

# Temporary foreign workers by the numbers

New estimates by visa classification

**Report** • By [Daniel Costa](#) and [Jennifer Rosenbaum](#) • March 7, 2017

**Summary:** Basic information published by the U.S. government shows that hundreds of thousands of new nonimmigrant visas authorizing employment are issued each year; it also shows the average aggregate size of the population of persons who hold nonimmigrant visas in the United States. However, the U.S. government does not have an adequate, reliable estimate for the total number of temporary foreign workers who are authorized to be employed in the U.S. labor market in the main nonimmigrant visa classifications that authorize employment. This report seeks to add to the limited existing literature on the size and makeup of temporary foreign worker programs in the United States by reviewing and assessing the available data in the main nonimmigrant visa classifications that authorize employment. It estimates that 1.42 million temporary foreign workers were employed in the United States with nonimmigrant visas in fiscal 2013. This number is approximately equal to 1 percent of the U.S. labor force.

# Executive Summary

Many Americans are aware of the often-cited estimate that approximately 11 million unauthorized immigrants reside in the United States. However, the U.S. government does not have an adequate, reliable estimate for the total number of temporary foreign workers who are *authorized* to be employed in the U.S. labor market in the main nonimmigrant visa classifications that authorize employment. This report seeks to add to the limited existing literature on the size and makeup of temporary foreign worker programs in the United States by reviewing and assessing the available data in the main nonimmigrant visa classifications that authorize employment and then devising an estimate of the number of temporary foreign workers who were employed in the United States during either the entire fiscal year 2013 or some part of it. We estimate that **1.42 million** temporary foreign workers were employed in the United States with nonimmigrant visas in fiscal 2013. This number is approximately equal to 1 percent of the U.S. labor force. Our estimates by individual visa classification are shown in the table below:

Our analysis of these data also finds that while the U.S. government collects a substantial amount of information on nonimmigrants and the employers that hire them—which is the main source of information on U.S. temporary foreign worker programs—this government-collected data on nonimmigrant visas is inadequate, generally of poor quality, and recorded in an inconsistent manner across federal agencies. Congress and the federal agencies in charge of immigration have clearly not made it a priority to achieve a detailed understanding of the size, scope, and economic impact of U.S. temporary foreign worker programs and the workforce made up of employed nonimmigrants. In addition, as documented in the media and elsewhere, many temporary foreign workers have been abused and exploited. The dearth of information on temporary foreign worker programs can make it difficult for federal enforcement agencies to hold perpetrators accountable and protect temporary foreign workers from wage theft, human trafficking, and other abuses. Lack of information also makes it harder for immigrant and worker advocates to adequately assist workers and uncover lawbreaking. To

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## Estimated number of temporary foreign workers employed in the United States, 2013

Nonimmigrant visa classification or status	Number of workers
H-2A visa for seasonal agricultural occupations	74,859
H-2B visa for seasonal nonagricultural occupations	94,919
H-1B visa for specialty occupations	460,749
J-1 visa for Exchange Visitor Program participants	215,866
J-2 visa for spouses of J-1 exchange visitors	8,243
L-1 visa for intracompany transferees	311,257
L-2 visa for spouses of intracompany transferees	38,952
O-1/O-2 visa for persons with extraordinary ability (O-2 for their assistants)	29,894
F-1 visa for foreign students, Optional Practical Training program (OPT) and STEM OPT extensions	139,155
TN visa or status for Canadian and Mexican nationals in certain professional occupations under NAFTA	50,000
<b>Total</b>	<b>1,423,894</b>

**Note:** All references to a particular year should be understood to mean the U.S. government's fiscal year (October 1–September 30).

