Estimates of the Unauthorized Immigrant Population Residing in the United States: January 2015–January 2018

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INTRODUCTION

This report presents estimates of the size of the unauthorized immigrant population residing in the United States on January 1 each year from 2015 through 2018. The results are tabulated according to available demographic characteristics, including period of entry, country of origin, state of residence, age, and sex. As in previous editions, the estimates were calculated using the residual method in which the unauthorized population is the remainder (or residual) after the legally-resident, foreign-born population—naturalized citizens, lawful permanent residents (LPRs), asylees, refugees, and certain nonimmigrants—is subtracted from the total foreign-born population.[1] The legally-resident subpopulation was estimated primarily based on the Department of Homeland Security's (DHS) administrative records and modeled components of population change (such as emigration and mortality), and the total foreign-born population estimate was derived from the American Community Survey (ACS) of the U.S. Census Bureau with adjustments for undercount and the choice of reference date. The population must be estimated because there is no nationally representative survey or census that includes information on the legal status of foreign-born residents.

In summary, DHS estimates that 11.4 million unauthorized immigrants were living in the United States on January 1, 2018, roughly unchanged from 11.4 million on January 1, 2015.[2] Slightly fewer than 50 percent of the unauthorized immigrants in 2018 were from Mexico, compared to nearly 55 percent in 2015. About 15 percent entered since January of 2010 and 40 percent reside in California or Texas.

[1] Previous editions of this report are available at: https://www.dhs.gov/immigration-statistics. Although the method in this report is very similar to that used in earlier editions, the current report includes several minor methodological updates that are discussed in the appendix.

[2] The previous edition of this report estimated 12.0 million unauthorized immigrants as of January 2015; the updated estimate reflects minor methodological changes implemented with the current report.

DEFINITIONS

Legal Residents

The legally-resident, foreign-born population, as defined for these estimates, includes naturalized citizens, persons granted lawful permanent residence, persons granted asylum, persons admitted as refugees, and persons admitted as resident nonimmigrants (i.e., students and temporary workers, as opposed to tourists) who have unexpired authorized periods of admission.

Unauthorized immigrants

The resident unauthorized immigrant population is defined as all foreign-born non-citizens who are not legal residents as defined above. Most unauthorized immigrants either entered the United States without inspection or were admitted temporarily and remained past the date they were required to depart. Persons who are beneficiaries of Temporary Protected Status (TPS), Deferred Action for Childhood Arrivals (DACA) or other forms of prosecutorial discretion, or who are residing in the United States while awaiting removal proceedings in immigration court are included among the estimates of the unauthorized population. Unauthorized immigrants applying for adjustment to LPR status under the Immigration and Nationality Act (INA) are considered to be part of the resident unauthorized population until they have been granted lawful permanent residence.

METHODOLOGY OVERVIEW AND DATA

This report estimates two populations to derive the unauthorized immigrant population estimate: 1) the total foreign-born population living in the United States on January 1 of each year 2015-2018, and 2) the legally-resident, foreign-born population on the same dates. The unauthorized immigrant population estimate is the residual when the second population is subtracted from the first population.

Data on the total foreign-born population that entered during 1980–2017 by country of birth, state of residence, year of entry, age, and sex were obtained from the 2017 ACS.[3] The ACS is a nationwide sample survey that collects information from U.S. households on social, demographic, and economic characteristics, including country of birth and year of entry of the foreign-born population.[4] Foreign-born residents who entered the United States prior to 1980 are assumed to be legally resident and are therefore excluded from the estimate.[5]

Data for several subsets of the legally-resident, foreign-born population are derived from DHS and other administrative records. DHS administrative records in a U.S. Citizenship and Immigration Services (USCIS) application case tracking system include data on persons who obtained LPR status or naturalized. Department of State records include data on refugee arrivals. USCIS and the Department of Justice Executive Office for Immigration Review maintain records of persons granted asylum affirmatively or defensively. And I-94 arrival-departure records in the U.S. Customs and Border Protection

(CBP) TECS database includes data on nonimmigrant arrivals and departures. Each of these systems includes information on subjects' country of birth or nationality, state of residence, age, sex, category of admission, and year of entry.
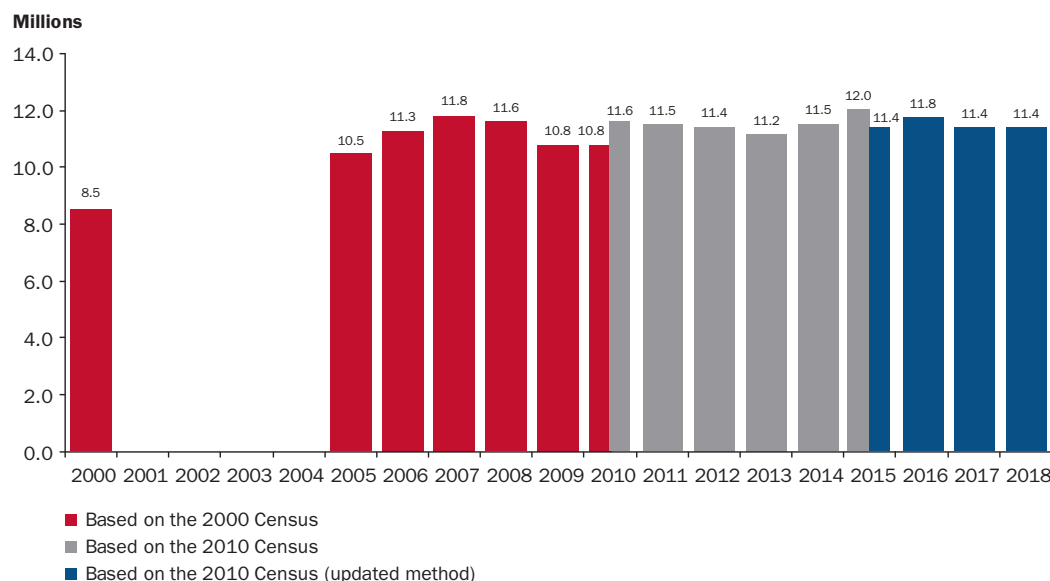
The Department generates its estimate of the unauthorized population by subtracting the legally-resident, foreign-born population from the total foreign-born population. The demographic data in the ACS survey and administrative records allows the Department to generate estimates for the 10 leading countries of birth and states of residence and to disaggregate the estimate by age and sex.

