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## HOW GOOD ARE PROXIES FOR LEGAL STATUS? EVIDENCE FROM THE LEGALIZATION OF TWO MILLION MEXICANS

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#### ABSTRACT

Two million Mexicans were granted lawful permanent residency in the U.S. under the Immigration Reform and Control Act of 1986 (IRCA). We find that occupation and program use variables in a prominent proxy for legal status poorly detect this event. A decade after legalization, the share of Mexicans who are likely legal according to these variables shows little absolute change in survey data, with estimates ruling out increases of three and eight percentage points relative to comparison groups of Mexican Americans and non-Hispanic Blacks, respectively. In contrast, an actual measure of status, citizenship, does rise in line with administrative facts.

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#### I. Introduction

Many developed countries have large populations of unauthorized immigrants. For example, the latest government estimates suggest about 11 million foreign-born individuals, mostly from Mexico, are residing in the U.S. without authorization (Baker, 2021).<sup>1</sup> Despite high policy interest, studying this population is challenging due to limited official data identifying immigration status.<sup>2</sup> One solution has been to develop proxies for status in largescale surveys such as the Current Population Survey (CPS), American Community Survey (ACS), and Census of Population, using characteristics like country of origin and education. However, by construction, any proxy based on fixed characteristics will not detect when an individual's legal status changes.

A more sophisticated proxy based on time-varying characteristics was developed by the Pew Hispanic Center (Passel and Cohn, 2014), then adapted by Borjas (2017) and Borjas and Cassidy (2019). At its core, the approach is a residual one: it identifies immigrants who are "likely legal" based on citizenship, year of arrival, occupation, and (federal) program use and treats the remainder as unauthorized.<sup>3</sup> While sensible, this approach has potential for false negatives: any non-citizen immigrant who happens not to be enrolled in one of the government programs or working in one of the occupations that require one to be authorized will not be "likely legal" and therefore classified as unauthorized. As the authors of these

<sup>2</sup> The California Health Interview Survey, the National Agricultural Workers Survey, and the Survey of Income and Program Participation are examples of surveys that contain self-reported legal status. But the U.S.'s main large demographic datasets – the CPS, ACS, and Census of Population – do not contain any information beyond self-reported citizenship. It is possible to be a legal immigrant without being a naturalized citizen. <sup>3</sup> Passel and Cohn's (2014) original methodology is described here (accessed July 18, 2023): <u>https://www.pewresearch.org/hispanic/2014/11/18/appendix-c-methodology-4/</u>. It also treats certain family members living in the same household of likely legal immigrants as authorized (see Section II.B).

<sup>&</sup>lt;sup>1</sup>See <u>https://www.dhs.gov/immigration-statistics/population-estimates/unauthorized-resident</u>, accessed 20 July 2023. Latest estimates are as of 2018.

original studies acknowledged, and has been confirmed since (Heinzel et al., 2021), this leads to an undercount of immigrants in the U.S. legally and an overcount of the unauthorized.<sup>4</sup>

In this paper, we attempt to validate the proxy approach by asking to what extent *actual* changes in the legal status of immigrants cause them to move from "likely unauthorized" to "likely legal" status in survey data. To do so, we take advantage of the fact that a large cohort of previously unauthorized Mexicans – two million – became lawful permanent residents (LPRs) in the U.S. between 1989 and 1992 through the legalization programs of the Immigration Reform and Control Act of 1986 (IRCA) (Cascio and Lewis, 2019, 2023). As described below, these two million represented almost half of Mexican immigrants residing in the U.S. at the time, so any impact should be detectable in survey data.

Our primary analysis draws on two surveys – the Legalized Population Survey (LPS), a short panel of immigrants becoming LPRs through IRCA, and the Annual Social and Economic Supplements (ASEC) of the CPS. We begin with the LPS, adapting the Borjas (2017) approach to that survey's occupation and program use variables. The share likely legal increases little between 1986 and 1992 even though *all* respondents in our LPS sample became LPRs over this period. Moreover, we see a similar increase in likely legal share in the ASEC for Mexican Americans and non-Hispanic Blacks – groups whose legal status should not have changed – suggesting the proxy could be sensitive to aging or aggregate shocks.

One limitation of the LPS is that it ended in 1992, before the IRCA cohort could take up most federal social assistance or became eligible to naturalize.<sup>5</sup> Another is that the limited

<sup>&</sup>lt;sup>4</sup> While Passel and Cohn (2014) reweighted the data to match other estimates of the unauthorized population, their approach may have still been biased (Van Hook et al., 2015). Even more recent versions have produced downward biased estimates of the relative poverty rates of unauthorized immigrants (Spence et al., 2020). <sup>5</sup> Most legalization applicants were ineligible for cash welfare, Medicaid, and food stamps for a five-year period beginning the date they were granted temporary status (Cascio, Cornell, and Lewis, 2024). The earliest they could naturalize was 1994, five years after becoming LPRs (Cascio and Lewis, 2023).

set of variables in the LPS makes it impossible to fully replicate the Borjas (2017) proxy. We therefore construct an alternative "treatment" group in the CPS ASEC – the Mexican ethnic population born between 1940 and 1969. As in the LPS, the share likely legal in this cohort rises little between 1986 and 1992. It also increases only slightly through the late 1990s, both in absolute terms and relative to Mexican Americans and non-Hispanic Blacks in the same birth cohorts. The modest increase is driven by increased participation in federal programs, not occupational mobility. Our upper bound estimate of an 8 percentage point rise in the likely legal share is well below the benchmark we establish for the true increase in legalized share among ASEC respondents, using administrative records and the Census.