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improve the quality of the public debate, better protect workers, and enable policymakers to make informed decisions regarding temporary foreign worker programs, we recommend that:

- U.S. federal agencies in charge of managing immigration and collecting immigration data—especially the Department of Homeland Security, the Department of State, and the Department of Labor—improve their record-keeping practices by beginning to collect all nonimmigrant visa data electronically and by using consistent categories and classification codes across visa classifications, including on work locations and occupational categories of temporary foreign workers.
- U.S. federal agencies begin to regularly publish data on nonimmigrant visas by visa classification, including population estimates, and data on the employers, occupations, work locations, and wages of temporary foreign workers, and that U.S. federal agencies promulgate any regulations necessary to achieve these goals.
- The U.S. Congress pass legislation requiring annual electronic publication of basic data on nonimmigrant visa classifications, including population estimates and data on the employers, occupations, work locations, and wages of temporary foreign workers. The legislation should require cooperation between federal agencies to standardize, digitize, and improve the quality of data on nonimmigrant visas, and it should appropriate a reasonable level of funding to achieve these goals.

- The U.S. Congress pass legislation to create a new independent advisory commission staffed with labor market experts and other technical experts who can advise Congress on immigration and the labor market. These experts would be tasked with improving data collection and dissemination and providing members of Congress and the president with new and improved analyses on nonimmigrant visas and all other U.S. labor migration programs.

## **Introduction: Nonimmigrant visas and temporary foreign workers**

According to the Congressional Research Service, “[t]here are 24 major nonimmigrant visa categories, and over 70 specific types of nonimmigrant visas are issued currently” for entry into the United States (Wasem 2015). “Nonimmigrant” visas are temporary, meaning the foreign-born person to whom the visa is issued may not remain in the country indefinitely unless he or she adjusts to lawful permanent resident (LPR) status by acquiring an “immigrant” visa (commonly referred to as a “green card”). Many nonimmigrant visa classifications authorize the visa holder—called the “beneficiary”—to be employed in the United States; employed nonimmigrants are also known as temporary foreign workers or “guestworkers.” (Authorized nonimmigrants also include students, diplomats, tourists, and exchange visitors.)

The validity periods of nonimmigrant visas that authorize employment vary widely depending on the specific visa classification and the circumstances of employment for each specific temporary foreign worker. For instance, some H-2A visas in 2013 were issued for jobs that were certified for anywhere between 18 to 360 days, while H-1B visas are usually valid for 3 years (and can be renewed once for an additional 3 years). An individual temporary foreign worker’s employment authorization may be valid for a set period of time or for the duration of the nonimmigrant visa’s validity as specified by the appropriate federal government agency.

In most nonimmigrant visa classifications, the visa held by the temporary foreign worker is linked to employment with a single employer that has applied for the visa for the worker. Different visa classifications link workers to their employers under different terms, and some may permit a worker to switch to a new employer in limited circumstances. However, in nearly all cases, if a temporary foreign worker with a nonimmigrant visa is fired or otherwise loses his or her job, that worker loses his or her visa status and becomes removable from the United States—either instantly or after a short period of time.

## **Temporary foreign worker programs and immigration policy**

Many American voters are aware of the often-cited estimate that approximately 11 million unauthorized immigrants reside in the United States (Passel and Cohn 2016). This estimate helps the public understand the current immigration context and informs legislative and

policy efforts. However, important legislative and policy questions remain about current and future flows of *authorized* temporary migrant workers—those who come to work in the United States with nonimmigrant visas—and so the public debate lacks important baseline information. In fact, temporary foreign worker programs like the H-1B, H-2A, and H-2B visa programs have been and continue to be a major component of legislative and policy discussions surrounding immigration reforms and comprehensive immigration reform. Yet few examples of research exist that estimate the number of workers authorized to be employed in the United States every year with nonimmigrant visas and that include disaggregated estimates by visa classification.

The purpose of this report is to fill this information gap by estimating the total number of temporary foreign workers who were authorized to be employed in the U.S. labor market in fiscal year 2013 with nonimmigrant visas, including disaggregated estimates by specific visa classification. Basic information published by the U.S. government shows that hundreds of thousands of new nonimmigrant visas authorizing employment are issued each year; it also shows the average aggregate size of the population of persons who hold nonimmigrant visas in the United States. However, the U.S. government does not currently have an adequate, reliable estimate for the total number of temporary foreign workers who are authorized to be employed in the U.S. labor market in the main nonimmigrant visa classifications that authorize employment. The number of temporary foreign workers who are currently authorized to be employed, or who are authorized to be employed at a particular point in time (the “stock”), is distinct from the number of temporary foreign workers who receive newly issued nonimmigrant visas in a given year (the “flow”).<sup>1</sup>