FINDINGS

Figure 1 depicts the Department's estimates of unauthorized population for 2000 and annual estimates for 2005-2015. Readers should exercise caution when describing changes in these estimates over time because some year-to-year variation may reflect sampling error in the ACS and/or non-sampling error in the estimation method (see Appendix), and the Department does not have a methodology to evaluate the statistical significance of these fluctuations. Longer-term trends are also difficult to interpret because of two disjunctures in the data series: estimates for 2000-2010 are based on ACS data tied to the 2000 Census, while estimates for 2010- 2018 are based on ACS data tied to the 2010 Census; and estimates for 2015- 2018 incorporate minor updates to improve upon the methodology employed in previous years. For each of these break points (2010 and 2015), the figure depicts estimates generated under earlier and later data sources/assumptions.

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[3] See Appendix 1 for more detailed information on each component of the estimation process.

[4] The Department uses the ACS to build its estimates because of its large sample size: about three million households per year, compared to about 100,000 annually for the Current Population Survey, which is the primary alternative source of national data on the foreign-born population.

[5] The vast majority of otherwise-unauthorized immigrants who entered the United States prior to 1980 and who still reside in the country likely obtained lawful status prior to 2015 under Section 249 of the INA, which allows qualified persons who have resided continuously in the United States since prior to January 1, 1972 to apply for LPR status under the so-called registry provision, or under the Immigration Reform and Control Act (IRCA) of 1986 (Pub. L. No. 99-603, 100 Stat. 3359 (1986)), which allows qualified persons who had resided continuously in the United States since prior to January 1, 1982 to adjust to lawful status.

Figure 1.

Estimated Unauthorized Immigrant Population: 2000-2018

Millions

- ■ Based on the 2000 Census
- ■ Based on the 2010 Census
- ■ Based on the 2010 Census (updated method)

Source: U.S. Department of Homeland Security.

Period of Entry

The subset of the unauthorized population that arrived since 2010 added an average of 310,000 people each year from 2015-2018, reflecting continued illegal arrivals and non-immigrant overstays during this period (see Table 1 and Figure 2). Nonetheless, the overall size of the unauthorized population remained roughly unchanged throughout this period because new inflows since 2010 were offset by attrition due to mortality, emigration and repatriation, and changes in status in the subsets of the population arriving before 2010.[6]

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[6] The total estimate is roughly unchanged for 2015-2018 but includes a "spike" from 11.4 to 11.8 million in 2016. This spike is driven by a similar increase in the ACS foreign-born estimate that does not persist into 2017-2018.

Table 1.

**Estimated Unauthorized Immigrant Population by Period of Entry: 2015-2018**

Period of entry	2015	2016	2017	2018
Total	11,440,000	11,750,000	11,410,000	11,390,000
1980-1990	1,710,000	1,640,000	1,540,000	1,560,000
1990-1999	4,180,000	4,090,000	3,820,000	3,820,000
2000-2009	4,710,000	4,710,000	4,490,000	4,230,000
2010 or later	840,000	1,310,000	1,420,000	1,770,000

Note: Detail may not sum to totals because of rounding.

Source: U.S. Department of Homeland Security.

Figure 2.

Estimated Unauthorized Immigrant Population by Period of Entry: 2015-2018

Millions
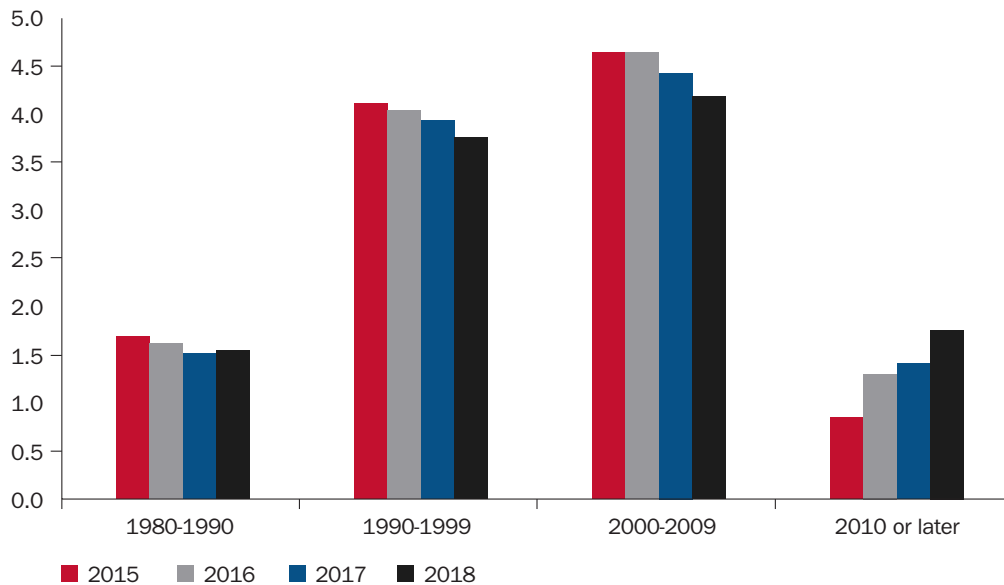
Source: U.S. Department of Homeland Security.