In contrast, an actual measure of legal status in the ASEC – citizenship – does rise in line with expectations from administrative records starting in 1994, when citizenship is first measured in the CPS. However, the signal in increasing naturalization rates is largely cancelled out in the unmodified Borjas (2017) proxy, which we can also calculate in 1994 and later. These results are consistent with previous cross-sectional evidence that program use variables are biased proxies for legal status (Van Hook et al., 2015). We go further, showing that true changes in legal status induce at best modest changes in commonly used proxy variables for legal status in survey data. This finding casts doubt on what such proxy variables capture in practice.

#### II. Data

#### A. Sources and Samples

Our analysis draws on two survey data sources. The first is the LPS, a panel that tracked the characteristics of applicants to IRCA's General Legalization Program (GLP) from before application (retrospectively, in a 1989 survey) to 1992 (the second wave of the

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survey).<sup>6</sup> While the full LPS included unsuccessful GLP applicants, as well as GLP applicants from across the world, we limit attention to applicants from Mexico born 1940 to 1969 who became LPRs by 1992. The value of this LPS sample is that all respondents became LPRs.

Due to limits on both the characteristics and years of data available in the LPS, we also examine a sample of self-reported Mexicans in repeated cross-sectional data from the 1983 to 2000 waves of the CPS ASEC (Flood et al., 2023), collected in March; variables refer to the prior calendar year (1982 to 1999). The ASEC also provides data on Mexican Americans and non-Hispanic Blacks, for the purposes of comparison. We limit the samples to respondents born between 1940 and 1969. These cohorts represent 81% of all Mexican IRCA LPRs.<sup>7</sup>

B. The "Likely Legal" Proxy

The Borjas (2017) adaptation of the Passel and Cohn (2014) approach to estimating immigrant legal status in survey data was based on ASEC waves from 1994 and later. A benefit is that year of immigration and citizenship status are included on the CPS questionnaire in these years. This allows Borjas (2017) to classify ASEC respondents as "likely legal" not only if they worked in a licensed occupation or received certain federal benefits, but also if they were a naturalized citizen or reported arriving in the U.S. in 1980 or prior – or if they had a spouse, parent, or grandparent with any of these characteristics.

Because our application necessitates the use of ASEC data from before 1994, we cannot replicate this proxy for most of our analysis. Table A1 lists the variables available to

<sup>&</sup>lt;sup>6</sup> The data are available at <u>https://mmp.opr.princeton.edu/LPS/LPSpage.htm</u>. See Cascio and Lewis (2019) for further description. The LPS does not cover those who gained legal status through IRCA's Special Agricultural Workers (SAW) program. LPRs from the SAW program are however covered by other survey data, including the CPS ASEC.

<sup>&</sup>lt;sup>7</sup> These are the authors' calculations using microdata on those admitted (U.S. Department of Justice, 1991-1995 a,b,c). We limit attention to the 1940 to 1969 birth cohorts because: (1) The ASEC only covers those over age 14, which in the earliest wave in our sample (1983) means born before 1970; and (2) This set of cohorts are of working age through 1999, the end of our sample period.

calculate the proxy in the LPS and our full ASEC sample (1983-2000). The LPS includes fewer relevant variables: it has a more limited set of public benefit use variables and does not connect relatives. The share of respondents classified as likely legal under the "harmonized definition" we apply to the LPS will thus be lower than it is under the "broader definition" we apply in the 1983-2000 ASEC, where the full slate of program use variables are available and relatives can be linked. However, the lack of information on year of immigration and citizenship prior to 1994 means likely legal share under the broader definition in the 1983-2000 ASEC will be lower than under the unmodified Borjas (2017) approach.<sup>8</sup>

Recall, however, that our focus is on *changes in* the likely legal share, not *levels* at a given point in time. Below, we show that changes from 1993 to 1999 are very similar for Mexicans using either an unmodified version of Borjas (2017) or the measure that is feasible in earlier years. While our analysis captures the extent to which the federal program use and occupation components of the likely legal proxy pick up true changes in legal status, it might therefore be more broadly applicable.

#### C. Benchmarks

What should we expect to find if the proxy works well? The answer depends on the data. All LPS respondents in our estimation sample became LPRs. In principle, the share likely legal should thus rise from zero to one in the LPS. In the ASEC, we should expect less of change in likely legal share, but the change should still be substantial – on the order of a 30 percentage-point increase.

<sup>&</sup>lt;sup>8</sup> We began with the STATA code used in Borjas (2017). However, we edited it for compatibility with apparent changes in how IPUMS coded the citizenship variable, and to ensure those with missing values of certain variables were not treated as likely legal by default.

To arrive at this figure, we proceeded in two steps. First, we used Census and administrative data to estimate the share of all foreign-born Mexican U.S. residents born 1940 to 1969 who became LPRs through IRCA, either directly (by applying through IRCA's legalization programs) or indirectly (via sponsorship by an IRCA LPR). Our estimates imply that Mexicans legalized under IRCA comprised a majority (56%) of foreign-born Mexicans residing in the U.S. in 1990 – roughly the time of legalization.<sup>9</sup> This number falls to 47% if we adjust for the potential undercount of Mexicans in the 1990 Census.<sup>10</sup> While this share was at risk of falling over the 1990s due to the arrival of new Mexican immigrants, we mitigate this risk by focusing on a fixed set of (aging) birth cohorts. Some new arrivals in these birth cohorts were also spouses of IRCA LPRs, who entered as LPRs through family sponsorship (Cascio and Lewis, 2023). We estimate that 44% of foreign-born Mexicans in the U.S. in 2000 – roughly the end of our sample period – were legalized directly through IRCA or through family sponsorship by an IRCA LPR.<sup>11</sup>

Second, we account for the fact that we do not directly observe foreign-born Mexicans in the full 1983-2000 ASEC sample, since country of origin is not observed prior to 1994. Instead, we use the ethnicity variable (i.e., Hispanic code). Fortunately, this variable is a strong predictor of nativity: 82 percent of those who self-identify as Mexican are foreign-

<sup>&</sup>lt;sup>9</sup> According to public use administrative records, 1,594,430 Mexicans born 1940 to 1969 were legalized under IRCA (U.S. Department of Justice, 1991-1995a,b,c). According to the 1990 Census, there were 2,824,899 Mexican-born individuals born 1940 to 1969 living in the U.S. at the time (Ruggles et al., 2024). <sup>10</sup> Van Hook and Bean (1998) estimated a 20 percent Mexican undercount, which lowers the share to 1,594,430/(2,824,899 \* 1.2) = 47%.