Accurate estimates of the number of temporary foreign workers in the U.S. labor market are important because the public, policymakers, and researchers need these data to facilitate an informed public debate about the impact of temporary foreign worker programs on the U.S. labor market. However, little reliable data are published by the U.S. government, and the unpublished data it possesses, which can sometimes be acquired through a Freedom of Information Act (FOIA) request, are often inadequate and inconsistent because the information is kept by multiple federal agencies with record-keeping systems that are not fully integrated and are sometimes even paper-based (i.e., not electronic). For this reason, we list and describe our choices, assumptions, and data sources for every visa classification we discuss. Each section of this report focuses on a specific visa classification, discussing the data available for that visa and the quality and shortcomings of the data.

Despite the inevitable shortcomings of our estimates, we nevertheless hope this analysis will help facilitate discussions about temporary foreign worker programs, including discussions about annual limits on the number of visas issued and about the program structures that govern labor standards for temporary foreign workers and U.S. workers in the major occupational categories in which temporary foreign workers are employed.

## 1.42 million temporary foreign workers were employed in the United States in 2013

The method of calculation we use in this report leads us to estimate that **1.42 million** temporary foreign workers were authorized to be employed in the United States either for the entire 2013 fiscal year or for part of the year. Our estimate of 1.42 million workers is a number approximately equal to 1 percent of the U.S. labor force. We must be clear that this estimate is not a population estimate for the entire year—not every person counted resided in the United States for every day of fiscal year 2013. Instead, this is an estimate of the number of temporary foreign workers who were likely to be authorized to work in the United States for an unknown duration (which varies among visa classifications) at some point during the 2013 fiscal year. (Nevertheless, because of the relatively large numbers of workers in visa classifications authorize employment for more than one year, a significant share of the temporary foreign workers counted here were likely employed in the United States during the entire 2013 fiscal year.) We explain in the following section how our estimates differ from existing estimates describing the size of the nonimmigrant population.

### How the estimates in this report are different from existing estimates

Two published estimates exist on the total size of the nonimmigrant population in the United States: one from the Department of Homeland Security (DHS) and one from the Pew Research Center (Pew).

DHS (in a report authored by Bryan Baker) estimates the number of foreign-born persons holding temporary visas and residing in the United States, what DHS refers to as the “Resident Nonimmigrant Population.” The most recent DHS report, published in December 2016, estimates that “[a]bout 1.73 million nonimmigrants resided in the United States on average during 2014” (Baker 2016). The previous DHS report, published in 2014, estimates that 1.87 million nonimmigrants resided in the United States in fiscal 2012 (Baker 2014). But, in our opinion, the 2016 DHS report does not estimate with enough specificity how many of the total 1.73 million resident nonimmigrants were employed in the U.S. labor market in 2014, nor does it provide numerical estimates by specific visa classification. For instance, DHS estimates that, excluding tourists and business travelers, there are 790,000 “temporary workers,” explaining that this also includes family members (Baker 2016, 1, fn4). It is not clear from the DHS estimate how many of that total are the principal nonimmigrant visa beneficiaries and how many are employed or nonemployed family members—spouses and children of the principal nonimmigrant visa beneficiaries. This matters because eligibility for work authorization for nonimmigrant spouses varies by visa classification. The DHS report also estimates that 200,000 exchange visitors and their families reside in the United States, but it does not specify how many of these exchange visitors are employed in the U.S. labor market, nor does it specify how many exchange visitors are in each of the many different programs that are part of the U.S. Department of

State's Exchange Visitor Program; the number of employed spouses of exchange visitors is also unspecified. In addition, the DHS report estimates that there are 670,000 nonimmigrant students in the United States, but it does not estimate the share who are employed in the United States.<sup>2</sup> Finally, DHS estimates that 70,000 “[d]iplomats and other representatives” reside in the United States. Diplomats are employed by foreign governments or international organizations and are not typical participants in the U.S. labor market; thus, although they are technically employed nonimmigrants, we do not count them as part of our estimate.