Estimates by Country of Birth

Mexico continued to account for the largest share of the unauthorized population, with an estimated 5.42 million people from Mexico representing nearly 50 percent of the total unauthorized population in 2018 (see Table 2).[7] The next five leading countries included the three Northern Triangle countries of El Salvador (730,000 people), Guatemala (620,000), and Honduras (450,000), along with India (540,000) and the People's Republic of China (China) (410,000)—together accounting for just under an additional 25 percent of the total unauthorized population in 2018. The Philippines, Colombia, Brazil, and Venezuela rounded out the top 10 in 2018, with South Korea, Vietnam, and Ecuador falling out of the top 10 list from the previous edition of this report (Baker, 2018).[8]

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[7] Throughout this report, percentages and percent change were calculated prior to rounding.

[8] The vast majority of the Cuban-born population living in the United States is excluded from the population estimate since most Cubans who were admitted or paroled into the United States prior to January 2017 were eligible to apply to adjust to LPR status 1 year after entry. Cubans who entered after the wet-foot/dry-foot policy was discontinued in January 2017 are included in the estimate.

While year-to-year fluctuations should be interpreted with caution, the 4-year trends in Table 2 suggest notable differences during this recent time-period among these countries. As in the previous edition of this report, the Mexican unauthorized population continued to decline, dropping by an average of 260,000 people per year in 2015-2018. The unauthorized populations from India and China increased by about 30,000 per year on average from 2015 to 2018, with this apparent growth occurring in 2015-2016. The populations from Colombia, Brazil, and Venezuela increased markedly; Colombia increased by more than 50 percent, Brazil by nearly 100 percent, and Venezuela by nearly 150 percent and the populations from the Northern Triangle countries increased by an average of 5,000-10,000 per year.[9] All of these average changes represent net amounts—meaning attrition from emigration, repatriation, and mortality—exceeded new inflows in the case of Mexicans, but new inflows exceeded attrition in the cases of the Asian, Northern Triangle, and South American countries.

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[9] These data should be interpreted with some caution as DHS enforcement data suggest more modest growth during this period for Venezuela and somewhat faster growth for Northern Triangle countries (see Appendix 1).

Table 2.

Estimated Unauthorized Immigrant Population by Top 10 Countries of Birth: 2015-2018

Country of Birth	2015	2016	2017	2018
Total	11,440,000	11,750,000	11,410,000	11,390,000
Mexico	6,200,000	5,970,000	5,860,000	5,420,000
El Salvador	720,000	750,000	750,000	730,000
Guatemala.	600,000	610,000	610,000	620,000
India	450,000	560,000	490,000	540,000
Honduras.	420,000	430,000	500,000	450,000
China, People's Republic. . . .	320,000	420,000	410,000	410,000
Philippines.	350,000	410,000	300,000	370,000
Colombia.	130,000	140,000	130,000	210,000
Brazil.	100,000	110,000	150,000	200,000
Venezuela	80,000	100,000	120,000	190,000
All other countries	2,080,000	2,260,000	2,090,000	2,260,000

Note: Detail may not sum to totals because of rounding.

Source: U.S. Department of Homeland Security.

Estimates by State of Residence

California and Texas remained the leading states of residence of the unauthorized population in 2018, with 2.6 million and 1.9 million people respectively, 40 percent of the total number (see Table 3). The next leading states were Florida (660,000), New York (520,000), Illinois (450,000), and New Jersey (460,000). The 10 leading states represented 70 percent of the unauthorized population in 2018. The unauthorized population fell by about 100,000 (17 percent) in New York from 2015 to 2018 and grew by 110,000 (about 20 percent) in Florida.

Table 3.

Estimated Unauthorized Immigrant Population by Top States of Residence: 2015-2018

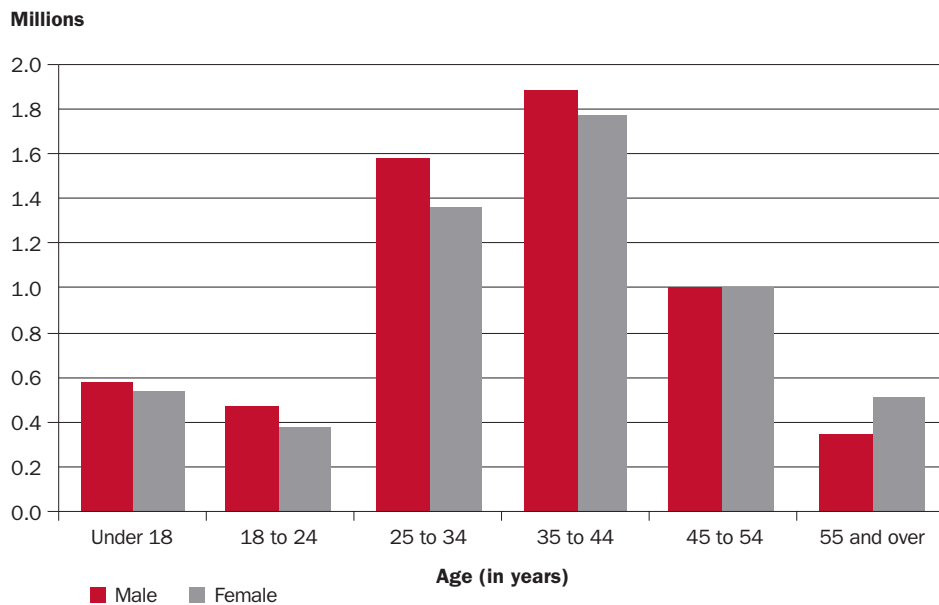| State	2015	2016	2017	2018
Total	11,440,000	11,750,000	11,410,000	11,390,000
California.	2,760,000	2,860,000	2,790,000	2,610,000
Texas	1,860,000	1,910,000	1,870,000	1,940,000
Florida.	540,000	610,000	610,000	660,000
New York	630,000	630,000	620,000	520,000
New Jersey	420,000	420,000	450,000	460,000
Illinois	440,000	520,000	440,000	450,000
Georgia	370,000	400,000	400,000	380,000
North Carolina	370,000	360,000	320,000	350,000
Arizona	360,000	330,000	340,000	330,000
Washington	260,000	280,000	280,000	290,000
All other states	3,420,000	3,430,000	3,300,000	3,390,000

Note: Detail may not sum to totals because of rounding.

