

# Shattered Dreams: the Economic Impact of Eliminating DACA

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June 4, 2024

## Abstract

We present a novel imputation for legal immigrant status in 2023, which identifies likely DACA recipients, and provide estimates of the short-term and long-term income losses stemming from the potential elimination of the Deferred Action for Childhood Arrivals (DACA) program. Our estimates account for the youth of DACA recipients, which implies that their current earnings underestimate their potential lifetime contribution to the U.S. economy due to incomplete educational attainment and the early stage of their professional careers. We estimate that losing work authorization would lower the income of the average DACA recipient by about \$5,300 annually, adding up to \$2.9 billion for the approximately 530,000 current recipients. Cumulatively over their remaining working lives, the income loss grows to approximately \$70,000 per recipient and \$38 billion in the aggregate. If the elimination of the program leads to deportation and a complete exit from the U.S. labor market, per-person income losses increase *six-fold* to \$32,000 annually, \$430,000 over the lifetime, and \$233 billion in aggregate. The losses become substantially larger if the program's rescission also affects the earnings of spouses and other *Dreamers* (undocumented immigrants who entered the country as children).

*Keywords:* Migration, Undocumented, DACA, Legalization

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# 1 Introduction

Based on an executive action by President Obama in 2012, the Deferred Action for Childhood Arrivals (DACA) program has provided temporary relief from deportation and a work permit to over 800,000 undocumented youth who entered the United States as children. Since 2017, the DACA program does not accept new applications and has faced several legal challenges. Without congressional action, the program is precarious legal grounds and could be revoked.

From an economic perspective, eliminating the program would mean that the resources invested by state and local governments in providing K-12 education to DACA recipients would not yield the anticipated returns, particularly in terms of tax revenue. The goal of this paper is to estimate the economic losses that would result from revoking DACA, taking into account the socio-economic characteristics of its beneficiaries. In particular, DACA recipients are substantially younger (by about 12 years) than the average individual in the workforce. As a result, we develop a methodology to estimate the resulting short-term and long-term income losses that takes into account age-earnings profiles and that the youngest DACA recipients have not yet completed their educational attainment. Importantly, our estimates decompose the effects of a potential elimination of the program into the losses arising from the loss of work authorization and those due to deportation under multiple scenarios that vary according to the affected population. Crucially, our analysis relies in a new legal status imputation that identifies likely DACA recipients and provides a nationally representative sample of the immigrant population in the United States for year 2023.

Our analysis reveals substantial economic losses following a potential elimination of the DACA program and shows that failing to account for the younger age of the recipients leads to underestimating of the losses. We estimate that losing work authorization would lower the employment rate of DACA recipients by about 6 percentage points and annual earnings by about 11 percent (for those that continue working). Applying these estimates to individual recipients implies that becoming undocumented entails an annual earnings loss of about \$5,067, which rises to \$5,340 when including business and capital income. Taking into account the currently 530,000 DACA recipients, the aggregate annual loss adds up to \$2.9 billion loss. Adding up over their remaining working lives, the loss in (the present value of income) for the average recipient would range between \$64,338 and \$70,280, where the latter estimate imputes completed educational attainment for individuals younger than 22 at the time of the survey. We estimate the aggregate income

loss from removing work authorization for DACA recipients to range between \$35 and \$38 billion.

Furthermore, losing DACA could lead to deportation, obviously lowering to zero recipients' earnings in the U.S. labor market. We estimate that this would imply an annual income loss of \$32,680 for the average DACA recipient. Accounting for incomplete educational attainment of the youngest group in the population, the lifetime loss in income becomes \$430,000 per recipient and \$233 billion in the aggregate. These losses would be substantially larger if the elimination of the program also implied that the approximately 600,000 DACA-eligible individuals who do not have a DACA permit, and the (non-DACA) spouses of all DACA-eligible individuals also abandon the labor market. The aggregate income losses could reach up to \$53 billion annually (0.21% of GDP) and \$648 billion in terms of lifetime income.

Our analysis is closely related to empirical studies estimating the effects of the *adoption* of DACA. The empirical analysis by [Pope \(2016\)](#), [Amuedo-Dorantes and Antman \(2017\)](#), and [Hsin and Ortega \(2018\)](#) find that DACA increased recipients' employment rate by around 7 percentage points, which is very similar to our own estimates.<sup>1</sup> More recently, [Zaiour \(2023\)](#) confirms that DACA increased employment for its recipients (by about 4 percentage points) as well as labor force participation between 2012 and 2016. She also finds that these effects diminish considerably after 2017, coinciding with the beginning of a series of court challenges and the resulting increase in uncertainty regarding recipients' status. Our study is also related to [Ortega et al. \(2019\)](#) who use calibrated general-equilibrium models to estimate the economic effects of the program and find annual GDP gains of \$3.5 billion.<sup>2</sup> Last, our analysis is conceptually similar to [Clemens et al. \(2017\)](#) who study the termination of the *Bracero* program in 1964, a bilateral agreement between the United States and Mexico that allowed Mexican workers to work temporarily in U.S. farms. They find that the termination of the program failed to increase employment and wages for U.S.-born workers.

Relative to these studies, our paper contributes to the literature on the effects of providing or withdrawing legal status to undocumented workers in several ways. First, we build on previous work by demographers and economists to develop a new method to identify likely recipients of DACA, along with other eligible individuals, and the

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<sup>1</sup>In a similar vein, [Kuka et al. \(2020\)](#) find that DACA led to an increase in teenagers' human capital investments, such as an increase in high-school completion and a reduction in teenage pregnancies.

<sup>2</sup>Using a similar methodology, [Edwards and Ortega \(2017\)](#) and [Peri and Zaiour \(2021\)](#) both conclude that legalizing *all* undocumented immigrants would increase GDP by approximately \$170 billion annually.

corresponding spouses. Second, we quantify the short-run and long-run income losses from a potential elimination of the DACA program, taking into account that the affected population is much younger, on average, than the rest of the workforce. This entails accounting for age-earning profiles and the incomplete educational attainment of youngest individuals, which had not been done in previous analyses. Last, our analysis decomposes the income losses derived from the loss of work authorization from those resulting from deportation, and produces loss estimates that also consider DACA-eligible, non-recipient individuals and the spouses of DACA-eligible individuals.

Besides contributing to the literature on the labor-market effects of DACA, our paper is also related to a larger literature analyzing the effects of lack of legal status on earnings. Practically all studies in this strand of literature require imputing legal status to individual-level data, prior to estimating the wage gap between likely undocumented and documented (foreign-born) workers. Based on the CPS, [Albert \(2021\)](#) estimates that undocumented immigrants earn about 8% less than natives with similar characteristics. Using the American Community Survey, [Borjas and Cassidy \(2019\)](#) report that the hourly wages of undocumented workers are about 34% lower, on average, than for legal immigrants. Their analysis also shows that, after adjusting for differences in observable socioeconomic characteristics, the resulting wage gap (for men) narrows to about 6% (before DACA was implemented). Similar estimates are also reported in [Ortega and Hsin \(2022\)](#) who develop a method to extract the productivity loss associated to lack of legal status from the undocumented wage penalty, accounting for employer exploitation and distortions in occupational choices (and hence earnings) due to that lack of legal status. They find that lack of legal status lowers the productivity of a substantial proportion of undocumented workers by at least 12%. This finding implies that legalizing undocumented workers entails an annual GDP gain upwards of 0.96% (or about \$200 billion).<sup>3</sup>

The paper is structured as follows. [Section 2](#) discusses data sources, our imputation for legal status, and summary statistics. [Section 3](#) introduces our modeling framework. [Section 4](#) discusses our estimates for the determinants of earnings and employment, characterizes the age-earnings profile and discusses the imputation for educational attainment. [Section 5](#) discusses our estimates of the income losses associated with the elimination of the DACA program. [Section 6](#) summarizes our conclusions.

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<sup>3</sup>Some studies have shown that undocumented immigrants can have benefits that may not be captured by GDP. [Almuhaisen et al. \(2024\)](#) show that the presence of undocumented workers in a county is associated to lower elderly institutionalization rates.

## 2 Data and legal status imputation

### 2.1 Legal status imputation

No large-scale survey identifies undocumented status. In addition, estimation of the size of the immigrant population in the United States is further complicated by the recent surge in entry via the southern border in recent years. We address these problems by assigning immigrant status in the 2022 *American Community Survey (ACS)* on the basis of the socio-demographic characteristics of the respondents and projecting the immigrant population forward to 2023.

*Immigrant population.* It is well-established that the foreign-born population and, particularly, those with undocumented status, are typically undercounted in nationally representative surveys (Van Hook et al., 2014a). To mitigate this problem, we first re-weight the 2022 ACS data on the basis of known 2020 Census undercounting of certain groups, which enlarges the total immigrant population by about 1 million (to 47.1 million). To project the immigrant population forward to 2023, we rely on various sources of administrative data to estimate arrivals through to March 31, 2023. We then adjust the ACS population weights by nationality and age to reflect the same characteristics as the most recent arrivals in the sample. The resulting dataset is representative of the size and characteristics of the U.S. immigrant population in year 2023.