We wish to make it abundantly clear that this report does not offer a detailed critique of the DHS estimate nor does it question DHS's methodology; what we offer is fundamentally different. To illustrate the differences, let's look at why DHS's total estimate of 790,000 “temporary workers” residing in the United States in 2014 (out of a total of 1.73 million resident nonimmigrants) is much lower than our estimate of 1.42 million temporary foreign workers authorized to be employed at some point in 2013.

First, DHS estimates the “number of days nonimmigrants were present during FY 2014” and then divides the total “by 365 to yield the average population size for the year” (Baker 2016, 2). In other words, each 365 days of nonimmigrant residence equals “one” resident in DHS's calculation. Many of the visas we consider for our estimate, such as the H-2A and H-2B, are normally authorized for less than 1 year (for example, some H-2A certifications are for as few as 18 days, and some H-2B workers are present for only three or four months). Those shorter durations of stay lead to a shorter total number of days that nonimmigrant workers are present in the country: for instance, using DHS's methodology of dividing the total number of days that all H-2A and H-2B workers were in the United States in 2013 by 365 days would result in a population total that is smaller than the number of H-2A and H-2B workers who were issued visas and worked for some part of the year.

Second, DHS also does not count the days a nonimmigrant was in the United States if the nonimmigrant arrived more than 7 times during the year; this is very likely to exclude many nonimmigrant workers who held a TN visa or TN status; L-1 nonimmigrants working as multinational corporate executives and O-1 or O-2 nonimmigrants, who are likely to travel frequently; and many H-2A nonimmigrant farmworkers who live near the border and travel frequently to their home country (sometimes daily).

Third, DHS counts a significant number of nonimmigrants whom we consider to be nonimmigrant workers in categories other than the one it has labeled “temporary workers.” DHS lists 670,000 foreign students under the “Students” column in Table 1 (Baker 2016, 3), which presumably includes the nearly 140,000 F-1 nonimmigrants who are likely employed full-time through the Optional Practical Training (OPT) program (according to our estimate, discussed later in this report). DHS also lists 200,000 J-1 and J-2 nonimmigrants as “exchange visitors” in another column in the same table, but most J-1 nonimmigrants are employed through the Exchange Visitor Program and many J-2 nonimmigrant spouses are authorized to work (also discussed later in this report).

In summary, while DHS has a category for temporary workers, its main goal is to estimate the average number of nonimmigrants residing in the United States. On the other hand, we attempt to estimate the number of nonimmigrants who were employed at some point in time during 2013, even if the employment and duration of stay was shorter than 365 days. Our estimate counts workers who worked in the U.S. labor market while in a nonimmigrant status, as opposed to nonimmigrants who are long-term residents of the United States.

The Pew Research Center has estimated that 1.7 million “temporary lawful residents” were living in the United States in 2014 (Passel and Cohn 2016).<sup>3</sup> The Pew estimate does not estimate how many of the 1.7 million nonimmigrants in 2014 were employed in the U.S. labor market, nor does it provide numerical estimates of employed nonimmigrants by visa classification. Instead, the Pew authors look to “augmented American Community Survey” (ACS) data and identify specific nonimmigrant visa classifications that allow nonimmigrant beneficiaries to remain in the United States for 1 year or more. We do not offer any criticisms of Passel and Cohn’s estimate; in fact, we believe that (like the DHS estimate) it is valuable and reliable. But we wish to distinguish the Pew estimate of the resident population of nonimmigrants from ours: our estimate counts the number of temporary foreign workers who were employed in the United States while authorized with a nonimmigrant visa for any period of time during 2013, including many nonimmigrants with short-term visas who are likely excluded from the Pew estimate.

The purpose of the Pew Research Center’s approach is to ensure that nonimmigrants appearing in the ACS are not erroneously included in the estimate of either lawful or unauthorized immigrant populations; it is not generated as a “stand-alone” attempt to measure the nonimmigrant population, either in total or by visa category.<sup>4</sup> As such, it is not comparable to our estimate.