Source: U.S. Department of Homeland Security.

Nearly 60 percent of unauthorized immigrants were ages 25 to 44 years in 2018 and 53 percent were male (see Figure 4 and Table 4). Males accounted for 54 percent of the population in the 18 to 34 age group, while females accounted for 59 percent of the 55 and older age groups.

Estimates by Age and Sex

Figure 3.

Estimated Unauthorized Immigrant Population by Age and Sex: 2015-2018

Source: U.S. Department of Homeland Security.

Table 4.

Estimated Unauthorized Immigrant Population by Age and Sex: 2015-2018

Age (in years) and sex	2015	2016	2017	2018
Males and Females				
Total	11,440,000	11,750,000	11,410,000	11,390,000
Under 18.	1,130,000	1,040,000	1,080,000	1,120,000
18 to 24	1,180,000	1,080,000	960,000	840,000
25 to 34	3,500,000	3,400,000	3,130,000	2,940,000
35 to 44	3,440,000	3,670,000	3,600,000	3,630,000
45 to 54	1,620,000	1,800,000	1,900,000	1,990,000
55 and over.	560,000	770,000	750,000	860,000
Male				
Total	6,020,000	6,140,000	5,930,000	5,850,000
Under 18.	600,000	540,000	550,000	580,000
18 to 24	680,000	600,000	530,000	460,000
25 to 34	1,960,000	1,880,000	1,720,000	1,590,000
35 to 44	1,800,000	1,940,000	1,890,000	1,870,000
45 to 54	780,000	880,000	930,000	1,000,000
55 and over.	190,000	310,000	300,000	350,000
Female				
Total	5,420,000	5,610,000	5,490,000	5,540,000
Under 18.	540,000	500,000	530,000	540,000
18 to 24	490,000	480,000	430,000	380,000
25 to 34	1,540,000	1,520,000	1,410,000	1,350,000
35 to 44	1,640,000	1,730,000	1,710,000	1,760,000
45 to 54	850,000	930,000	970,000	990,000
55 and over.	370,000	460,000	440,000	510,000

Note: Detail may not sum to totals because of rounding.

Source: U.S. Department of Homeland Security.

ALTERNATIVE ESTIMATES

Residual Estimates

The Pew Research Center and the Center for Migration Studies (CMS) also estimate the unauthorized immigrant population using the residual method (Passel and Cohn, 2018, Warren, 2019). The DHS, Pew, and CMS estimates are generally similar, but key differences in methodological details (e.g., assumptions about undercount and emigration) mean the estimates are not identical. Some of these methodological differences are described below:

- *Survey undercount.* The residual model estimates the total foreign-born population based on U.S. Census data, but the Census is believed to under-count the foreign-born population—and particularly the unauthorized immigrant population—at higher rates than the native-born population. The exact degree of the undercount and how it may differ with time spent in the United States and for different sub-groups is unknown and must be estimated or modeled.

- *Emigration modeling.* The residual method uses estimates of the lawful permanent resident population which are based on previous immigration inflows, adjusted for mortality and return migration (i.e., lawful immigrants who depart the United States). Mortality rates can be estimated with precision based on standard demographic tables, but similar tables do not exist for emigration rates.

- *Methods for estimating the nonimmigrant, refugee, and asylee populations.* The Office of Immigration Statistics estimates nonimmigrants, refugees, and asylees based on previous admissions data, controlling for estimated deaths and outflows. Pew and CMS identify these populations based on their expected characteristics in Census data. These methodological differences affect the estimated size of the legally-resident population and therefore have an influence on the estimated size of the unauthorized population.

- *Techniques used to control for entry-year heaping in the ACS.* Census data on the foreign-born population indicate an unexpectedly large number of immigrants who report entering the United States in 1980 (along with other round-numbered years) relative to surrounding years ("heaping" on 1980). Unauthorized immigrants who entered prior to 1980 are assumed to have legalized through the Immigration Reform and Control Act, so how analysts control for this heaping effect has an impact on the resulting population estimate.

- *Base populations used in the residual method.* The residual method used by DHS starts with all foreign-born persons and subtracts off all legally-resident, foreign-born persons. One alternative would be to start with foreign-born noncitizens and subtract off all legally-resident, foreign-born noncitizens. These different choices of starting populations can lead to different estimates due to over-reporting of citizenship in the ACS.

Figure 4.