<sup>&</sup>lt;sup>11</sup> The 2000 Census (Ruggles et al., 2024) says there were 4,240,703 Mexicans in the U.S. from the 1940 to 1969 birth cohorts, which we adjust upward for a roughly 8 percent undercount of Mexicans in the 2000 Census (Card and Lewis, 2007) to 4,579,959. In addition to the 1,594,430 legalized by IRCA, we calculate there were 407,568 new Mexican LPRs admitted from the 1940 to 1969 cohorts in the 1990s (authors' calculations using *Immigrants Admitted to the United States* 1991-1997,1999, 2000 and *Lawful Immigrant Files*, 1998). This suggests that the share of Mexicans who were IRCA or post-IRCA admits declined from 47 percent in 1990 to 44 percent in 2000 ((1,594,430+407,568)/4,579,959), not accounting for return migration or mortality.

born in our sample when limited to data from 1994 to 2000, whereas this figure is only 13 percent for those who self-identify as Mexican American.<sup>12</sup> For our comparison between Mexicans and Mexican Americans in the ASEC, a lower bound estimate on the anticipated increase in likely legal share is thus 0.3 ((0.82-0.13)\*0.44).<sup>13</sup>

Before turning to our findings, we note the purpose of incorporating Mexican Americans and non-Hispanic Blacks in our analysis: the definition of likely legal relies on variables like occupation and program use that might evolve across the lifecycle, or in response to economic shocks. While neither comparison group is as disadvantaged as foreign-born Mexicans, both are relatively disadvantaged in the American labor market, so may capture trends in likely legal share that would have occurred for other reasons.<sup>14</sup>

#### III. Results

#### A. Findings from the LPS

Figure 1 displays the share likely legal based on the program use and occupation variables in the LPS (harmonized definition; Appendix Table A1) both before and after IRCA, constructed using both waves of the LPS and the 1986-88 (labelled 1986) and 1992-94 (labelled 1992) ASEC files. The lowest line corresponds to Mexicans in the LPS, the next line up to self-identified Mexicans in the ASEC, and the upper two lines to self-identified Mexican Americans and non-Hispanic Blacks, also from the ASEC. Figure A1 shows longer time series for this likely legal definition in the ASEC samples, which we return to below.

<sup>&</sup>lt;sup>12</sup> We identify non-Hispanic Blacks using the ethnicity and race variables and nativity with the citizenship variable.

<sup>&</sup>lt;sup>13</sup> Only seven percent of non-Hispanic Blacks in the 1994-2000 ASEC sample were foreign-born, and a very small percent of these would have become LPRs through IRCA. For the comparison to non-Hispanic Blacks, a lower bound estimate on the anticipated change in likely legal share is thus larger, at 0.36 (0.82\*0.44).

<sup>&</sup>lt;sup>14</sup> Past papers on legalization's impact on wages have also used U.S. born Hispanics as a comparison group (e.g., Amuedo-Dorantes et al., 2007). Because some unauthorized Mexican immigrants may conceal their status by identifying as Mexican American, we include Blacks as an alternative comparison group.

While the share likely legal rises a little among Mexicans in both the LPS and the ASEC by 1992, it does not increase noticeably more than in comparison groups of Mexican Americans and non-Hispanic Blacks (see Table A2a for exact numbers).<sup>15</sup> Difference-indifferences estimates – subtracting the change in the share likely legal for the comparison group from the change in that share for the treatment group – imply no significant change in Mexicans' likely legal share in either the LPS or ASEC compared to Mexican Americans. Comparisons of Mexicans to Blacks produce estimates a couple of percentage points larger and statistically significant (Table A2b). However, all difference-in-differences estimates are significantly below one and below our ASEC benchmark of 0.3.<sup>16</sup>

#### B. Longer Term Comparisons in the ASEC

The findings thus far are consistent with other evidence from the LPS that IRCA had little impact on the occupations of newly legalized Mexicans (Kassoudji and Cobb-Clark, 2000). However, the estimates could be biased downward by the short time horizon and limited set of variables available to estimate likely legal status in the LPS. We therefore turn to the broader definition of likely legal that is feasible in the 1983-2000 ASEC, which is identical to that used in Borjas (2017), minus the citizenship and year of immigration criteria. Figure 2 Panel A shows trends in likely legal share by group in these data. Figure 2 Panel B

<sup>&</sup>lt;sup>15</sup> The share "likely legal" is far below one even for the comparison group of Mexican Americans, almost all of whom are legal residents of the U.S. (section II.C). This is a more limited "harmonized" version of the proxy, however, that could be constructed in the LPS data. Also, Heinzel et al. (2021) show that most of those classified as likely legal are so classified due to being U.S. citizens. The share likely legal is also not zero among LPS Mexicans prior to legalization, though some of that may be due to run-of-the mill occupational misclassification or the fact that some Mexicans had already qualified for benefits by the first wave of the LPS. <sup>16</sup> Regressions in Table A2b were estimated in the stacked individual-level data, with a likely legal dummy regressed on a dummy for "treatment" group, dummy for 1992, and their interaction, with the coefficient on the latter representing the difference-in-differences estimate. Standard errors are robust to arbitrary error correlation within household and to heteroskedasticity. The upper end of a 95% confidence interval implies a five percentage point increase in likely legal status for Mexicans compared to Blacks in the ASEC.

plots the corresponding coefficients from an event study model described below. To increase precision, years are grouped in three-year bins.