## **A note about our methodology: who to count or exclude, and necessary subtractions**

It is not a straightforward task to define who should be counted as a temporary foreign worker, in part because no one single definition exists. For the purposes of this paper, we define and count someone as a “temporary foreign worker” if they were authorized to be employed in the United States at any point and for any duration during fiscal year 2013 in one of the selected nonimmigrant visa classifications that authorize employment (also known as temporary foreign worker programs). We exclude lawful permanent residents, also known as “green card” holders, and naturalized immigrants.

We also count the nonimmigrant spouses of temporary foreign workers in some visa classifications. While the beneficiaries of some classifications of nonimmigrant spouse visas may be eligible to receive employment authorization, unlike with a principal nonimmigrant beneficiary, a nonimmigrant spouse’s visa status is not tied to a particular employer. (The visa’s validity is, however, tied to the visa status of the principal nonimmigrant spouse, whose visa status is usually tied to a particular employer.) Our estimate includes the numbers of nonimmigrant spouses in a particular visa classification

who were authorized to be employed in 2013 if sufficient data are available to devise an estimate for the number of employed nonimmigrant spouses in that visa classification.

Certain relevant nonimmigrant visa classifications that authorize employment, as well as other key estimates, were not able to be included in this report and are not part of our calculation. The following nonimmigrant visa classifications that authorize employment were excluded from our estimate because of a lack of reliable data: E and P visas, the F-1 visa Curricular Practical Training program, and a subset of visas in the B-1 “business visitor” classification that may authorize employment in limited circumstances (for example, nonimmigrants admitted as B-1 in lieu of H-1B or as personal or domestic servants).

For our estimates we deduct nonimmigrants who adjusted to LPR status from a nonimmigrant visa in one of the employment-based immigrant preferences from our count of the number of temporary foreign workers who were employed in 2013. This is necessary because nonimmigrants who adjust to LPR status are no longer tied to a single employer or subject to the rules and limitations of their previous nonimmigrant status. However, we were unable to subtract the number of temporary foreign workers who may have adjusted to LPR status through one of the family-based immigrant preference categories. We know of no reliable data source for this, nor do we have any evidence that would suggest how small or large that population may be.

We also subtract significant numbers of temporary foreign workers from our estimates to account for emigration in most visa classifications, as well as mortality for visa classifications with relatively longer validity periods; we decided to account for mortality for any nonimmigrant visa that is normally authorized for more than 18 months at a time.<sup>5</sup>

## **Nonimmigrant visa classifications included in our estimate**

The following sections explain our methodology in detail regarding each visa classification. Our methodology differs among visa classifications (and subclassifications or individual programs within visa classifications) because of the different nature of each visa classification (in terms of occupations and validity periods, etc.) and because available data are inconsistent among the many visa classifications.

*Please note that unless otherwise specified, all references to a particular year should be understood to mean the U.S. government’s fiscal year, which begins on October 1 in one calendar year and ends on September 30 the following year.*

### **H-2A visa for seasonal agricultural occupations**

H-2A nonimmigrant visas are used by employers to hire workers from abroad to perform agricultural labor or services in occupations that are temporary or seasonal in nature. The U.S. Department of Labor (DOL) publishes useful data on H-2A employers and workers, including the occupations employers want to hire H-2A workers for, the proposed

geographic work locations, and the wages employers have promised to pay their H-2A workers if hired. But DOL's data is limited because it is extracted from requests for labor certifications by potential H-2A employers, and a request for labor certification is only the first step in the process for hiring an H-2A worker. An employer with an approved labor certification must then submit a petition for a nonimmigrant worker to U.S. Citizenship and Immigration Services (USCIS, a sub-agency of DHS), which then rejects or approves the petition. While USCIS collects and stores valuable data on H-2A workers and employers, it does not release those data to the public. We use USCIS data obtained via FOIA requests and published data from the U.S. Department of State (DOS).