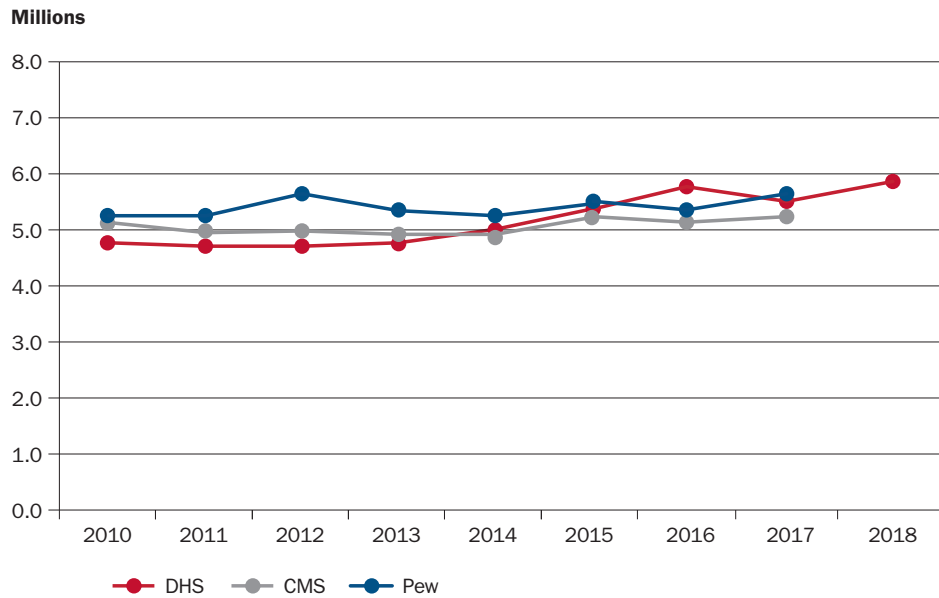**Estimated Unauthorized Immigrant Population for Mexico: 2010-2018**

Millions
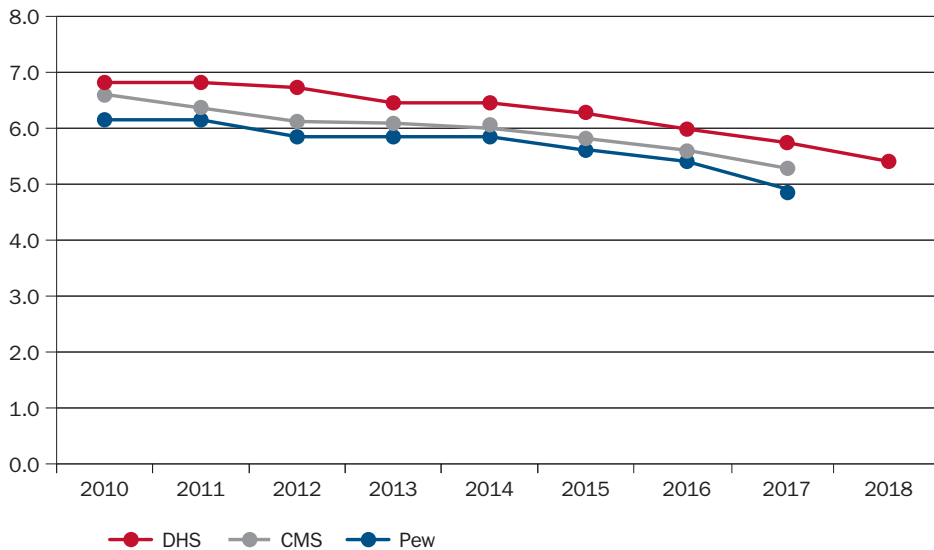
Sources: U.S. Department of Homeland Security; Pew Research Center; Center for Migration Studies.

Figure 5.

Estimated Unauthorized Immigrant Population for All Countries Other than Mexico: 2010-2018

Millions

Sources: U.S. Department of Homeland Security; Pew Research Center; Center for Migration Studies.

Figures 4 and 5 offer additional insight into differences among the three organizations' estimates. Figure 4 depicts estimated numbers of unauthorized Mexican nationals, and Figure 5 depicts estimated numbers of non-Mexicans. As illustrated in Figure 4, all three organizations estimated the Mexican unauthorized population to have been about six to seven million in 2010, and all three series show similar declining trends through 2017. The Pew and CMS estimates were 5 to 10 percent lower than the DHS estimates each year. Figure 5 shows that estimates of the non-Mexican unauthorized immigrant population from the three organizations also fell within a similar range each year, but that DHS estimates differ from Pew and CMS in registering an upward trend from 2012 to 2016 that is less evident in or absent from the other two series.[10]

"Inflow-Outflow" Estimates

In 2018, a team of academic researchers published a new estimate of the unauthorized population based on a different methodology (Fazel-Zarandi, Feinstein, and Kaplan 2018). Starting from an assumed 1990 baseline population of 3.5 million unauthorized immigrants, the Fazel-Zarandi et al. study combines separate estimates of population inflows (illegal entries and visa overstayers) and population outflows

(deaths, emigration, repatriations, and acquisitions of legal status) to calculate year-over-year population changes. Their analysis aggregates inflow and outflow estimates over 16 years to produce an average estimate for 2016 of 22.1 million unauthorized immigrants.[11]

Research by the Office of Immigration Statistics replicates the Fazel-Zarandi et al. methodology and assesses the possibility that the size of the unauthorized population was in the range of 16.2–29.5 million on January 1, 2017 as Fazel-Zarandi et al. conclude, rather than 11.4 million as the DHS residual model estimates. One key finding is that the difference between Fazel-Zarandi et al.'s results and DHS's residual model is entirely driven by high estimated growth in Fazel-Zarandi et al.'s model during the 1990s—yet key data required for inflow-outflow modeling are not available for those years. These data limitations, along with a number of questionable modeling assumptions, give DHS no confidence in Fazel-Zarandi et al.'s findings about population growth in 1990-2000. A forthcoming DHS whitepaper includes a preliminary inflow-outflow analysis that is similar to the Fazel-Zarandi et al. method but updates certain assumptions and makes fuller use of DHS data for 2000 − 2018; the paper finds support for the DHS estimate of about 11.4 million people as of Jan. 1, 2018 (Rosenblum, Baker, and Meeks, forthcoming).

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[10] This increase in the non-Mexican unauthorized population from 2012 to 2016 coincides with the surge in unauthorized immigration from the Northern Triangle of Central America during this period and also reflects an increase in the 2016 ACS estimate of the Chinese and Indian populations.

[11] Fazel-Zarandi et al. assume probability distributions around each inflow and outflow component and simulate the model over a range of values; the simulation yields a range of estimated totals as of 2017 with a mean estimate 22.1 million and a 95 percent probability interval of between 16.2 and 29.5 million unauthorized immigrants.