Like in Figure 1, share likely legal in Figure 2 Panel A rises slightly among Mexicans between 1985-87 and 1991-93, but we now see that most of this increase was after 1990. We also see that the increase was almost identical among Mexican Americans, the vast majority of whom were U.S. born (section II.C). There is, furthermore, little increase in the share likely legal after 1991-93 for either group, suggesting narrow timing was not the primary reason for the small increases in likely legal share in Figure 1. Indeed, even using the narrower harmonized definition of likely legal from Figure 1, the longer-term patterns are similar (Figure A1). The time series in share likely legal for our other comparison group, non-Hispanic Blacks (top line), is flatter. Relative to Blacks, Mexicans therefore show a slightly larger increase in likely legal share. However, the difference still appears to be small.

As noted, the ASEC identifies foreign-born respondents starting in 1994.<sup>17</sup> Figure 2 Panel A also shows that, as anticipated, limiting the Mexican sample to the foreign born lowers the likely legal share among Mexicans. However, it does not change the trend much. Similarly, limiting the comparison groups to the native-born changes the level slightly but not the trend. We cannot rule out that having this information would have had a bigger effect in earlier years, but this suggests the ethnicity variable gives a reasonably strong indication of foreign-born status.

We now turn to a formal event study differencing the full series. Specifically, Figure 2 Panel B plots the estimated coefficients,  $\theta_{\tau}$ , with 95% confidence intervals, on interactions between a Mexican dummy and dummies for year bins, from the regression:

<sup>&</sup>lt;sup>17</sup> We classify as "foreign-born" those who report being non-citizens or naturalized citizens.

(1) 
$$LL_{it} = \alpha_0 + \alpha_1 Mex_i + \sum_{\tau \neq 1985 - 87} \theta_\tau D[t = \tau] \times Mex_i + \delta_t + \varepsilon_{it},$$

where  $LL_{it}$  is a dummy equal to 1 if respondent *i* in year *t* meets the criteria to be "likely legal,"  $Mex_i$  is a dummy for Mexican ethnicity,  $D[t = \tau]$  are indicators for three-year bins (excluding 1985-87),  $\delta_t$  are unrestricted year effects, and  $\varepsilon_{it}$  is an error term.<sup>18</sup>  $\theta_{\tau}$  thus represents the change in share likely legal for Mexicans relative to Mexican Americans (or non-Hispanic Blacks) in year bin  $\tau$  compared to 1985-87. Standard errors are calculated to be robust to heteroskedasticity and arbitrary error correlation within household.

Figure 2 Panel B reveals no further convergence of Mexicans to the likely legal share of Mexican Americans after 1992: the gap between Mexicans and Mexican Americans remains close to and statistically indistinguishable from what it was in 1985-87. As expected, it shows a slightly larger increase relative to non-Hispanic Blacks, owing to their flatter trends. For both comparison groups, the estimates also imply no convergence prior to 1985-87, consistent with the parallel trends assumption required for causal inference in a difference-in-differences model.

Table 1 summarizes the estimates in Figure 2 using a simple differences-indifferences specification, which replaces the interaction terms in (1) with  $Mex_i \times D[t \ge$ 1988]. The means are themselves not encouraging: barely half of Mexican Americans and two-thirds of non-Hispanic Blacks have the occupational or benefit-use characteristics of those who are likely legal (Panel A). To be clear, the share likely legal is lower among Mexicans, at around 25 percent, but this figure hardly budges after IRCA, rising less than 3 percentage points. Even some of this small change may be due to cohort aging or

<sup>&</sup>lt;sup>18</sup> In tabular estimates, age and education controls will be added to this, entered as quadratics that are allowed to differ before and after 1985-1987. Note that by "unrestricted year effects" we mean individual year dummies.

macroeconomic trends: the increase for Mexican Americans is almost as large, at 1.8 percentage points, and the relative increase is below a percentage point in magnitude and insignificantly different from zero (Panel B). In contrast, the change for non-Hispanic Blacks is negative, and the corresponding increase for Mexicans relative to non-Hispanic Blacks is larger (Panel C).

The next estimates in the table address possible biases from differential changes in the composition of the treatment and comparison groups by adding flexible controls for age and education – a quadratic in each that is allowed to differ before and after 1985-87. This specification makes the estimated relative increase even smaller when Mexican Americans are the comparison group, and larger when non-Hispanic Blacks are the comparison group. However, the upper end of a 95% confidence interval is below 8 percentage points when the comparison group is Blacks and below 3 percentage points when the comparison group is Mexican Americans. Both are well below 0.3, the anticipated change in share likely legal in the ASEC.

We also estimated effects for separate components of proxy, examining separate (but not mutually exclusive) dependent variables for meeting the occupational and benefit use criteria for being likely legal, as well as being a spouse, child, or grandchild of someone with these characteristics. Figure 3 plots the event study coefficients; Table A3 gives the underlying means and difference-in-differences estimates. The benefit use component (Panel B) drives the increases we observe; though benefit use levels for Mexicans are lower than for either comparison group, they are rising slightly faster.<sup>19</sup> The timing also lines up with when most IRCA LPRs could access federal social assistance. However, likely legal share

<sup>&</sup>lt;sup>19</sup> This is consistent with Cascio and Lewis's (2019) finding for the EITC (not observed in this analysis).

is dragged down by a relative decline in the share working in licensed occupations (Panel B), which is rising in the comparison but not treatment group. Being a relative of someone in these occupations or using these public benefits increases the overall relative change, regardless of the comparison group (Panel C).