There is no limit on the number of H-2A visas that may be issued each year. H-2A visas are valid for a period of stay that is generally less than 1 year, but H-2A status may be extended in increments of up to 1 year, with a maximum period of stay of up to 3 years.<sup>6</sup> Some H-2A workers may have jobs certified for relatively short periods, but data published by the Labor Department's Office of Foreign Labor Certification for 2013 shows that no labor certifications were approved for less than 18 days, while the average H-2A certification period was 222 days, or just over 7 months.<sup>7</sup> Because the average H-2A certification is for less than 1 year, the number of H-2A workers present in the United States at any given point in 2013 is likely to be lower than our estimate for the total number of H-2A workers authorized to be employed in 2013.

Since H-2A workers generally remain in the United States for less than 1 year, that also means that the number of H-2A visas granted in a given year is a reliable method for estimating how many H-2A workers were employed in the United States that year. It is true that because some H-2A workers may remain in the United States for up to 3 years, the number of H-2A visas issued in a particular year could undercount the total number of H-2A workers authorized to be employed during that year. However, our review of nonpublic, unpublished fiscal year 2013 Form I-129 petition data acquired from USCIS via a FOIA request<sup>8</sup> revealed, however, that only 47 H-2A petitions approved in 2013 were for "[c]ontinuation of previously approved employment without change with the same employer,"<sup>9</sup> with a total of 684 beneficiaries (i.e., workers) approved.<sup>10</sup> This suggests that very few H-2A workers remain in the United States to work beyond 1 year.

The number of H-2A visas issued is published on DOS's Nonimmigrant Visa Statistics webpage (U.S. DOS CA 2017a), although DOS does not publish any information about the individual H-2A visa beneficiaries, such as their occupations, work locations, who their employers are, or the wage rates employers have promised to pay. According to DOS, 74,192 H-2A visas were issued in 2013 (U.S. DOS CA 2017b). We estimate that 684 H-2A visas issued to H-2A workers in 2011 or 2012 were approved for H-2A workers to remain and continue working in the United States in 2013. The available data make it impossible to distinguish how many of these continuing H-2A workers were approved for their second versus their third year of H-2A employment. We have added the 684 USCIS-approved continuing H-2A beneficiaries for 2013 to the number of visas issued in order to estimate the number of H-2A workers authorized to be employed in 2013.

We do not subtract for mortality (the number of H-2A nonimmigrant workers who died) because the H-2A visa is normally valid for less than 1 year and must be renewed at least

Table 1

## Estimated number of H-2A workers employed in the United States, 2013

	Number of workers
DOS visas issued, 2013	74,192
USCIS approvals to continue employment with the same employer, 2011–2012	684
<b>Subtotal</b>	<b>74,876</b>
<b>Subtraction</b>	
H-2A adjustment to LPR status via employment-based preference	-17
<b>Total</b>	<b>74,859</b>

**Note:** All references to a particular year should be understood to mean the U.S. government's fiscal year (October 1–September 30). LPR refers to lawful permanent resident.

**Sources:** U.S. DOS CA 2017a; approved continuing petitions data acquired from USCIS through a FOIA request by the authors; adjustment of status data acquired from USCIS through a FOIA request by Lazaro Zamora of the Bipartisan Policy Center (unpublished)

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every year (every petition or visa we count for our H-2A estimate was approved in 2013) and, as noted in the introductory section, we have decided to calculate and subtract for mortality only in visa classifications that are valid for more than 18 months.

Finally, we must subtract some share of H-2A workers who have adjusted to LPR status in 2013 through an employment-based preference category, because once they attain LPR status, they are no longer nonimmigrants or part of the H-2A worker population. Information on H-2A adjustment to LPR status is not published by the U.S. government; however, Lazaro Zamora of the Bipartisan Policy Center (BPC) acquired from USCIS, through a FOIA request, data that reveal the number of persons who adjusted to LPR status through the employment-based preference categories after previously being in a nonimmigrant status for a number of nonimmigrant visa classifications. Zamora published much of these data (Zamora 2016); however, some of the data acquired were not published, including data for nonimmigrants who adjusted to LPR status after previously being in an H-2A nonimmigrant status. The unpublished data were kindly provided to us by Zamora and are used throughout this report. We take the number of H-2A nonimmigrant workers who adjusted to LPR status in 2013 (17) and subtract this number from the number of H-2A workers who were authorized to be employed in 2013 (**Table 1**).