*Undocumented immigrants.* We adopt the so-called residual method (Warren and Warren, 2013; Passel and Cohn, 2014; Albert, 2021; Borjas and Cassidy, 2019; Peri and Zaiour, 2021; Zaiour, 2023) to identify undocumented immigrants by subtracting likely *lawful* immigrants (naturalized immigrants, permanent residents, visa holders) from the *total* immigrant population estimated above (following closely Borjas and Cassidy (2019)). In addition, we account for recent arrivals that likely led to unauthorized stays between 2021 and 2023 using data for encounters by border patrol and non-admissions at ports of entry.<sup>4</sup> This additional re-weighting of the data increased the overall estimate for the undocumented population, better reflecting the size of this group in 2023.<sup>5</sup>

*DACA-eligible and recipients.* Central to our analysis, we also identify the subset of (likely) undocumented individuals with protected status (from deportation). Building on previous work, we identify DACA-*eligible* individuals on the basis of their entry date

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<sup>4</sup>Auxiliary analysis based on data from the Department of Homeland Security and the Customs and Border Protection make clear that these recent inflows were not reflected in the 2022 ACS.

<sup>5</sup>Over the last decade, the use of legal status imputations in social science research has grown rapidly. As highlighted by Van Hook et al. (2014b) and Spence et al. (2020), it is important to be aware that the findings from these studies may not be robust to specific details on the underlying imputation.

into the United States (before 2008), age (41 years old or younger as of 2022), education level (high school diploma or equivalent or full-time student status).<sup>6</sup> The identification took place *after* the assignment of all nonimmigrant visa statuses (as indicated by year of entry, educational qualifications, origins, and occupational statuses), the bulk of lawful permanent residency assignments (including those who likely entered the U.S. as recent resettled refugees, beneficiaries of social welfare programs, or those married to citizens for more than a decade), as well as those who are likely *Temporary Protected Status* holders (based on origin country and years in the U.S.). Since DACA recipients (thanks to work authorization) can access occupations that other undocumented individuals cannot, such as those requiring licensing, recipient status was selected *before* the assignment of undocumented individuals without such access to certain occupations.

As it turns out, the resulting number of candidate individuals based on these logical edits is substantially larger than the number of recipients according to USCIS data. We resolve this by implementing probabilistic assignment of likely DACA-recipient status to match several target variables based on 2023 USCIS data on the number and characteristics (including state of residence, origin country, and gender) of DACA recipients. The remaining candidate individuals are considered eligible, non-recipients. Our final dataset contains about 530,000 current DACA recipients (in line with USCIS data) and about 600,000 other non-recipient, eligible individuals.<sup>7</sup>

## 2.2 Summary statistics

Because our emphasis is on the labor force, we restrict our analysis to the population age 16-71. [Table 1](#) reports the summary statistics for the whole population and for the subset of DACA-eligible individuals (including recipients).<sup>8</sup> Our data contains about 530,000 DACA-recipients, in line with the USCIS reported total in 2023, making up 0.22% of the working-age population. The share rises to 0.47% if we also included the estimated 620,000 DACA-eligible non-recipients.

DACA-eligible individuals are substantially younger than the rest of the workforce,

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<sup>6</sup>The full list of DACA eligibility criteria contains: (i) Age requirements: under the age of 31 as of June 15, 2012, and having arrived in the United States before age 16; (ii) Continuous U.S. residence since June 15, 2007; (iii) Education requirement: currently in school, graduated from high school, obtained a GED certificate, or honorably discharged from the U.S. Army; (iv) A clean criminal record. Since the program rolled out in 2012, there have been more than 800,000 DACA recipients.

<sup>7</sup>Further details on the construction of our legal status imputation can be found at [FWD.us \(2023\)](#).

<sup>8</sup>The statistics were computed using survey weights, but we report the (unweighted) number of observations.

with an average age of 28 years (compared to 42 years for the workforce as a whole).<sup>9</sup> Compared to the working-age population as a whole, it is not surprising that DACA-eligible individuals are less likely to be married (31% versus 48%) and less likely to have *completed* a 4-year college degree (18% versus 32%). In addition, DACA-eligible individuals have a high rate of employment (78% versus 68% for the overall workforce) and relatively low average annual earnings (\$40,715 versus \$58,926), reflecting the early stage of their professional careers and, for some, their ongoing education.

### 3 Modeling Framework

Our modeling framework can be broken down in three stages. First, we will estimate a (Mincer-type) earnings model, extended to include (imputed) legal status, on our sample of employed individuals. Secondly, we will use the estimated coefficients to compute expected lifetime earnings at the individual level, taking into account each individual’s position in the age-earnings profile at the time of the survey. We will also take into consideration that the youngest group of individuals (age 16-22) may have not yet completed their education at the time of the survey. Lastly, we will consider several counterfactual scenarios regarding the effect of losing DACA on earnings and the size of the groups whose earnings (and employment) would be affected by the termination of the program.

#### 3.1 Worker types

It will be helpful to classify workers into several types on the basis of gender ( $f$ ), age ( $a$ ), education ( $e$ ) and (imputed) legal status ( $s$ ), denoted by a vector  $\theta = (f, a, e, s)$ . In contrast to DACA recipients, foreigners with valid visas and, obviously, U.S. citizens, undocumented workers cannot be lawfully employed, which has been shown to severely restrict their employment opportunities and earnings in the labor market (e.g. [Borjas and Cassidy \(2019\)](#); [Ortega and Hsin \(2022\)](#)). Accordingly, we consider 3 categories for legal status that reflect the labor market opportunities of each group: undocumented individuals (eligible for DACA or not) who are not authorized to work ( $s = 0$ ), DACA recipients who possess work renewable permits ( $s = 1$ ), and fully documented individuals ( $s = 2$ ). The latter group includes citizens and (foreign-born) non-citizens with a work visa or legal permanent residence.

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<sup>9</sup>Note that their age ranges from 16 to 41 years, reflecting the DACA eligibility requirements.

### 3.2 The earnings function

We will estimate the following model for individual earnings (in logs):

$$\ln w(\theta_i) = \pi_c + \pi_f f_i + \sum_{a=1}^A \pi_a D(a = a_i) + \sum_{e=1}^E \pi_e D(e = e_i) + \sum_{s=0}^1 \beta_s D(s = s_i) + \varepsilon_i, \quad (1)$$

where  $\pi_c$  denotes state-of-residence fixed-effects and the remaining terms contain dummy variables for gender, age groups, education groups, and legal status ( $f_i, a_i, e_i, s_i$ ), respectively. As usual, disturbance  $\varepsilon_i$  contains all remaining determinants of earnings. The model allows for non-linear effects of age and educational attainment on earnings by including indicator functions for age groups ( $D(a = a_i)$ ) and education groups ( $D(e = e_i)$ ), as well as earnings differences on the basis of legal status ( $D(s = s_i)$ ).<sup>10</sup> Coefficients ( $\beta_0, \beta_1$ ) identify the wage gaps for undocumented workers and for DACA recipients *vis-a-vis* documented workers, holding other characteristics constant. We expect  $\beta_0 < 0$ , due to the well-established undocumented wage penalty, and approximately  $\beta_1 = 0$  under the expectation that DACA recipients' labor market situation is similar to their documented counterparts with the same credentials. We will also estimate versions of the model where the dependent variable is total annual income (in logs), which will also include business income and income from investments.

It is important to note that the assumptions required to support a causal interpretation of the OLS estimate of the coefficient for the DACA recipient indicator are very stringent. Essentially, random assignment is required, which is highly implausible given that eligible individuals choose whether or not to apply for the program. To mitigate this problem, several studies have exploited plausibly exogenous variation in age at arrival (Pope, 2016; Amuedo-Dorantes and Antman, 2017).<sup>11</sup> However, our focus is on the effects of *losing* DACA. Because the loss of DACA status would apply to all current recipients, our estimate of the income losses is valid even if DACA recipients are a self-selected population.

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<sup>10</sup>Our implementation of Equation (1) will consider  $A = 9$  age groups (starting from age 16-22 and ending with age 65-71),  $E = 3$  education groups, and  $S = 3$  legal status groups. The omitted categories in the equation will be males, the lowest age group ( $a = 0$ ), the lowest education group ( $e = 0$ ), and the group of fully documented workers ( $s = 2$ ).

<sup>11</sup>Kuka et al. (2020) argue that a better comparison group is foreign-born *citizens* with the same age and year of arrival as DACA recipients.



### 3.3 Lifetime earnings

The earnings function in Equation (1) will be estimated on a single cross-section (for year 2022), but it can be used to characterize the age-earnings profile.<sup>12</sup> Conditional on gender, educational attainment and legal status, the estimated age-earnings profile will be used to project earnings to the end of each individual's working life (assumed to be age 71).

