AZ	0.53	8,618	16,109	0.43	3.00	36.7
Yuma, AZ	0.98	9,737	9,929	0.48	12.11	36.7
<u>California</u>						
Bakersfield, CA	1.47	24,485	16,682	1.21	5.19	17.7
Los Angeles-Long Beach, CA	1.70	560,289	329,865	27.75	9.33	11.4
Merced, CA	2.02	12,593	6,228	0.62	7.83	20.4
Modesto, CA	1.35	12,423	9,183	0.62	4.35	27.1
Oakland, CA	0.44	10,142	23,232	0.50	1.69	28.4
Orange County, CA	2.68	108,593	40,546	5.38	4.50	35.2
Riverside-San Bernardino, CA	0.95	44,102	46,329	2.18	3.39	47.3
Sacramento, CA	0.28	2,725	9,862	0.13	1.10	40.0
Salinas, CA	1.35	21,841	16,171	1.08	8.87	19.9
San Diego, CA	1.22	83,744	68,912	4.15	4.67	37.9
San Francisco, CA	0.34	6,343	18,543	0.31	1.76	9.3
San Jose, CA	1.11	30,462	27,426	1.51	2.78	20.9
Santa Barbara-Santa Maria-Lor	1.84	19,538	10,642	0.97	4.36	21.0
Santa Rosa, CA	3.13	8,362	2,675	0.41	1.43	46.1
Stockton-Lodi, CA	1.18	15,402	13,083	0.76	3.97	29.0
Vallejo-Fairfield-Napa, CA	0.71	3,130	4,426	0.16	1.68	38.8
Ventura, CA	0.91	25,347	27,948	1.26	6.55	50.8
Visalia-Tulare-Porterville, CA	2.04	25,424	12,467	1.26	7.60	14.4
Yolo, CA	0.69	3,148	4,558	0.16	4.39	52.2
<u>Colorado</u>						
Colorado Springs, CO	0.60	197	326	0.01	0.14	44.9
Denver, CO	0.34	2,105	6,215	0.10	0.67	11.7

**Table A1. Treatment variation and Characteristics, All Countries by Region (cont'd)**

Region and Country	<u>Treatment:</u>	Number Legalized by IRCA	Existing Legal Immi- grants, 1980	% of IRCA Legaliza- tions	<u>Characteristics</u>	
	Legalization Ratio: (2)/(3)				Mexican Pop %, 1980	% Employmt Growth, 80-87
	(1)	(2)	(3)	(4)	(5)	(6)
<u>Connecticut</u>						
New Haven, CT	0.69	233	338	0.01	0.03	15.8
<u>Florida</u>						
Fort Lauderdale, FL	3.38	1,462	432	0.07	0.05	30.6
Fort Myers-Cape Coral, FL	6.94	1,958	282	0.10	0.15	56.5
Fort Pierce-Port St. Lucie, FL	5.72	898	157	0.04	0.51	65.0
Lakeland-Winter Haven, FL	8.41	4,162	495	0.21	0.19	16.4
Melbourne, FL	0.34	70	208	0.00	0.03	47.1
Naples, FL	4.37	5,428	1,241	0.27	1.32	66.8
Orlando, FL	0.47	423	909	0.02	0.19	63.5
Sarasota-Bradenton, FL	3.55	1,286	362	0.06	0.15	46.6
Tampa-St. Petersburg, FL	1.43	1,820	1,272	0.09	0.08	44.5
West Palm Beach, FL	3.81	4,103	1,077	0.20	0.12	58.3
<u>Hawaii</u>						
Honolulu, HI	0.27	126	472	0.01	0.08	12.7
<u>Illinois</u>						
Chicago, IL	0.20	20,695	101,396	1.03	2.23	2.8
<u>Massachusetts</u>						
Boston, MA	0.11	95	854	0.00	0.02	22.0
Springfield, MA	0.30	8	25	0.00	0.02	9.8
<u>Nevada</u>						
Reno, NV	5.00	3,377	676	0.17	0.71	20.3