Another way to see the importance of program use to these findings is to re-estimate these models separately by sex, since women have higher rates participation in public programs. Differential changes in likely legal share among Mexicans are slightly larger for women than for men in some cases (Table A4).<sup>20</sup>

#### C. Other Measures of Legal Status

Finally, we examine two other measures of legal status that are feasible in the ASEC only starting in 1994. First, we consider an unmodified version of the Borjas (2017) proxy.<sup>21</sup> Relative to the version used in Figure 2 and Table 1, this version expands the likely legal definition to include the foreign-born who (1) report being naturalized citizens; (2) arrived before 1980; or (3) had spouses, parents, or grandparents with either of these characteristics. Second, we look at citizenship alone.

Results are shown in Figure 4, with Panel A giving trends in means for the unmodified proxy, and Panel B giving trends in citizen share. We continue to plot the data a year prior to the survey year, consistent with earlier graphs. However, due to differences in scale, we now give the means in separate graphs (with the same y-axis range) for the comparison groups (upper half of figure) and Mexicans (lower). Likely legal share under the unmodified proxy

<sup>&</sup>lt;sup>20</sup> Separate estimates by sex are also of independent interest. For example, Amuedo-Dorantes et al. (2007) argued there were sex differences into the response to legalization, with females more likely to respond by dropping out of the workforce, leading to selection bias in the measurement of wage impacts of legalization. <sup>21</sup> It is unmodified with one immaterial exception: we do not define the Cuban-born to be "likely legal." As we are not examining Cubans, this should not affect our results.

rises only a little bit for Mexicans between 1993 and 1999. We do not have the data to rule out an earlier rise, but the time-varying component added over previous figures – citizenship – would not have changed among IRCA legalized immigrants prior to 1994, the first year they became eligible to naturalize. Moreover, the increase in likely legal share over 1993 to 1999 under the unmodified definition is similar to what is seen under the broader definition over the same period (Figure A3).

On the other hand, citizenship – an actual measure of legal status – seems to do a reasonably good job of capturing changes in the status of Mexicans. Panel B shows a sharp rise in citizen share among Mexicans in the late 1990s, and the magnitude of the increase is roughly in line with expectations from actual naturalizations among the Mexicans who legalized under IRCA. In particular, using administrative data, Rytina (2002) shows that 30 percent of Mexicans becoming LPRs through IRCA naturalized by the end of the 1990s. We might therefore expect an increase in the likelihood of citizenship of roughly half this size in the ASEC, as roughly half of Mexicans in these data were legalized by IRCA (section II.C). And indeed, citizen share among Mexicans in the ASEC rises by 15 percentage points, from 25 to 40 percent. Thus, incorporation of program use and occupation in the likely legal proxy largely cancels out the signal in rising citizenship rates.

#### IV. Discussion

Given the large share of Mexicans who gained legal status during this period, why does the share likely legal increase so little in survey data? The leading interpretation is that occupation and use of public benefits provide only a very weak signal of legal status. In this section, we briefly consider alternative interpretations.

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One concern is that immigrants endogenously change their self-reported ethnicity to "Mexican American" upon gaining legal status, biasing our estimates downward. To investigate this possibility, we looked for an upward trend break in the fraction of those of any Mexican ethnicity who report being Mexican American. Instead of rising, the share of ethnic Mexicans who say they are Mexican American continues its nearly linear downward trend after IRCA (Figure A4), presumably driven by the arrival of new Mexican immigrants. Moreover, this concern does not apply to analyses using non-Hispanic Blacks as the comparison group.

Another interpretation is tied to continued Mexican immigration: while IRCA LPRs made up a large share of Mexicans living in the U.S. in 1990, their share may have declined due to large inflows of unauthorized Mexican immigrants over the 1990s. While Mexican immigration did indeed surge in the 1990s, not all newly arrived Mexicans were unauthorized: many were the immediate family of those legalized under IRCA, and so should also have been LPRs (Cascio and Lewis, 2023). As earlier described, the share of self-reported Mexicans with LPR status in our sample may have declined only a few percentage points in the 1990s. We incorporated this change into our benchmarks for the ASEC analysis.

Finally, the ASEC may simply do a poor job of surveying the migrants who were legalized under IRCA. We cannot rule out this possibility. Working against it, though, is the fact that citizen share in the ASEC among Mexicans rises in line with expectations from administrative data (Figure 4). In any case, if the ASEC is so unrepresentative of the immigrant population, one would also tend to doubt its suitability for making inferences about immigrant legal status at all. So why might benefit use and occupation variables do a poor job of capturing the legal status of Mexicans? Contributing factors may include low take-up of public programs by immigrants (e.g., Currie, 2004), and the fact that legalization was not associated with much immediate change in the occupations of those legalized (Kossoudji and Cobb-Clark, 2000). Many of the Mexicans legalized under IRCA may have also continued to be farm workers, an unlicensed occupation that about half of them were in at the time of legalization.<sup>22</sup>

#### V. Conclusion

This paper finds that a prominent proxy for legal status derived from occupation and program participation exhibits little increase among Mexicans who were granted LPR status by IRCA, either in absolute terms or relative to comparison groups not directly affected by IRCA's legalization programs. This result suggests these occupation and benefit use variables have limited value in generating a proxy for legal status among Mexicans in survey data. It also suggests those variables are unlikely to be effective in capturing changes in the size of unauthorized population. However, we do find that changes in selfreported citizenship capture actual naturalizations.