More specifically, let  $\gamma_i$  denote the observed log earnings of individual  $i$  (which reflect her gender, current age, education, legal status, and so on) and let  $a$  denote her age at the time of the survey. As she ages, her log earnings will be given by

$$\ln w(a + \tau) = \gamma_i + \pi_{a+\tau}, \quad (2)$$

for  $\tau = 1, \dots, (71 - a)$ .<sup>13</sup> Simple algebra shows that the gap in log earnings between the sample year and any future year is given by

$$\ln w(a + \tau) - \ln w(a) = (\gamma_i + \pi_{a+\tau}) - (\gamma_i + \pi_a) = \pi_{a+\tau} - \pi_a. \quad (3)$$

Hence, the earnings gap between baseline age  $a$  and  $\tau$  years later is given by

$$G(a + \tau) = \frac{w(a + \tau)}{w(a)} = \exp(\pi_{a+\tau} - \pi_a) \text{ for } \tau = 1, 2, \dots \quad (4)$$

Naturally, for individuals about to retire, the above equations imply that the log of earnings will simply be given by  $\gamma_i$ , which is directly observable in the data.

By analogy with asset valuation methods, we view workers as possessing human capital that will deliver earnings annually over their remaining working lives. Thus, the economic contribution of each individual worker can be viewed as the present-discounted value of the earnings it will generate. Besides the age-earnings profile (reflecting the estimated effect of career progression on earnings), our calculation of future earnings also incorporates a constant rate of economic growth so that real annual earnings grow

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<sup>12</sup>To gain precision in our estimates, we shall assume that all workers have the same age-earnings profile regardless of gender, education and legal status. Namely, we apply the same multiplicative age-factors to the baseline earnings observed in the data. In other words, all individual age-earnings profiles have the same shape but different baseline values.

<sup>13</sup>In practice, we consider 5-year age groups. Note that baseline earnings  $\gamma_i$  incorporate the effects of gender, education and legal status on earnings, which are assumed to remain fixed for the remainder of the individual's working life. We will consider in Section 3.4 individuals who have yet to complete their educational attainment at the time of the survey.

at a rate of  $g \geq 0$  per year, and discounts future earnings at a rate  $r \geq 0$ . More specifically, the expected lifetime earnings for an individual with current age  $a$  and current earnings  $w$  (keeping constant educational attainment and legal status) is given by:

$$PV(a, w) = w \left( 1 + \frac{(1+g)G(a+1)}{(1+r)} + \frac{(1+g)^2 G(a+2)}{(1+r)^2} + \dots \right) \quad (5)$$

$$= w \left( 1 + \frac{(1+g)\exp(\pi_{a+1} - \pi_a)}{(1+r)} + \frac{(1+g)^2 \exp(\pi_{a+2} - \pi_a)}{(1+r)^2} + \dots \right). \quad (6)$$

Naturally, our estimate of the aggregate contribution of a DACA recipients (or some other sociodemographic group) is simply the sum of the (annual or lifetime) incomes for the corresponding individuals.<sup>14</sup>

### 3.4 Completed education

As noted earlier, DACA eligible individuals are substantially younger than the overall workforce: 51.5% of DACA-eligible individuals are 16-28 years old (compared to fewer than 20% among the fully documented). The estimated lifetime contribution in [Equation \(6\)](#) explicitly accounts for the expected evolution of individual earnings. However, it does not take into consideration that a substantial fraction of youth may not have completed their (tertiary) education at the time of the survey. In fact, some of these individuals may be fully devoted to their studies and have practically (or exactly) zero earnings, which would result in an estimate of nearly (or exactly) zero lifetime earnings ([Equation \(6\)](#)). As we show later, this is indeed the case for many individuals in age group 16-22 years (with any legal status). Not accounting for these considerations severely underestimates the potential economic contribution of youth.

To address this shortcoming, we will impute completed educational attainment for individuals in the lowest age group  $a = 0$ , which corresponds to ages 16-22 years. More specifically, we shall compute the expected lifetime earnings for individuals in this age group as the sum of their annual earnings at the time of the survey (which could be zero) plus the discounted expected earnings for individuals in age group  $a = 1$  (ages 23-28) with their same gender and legal status, where the expectation assumes that the educational distribution of individuals in age group  $a = 0$  will eventually be the same

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<sup>14</sup>Following standard practice, we will assume that the annual discount factor is  $r = 2\%$  and the rate of economic growth is  $g = 1\%$ . [Heal \(2007\)](#) reports a 2% modal consumption discount rate.

as that observed for age group  $a = 1$  (with the same gender and legal status).

Keeping in mind that we defined education groups  $e = 0, 1, 2$  to denote high-school dropouts, high-school graduates, and college graduates (or beyond), respectively, the present value of expected earnings for individuals in age group  $a = 0$  with baseline earnings  $w$  (and gender  $f$  and legal status  $s$ ) is given by

$$PV(w, a = 0, f, s) = w + Prob(e = 0|a = 1, f, s) \frac{PV(\bar{w}_{0,f,s}^{a=1}, a = 1)}{1 + r} + \quad (7)$$

$$+ Prob(e = 1|a = 1, f, s) \frac{PV(\bar{w}_{1,f,s}^{a=1}, a = 1)}{1 + r} + \quad (8)$$

$$+ Prob(e = 2|a = 1, f, s) \frac{PV(\bar{w}_{2,f,s}^{a=1}, a = 1)}{1 + r}, \quad (9)$$

where the present value expressions in the right-hand side of the equation are given by [Equation \(6\)](#) and  $\bar{w}_{e,f,s}^{a=1}$  denotes the average earnings of an individual in age group  $a = 1$  (ages 23-28), with gender  $f$ , education  $e$ , and legal status  $s$ .<sup>15</sup>

For individuals age 23 or older, we shall assume that their observed educational attainment at the time of the survey equals their completed education. Hence, their expected lifetime income is computed according to [Equation \(6\)](#). Next, we turn to the estimation of the earnings model.

## 4 Estimation of earnings, careers and educational attainment

Our estimation of lifetime earnings relies on the estimates of the coefficients of the individual earnings model in [Equation \(1\)](#). The estimates will be useful to quantify (i) the earnings penalty associated with losing work authorization and (ii) the age-earnings profile needed to compute lifetime expected earnings.

### 4.1 The DACA earnings premium

The estimates of [Equation \(1\)](#) are collected in [Table 2](#). The dependent variable in columns 1-3 is the log of annual earnings. The first column, which includes state fixed-effects but does not use survey weights, indicates that DACA recipients and undocu-

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<sup>15</sup>High-school graduation (or equivalent) is a requirement for DACA eligibility. Hence, the probability of ending up with completed education lower than high-school graduation (denoted  $e = 0$ ) is zero for DACA recipients.

mented workers earn about 2% and 11% less, respectively, than documented workers with the same observable characteristics. Our preferred estimates are reported in column 2, which uses survey weights. The estimated average earnings gap between DACA recipients and observationally similar documented workers (which includes both citizens and foreigners with visas or permanent residence) is almost 5%.<sup>16</sup> Not surprisingly, the earnings gap between undocumented workers and documented workers is much larger, estimated at 16%. These estimates correspond to coefficients  $\beta_1$  and  $\beta_0$  in Equation (1) and will play a crucial role in the first of our counterfactual policy scenarios. We also note that the remaining estimated coefficients in column 2 confirm the well-known findings that annual earnings are lower for women (partly due to the higher prevalence of part-time work relative to men), increase in educational attainment, and exhibit an inverted-U age-earnings profile.

The approximately 16% undocumented earnings penalty estimated in column 2 is somewhat higher than previous estimates of the wage penalty associated to lack of legal status (Albert, 2021; Borjas and Cassidy, 2019; Ortega and Hsin, 2022; Peri and Zaiour, 2021), which range between 6% and 12% but are based on older data. The discrepancy is partly explained by the inclusion of DACA recipients in the undocumented category in previous studies and may also indicate that the well-documented recent increases in low-skill wages may have not reached undocumented workers.<sup>17</sup>

At any rate, what is crucial for our analysis of the effects of DACA, or its potential elimination, is the *difference* between the earnings gaps of DACA recipients and undocumented workers. The estimates in column 2 imply that DACA increases the earnings of its beneficiaries by approximately 11 percent (given by  $(\beta_0 - \beta_1)$  in Equation (1)). Conversely, it suggests that if DACA is eliminated, the recipients of the program will suffer the corresponding loss in earnings, presumably because many recipients will experience occupational downgrading when they lose work authorization (as in Ortega and

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<sup>16</sup>Zaiour (2023) argues that the effects of DACA on employment and earnings have diminished since 2017 due to chilling effects associated with the legal challenges to the program.