**Table A1. Treatment variation and Characteristics, All Countries by Region (cont'd)**

Region and Country	<u>Treatment:</u>	Number	Existing	% of IRCA	<u>Characteristics</u>	
	Legalization Ratio: (2)/(3)	Legalized by IRCA	Legal Immi- grants, 1980	Legaliza- tions	Mexican Pop %, 1980	% Employt Growth, 80-87
	(1)	(2)	(3)	(4)	(5)	(6)
<u>New Jersey</u>						
Bergen-Passaic, NJ	1.04	654	629	0.03	0.08	17.7
Jersey City, NJ	1.03	331	320	0.02	0.06	10.6
Middlesex-Somerset, NJ	1.03	192	187	0.01	0.04	35.8
Monmouth-Ocean, NJ	2.72	300	110	0.01	0.02	45.4
Newark, NJ	0.22	89	406	0.00	0.03	13.6
<u>New York</u>						
Buffalo-Niagara Falls, NY	0.15	31	207	0.00	0.02	-0.8
Nassau-Suffolk, NY	0.45	343	758	0.02	0.03	31.7
New York, NY	0.32	1,729	5,400	0.09	0.10	9.0
<u>Oregon</u>						
Portland, OR	1.22	1,911	1,572	0.09	0.20	6.1
<u>Pennsylvania</u>						
Allentown, PA	0.27	37	139	0.00	0.02	3.0
Lancaster, PA	1.03	65	63	0.00	0.03	17.7
Philadelphia, PA	0.39	380	969	0.02	0.03	15.0
<u>Texas</u>						
Brazoria, TX	0.91	2,315	2,555	0.11	1.87	-14.4
Brownsville, TX	0.34	12,909	37,900	0.64	16.70	9.5
El Paso, TX	0.33	27,884	84,284	1.38	17.31	11.5
Houston, TX	0.42	28,352	67,082	1.40	3.29	-0.4
Laredo, TX	0.18	4,569	25,867	0.23	18.83	4.2
McAllen, TX	0.43	24,858	57,874	1.23	18.01	27.7

**Table A1. Treatment variation and Characteristics, All Countries by Region (cont'd)**

Region and Country	<u>Treatment:</u>	Number	Existing	% of IRCA	<u>Characteristics</u>	
	Legalization Ratio: (2)/(3)	Legalized by IRCA	Legal Immi- grants, 1980	Legaliza- tions	Mexican Pop %, 1980	% Employmt Growth, 80-87
	(1)	(2)	(3)	(4)	(5)	(6)
<u>Texas (continued)</u>						
San Antonio, TX	0.35	16,835	48,547	0.83	4.62	27.4
<u>Utah</u>						
Provo-Orem, UT	2.17	721	332	0.04	0.32	3.9
Salt Lake City-Ogden, UT	0.46	782	1719	0.04	0.28	14.7
<u>Washington</u>						
Seattle-Bellevue-Everett, WA	0.86	1,169	1367	0.06	0.10	19.3
Tacoma, WA	1.64	498	304	0.02	0.10	17.5
<u>Wisconsin</u>						
Madison, WI	0.73	119	164	0.01	0.09	21.9

Notes: We calculate the number legalized by IRCA by country from the LAPS microdata and the number of 1980 Green Card holders from Alien Address Reports, 1980 Public Use File (for LPRs) and the 1980 Census PUMS (for citizens) (Ruggles et al., 2020). We estimate the 1980 %Mexican using the tabulated 20% sample of the 1980 Census of Population (Manson et al., 2020). Employment growth between 1980 and 1987 was calculated using *County Business Patterns* data.

**Table A2. Treatment variation and Characteristics, All Countries by Region**

Region and Country	<u>Treatment:</u>	Number	Existing	% of IRCA	<u>Characteristics</u>	
	Legalization Ratio: (2)/(3)	Legalized by IRCA	Legal Immi- grants, 1980	Legaliza- tions	Estimated % who naturalized	Upper Income Country?
	(1)	(2)	(3)	(4)	(5)	(6)
<u>1. Europe</u>						
<i>(none)</i>						
<u>2. Asia</u>						
India	0.13	20,906	167,896	0.78	72.59	0
Pakistan	0.79	17,009	21,654	0.63	75.57	0
<u>3. Africa</u>						
<i>(none)</i>						
<u>4. Pacific</u>						
Samoa	0.12	994	8,186	0.04	65.46	0
Tonga	0.89	3,186	3,593	0.12	45.79	0
<u>5. North America and Caribbean</u>						
Antigua and Barbuda	0.26	1,268	4,808	0.05	68.34	1
Bahamas, The	0.27	2,897	10,712	0.11	48.42	0
Belize	0.66	6,035	9,155	0.22	57.39	0
Costa Rica	0.14	3,363	23,882	0.13	59.08	1
Dominican Republic	0.14	23,982	169,257	0.89	50.33	0
El Salvador	3.17	151,880	47,913	5.65	41.14	0
Grenada	0.17	921	5,300	0.03	70.43	1
Guatemala	1.64	63,663	38,742	2.37	41.89	0
Haiti	1.95	88,284	45,209	3.28	59.83	0
Honduras	0.51	16,055	31,422	0.60	48.83	0
Jamaica	0.11	17,257	158,284	0.64	66.51	0
Mexico	1.30	2,019,353	1,548,438	75.10	35.61	1