Collectively, our findings suggest researchers interested in the effect of legal status, descriptively or causally, may be better served by pursuing or creating data sources that attempt to measure legal status directly, as for example the Census Bureau does for their estimates of the unauthorized population (e.g., Baker, 2021).

<sup>&</sup>lt;sup>22</sup> Using the microdata on the universe of legalization applications (Department of Justice, 1991-1995 a,b,c) we calculate that 47 percent of Mexicans born between 1940 and 1969, legalized under IRCA, did so through the SAW program. This includes 57 percent of men and 25 percent of women.

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*Sources:* Treatment group #1: 1989 and 1992 waves of the Legalized Population Survey (LPS). Comparison groups and treatment group #2: 1986, 1987, 1988 (for 1986) and 1992, 1993, and 1994 (for 1992) Annual Social and Economic Supplements (ASEC) of the Current Population Survey. All samples limited to those born 1940-69.

*Notes*: Figure plots share likely legal under the harmonized definition (Table A1). The 1989 LPS measured characteristics prior to implementation of IRCA, roughly in 1986. ASEC data year is the year prior to ASEC survey year (e.g., the 1987 survey gives 1986 data). See Table A2a for the means underlying this figure and Table A2b for the difference-in-differences of these means.



#### Figure 2. Likely Legal Share, Broader Definition

Sources: ASEC, 1983-2000. Sample limited to those born 1940-69.

*Notes*: Panel A plots share likely legal under the broader definition (Table A1), by group and year bin. Panel B shows coefficients on interactions between year bin dummies and a dummy for Mexican ethnicity from a regression that also includes dummies for year and Mexican ethnicity; the comparison group consists either of Mexican Americans or non-Hispanic Blacks. The outcome variable is a dummy for likely legal under the broader definition. Bars show 95% confidence intervals, with standard errors robust to arbitrary error correlation within household and to heteroskedasticity. Data year is the year prior to the survey year (e.g., the 1987 survey gives 1986 data).



Figure 3. Changes in (not Mutually Exclusive) Components of Likely Legal Share

*Notes*: Each panel plots coefficients on interactions between year bin dummies and a dummy for Mexican ethnicity from a regression that also includes dummies for year and Mexican ethnicity; the comparison group consists either of Mexican Americans or non-Hispanic Blacks. The dependent variable is a dummy for a component of likely legal status: occupation (Panel A), public income use (Panel B), or being related to someone with either (Panel C). The broader definition of likely legal (Table A1) is defined as being in any of these categories, so they are not mutually exclusive. Bars show 95% confidence intervals, with standard errors robust to arbitrary error correlation within household and to heteroskedasticity. Data year is the year prior to the survey year (e.g., the 1987 survey gives 1986 data).

*Sources*: ASEC, 1983-2000. Sample limited to those born 1940-69.



## Figure 4. Other Legal Status Measures

*Sources*: ASEC, 1994-2000. Sample limited to those born 1940-69.

*Notes*: Panel A plots the share with likely legal status defined using code from Borjas (2017), which includes everything in the "broader" definition (Table A1) plus being a naturalized citizen or an immigrant who arrived before 1980. Panel B plots the share who are U.S. citizens. All are plotted in the year prior to the survey.

	Before	After	Change
	(1)	(2)	(3)
A. Share Likely Legal Over	· Time, by Grou	ир	
Mexicans	0.251	0.278	0.0275
			(0.00720)
Mexican-Americans	0.499	0.516	0.0176
			(0.00742)
Non-Hispanic Blacks	0.628	0.618	-0.0101
			(0.00431)
B. Difference: Mexicans - 1	Mexican Ameri	cans	
Difference	-0.248	-0.238	0.00992
	(0.00841)	(0.00574)	(0.0102)
Difference with	-0.182	-0.173	0.00839
Controls: <sup>a</sup>	(0.00895)	(0.00618)	(0.0109)
C. Difference: Mexicans - N	Non-Hispanic E	Blacks	
Difference	-0.378	-0.340	0.0376
	(0.00708)	(0.00451)	(0.00839)
Difference with	-0.346	-0.287	0.0584
Controls: <sup>a</sup>	(0.00807)	(0.00541)	(0.00972)
Observations			
Mexicans	10,435	28,832	39,267
Mexican-Americans	15,539	23,103	38,642
Non-Hispanic Blacks	41,106	65,611	106,717
•			

# Table 1. Likely Legal: Means by Group, Changes Before and AfterIRCA, and Difference-in Differences, 1982-1999

*Sources*: 1983-2000 ASEC. Sample limited to those born 1940-69.

*Notes*: Standard errors (in parentheses) are robust to arbitrary error correlation within household and to heteroskedasticity. Data year is the year prior to the survey year (e.g., the 1987 survey gives 1986 data), with "after" IRCA defined as data years 1988 and later. <sup>a</sup>Quadratic in age and years of education, entered separately before and after 1987, and unrestricted year effects.



*Sources*: Annual Social and Economic Supplements (ASEC) of the Current Population Survey, 1983-2000 (upper lines) and the 1989 and 1992 waves of the Legalized Population Survey (LPS, plotted at 1985-87 and 1991-93, respectively; lowest line). Sample limited to those born 1940-69. *Notes*: Figure plots share likely legal under the harmonized definition (Table A1), by group and year bin. ASEC data year is the year prior to the ASEC survey year (e.g., the 1987 survey gives 1986 data). 1985-87 and 1991-93 points are the same as in Figure 1.



Figure A2. Change in Likely Legal Share, Mexicans Relative to Others Harmonized Definition

Sources: 1983-2000 ASEC. Sample limited to those born 1940-69.