<sup>17</sup>Based on CPS data up to 2016, Albert (2021) estimates that undocumented immigrants earn about 8% less than natives with similar characteristics. Using ACS data up to 2016, Borjas and Cassidy (2019) report that the hourly wages of undocumented workers are about 34% lower, on average, than for legal immigrants. Their analysis also shows that, after adjusting for differences in observable socioeconomic characteristics, the resulting wage gap (for men) narrows to about 6% (before DACA was implemented) but fall afterward). Ortega and Hsin (2022) use 2010-2012 ACS data to argue that lack of legal status lowers productivity by at least 12% for a substantial proportion of undocumented due to occupational barriers. More recently, Peri and Zaiour (2021) estimate the undocumented wage penalty at 10%, combining their own estimates using the 2019-2020 CPS with previous estimates of the wage effects of the 1986 Immigration Reform and Control Act.

Hsin (2022)).

Columns 3-5 examine the robustness of the recipient-undocumented earnings gap. The model in column 3 includes also industry fixed-effects in the specification, which hardly affects the estimated gap. In columns 4 and 5, we replace the dependent variable by the logs of total income (which includes business and investment income) and hourly wages, respectively. In these cases, the recipient-undocumented earnings gap increases to about 12.5 and 13.2 percent, respectively. Conservatively, in our simulations we will consider that losing DACA’s work authorization, but remaining in the U.S. workforce, lowers annual earnings by 11 percent (holding constant all other characteristics).

The last column of the table considers a model analogous to our preferred specification (in column 2) where the dependent variable has been replaced by an employment indicator. The estimates indicate that the probability of employment among undocumented workers is indistinguishable from that of documented workers with the same characteristics. In contrast, DACA recipients are more likely to be employed than similar documented workers (by 6.4 percentage points), in line with the estimated positive employment effects of DACA documented in the literature (Pope, 2016; Amuedo-Dorantes and Antman, 2017; Hsin and Ortega, 2018). Hence, it is likely that the removal of DACA would not only lower earnings for recipients, but also would lower their employment. We will also incorporate this effect in our counterfactual analysis.

## 4.2 Age-earnings profile

Our cross-sectional dataset contains individuals ranging in age between 16 and 71 years. It is well-known that individual earnings vary with age due to career progression and the accumulation of experience. Since the average DACA-eligible or recipient is substantially younger than the national average for the working-age population, quantifying their full economic contribution requires taking into account that their professional careers are at an early stage and, therefore, current earnings underestimate their economic potential.

To address this issue, we will use the estimates in Table 2 to construct the age-earnings profile in a flexible manner (based on 9 age categories). The model in Equation (1) allows for level differences according to age, education, state of residence, and legal status, but imposes the same multiplicative changes as a function of age. This is a reasonable assumption, given that DACA-eligible individuals have spent most of their lives, and received most or all of their education, in the United States.

The estimates in column 2 in Table 2 show that earnings increase rapidly with age:

the average earnings of workers in age group 23-28 are 55 log points higher than for workers in age group 16-22. Earnings peak when workers' age is between 47 and 58 years, and fall thereafter. Table 3 reports the multiplicative age factors for annual earnings (in column 2), which correspond to the  $\pi_a$  terms in Equation (6). At the peak of their careers, workers earn about 3 times more than workers age 16-22 with the *same* observable characteristics (except for age but including educational attainment).<sup>18</sup> These estimates of the relative earnings at each age allow us to compute expected lifetime earnings applying the methodology in Section 3.3.

### 4.3 Imputing educational attainment

As noted earlier, the DACA-eligible population is younger than the overall working-age population: 51.5% of DACA-eligible, working-age individuals are between age 16 and 28, compared to 19.4% among the documented population. Let us now examine the educational attainment of young individuals, separately for fully documented individuals and those eligible for DACA (including recipients).

The top panel in Table 4 summarizes the education distribution of documented individuals. In age group 16-22, only 4% have completed a 4-year college degree. In age group 23-28, this share has risen to 38% and rises further to 43% for age group 29-34. A similar pattern is observed for the DACA-eligible population. Only 4% had 4 years of college in age group 16-22, and that share rises to 26% among 23-28 year-olds and stays unchanged for 29-34 year-olds. These figures show that (i) many individuals younger than 22 have yet to complete their education, and (2) the *completed* educational attainment of DACA-eligible individuals appears to be lower than for documented individuals.

On the basis of these figures, we impute the *complete* educational attainment of all individuals in age group 16-22 using the educational distribution of individuals in age group 29-34 *with the same legal status*. Specifically, we assume that the complete educational attainment for 74% of DACA eligible individuals in the age group 16-22 will be high-school graduation ( $e = 1$ ) while the remaining 26% will obtain a 4-year college degree or possibly higher educational credentials ( $e = 2$ ).

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<sup>18</sup>The unconditional average annual earnings for individuals age 47-52 is \$85,803 (in 2022 dollars). Besides being older, these individuals have higher educational attainment, on average, than individuals age 16-22.

## 5 Simulation of income losses

This section presents our estimates of the short- and long-term income losses that would follow the hypothetical elimination of the DACA program. We consider various scenarios (denoted by S1 through S5) that differ in the number of individuals affected and decompose the effects of losing the two main benefits from the program: authorization for employment and protection from removal from the United States.

Importantly, our counterfactual analysis assumes that the earnings and employment rates of the rest of the workforce remain unaffected. This is a plausible assumption because the DACA-eligible population is a very small fraction of the labor force (about 0.5%) and, therefore, their labor supply has negligible effects on equilibrium wages and the labor supply of other groups.

### 5.1 (S1) DACA recipients lose work authorization

Our first scenario (S1) assumes that DACA recipients lose their work permit when the program is eliminated, but they remain in the labor market. Lacking employment authorization, many of DACA recipients may be forced to leave their current employment, which may have required traveling, occupational licensing, or interaction with government officials (Ortega and Hsin, 2022). On average, the new employment will entail lower earnings. By virtue of Equation (1), the counterfactual log annual earnings of DACA recipients in this scenario (denoted by  $\widetilde{w}^{S1}$  for scenario S1) are given by

$$\ln \widetilde{w}^{S1}(f, a, e, 1) = \ln w(f, a, e, 0) = \pi_c + \pi_f f + \pi_a a + \pi_e e + \beta_0, \quad (10)$$

that is, the new earnings are assumed to be the average earnings of an undocumented worker ( $s = 0$ ) with the same gender, age, education and city of residence. As a result, the change in (the log of) annual earnings is predicted to be

$$\ln \widetilde{w}^{S1}(f, a, e, 1) - \ln w(f, a, e, 1) = \ln w(f, a, e, 0) - \ln w(f, a, e, 1) \quad (11)$$

$$= (\beta_0 - \beta_1) < 0. \quad (12)$$

#### 5.1.1 (S1) Short-term income loss

As reported in Section 4.1, we estimate that losing work authorization but remaining in the labor market is expected to reduce annual earnings by 11 percent. Additionally, we also found that losing work authorization will lower the probability of employment by

about 6 percentage points. Using these estimates, we compute individual counterfactual earnings for each DACA recipient on the basis of [Equation \(10\)](#) while taking into account that some will exit employment altogether.

Column 1 in [Table 5](#) reports the aggregate one-year income losses from rescinding the work permits of the current 530,000 DACA recipients (scenario S1). We estimate that *earnings* would fall by about \$2.7 billion for the country as a whole (top panel), which amounts to losing 0.011% of GDP annually. If we divide the aggregate loss by the number of DACA recipients, the resulting per-person loss is \$5,067. These figures underestimate the overall income loss, given that some recipients are entrepreneurs and receive business income, in addition to (or in place of) earnings. When considering the *total income* lost, we find a slightly larger loss: \$2.9 billion in total and \$5,340 per DACA recipient.

### 5.1.2 (S1) Lifetime income loss

As we discussed in [Section 3.3](#), fully estimating a young worker’s income potential requires taking into account her early career stage and possibly incomplete educational attainment at the time of the survey.

Let us first address that current earnings may be below the lifetime average. Assuming that the 11% undocumented earnings penalty applies to all remaining years of each individual’s working life, we can use [Equation \(6\)](#) to compute the counterfactual expected lifetime earnings. Then the change in expected lifetime earnings associated to losing work authorization, for a current DACA recipient of age  $a$ , is given by

$$\widetilde{PV}(a) - PV(a) = (\beta_0 - \beta_1)w(a) \left( 1 + \frac{(1+g)G(a+1)}{(1+r)} + \frac{(1+g)^2G(a+2)}{(1+r)^2} + \dots \right) \quad (13)$$

where the equation assumes that educational attainment and all other individual characteristics (except for age) remain unaltered for the remainder of each individual’s working life.<sup>19</sup>

[Table 6](#) presents the estimates for lifetime losses. As shown in column 1 (top panel) downgrading the labor market status of current DACA recipients by turning them into

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<sup>19</sup>A useful analogy is to consider the income loss from giving up a long-lived asset, such as a house. The annual loss in [Equation \(11\)](#) is analogous to the rental income lost in the year after giving up the house. Instead the lifetime losses in [Equation \(13\)](#) is the loss of the future stream of rental income, which amounts to the current value of the asset.



undocumented (scenario S1) would lead to an aggregate earnings loss of \$33 billion, which rises to \$34.9 billion when considering total income. In per-capita terms, the average lifetime losses per DACA recipient in earnings and total income are estimated at \$61,286 and \$64,338, respectively.