Appendix 1

COMPONENT ESTIMATION DETAILS AND LIMITATIONS

Method and Components

The unauthorized immigrant population estimate is the residual when the estimated legally-resident population is subtracted from the estimated total foreign-born population. This appendix describes the methodology and estimated populations for each component of the 2018 estimate; see Table A1 for corresponding values for 2015-2017.

This edition of this report includes updates to the methods for estimating several components of the total foreign-born and legally-resident populations to make fuller use of available data. Each of these updates and their estimated impact are identified below.

1) Total foreign-born population:

   a. **Foreign-born population in 2017, entered 1980–2017 (36.5 million)**

      The initial estimate of the total foreign-born population that entered in 1980 to 2017 was obtained from the 2017 ACS Public Use Microdata Sample (PUMS), along with data on the distribution of the foreign-born population by country of origin, state of residence, year of entry, age, and sex. A 3-year moving average was applied to PUMS data for year of entry to reduce so-called heaping effects in which ACS survey responses disproportionately focus on round numbers.

      Prior editions of this report reduced the overall PUMS estimate for the total foreign-born population to remove the Cuban-born population since all Cubans were assumed to take advantage of the Cuban Adjustment Act. Beginning with this edition of the report, the PUMS estimate was not reduced for Cubans entering in 2017 or later.

   b. **Shift in reference date to January 1, 2018 (680,000)**

      The 2017 ACS estimates of the foreign-born population are benchmarked to the middle of 2017 and therefore do not count the full population that arrived in 2017. For example, the 2017 ACS estimated about 75 percent more foreign-born persons who entered the United States in 2016 than the 2016 ACS estimated for the same entry-year cohort. Over the last three ACS vintages, this adjustment averaged 0.74. This report assumes the adjustment for 2017 entrants in the 2017 ACS will be similar and multiplies that estimate by 1.74.

   c. **Undercount of nonimmigrants in the ACS (280,000)**

      The Census is believed to undercount nonimmigrants at higher rates than the native-born population. This report assumes that the undercount rate for nonimmigrants was 10 percent—the same rate assumed in DHS estimates for 2000 and 2005–2015 (U.S. Department of Homeland Security, 2003).

   d. **Undercount of LPRs, refugees, and asylees in the ACS (610,000)**

      This report assumes the undercount rate for LPRs, refugees, and asylees in the ACS was 2.5 percent—the same rate assumed in DHS estimates for 2000 and 2005–2015 (U.S. Department of Homeland Security, 2003).

   e. **Undercount of unauthorized immigrants in the ACS (0.5 million)**

      This report assumes that the undercount rate for unauthorized immigrants in the ACS is 13 percent for those who arrived in the most recent year and declines by 7.5 percent with each year of presence.[12] This assumption is based on the model that was used for the 2000 edition of the report but represents a change from the 2005-2015 editions. In those reports, DHS assumed a flat 10 percent undercount rate (based on the overall undercount estimated in the 2000 model). The shift from the flat 10 percent assumption used in the most recent editions of this report back to the declining undercount assumption in the earlier model results in a decrease of about 700,000 in the overall unauthorized population estimate.

   f. **Total estimated foreign-born population, January 1, 2018 (38.6 million)**

      The sum of 1a. through 1e. (above) is the estimated foreign-born population on January 1, 2018 that entered the United States during the 1980–2017 period.

2) Legally-resident, foreign-born population:

   a. **LPR, refugee, and asylee flow, entered 1980–2017 (32.7 million)**

      The 1980–2017 flow was calculated separately for LPRs, refugees, and asylees using DHS administrative data (Baker, 2020). LPRs consist of two groups: new arrivals and those who have adjusted status. New arrivals include all persons with immigrant visas issued by the Department of State who were admitted at a U.S. port of entry. For new arrival LPRs, the date of entry into the United States is the same as the date of approval for LPR status. For LPRs adjusting status, year of entry was assumed to be the most recent year of entry prior to adjustment.

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[12] This declining model was used for the 1990-2000 estimates published in 2003. Special thanks go to Robert Warren for providing the model and parameters used for that report.

The refugee and affirmative asylee populations were estimated by matching the previous 5 years of records for refugee arrivals and persons affirmatively granted asylum to records of LPR adjustment that occurred prior to January 1, 2018. The January 1, 2018 refugee and affirmative asylum populations consist of those persons who had not adjusted to LPR status by that date. Individual, detailed records were not readily available for defensive asylees, so that population was estimated by assuming the LPR adjustment rates were the same for defensive asylees as for affirmative asylees from the same country and granted asylum in the same year. The update in this edition of the report results in a reduction of 50,000 in the combined refugee and asylee population estimates (i.e., an increase of 50,000 in the estimated number of unauthorized immigrants).

b. **Mortality of legally-resident flow, 1980–2017 (2.6 million)**

Data are not collected on the mortality of the legally-resident, foreign-born population. The LPR population was survived forward in time (from the year in which LPR status was obtained to 2018) using National Center for Health Statistics mortality rates by age and sex from 1999–2001 (Arias et al., 2008).

c. **Emigration of legally-resident flow, 1980–2017 (5.7 million)**

Emigration is a major component of immigrant population change. In the absence of data that directly measure emigration from the United States, researchers have developed indirect estimates based largely on Census data. For this report, annual emigration rates were calculated from estimates of emigration of the foreign-born population based on 1980 and 1990 Census data (Ahmed and Robinson, 1994). The emigration model is similar to that used for the DHS LPR population estimates report, except that emigration risk was suspended until after naturalization for LPRs who became citizens. Further, refugees and asylees, with little likelihood of returning to their country of origin, were assumed not to emigrate. The model assumes 3.26 percent of new LPRs emigrate in their first year, declining by 5 percent per year of residence, resulting in a total effective emigration rate of 17.5 percent for this edition of the report.