Notes: Figure shows coefficients on interactions between year bin dummies and a dummy for Mexican ethnicity from a regression that also includes dummies for year and Mexican ethnicity; the comparison group consists either of Mexican Americans or non-Hispanic Blacks. The outcome variable is a dummy for likely legal under the harmonized definition (Table A1). Bars show 95% confidence intervals, with standard errors robust to arbitrary error correlation within household and to heteroskedasticity. Data year is the year prior to the survey year (e.g., the 1987 survey gives 1986 data).



Figure A3. Change in Mexican Likely Legal Share Since 1993, All Definitions

*Sources*: 1994-2000 ASEC. Sample limited to those born 1940-69.

*Notes*: Data year is the year prior to the survey year (e.g., the 1994 survey gives 1993 data). See Table A1 for "harmonized" and "broader" definitions of likely legal. The "unmodified" definition uses the original Borjas (2017) code. Bars show 95% confidence intervals; standard errors are robust to heteroskedasticity and error correlation within household.



*Sources*: ASEC, 1983-2000. Sample limited to self-reported Mexicans and Mexican Americans born 1940-69. *Notes*: Data year is the year prior to the survey year (e.g., the 1987 survey gives 1986 data).

## Table A1. Definitions of Likely Legal Used

		Broader Definition Harmonized Definiti		<u>d Definition</u>
		ASEC	ASEC	LPS
	Licensed occupations	Yes <sup>1</sup>	Yes <sup>2</sup>	Yes <sup>3</sup>
By occupation	Working for government	Yes (Class of Worker)	Yes (Industry)	Yes (Industry)
	Serving in armed forces	Yes (Class of Worker and Occupation)	Yes (Occupation Only)	Yes (Occupation Only)
	Veteran	Yes	Not considered	Not considered
By public income use		Social Security, SSI, Medicaid, Medicare, Military Insurance, Public Housing <sup>4</sup> , Subsidized Rent <sup>5</sup>	Social Security, Medicaid, Medicare <sup>6</sup>	Social Security, Medicaid, Medicare <sup>7</sup>
By family relationship <sup>8</sup>		Yes	No	No

Notes: The "broader definition" adapts the STATA code from Borjas (2017), removing those given likely legal status based on citizenship or year of immigration (not observable in pre-1994 ASEC), and makes minor coding changes to adapt changes in the data. The "harmonized definition" further restricts to what can also be measured in the Legalized Population Survey (LPS).

1. Include: legislators; chief executives and public administrators; postmasters and mail superintendents; funeral directors; accountants and auditors; construction inspectors; inspectors and compliance officers, outside construction; architects; health diagnosing occupations; health assessment and treating occupations; teachers, except postsecondary; lawyers; judges; health technologists and technicians; airplane pilots and navigators; air traffic controllers; insurance adjusters, examiners, and investigators; firefighting and fire prevention occupations; police and detectives; inspectors of agricultural products; military 2. Identical to 1, but excluding: legislators; postmasters and mail superintendents; funeral directors; judges; inspectors of agricultural products.

3. Same as 2.

4. Also spouse or children of householder living in public housing

5. Also spouse or children of householder receiving subsidized rent

6. Also if spouse receives Social Security income, Medicaid, or Medicare

7. Also if any family member living with the individual receives Social Security income, Medicaid, or Medicare

8. If the individual is the spouse, child, or grandchild of a householder who meets the other criteria for likely legal; for spouse, as long as married spouse present.

Source	1986 <sup>a</sup>	1992 <sup>b</sup>	Change
	(1)	(2)	(3)
LPS	0.043	0.095	0.0522
			(0.00795)
ASEC	0.122	0.185	0.0636
			(0.00894)
ASEC	0.191	0.238	0.0475
			(0.00901)
ASEC	0.289	0.320	0.0312
			(0.00584)
LPS	1,736	1,736	3,472
ASEC	5,158	7,088	12,246
ASEC	7,117	6,625	13,742
ASEC	19,867	17,751	37,618
	Source LPS ASEC ASEC ASEC ASEC ASEC ASEC	Source 1986 <sup>a</sup> (1) (1)   LPS 0.043   ASEC 0.122   ASEC 0.191   ASEC 0.289   LPS 1,736   ASEC 5,158   ASEC 7,117   ASEC 19,867	Source 1986 <sup>a</sup> 1992 <sup>b</sup> (1) (2)   LPS 0.043 0.095   ASEC 0.122 0.185   ASEC 0.191 0.238   ASEC 0.289 0.320   LPS 1,736 1,736   ASEC 5,158 7,088   ASEC 7,117 6,625   ASEC 19,867 17,751

### Table A2a. Likely Legal Share, Harmonized Definition

*Sources:* Treatment group #1: 1989 and 1992 waves of the Legalized Population Survey (LPS). Comparison groups and treatment group #2: 1986, 1987, 1988 (for 1986) and 1992, 1993, and 1994 (for 1992) Annual Social and Economic Supplements (ASEC) of the Current Population Survey. All samples limited to those born 1940-69.

*Notes*: See Table A1 for "harmonized" definition of likely legal. ASEC data year is the year prior to the ASEC survey year (e.g., the 1987 survey gives 1986 data).

Treatment Group:	Mexicans-LPS	Mexicans-ASEC						
	(1)	(2)						
A. Comparison Group: Mexican Americans in the ASEC:								
Difference-in-	0.00467	0.0161						
Difference	(0.0120)	(0.0125)						
Observations	17,205	25,970						
B. Comparison Group: Non-Hispanic Blacks in the ASEC:								
Difference-in-	0.0210	0.0324						
Difference	(0.00986)	(0.0107)						
Observations	41,086	49,851						

## Table A2b. Difference-in-Differences Estimates of Impact of IRCA on Share Likely Legal, Harmonized Definiton

*Sources:* Treatment group #1: 1989 and 1992 waves of the Legalized Population Survey (LPS). Comparison groups and treatment group #2: 1986, 1987, 1988 (for 1986) and 1992, 1993, and 1994 (for 1992) Annual Social and Economic Supplements (ASEC) of the Current Population Survey. All samples limited to those born 1940-69.