Let us now account for the incomplete educational attainment for individuals in the youngest age group (16-22 years) along the lines discussed in [Section 4.3](#) and compute their expected lifetime income, both under the baseline (with DACA) and in the no-DACA counterfactual using [Equation \(9\)](#). Specifically, we assume that the distribution of educational attainment of age group 16-22 becomes the same as the distribution for age group 23-28 *with the same legal status*. The resulting estimated losses are presented in column 1 of [Table 6](#) (bottom panel). Withdrawing the work authorization of DACA recipients would lead to an aggregate lifetime earnings loss of \$36.3 billion, corresponding to \$66,888 per recipient. Similarly, we estimate an aggregate loss in lifetime total income of \$38.2 billion and \$70,280 per DACA recipient. Compared to the aggregate lifetime losses that did not make adjustments for unfinished education, the new estimates deliver losses that are approximately 9% larger (both in aggregate and per recipient).

## 5.2 (S2) DACA recipients are deported

Let us now consider an alternative scenario where DACA recipients leave the workforce altogether (either voluntarily or forcibly) when the program is rescinded, resulting in zero earnings/income (in the United States). Hence, the annual loss from a DACA recipient with baseline income  $w$  would be

$$\ln \widetilde{w^{S2}} - \ln w = 0 - \ln w, \quad (14)$$

which also entails a complete loss of the baseline lifetime earnings, both with observed and imputed educational attainment. Note that, in this scenario, we do not need to make use of the parameters estimates in [Table 2](#) for the estimation of income losses.

### 5.2.1 (S2) Short-term income loss

As reported in column 2 of [Table 5](#), the loss in aggregate earnings would be \$16.8 billion, which amounts to 0.067% of GDP and \$31,011 per DACA recipient. Considering total income, the overall loss increases to \$17.7 billion, or \$32,680 for each affected individual. Intuitively, these losses are about one order of magnitude larger than those obtained

under scenario S1, when the elimination of the program solely withdraws the work authorization of DACA recipients (likely leading to occupational downgrading) rather than reducing their contribution to domestic production to zero.

### 5.2.2 (S2) Lifetime income loss

**Table 6** presents the estimates for lifetime losses. As shown in column 2 (top panel), if DACA recipients vanished from the labor market, the average per-capita lifetime earnings/income loss would range between approximately \$375,000-\$394,000 with the observed educational attainment and \$409,000-\$430,000 when we impute completed education for the youngest age group. In turn, the aggregate losses in total income would be nearly \$214 billion and \$233 billion with observed and imputed educational attainment, respectively.

## 5.3 Wider effects: eligible individuals and spouses (S3-S5)

Next, we consider three additional scenarios where we extend the number of individuals affected by a potential elimination of DACA. As in scenario S2, the new scenarios assume that all affected individuals vanish from the U.S. labor market (perhaps due to deportation). We order the scenarios so that the number of affected individuals (and consequently the resulting income losses) increase as we move from one scenario to the next.

*Scenario S3: DACA recipients and spouses vanish from the labor market.* Recognizing that some DACA recipients are married to non-DACA recipients (documented or not), scenario S3 assumes that if the program were eliminated, the spouses of DACA recipients would also abandon the labor market, as would be the case if the whole family leaves the United States. We estimate that 0.12% of married, non-DACA recipients are married to a recipient; about 130,000 individuals. Scenario S3 assumes that these individuals together with all DACA recipients would abandon the labor market, totaling approximately 660,000 working-age individuals.<sup>20</sup>

*Scenario S4: DACA recipients and eligible individuals abandon the labor market.* Elimination of DACA might entail removal procedures for all DACA-eligible individuals. This scenario assumes that all eligible individuals (including recipients) vanish from the

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<sup>20</sup>Defining *mixed* households as those where one spouse is a DACA recipient and the other is not, we estimate that 0.25% of all married individuals and 76% of married DACA recipients are in mixed households.

U.S. labor market but *not* their spouses. We estimate that DACA recipients and eligible non-recipients together account for 0.47% of the working-age population, totaling around 1.13 million individuals.

*Scenario S5: DACA recipients, eligible individuals, and their spouses abandon the labor market.* This scenario assumes that all eligible individuals (including recipients) abandon the U.S. labor market, together with their spouses. We estimate that the total number of affected individuals in this scenario would be nearly 1.4 million.

### 5.3.1 (S3-S5) Short-term income loss

Columns 3-5 in [Table 5](#) report the one-year income losses from rescinding DACA under scenarios S3 through S5. As expected, the annual loss increases in size as we progress across these three scenarios.

We estimate that the loss in *earnings* would be nearly \$23.7 billion in scenario S3 and about \$49.2 billion in scenario S5. In terms of *total income*, the losses would be slightly larger, ranging from about \$25.3 billion in scenario S3 to slightly over \$53 billion in scenario S5. The per-capita total income lost in scenario S4, obtained by dividing the aggregate loss by the number of eligible individuals (including recipients), is around \$33,500, very similar to scenario S2 (for recipients only).<sup>21</sup>

### 5.3.2 (S3-S5) Lifetime income loss

Turning now to lifetime income losses, columns 3-5 in [Table 6](#) report our estimates.<sup>22</sup> Assuming that all individuals have completed their education at the time of the survey, we estimate aggregate losses in lifetime (total) income ranging between \$276 billion (scenario S3) to \$587 billion (top panel). In per-capita (per-household) terms, the present value of lost lifetime income is slightly over \$400,000 when focusing on DACA-eligible individuals (including recipients), and rising to about \$500,000 when considering household-level losses for mixed-status households (containing at least one eligible individual).

When we assume, more plausibly, that the youngest individuals (age 16-22) have not yet completed their educational trajectories and impute their educational attainment, we find that the lifetime income losses from eliminating DACA could rise up to \$648

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<sup>21</sup>In scenarios S3 and S5, the per-capita losses are larger because the numerator accounts for the income lost by the spouses but the denominator only contains DACA recipients or eligible individuals (and excludes their spouses). Thus, in these figures can be interpreted as per-household losses under the assumption that spouses also abandon the labor market.

<sup>22</sup>For the sake of brevity, we focus on total lifetime income. The table also reports the results for lifetime earnings, which are roughly 5% lower.

billion (scenario S5) with per-household losses around \$457,000 in scenario S4 and up to \$560,000 in scenario S5.

## 5.4 Additional estimates: losses by state and industry

We also estimated the short-term and lifetime income losses separately for each state. Not surprisingly, the largest losses are found in California and Texas, which are home to the largest numbers of DACA recipients. Focusing on scenarios S1 and S2, [Table 7](#) shows that California could lose between \$923 million (scenario S1) and \$5,648 million (scenario S2) in the year following the elimination of the program, depending on whether DACA-recipients remain in the labor market (as undocumented workers) or abandon the labor market. When tallying up the lifetime losses (and imputing educational attainment for the youngest group), the losses for California in scenarios S1 and S2 are estimated at \$11 billion and \$68 billion, respectively.

Similarly, we can apportion income losses by industry of employment. It is instructive to begin by examining the top industries according to the number of employed DACA-eligible individuals (including recipients): Trade retail/wholesale (139,000), Leisure and hospitality (126,000), Construction (120,000), Business services (98,000), and Manufacturing (94,000). Combined, these 5 industries employ an estimated 483,000 DACA eligible workers, which amounts to 54% of the DACA-eligible population. Turning now to the estimated income losses ([Table 8](#)) in scenarios S1 and S2, we find that the largest aggregate losses would be found in the Health industry: \$424-\$2,597 million in the year after the elimination of the program and \$5,166-\$31,618 million in terms of lifetime losses (imputing complete educational attainment).

## 6 Conclusions

Our analysis uncovers substantial economic losses following a potential elimination of the DACA program. These estimates reflect the sociodemographic characteristics of DACA recipients and, particularly, their youth and educational attainment. In particular, DACA recipients are 28 years old on average, that is, 12 years younger than the average documented worker. Consequently, their current earnings underestimate their future contribution to the economy.