Previous editions of this report estimated mortality and emigration jointly as a single estimate of attrition. The update in this edition of the report results in slightly reduced attrition; 20,000 fewer legal residents are assumed to have died or emigrated, which translates to an increase of 20,000 in the estimated size of the legally-resident population and a decrease of 20,000 in the estimated unauthorized population.

d. **LPR, refugee, and asylee population, January 1, 2018 (24.4 million)**

Subtracting mortality (2b.) and emigration (2c.) from the LPR, refugee, and asylee flow during 1980–2017 (2a.) results in the total estimated LPR, refugee, and asylee resident population on January 1, 2018.

e. **Nonimmigrant population, January 1, 2018 (2.8 million)**

The number of nonimmigrants living in the United States on January 1, 2018 was estimated by estimating days of presence between July 1, 2014 and June 30, 2018 and dividing the result by 365 (see Baker, 2017 for a fuller discussion). The estimate was restricted to classes of admission such as students, temporary workers, and exchange visitors where the length of stay typically exceeds 2 months. The estimate does not include visitors for business or pleasure, or Mexicans admitted with a Border Crossing Card. Year of entry for the 2018 nonimmigrant population was based on the distribution of year of entry for nonimmigrants used in previous DHS estimates of unauthorized population.

f. **Estimated legally-resident, immigrant population, January 1, 2018 (27.2 million)**

Adding the population of LPRs, refugees, and asylees on January 1, 2018 (2d.) to the nonimmigrant population on the same date (2e.) results in the total estimated legally resident immigrant population in the United States on January 1, 2018.

3) Unauthorized population:

a. **Estimated unauthorized population, January 1, 2018 (11.4 million)**

Subtracting the estimated legally-resident, foreign-born immigrant population (2f.) from the total foreign-born population on January 1, 2018 (1f.) yields the estimate of the unauthorized population.

Limitations

Annual estimates of the unauthorized population are subject to sampling error in the ACS and considerable non-sampling error because of uncertainty in some of the assumptions required for estimation described above.

- *Assumptions about undercount of the foreign-born population in the ACS.* The foreign-born—particularly unauthorized immigrants and nonimmigrants—are less likely than native-born Americans to respond to or to be included in responses to government surveys. To control for undercount of these "hard to count" populations, analysts must make assumptions about the extent of the undercount and then adjust the ACS survey estimates accordingly. The estimates are sensitive to these undercount adjustments.

- *Assumptions about rates of emigration.* The preexisting legally-resident, foreign-born population declines over time through mortality and emigration. Mortality rates can be estimated from standard demographic tables, but current, nationally representative data necessary to construct similar tables for emigration rates do not exist. The estimates are sensitive to emigration modeling assumptions.

- *Accuracy of year of entry reporting.* Census data suggest that respondents provide unreliable answers to the Census year-of-entry question ("When did this person come to live in the United States?"), with disproportionate numbers of responses "heaping" on round numbers. Errors also occur in converting DHS administrative dates for LPRs into year of entry dates.

- *Assumptions about the nonimmigrant population estimate.* The estimates are based on admission dates of nonimmigrants admitted under classes of admission associated with temporary residence and on typical visit lengths as measured by matched arrival and departure records. Thus, the estimates are sensitive to sudden changes in visit-length trends; are biased downward to the extent that some nonimmigrants adjust to immigrant status and do not ever depart the United States; and do not conform perfectly to the definition of residence in the ACS.[13]

- *Sampling error in the ACS.* The estimates of the total foreign-born population that moved to the United States in the 1980–2017 period are based on a sample and are thus subject to sampling variability. Actual year-to-year fluctuations in the population size may be larger or smaller than estimated in the ACS, particularly when the foreign-born population is subdivided by state of residence or country of origin. The estimated margin of error for the estimate of the total foreign-born population in the 2017 ACS PUMS at the 90 percent confidence level is plus or minus approximately 180,000.

- *Accuracy of state of residence for the non-naturalized legally-resident, foreign-born population.* The state of residence for the non-naturalized, legally-resident, 1980–2017 entrants is assumed to be the state of residence on the date the most recent status (e.g., refugee, LPR) was obtained; however, the accuracy of the estimates may be affected by state-to-state migration that occurred between the date of the status change and January 1, 2018.

- *Comparisons across years.* Although DHS has been producing annual estimates since 2005, comparisons across multiple years are problematic. In addition to sampling error and the uncertainty surrounding the estimates described above, the series of DHS estimates is not fully consistent. Estimates of the foreign-born population from the 2010-2017 ACS were based on the 2010 Census (adjusted for births, deaths, and migration), whereas estimates from earlier ACS editions were based on the 2000 Census. DHS also made minor methodological updates to take fuller advantage of available data beginning with the 2015-2018 estimates. Comparisons across multiple years should be interpreted with caution.

- *Reconciling the population estimate with administrative enforcement data.* In general, it can be difficult to reconcile components of the unauthorized population estimate with information gathered from DHS administrative data on enforcement. For example, year to year variation in the residual method used in this report suggest that the total population increase from the three Northern Triangle countries averaged 20,000 to 25,000 per year in 2015-2018, but estimates based on administrative enforcement data suggest a net inflow (i.e., border apprehensions between the ports of entry, inadmissible aliens encountered at the ports minus repatriations) of 130,000 to 200,000 per year during this period. Conversely, the residual method suggests the population of Venezuelan nationals in the United States increased by about 110,000 in 2015–2018 (a nearly 150-percent increase over the period), but DHS administrative records (mainly consisting of suspected overstays by nonimmigrants in the Venezuelan case) suggest a somewhat smaller net population increase of about 75,000 people. Both findings may be partly explained by unusual ACS estimates for Northern Triangle and Venezuelan nationals during this time period. Similarly, the administrative enforcement data do not reflect the large increases in 2016 in the unauthorized populations from China or India that were estimated using the residual method.