***We estimate that 74,859 H-2A workers were employed in the United States in 2013 (Table 1).***

## H-2B visa for seasonal non-agricultural occupations

H-2B nonimmigrant visas are used by employers to hire workers from abroad in lesser-skilled non-agricultural occupations that are temporary or seasonal in nature and that do not require a university degree. The top 10 H-2B occupations (by number of labor certifications) in 2013 were: landscaping and groundskeeping workers; forest and conservation workers; amusement and recreation attendants; maids and housekeeping cleaners; meat, poultry, and fish cutters and trimmers; construction laborers; nonfarm animal caretakers; waiters and waitresses; coaches and scouts; and fishers and related fishing workers.<sup>11</sup>

As with H-2A, DOL publishes useful data on H-2B employers and workers, including the occupations employers want to hire H-2B workers for, the proposed geographic work locations, and the wages employers have promised to pay their H-2B workers if hired. Also as with H-2A, DOL's data on H-2B is limited because it is extracted from requests for labor certifications by potential H-2B employers, and a request for labor certification is only the first step in the process for hiring an H-2B worker. An employer with an approved labor certification must then submit a petition for a nonimmigrant worker to USCIS, which then rejects or approves the petition. While USCIS collects and stores valuable data on H-2B workers and employers, it does not release those data to the public.

There is a statutorily mandated limit of 66,000 H-2B visas that may be granted each year,<sup>12</sup> although legislation and riders to appropriations bills in Congress have occasionally permitted exceptions to this limit.<sup>13</sup> While H-2B visas are generally only valid for up to 9 months (or 10 months before new H-2B regulations published in 2015 came into effect) (U.S. DOL WHD 2015), they may be certified for a “one-time occurrence” of up to 3 years.<sup>14</sup> Those that are valid for less than 1 year may also be renewed in 1-year increments for a maximum period of stay of up to 3 years.<sup>15</sup>

In 2011, DOL published a final rule amending the methodology used to set the prevailing wage employers must use for H-2B labor certification purposes (U.S. DOL 2011). In a footnote to the preamble text of the rule, DOL describes its methodology for estimating the stock of H-2B workers present in the United States:

[W]e used an estimated total of 115,500 H-2B workers because the number of visas available under the H-2B program is 66,000 (assuming no statutory increases in the number of visas available for entry in a given year) but employers can hire H-2B workers with existing visas for two additional years. Assuming that half of all such workers (33,000) in any year stay at least one additional year, and half of those workers (16,500) will stay a third year, there will be a total of 115,500 H-2B workers in a given year. That is, in our calculations, we use 66,000 as the annual number of new entrants and 115,500 as the total number of H-2B workers in a given year during the 10-year time horizon.<sup>16</sup>

Because DOL is the federal agency that approves labor certification applications for H-2B jobs and approves the length of time for which each certification is approved, we defer to

DOL's methodology, although we realize it is far from scientific and likely to be a very rough estimate. We have taken DOL's methodology here and replaced the 66,000 visas they estimate per year with the corresponding numbers of H-2B visas issued in 2011, 2012, and 2013. DOL's estimate assumes that the H-2B cap of 66,000 is reached every year, but according to DOS's Nonimmigrant Visa Statistics webpage, the cap was not reached in any of the years from 2009 to 2013, during the Great Recession and its aftermath (U.S. DOS CA 2017a). (As with H-2A, DOS does not publish any information about the individual H-2B visa beneficiaries, such as their occupations, their work locations, who their employers are, or the wage rates employers have promised to pay them.)

Taking these visa totals and inserting them into DOL's methodology, we estimate that in 2013, 57,600 H-2B workers were in the country who had been issued visas in 2013 (the actual number of H-2B visas issued in 2013), 25,005 H-2B workers were in the country who had been issued visas in 2012 (half the total issued in 2012), and 12,706 H-2B workers were in the country who had been issued visas in 2011 (one-fourth of the total issued in 2011).