DACA recipients are allowed to work lawfully and are also shielded from deportation. According to the estimates of our earnings model, losing work authorization would lower

the employment rate of its recipients by about 6 percentage points and annual earnings by about 11 percent (for those that continue working). Relying on these estimates, we estimate that withdrawing work authorization entails an average loss in annual earnings for the average DACA recipient of slightly over \$5,000, which rises to \$5,340 when including business and capital income. Taking into account the currently 530,000 DACA recipients, the aggregate annual loss adds up to \$2.9 billion. Cumulatively over their remaining working lives, the loss in lifetime income for the average recipient ranges between approximately \$64,000 and \$70,000, where the latter estimate imputes completed educational attainment for individuals younger than 22 at the time of the survey. Aggregating over all recipients, the total income loss from removing work authorization for DACA recipients ranges between \$35 and \$38 billion.

Furthermore, losing DACA could lead to deportation, obviously lowering to zero recipients' earnings in the U.S. labor market. We estimate that this would imply an annual income loss of almost \$32,700 for the average DACA recipient. Accounting for incomplete educational attainment of the youngest group in the population, the lifetime loss in income becomes \$430,000 per recipient and \$233 billion in the aggregate. These losses would be substantially larger if the elimination of the program also implied that the approximately 600,000 DACA-eligible individuals who currently do not have a DACA permit, and the (non-DACA) spouses of all DACA-eligible individuals also abandon the labor market. The aggregate income losses could reach up to \$53 billion annually and \$648 billion in terms of lifetime income.

Summing up, from a purely economic viewpoint, eliminating DACA would entail a large loss in terms of human capital. This economic tragedy is magnified when considering that, to a large extent, this human capital is the result of substantial investment by local and state governments.

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Table 1: Summary Statistics

| Variable                   | Obs       | Mean   | Std. Dev. | Min | Max       |
|----------------------------|-----------|--------|-----------|-----|-----------|
| Documented %               | 2,377,031 | 95.28  | 21.22     | 0   | 100       |
| DACA Recipient %           | 2,377,031 | 0.22   | 4.67      | 0   | 100       |
| Undoc Eligible %           | 2,377,031 | 0.25   | 5.03      | 0   | 100       |
| Undoc Ineligible %         | 2,377,031 | 4.25   | 20.18     | 0   | 100       |
| Mixed hh. DACA spouse      | 1,215,651 | 0.12   | 3.53      | 0   | 100       |
| Female                     | 2,377,031 | 0.49   | 0.50      | 0   | 1         |
| Age                        | 2,377,031 | 42.17  | 15.88     | 16  | 71        |
| Married                    | 2,377,031 | 0.48   | 0.50      | 0   | 1         |
| No high-school degree      | 2,377,031 | 0.11   | 0.32      | 0   | 1         |
| High-school graduate       | 2,377,031 | 0.57   | 0.50      | 0   | 1         |
| College-graduate or beyond | 2,377,031 | 0.32   | 0.47      | 0   | 1         |
| Employed                   | 2,377,031 | 0.68   | 0.47      | 0   | 1         |
| Weekly work hours (usual)  | 1,681,778 | 38.49  | 12.58     | 1   | 99        |
| Wage income                | 1,536,038 | 58,926 | 72,868    | 0   | 791,000   |
| Total income               | 1,535,069 | 65,739 | 80,708    | 1   | 1,647,000 |
| Hourly wage                | 1,536,038 | 28.37  | 46.17     | 0   | 11,827    |
| DACA Eligible              |           |        |           |     |           |
| Female                     | 8,871     | 0.47   | 0.50      | 0   | 1         |
| Age                        | 8,871     | 28.32  | 6.30      | 16  | 41        |
| Married                    | 8,871     | 0.31   | 0.46      | 0   | 1         |
| No high-school degree      | 8,871     | 0.04   | 0.19      | 0   | 1         |
| High-school graduate       | 8,871     | 0.78   | 0.41      | 0   | 1         |
| College-graduate or beyond | 8,871     | 0.18   | 0.38      | 0   | 1         |
| Employed                   | 8,871     | 0.78   | 0.42      | 0   | 1         |
| Wage income                | 6,603     | 40,715 | 45,888    | 0   | 761000    |
| Total income               | 6,596     | 43,752 | 48,361    | 4   | 904000    |
| Weekly work hours (usual)  | 7,178     | 38.24  | 12.09     | 1   | 99        |
| Hourly wage                | 6,603     | 19.77  | 22.54     | 0   | 550.48    |

**Notes:** ACS 2022 restricted to population age 16-71. Documented, DACA recipients, Undocumented eligible or ineligible are reported as percentages of the overall population. Individuals in mixed households where only the household head or the spouse (but not both) is a DACA recipient is defined only for married individuals. Similarly, individuals in mixed households where only the household head or the spouse (but not both) are undocumented *and* eligible for DACA is defined only for married individuals. Mean and standard deviations computed using person weights (PC 2023). Bottom panel restricts sample to DACA eligible individuals (including recipients).



Table 2: Estimates earnings and employment models

| Dep. Var.:          | (1)<br>ln earnings   | (2)<br><b>ln earnings</b>            | (3)<br>ln earnings   | (4)<br>ln totincome  | (5)<br>ln wage       | (6)<br>employment    |
|---------------------|----------------------|--------------------------------------|----------------------|----------------------|----------------------|----------------------|
| <b>DACA recip.</b>  | -0.017<br>[0.018]    | <b>-0.049**</b><br>[ <b>0.024</b> ]  | -0.043*<br>[0.024]   | -0.082***<br>[0.024] | -0.068***<br>[0.022] | 0.064***<br>[0.007]  |
| <b>Undocumented</b> | -0.107***<br>[0.005] | <b>-0.159***</b><br>[ <b>0.010</b> ] | -0.157***<br>[0.010] | -0.207***<br>[0.010] | -0.200***<br>[0.009] | 0.002<br>[0.005]     |
| Female              | -0.401***<br>[0.002] | -0.380***<br>[0.002]                 | -0.321***<br>[0.002] | -0.384***<br>[0.002] | -0.253***<br>[0.002] | -0.082***<br>[0.001] |
| High-school grad.   | 0.586***<br>[0.004]  | 0.531***<br>[0.006]                  | 0.481***<br>[0.006]  | 0.523***<br>[0.006]  | 0.386***<br>[0.005]  | 0.203***<br>[0.002]  |
| College or beyond   | 1.234***<br>[0.004]  | 1.152***<br>[0.006]                  | 1.083***<br>[0.006]  | 1.155***<br>[0.006]  | 0.957***<br>[0.005]  | 0.315***<br>[0.002]  |
| Age 23-28           | 0.542***<br>[0.003]  | 0.548***<br>[0.005]                  | 0.460***<br>[0.005]  | 0.501***<br>[0.005]  | 0.289***<br>[0.004]  | 0.198***<br>[0.002]  |
| Age 29-34           | 0.863***<br>[0.003]  | 0.842***<br>[0.005]                  | 0.730***<br>[0.005]  | 0.800***<br>[0.005]  | 0.533***<br>[0.004]  | 0.215***<br>[0.002]  |
| Age 35-40           | 1.038***<br>[0.003]  | 1.017***<br>[0.005]                  | 0.897***<br>[0.005]  | 0.973***<br>[0.005]  | 0.698***<br>[0.004]  | 0.216***<br>[0.002]  |
| Age 41-46           | 1.108***<br>[0.003]  | 1.085***<br>[0.005]                  | 0.963***<br>[0.005]  | 1.041***<br>[0.005]  | 0.757***<br>[0.004]  | 0.225***<br>[0.002]  |
| Age 47-52           | 1.154***<br>[0.003]  | 1.132***<br>[0.005]                  | 1.007***<br>[0.005]  | 1.094***<br>[0.005]  | 0.796***<br>[0.004]  | 0.221***<br>[0.002]  |
| Age 53-58           | 1.141***<br>[0.003]  | 1.121***<br>[0.005]                  | 0.995***<br>[0.005]  | 1.104***<br>[0.005]  | 0.798***<br>[0.004]  | 0.160***<br>[0.002]  |
| Age 59-64           | 1.066***<br>[0.003]  | 1.053***<br>[0.005]                  | 0.929***<br>[0.005]  | 1.093***<br>[0.005]  | 0.772***<br>[0.004]  | 0.021***<br>[0.002]  |
| Age 65-71           | 0.655***<br>[0.004]  | 0.670***<br>[0.007]                  | 0.571***<br>[0.007]  | 1.139***<br>[0.006]  | 0.607***<br>[0.006]  | -0.299***<br>[0.002] |
| Observations        | 1,455,306            | 1,455,306                            | 1,455,306            | 1,535,069            | 1,455,306            | 2,377,031            |
| R-squared           | 0.286                | 0.279                                | 0.319                | 0.286                | 0.251                | 0.173                |
| FE state            | yes                  | yes                                  | yes                  | yes                  | yes                  | yes                  |
| Weights             | no                   | yes                                  | yes                  | yes                  | yes                  | yes                  |
| FE industry         | no                   | no                                   | yes                  | no                   | no                   | no                   |