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[13] For example, tourists may stay in the United States for 2 months or longer and thus meet the requirement to be considered "resident" in the ACS but are not considered to be residents in the DHS estimates.

Table A1-1.

Component Estimates (in thousands) of the Unauthorized Immigrant Population: 2015-2018

1) Foreign-born population	2015	2016	2017	2018
a. Foreign-born population, entered 1980-2017.	33,900	34,990	35,580	36,480
b. Adjustment for shift in reference date from July 1, 2017 to January 1, 2018	630	730	810	690
c. Undercount of nonimmigrants in ACS	190	220	250	280
d. Undercount of other legally resident immigrants (LPRs, recent refugee/asylee arrivals) in ACS . .	560	580	600	610
e. Undercount of unauthorized immigrant population in ACS	530	550	510	500
f. Estimated foreign-born population, January 1, 2018	35,820	37,070	37,760	38,550
2) Legally resident population				
a. LPR, refugee, and asylee flow January 1, 1980-December 31, 2017	29,440	30,490	31,640	32,650
b. Mortality 1980-2017	2,020	2,190	2,370	2,570
c. Emigration 1980-2017	4,980	5,210	5,460	5,690
d. LPR, refugee, and asylee resident population, January 1, 2018	22,440	23,080	23,810	24,390
e. Nonimmigrant population on January 1, 2018	1,940	2,240	2,530	2,780
f. Estimated legally resident population, January 1, 2018	24,380	25,320	26,340	27,170
3) Unauthorized immigrant population				
a. Estimated resident unauthorized immigrant population, January 1, 2018	11,440	11,750	11,410	11,390

Note: Detail may not sum to totals because of rounding.
Source: U.S. Department of Homeland Security.

DHS Office of Immigration Statistics

Appendix 2

UPDATED HISTORICAL ESTIMATES FOR JANUARY 2000 THROUGH JANUARY 2018

Table A2-1.

Estimates of the Unauthorized Immigrant Population (in thousands) by Country of Birth and State of Residence: 2000 and 2005-2018

Country	2000	2005	2006	2007	2008	2009	2010	2010*	2011	2012	2013	2014	2015	2015**	2016	2017	2018
Total	8,460	10,490	11,310	11,780	11,600	10,750	10,790	11,590	11,510	11,430	11,210	11,460	11,960	11,440	11,750	11,410	11,390
Mexico	4,680	5,970	6,570	6,980	7,030	6,650	6,640	6,830	6,800	6,720	6,450	6,450	6,580	6,200	5,970	5,860	5,420
El Salvador	430	470	510	540	570	530	620	670	660	690	690	670	750	720	750	750	730
Guatemala	290	370	430	500	430	480	520	520	520	560	590	620	620	600	610	610	620
India	120	280	210	220	160	200	200	270	240	260	320	390	470	450	560	490	540
Honduras	160	180	280	280	300	320	330	380	380	360	390	390	440	420	430	500	450
China	190	230	170	290	220	120	130	300	280	210	190	230	320	320	420	410	410
Philippines	200	210	280	290	300	270	280	290	270	310	340	330	370	350	410	300	370
Colombia	100	110	140	130	130	100	110	120	130	130	160	130	140	130	140	130	210
Brazil	100	170	210	190	180	150	180	150	150	130	110	110	100	100	110	150	200
Venezuela	***	***	***	60	50	50	30	50	50	60	50	40	80	80	100	120	190
All	2,180	2,500	2,510	2,290	2,240	1,880	1,750	2,020	2,030	2,010	1,920	2,090	2,110	2,080	2,260	2,090	2,260

State	2000	2005	2006	2007	2008	2009	2010	2010*	2011	2012	2013	2014	2015	2015**	2016	2017	2018
Total	8,460	10,500	11,310	11,780	11,600	10,750	10,790	11,590	11,510	11,430	11,210	11,460	11,960	11,440	11,750	11,410	11,390
California	2,510	2,770	2,790	2,840	2,850	2,600	2,570	2,910	2,830	2,820	2,780	2,730	2,880	2,760	2,860	2,790	2,610
Texas	1,090	1,360	1,620	1,710	1,680	1,680	1,770	1,780	1,790	1,830	1,750	1,850	1,940	1,860	1,910	1,870	1,940
Florida	800	850	960	960	840	720	760	730	740	730	740	710	810	540	610	610	660
New York	540	560	510	640	640	550	460	690	630	580	610	570	590	630	630	620	520
New Jersey ...	350	380	420	470	400	360	370	440	420	430	410	450	440	420	420	450	460
Illinois	440	520	530	560	550	540	490	550	550	540	520	530	450	440	520	440	450
Georgia	220	470	490	490	460	480	460	430	440	400	390	410	390	370	400	400	380
North Carolina .	260	360	360	380	380	370	390	390	400	360	400	390	390	370	360	320	350
Arizona	330	480	490	530	560	460	470	350	360	350	350	350	380	360	330	340	330
Washington ...	170	***	280	260	260	230	200	260	260	270	240	280	270	260	280	280	290
All	1,750	2,750	2,860	2,940	2,980	2,760	2,840	3,040	3,100	3,110	3,010	3,190	3,430	3,420	3,430	3,300	3,390

*Revised to be consistent with estimates derived from the 2010 Census (U.S. Census Bureau, 2011).
**Revised to show the impact of the updated methodology.
***Estimates not available.
Detail: May not sum to totals because of rounding. Estimates shown for Colombia 2000-2013, Brazil 2010-2015, and Venezuela 2007-2015 are approximations based on historical estimation and project notes.
Source: U.S. Department of Homeland Security.

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