**Table A1. Treatment variation and Characteristics, All Countries by Region (cont'd)**

Region and Country	<b>Treatment:</b>	Number	Existing	% of IRCA	<b>Characteristics</b>	
	Legalization Ratio: (2)/(3)	Legalized by IRCA	Legal Immi- grants, 1980	Legaliza- tions	Estimated % who naturalize	Upper Income Country?
	(1)	(2)	(3)	(4)	(5)	(6)
<b>5. North America and Caribbean (cont'd)</b>						
St. Kitts and Nevis	0.18	629	3,554	0.02	61.81	0
St. Lucia	0.27	619	2,309	0.02	67.65	1
St. Vincent & the Grenadines	0.22	716	3,219	0.03	67.61	0
<b>6. South America</b>						
Argentina	0.10	5,619	53,804	0.21	60.27	1
Bolivia	0.45	4,337	9,666	0.16	57.83	0
Brazil	0.24	6,956	29,027	0.26	46.87	1
Chile	0.18	4,647	25,891	0.17	57.91	1
Colombia	0.26	30,941	118,215	1.15	61.44	0
Ecuador	0.21	15,274	74,392	0.57	52.26	0
Guyana	0.11	3,990	36,391	0.15	76.84	0
Paraguay	0.11	230	2,188	0.01	54.53	0
Peru	0.44	18,264	41,522	0.68	59.73	0
Uruguay	0.21	2,134	10,039	0.08	63.44	1

Notes: We calculate the number legalized by IRCA by country from the LAPS microdata and the number of 1980 Green Card holders from Alien Address Reports, 1980 Public Use File (for LPRs) and the 1980 Census PUMS (for citizens) (Ruggles et al., 2020). We estimate the naturalization rate by country -- %of 1971-1986 arrivals that are citizens -- from 2000 Census public-use microdata (Ruggles et al., 2020). Income bins are from the United Nations' World Development Indicators.



Table A3. Immigration Multipliers Estimated Across Countries, 1989-2016, with "Binned" Arrival Year

	Baseline	Dropping Mexico	<60% Citizens by 2000	Nonmissing Controls	w/controls
	(1)	(2)	(3)	(4)	(5)
Overall Family Sponsored	1.57 (0.51)	1.58 (0.53)	0.84 (0.27)	1.66 (0.52)	1.51 (0.45)
<i>By Family Sponsorship Type</i>					
Green-Card Sponsored	0.64 (0.20)	0.58 (0.17)	0.24 (0.13)	0.68 (0.21)	0.66 (0.14)
Citizen-Sponsored	0.93 (0.44)	1.00 (0.48)	0.60 (0.19)	0.98 (0.44)	0.85 (0.38)
<i>By Relative Type</i>					
Spouses and Kids <sup>a</sup>	1.08 (0.36)	1.07 (0.37)	0.51 (0.25)	1.14 (0.39)	1.04 (0.31)
Parents	0.25 (0.09)	0.26 (0.10)	0.17 (0.05)	0.27 (0.09)	0.23 (0.08)
Other ("Chain" Migrants)	0.23 (0.11)	0.25 (0.12)	0.16 (0.04)	0.26 (0.10)	0.23 (0.09)
<i>Other Major Categories</i>					
Employer Sponsored	-0.10 (0.15)	-0.11 (0.15)	-0.25 (0.09)	-0.08 (0.12)	-0.13 (0.09)
Refugees	0.19 (0.14)	0.20 (0.16)	0.06 (0.05)	0.19 (0.15)	0.18 (0.15)
Diversity	0.02 (0.02)	0.02 (0.02)	0.00 (0.00)	0.02 (0.02)	0.02 (0.02)
Countries:	29	28	14	27	27
Fixed Effects					
Country	Yes	Yes	Yes	Yes	Yes
Region x Year	Yes	Yes	Yes	Yes	Yes
Baseline Controls x Year <sup>b</sup>	No	No	No	No	Yes
Time-Varying Controls <sup>c</sup>	No	No	No	No	Yes

Notes: Each cell gives long-run "multiplier" (sum of post-1988 arrival year-specific coefficients) from a regression of the referenced immigration variable on the legalization ratio (IRCA legalized immigrants/(1980 LPR+Citizens). Standard errors, in parentheses, clustered on metro country. <sup>a</sup>Sum of citizen-sponsored spouses and green-card sponsored spouses and children. <sup>b</sup>1983-87 LPR admissions per 1980 legal immigrant and a dummy for upper income country. <sup>c</sup>Annually varying, real exchange rate, and population per 1980 legal immigrant (citizens and registered green card holders), with 1 year lag.