**Notes:** The sample includes only individuals ages 16-71 years. *DACA recip.* is an indicator for DACA recipients. *Undocumented* is an indicator for individuals with undocumented status (regardless of DACA eligibility). The dependent variable is the log of annual earnings in columns 1-3, the log of total income in column 4, the log of hourly wages in column 5, and an indicator for employment in column 6. Survey weights used in all columns, except column 1. Omitted categories are males, individuals with at most primary schooling, age group 16-22, and fully documented workers. The model in column 3 includes 14 industry dummies. Heteroskedasticity-robust standard errors.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 3: Estimates age-earnings profile

|           | (1)                   | (2)         |
|-----------|-----------------------|-------------|
| Age group | $\ln w(a) - \ln w(0)$ | $w(a)/w(0)$ |
| 0 16-22   | 0                     | 1           |
| 1 23-28   | 0.55                  | 1.73        |
| 2 29-34   | 0.84                  | 2.32        |
| 3 35-40   | 1.02                  | 2.77        |
| 4 41-46   | 1.09                  | 2.97        |
| 5 47-52   | 1.13                  | 3.10        |
| 6 53-58   | 1.12                  | 3.06        |
| 7 59-64   | 1.05                  | 2.86        |
| 8 65-71   | 0.67                  | 1.95        |

**Notes:** The sample includes only individuals between 16 and 71 years old (with any legal status). Column 1 reports the earnings gap between each age group and group 0 (age 16-22) in log points and corresponds to the point estimates accompanying the age group dummies in [Table 2](#) (column 2) where the dependent variable is the log of annual earnings. Column 2 reports the ratio between the earnings of each group and the earnings of group 0, obtained by exponentiating the values in column 1.

Table 4: Education by legal status and age group

|               | (1)  | (2)  | (3)  |
|---------------|------|------|------|
|               | Edu0 | Edu1 | Edu2 |
| Documented    |      |      |      |
| Age16-22      | 0.32 | 0.64 | 0.04 |
| Age23-28      | 0.05 | 0.57 | 0.38 |
| Age29-34      | 0.05 | 0.52 | 0.43 |
| DACA-eligible |      |      |      |
| Age16-22      | 0.19 | 0.77 | 0.04 |
| Age23-28      | 0    | 0.74 | 0.26 |
| Age29-34      | 0    | 0.74 | 0.26 |

**Notes:** *Edu0* are individuals who have not yet completed secondary education, but many of these are full-time students. *Edu1* are individuals who graduated from high school and have fewer than 4 years of college education. *Edu2* are individuals with 4 or more years of college education. DACA-eligible group includes recipients. Weights used in the calculations.

Table 5: Annual Losses

|                      | (1)      | (2)       | (3)       | (4)       | (5)       |
|----------------------|----------|-----------|-----------|-----------|-----------|
| <b>Scenario</b>      | S1       | S2        | S3        | S4        | S5        |
| Recipients           | x        | x         | x         | x         | x         |
| Spouses              |          |           | x         |           | x         |
| Eligible             |          |           |           | x         | x         |
|                      | \$ Mn    | \$ Mn     | \$ Mn     | \$ Mn     | \$ Mn     |
| <b>Earnings</b>      |          |           |           |           |           |
| USA \$ Mn            | -2,751.5 | -16,839.0 | -23,692.6 | -36,066.7 | -49,169.7 |
| USA % GDP            | -0.0107  | -0.0654   | -0.0920   | -0.1401   | -0.1910   |
| USA \$ by Recip/Elig | -5,067   | -31,011   | -43,633   | -31,227   | -42,571   |
| <b>Total Income</b>  |          |           |           |           |           |
| USA \$ Mn            | -2,899.5 | -17,745.0 | -25,349.4 | -38,738.9 | -53,193.3 |
| USA % GDP            | -0.0113  | -0.0689   | -0.0985   | -0.1505   | -0.2066   |
| USA \$ by Recip/Elig | -5,340   | -32,680   | -46,684   | -33,540   | -46,055   |

**Notes:** The table reports annual losses. The top panel refers to earnings lost and the bottom panel to total income loss (including earnings, business income and capital income). Columns 1-5 report the earnings loss between each scenario and the baseline (in \$ Millions). We report losses in \$ Millions, as a percent of 2022 US GDP, and per-person (by the number of DACA recipients in columns 1-3 and by the number of DACA eligibles including recipients in columns 4-5). Scenarios: (S1) DACA-recipients lose work authorization, (S2) DACA-recipients abandon the U.S. labor market, (S3) DACA-recipients and their spouses abandon the U.S. labor market, (S4) All DACA eligible individuals (including recipients) abandon the U.S. labor market, (S5) All DACA eligible individuals (including recipients) and their spouses abandon the U.S. labor market.

Table 6: Lifetime Losses

|                           | (1)     | (2)      | (3)      | (4)      | (5)      |
|---------------------------|---------|----------|----------|----------|----------|
| <b>Scenario</b>           | S1      | S2       | S3       | S4       | S5       |
| Recipients                | x       | x        | x        | x        | x        |
| Spouses                   |         |          | x        |          | x        |
| Eligible                  |         |          |          | x        | x        |
|                           | \$ Bn   | \$ Bn    | \$ Bn    | \$ Bn    | \$ Bn    |
| <b>Observed education</b> |         |          |          |          |          |
| Earnings                  |         |          |          |          |          |
| USA \$ Bn                 | -33.3   | -203.7   | -260.7   | -436.1   | -546.5   |
| USA \$ by Recip/Elig      | -61,286 | -375,068 | -480,132 | -377,594 | -473,142 |
| Total Income              |         |          |          |          |          |
| USA \$ Bn                 | -34.9   | -213.8   | -275.9   | -466.1   | -587.2   |
| USA \$ by Recip/Elig      | -64,338 | -393,744 | -508,086 | -403,576 | -508,416 |
| <b>Imputed education</b>  |         |          |          |          |          |
| Earnings                  |         |          |          |          |          |
| USA \$ Bn                 | -36.3   | -222.3   | -278.6   | -494.8   | -604.5   |
| USA \$ by Recip/Elig      | -66,888 | -409,352 | -513,147 | -428,404 | -523,370 |
| Total Income              |         |          |          |          |          |
| USA \$ Bn                 | -38.2   | -233.6   | -295.1   | -527.8   | -648.0   |
| USA \$ by Recip/Elig      | -70,280 | -430,113 | -543,434 | -456,990 | -561,076 |

**Notes:** The table reports the present discounted value of future earnings (at 2022 prices). The top panel assumes that each individual has the education level observed in the data (in 2022) for the rest of their lives. The bottom panel imputes education for age group 16-22 using age group 23-28 with the same legal status. The calculations include an annual discount rate ( $r = 0.02$ ) and a constant annual growth in real earnings ( $g = 0.01$ ). The top panel refers to earnings lost and the bottom panel to total income loss (including earnings, business income and capital income). Columns 1-5 report the earnings loss between each scenario and the baseline (in \$ Billions). We report the aggregate loss in \$ Billions and the per-capita loss (in \$), obtained by dividing by the number of DACA recipients in columns 1-3 and by the number of DACA-eligible individuals (including recipients) in columns 4-5. Scenarios: (S1) DACA-recipients lose work authorization, (S2) DACA-recipients abandon the U.S. labor market, (S3) DACA-recipients and their spouses abandon the U.S. labor market, (S4) All DACA eligible individuals (including recipients) abandon the U.S. labor market, (S5) All DACA eligible individuals (including recipients) and their spouses abandon the U.S. labor market.

Table 7: Aggregate Losses by State (Total Income)