*Notes*:. See Table A1 for "harmonized" definition of likely legal. ASEC data year is the year prior to the ASEC survey year (e.g., the 1987 survey gives 1986 data).

	A. In A Licensed Occupation		<u>B. Has Public Income</u>			<u>C. Related to Likely Legal Person</u>			
	Before	After	Change	Before	After	Change	Before	After	Change
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
I. Share Over Time by	Group								
Mexicans	0.062	0.074	0.0111	0.123	0.143	0.0199	0.193	0.207	0.0143
			(0.00338)			(0.00519)			(0.00674)
Mexican-Americans	0.206	0.249	0.0432	0.157	0.154	-0.00347	0.398	0.388	-0.00959
			(0.00511)			(0.00510)			(0.00746)
Non-Hispanic Blacks	0.245	0.300	0.0548	0.281	0.251	-0.0302	0.408	0.360	-0.0478
			(0.00326)			(0.00377)			(0.00459)
II. Difference: Mexicans	s - Mexican A	Mericans							
Difference	-0.144	-0.176	-0.0321	-0.0343	-0.0109	0.0234	-0.205	-0.181	0.0239
	(0.00481)	(0.00376)	(0.00611)	(0.00590)	(0.00409)	(0.00717)	(0.00817)	(0.00555)	(0.00988)
Difference with	-0.0729	-0.0937	-0.0208	-0.0546	-0.0380	0.0166	-0.150	-0.125	0.0255
Controls: <sup>a</sup>	(0.00479)	(0.00385)	(0.00615)	(0.00650)	(0.00447)	(0.00789)	(0.00875)	(0.00597)	(0.0106)
III. Difference: Mexicans - Non-Hispanic Blacks									
Difference	-0.182	-0.226	-0.0437	-0.158	-0.108	0.0501	-0.215	-0.153	0.0621
	(0.00380)	(0.00276)	(0.00470)	(0.00539)	(0.00349)	(0.00642)	(0.00688)	(0.00437)	(0.00815)
Difference with	-0.0810	-0.0968	-0.0158	-0.246	-0.189	0.0573	-0.168	-0.0893	0.0791
Controls: <sup>a</sup>	(0.00427)	(0.00325)	(0.00537)	(0.00650)	(0.00436)	(0.00783)	(0.00808)	(0.00525)	(0.00964)

Table A3. (Not Mutually Exclusive) Components of Likely Legal Share Before and After IRCA, and by Group, 1982-1999

*Sources*: 1983-2000 ASEC. Sample limited to those born 1940-69.

*Notes*: Standard errors (in parentheses) are robust to arbitrary error correlation within household and to heteroskedasticity. Data year is the year prior to the survey year (e.g., the 1987 survey gives 1986 data), with "after" IRCA defined as data years 1988 and later. <sup>a</sup>Quadratic in age and years of education, entered separately before and after 1987, and unrestricted year effects.

	<u>A. Males</u>			<u>B. Females</u>			
	Before	After	Change	Before	After	Change	
	(1)	(2)	(3)	(1)	(2)	(3)	
I. Share Over Time, by Gro	oup						
Mexicans	0.209	0.233	0.0236	0.303	0.333	0.0298	
			(0.00804)			(0.00887)	
Mexican-Americans	0.484	0.500	0.0159	0.513	0.532	0.0191	
			(0.00931)			(0.00836)	
Non-Hispanic Blacks	0.604	0.599	-0.00494	0.648	0.633	-0.0147	
			(0.00574)			(0.00474)	
II. Difference: Mexicans -	Mexican Amer	icans					
Difference	-0.275	-0.267	0.00772	-0.210	-0.200	0.0107	
	(0.0100)	(0.00705)	(0.0123)	(0.0100)	(0.00683)	(0.0122)	
Difference with	-0.196	-0.193	0.00253	-0.158	-0.144	0.0138	
Controls: <sup>a</sup>	(0.0108)	(0.00766)	(0.0132)	(0.0109)	(0.00755)	(0.0132)	
III. Difference: Mexicans -	Non-Hispanic	Blacks					
Difference	-0.395	-0.367	0.0285	-0.345	-0.301	0.0445	
	(0.00823)	(0.00546)	(0.00988)	(0.00851)	(0.00536)	(0.0101)	
Difference with	-0.349	-0.300	0.0493	-0.331	-0.264	0.0673	
Controls: <sup>a</sup>	(0.00980)	(0.00690)	(0.0120)	(0.00987)	(0.00662)	(0.0119)	
Observations							
Mexicans	5,526	15,036	20.562	4,909	13,796	18.705	
Mexican-Americans	7,397	10,866	18.263	8,142	12,237	20.379	
Non-Hispanic Blacks	17.714	27.808	45 522	23.392	37803	61,195	
non mopulie blacks		27,000	10,011	_0,07_	57,000	01,170	

Table A4. Likely Legal Share Before and After IRCA, and Difference-in Differences, 1982-1999, by Sex

*Sources*: 1983-2000 ASEC. Sample limited to those born 1940-69.

*Notes*: Standard errors (in parentheses) are robust to arbitrary error correlation within household and to heteroskedasticity. Data year is the year prior to the survey year (e.g., the 1987 survey gives 1986 data), with "after" IRCA defined as data years 1988 and later. <sup>a</sup>Quadratic in age and years of education, entered separately before and after 1987, and unrestricted year effects.