|             | (1)      | (2)       | (3)       | (4)       | (5)       | (6)   | (7)    | (8)    | (9)    | (10)   |
|-------------|----------|-----------|-----------|-----------|-----------|-------|--------|--------|--------|--------|
|             | S1       | S2        | S3        | S4        | S5        | S1    | S2     | S3     | S4     | S5     |
|             | Annual   | Annual    | Annual    | Annual    | Annual    | Life  | Life   | Life   | Life   | Life   |
|             | \$ Mn    | \$ Mn     | \$ Mn     | \$ Mn     | \$ Mn     | \$ Bn | \$ Bn  | \$ Bn  | \$ Bn  | \$ Bn  |
| USA         | -2,899.5 | -17,745.0 | -25,349.4 | -38,738.9 | -53,193.3 | -38.2 | -233.6 | -295.1 | -527.8 | -648.0 |
| California  | -923.0   | -5,648.4  | -7,543.6  | -9,624.4  | -12,413.8 | -11.1 | -68.0  | -83.1  | -111.0 | -133.3 |
| Texas       | -400.4   | -2,450.6  | -4,028.7  | -4,986.7  | -7,371.9  | -6.0  | -37.0  | -50.5  | -74.4  | -95.1  |
| Illinois    | -161.6   | -989.0    | -1,341.9  | -2,051.9  | -2,793.4  | -1.9  | -11.4  | -14.1  | -24.5  | -29.8  |
| Arizona     | -150.5   | -920.8    | -1,355.2  | -1,406.3  | -2,106.8  | -1.9  | -11.5  | -14.8  | -18.4  | -23.6  |
| New York    | -105.3   | -644.4    | -831.4    | -2,461.3  | -3,233.8  | -1.3  | -7.7   | -8.9   | -34.3  | -39.1  |
| Washington  | -99.9    | -611.7    | -813.3    | -1,249.4  | -1,683.6  | -1.3  | -7.7   | -9.0   | -16.9  | -20.1  |
| Colorado    | -91.9    | -562.1    | -792.6    | -977.6    | -1,354.4  | -1.0  | -6.3   | -8.4   | -11.5  | -14.5  |
| Florida     | -86.0    | -526.2    | -892.2    | -1,603.2  | -2,262.3  | -1.1  | -6.6   | -8.5   | -21.5  | -25.5  |
| N. Carolina | -67.6    | -413.9    | -506.7    | -909.9    | -1,132.5  | -1.0  | -5.8   | -6.8   | -13.5  | -16.0  |
| Nevada      | -65.8    | -402.4    | -469.4    | -752.5    | -943.2    | -1.0  | -6.3   | -6.9   | -11.4  | -13.1  |
| Georgia     | -63.0    | -385.3    | -627.0    | -1,124.9  | -1,547.6  | -1.2  | -7.4   | -9.7   | -18.5  | -22.0  |
| New Jersey  | -54.8    | -335.1    | -554.1    | -1,320.3  | -1,985.3  | -0.8  | -4.6   | -6.1   | -15.1  | -19.9  |
| Utah        | -53.1    | -325.0    | -427.0    | -575.7    | -716.7    | -0.8  | -5.0   | -6.2   | -8.2   | -9.6   |
| Oregon      | -51.2    | -313.5    | -414.1    | -597.1    | -777.5    | -0.7  | -4.5   | -5.0   | -8.9   | -10.1  |
| Pennsylv.   | -42.1    | -257.8    | -470.8    | -850.9    | -1,446.2  | -0.3  | -2.0   | -3.5   | -10.2  | -16.3  |
| Maryland    | -35.2    | -215.2    | -277.3    | -587.0    | -765.2    | -0.4  | -2.2   | -2.6   | -8.9   | -10.3  |
| Oklahoma    | -32.8    | -200.7    | -347.9    | -355.4    | -550.1    | -0.5  | -3.1   | -4.8   | -6.1   | -8.3   |
| Arkansas    | -26.8    | -164.1    | -192.9    | -241.2    | -295.4    | -0.3  | -1.8   | -1.9   | -3.5   | -4.0   |
| Indiana     | -24.9    | -152.6    | -212.7    | -444.2    | -549.4    | -0.4  | -2.7   | -3.5   | -7.1   | -8.3   |
| Minnesota   | -24.6    | -150.2    | -174.2    | -467.0    | -625.4    | -0.4  | -2.3   | -2.4   | -7.7   | -9.1   |
| Michigan    | -24.4    | -149.4    | -216.5    | -448.9    | -679.1    | -0.4  | -2.2   | -2.7   | -8.1   | -10.8  |
| Tennessee   | -23.2    | -141.7    | -203.1    | -326.5    | -456.3    | -0.3  | -1.9   | -2.6   | -5.5   | -7.5   |
| New Mexico  | -21.8    | -133.3    | -207.1    | -180.2    | -273.4    | -0.3  | -2.1   | -3.0   | -3.0   | -3.9   |
| Virginia    | -21.7    | -132.9    | -202.6    | -650.1    | -927.6    | -0.4  | -2.2   | -2.9   | -10.7  | -13.3  |
| Kansas      | -21.3    | -130.1    | -199.0    | -562.0    | -765.4    | -0.4  | -2.4   | -2.8   | -7.1   | -8.8   |
| Wisconsin   | -20.8    | -127.1    | -172.6    | -281.3    | -374.3    | -0.3  | -1.9   | -2.3   | -4.5   | -5.5   |
| Mass.       | -16.2    | -98.9     | -162.0    | -573.6    | -794.5    | -0.2  | -1.0   | -1.9   | -6.9   | -9.2   |
| S. Carolina | -13.8    | -84.7     | -129.2    | -147.6    | -251.6    | -0.2  | -1.1   | -1.4   | -2.4   | -3.1   |
| Alabama     | -10.3    | -62.8     | -128.3    | -166.6    | -264.7    | -0.2  | -1.1   | -1.8   | -3.2   | -4.4   |

**Notes:** The table reports annual and lifetime total income losses in present discounted value (including imputation for completed education for age group 16-22). Columns 1-5 report annual losses (in \$Mn) and columns 6-10 lifetime losses (in \$Bn). Scenarios: (S1) DACA-recipients lose work authorization, (S2) DACA-recipients abandon the U.S. labor market, (S3) DACA-recipients and their spouses abandon the U.S. labor market, (S4) All DACA eligible individuals (including recipients) abandon the U.S. labor market, (S5) All DACA eligible individuals (including recipients) and their spouses abandon the U.S. labor market.

Table 8: Aggregate Losses by Industry (Total Income)

| Scenario                   | (1)<br>S1<br>\$ Mn | (2)<br>S2<br>\$ Mn | (3)<br>S3<br>\$ Mn | (4)<br>S4<br>\$ Mn | (5)<br>S5<br>\$ Mn |
|----------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| <b>Annual losses</b>       |                    |                    |                    |                    |                    |
| All industries             | -2,900             | -17,745            | -25,349            | -38,739            | -53,193            |
| Health                     | -424               | -2,597             | -3,563             | -3,575             | -5,321             |
| Manu                       | -398               | -2,435             | -3,251             | -4,526             | -5,873             |
| Construction               | -373               | -2,284             | -3,691             | -5,505             | -7,452             |
| Trade Retail/Wholesale     | -325               | -1,988             | -2,506             | -5,348             | -6,771             |
| Business Services          | -324               | -1,986             | -3,181             | -5,299             | -7,674             |
| Leisure & Hosp.            | -264               | -1,617             | -2,140             | -3,722             | -4,722             |
| FIRE                       | -196               | -1,198             | -1,743             | -2,916             | -4,361             |
| Education                  | -179               | -1,095             | -1,364             | -1,515             | -2,157             |
| Transportation & Utilities | -178               | -1,092             | -1,583             | -2,816             | -3,716             |
| Other Services.            | -126               | -774               | -920               | -1,754             | -2,011             |
| Information                | -63                | -387               | -592               | -1,177             | -1,677             |
| Agriculture & Mining       | -48                | -292               | -449               | -585               | -898               |
| Public Administration      | 0                  | 0                  | -359               | 0                  | -518               |
| Military                   | 0                  | 0                  | -9                 | 0                  | -43                |
| <b>Lifetime losses</b>     |                    |                    |                    |                    |                    |
| All industries             | -38,162            | -233,551           | -295,085           | -527,823           | -648,043           |
| Health                     | -5,166             | -31,618            | -39,182            | -46,192            | -61,281            |
| Manu                       | -4,647             | -28,438            | -35,048            | -52,537            | -63,248            |
| Constru                    | -4,262             | -26,082            | -37,259            | -62,816            | -78,857            |
| Trade RetWho               | -4,637             | -28,377            | -33,628            | -74,359            | -88,117            |
| Bus Svc                    | -4,090             | -25,033            | -34,436            | -62,100            | -80,811            |
| LeiHosp                    | -3,462             | -21,190            | -24,954            | -56,043            | -65,060            |
| FIRE                       | -2,177             | -13,323            | -16,997            | -29,781            | -40,277            |
| Educ                       | -1,875             | -11,475            | -14,015            | -17,658            | -24,192            |
| TransUtilities             | -2,005             | -12,270            | -16,350            | -30,846            | -37,663            |
| Other Svc.                 | -1,763             | -10,791            | -12,211            | -24,603            | -26,616            |
| Information                | -553               | -3,386             | -4,944             | -12,743            | -16,020            |
| AgriMining                 | -602               | -3,686             | -4,754             | -7,182             | -9,684             |
| PublicAdm                  | 0                  | 0                  | -2,593             | 0                  | -3,611             |
| Military                   | 0                  | 0                  | -203               | 0                  | -441               |

**Notes:** The table reports annual (top panel) and lifetime (bottom) total income losses (imputing completed education for age group 16-22). Columns 1-5 report the earnings loss between each scenario and the baseline for the USA as a whole. Individuals not employed in the ACS 2022 are not assigned to any industry. Scenarios: (S1) DACA-recipients lose work authorization, (S2) DACA-recipients abandon the U.S. labor market, (S3) DACA-recipients and their spouses abandon the U.S. labor market, (S4) All DACA eligible individuals (including recipients) abandon the U.S. labor market, (S5) All DACA eligible individuals (including recipients) and their spouses abandon the U.S. labor market.