We subtract for H-2B worker mortality since a significant share of H-2B workers remain in the country for longer than 18 months according to DOL's estimate. According to country-of-origin data available at DOS's Nonimmigrant Visa Statistics webpage, nearly three-fourths of all H-2B workers during the 2011–2013 period were Mexican nationals (U.S. DOS CA 2017a). Data on age and gender for H-2B workers are not available. Because of the physically strenuous nature of the major H-2B occupations, we assume that most H-2B workers are younger, or at least of prime working age, and not yet nearing the age of retirement. For the same reason we believe that most H-2B workers are likely to be male, but we are also aware of anecdotal evidence and reports that suggest at least one major H-2B occupation (seafood processing) is disproportionately female.<sup>17</sup> Therefore we use the Centers for Disease Control (CDC) online tool (CDC 2014) to calculate a mortality rate for Hispanic or Latino males and females between the ages of 25 and 44, for the years 2011–2013. Approximately 89.5 deaths occurred per 100,000 persons in this group. We use this mortality rate and apply it to all 95,147 H-2B workers. At this rate, there are 85 H-2B deaths to subtract.<sup>18</sup>

Finally, we must subtract some share of H-2B workers who have adjusted to LPR status in 2013 through an employment-based preference category since once they attain LPR status, they are no longer nonimmigrants or part of the H-2B worker population. We again use unpublished USCIS data acquired via FOIA request and provided to us by Zamora (2016). We take the number of H-2B nonimmigrants who adjusted to LPR status in 2011, 2012, and 2013 (307) and subtract this number from the number of H-2B workers who were authorized to be employed in 2013 (**Table 2**).

***We estimate that 94,919 H-2B workers were employed in the United States in 2013 (Table 2).***

Table 2

## Estimated number of H-2B workers employed in the United States, 2013

	Number of workers
<b>H-2B visas issued</b>	
All visas issued in 2013	57,600
50 percent of visas issued in 2012	25,005
25 percent of visas issued in 2011	12,706
<b>Subtotal</b>	<b>95,311</b>
<b>Subtractions</b>	
H-2B adjustment to LPR status via employment-based preference, 2011–2013	-307
Estimated deaths (89.5 per 100,000)	-85
<b>Total</b>	<b>94,919</b>

**Notes:** LPR refers to lawful permanent resident. We use DOL methodology to estimate the stock of H-2B workers (U.S. DOL 2011). All references to a particular year should be understood to mean the U.S. government's fiscal year (October 1–September 30).

**Sources:** U.S. DOS CA 2017a; U.S. DOL 2011; adjustment of status data acquired from USCIS through a FOIA request by Lazaro Zamora of the Bipartisan Policy Center (unpublished); mortality rate calculated from Centers for Disease Control data at [wonder.cdc.gov](http://wonder.cdc.gov) (CDC 2014)

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## H-1B visa for specialty occupations

The H-1B nonimmigrant visa is used by employers to hire college-educated workers in “specialty occupations.”<sup>19</sup> Three federal agencies publish data on the H-1B program. First, DOL publishes data collected through labor condition applications (LCAs) that are submitted to DOL. LCAs contain useful data on H-1B employers and workers, including the occupations employers want to hire H-1B workers for, the proposed geographic work locations, and the wages employers have promised to pay their H-1B workers if hired. But DOL's data are limited because an LCA from a potential H-1B employers constitutes only the first step in the process for hiring an H-1B worker. An employer with an approved LCA must then submit a petition for a nonimmigrant worker to USCIS (a subagency of DHS), which then rejects or approves the petition. While USCIS collects and stores valuable data on H-1B workers and employers, it does not release all of it to the public in the form of microdata. The information is used instead to prepare USCIS's two main annual reports on H-1B: *Characteristics of H-1B Specialty Occupation Workers* and *Report on H-1B Petitions*. Both contain valuable information, but most of it is at the aggregate level.

The majority of H-1B workers are employed in occupations related to computers and information technology (IT) (USCIS 2015). A statutorily mandated annual limit of 65,000 H-1B visas may be issued and an additional 20,000 may be issued to persons who have

obtained a master's degree or higher from a U.S. university, for a total H-1B annual "cap" of 85,000. In addition, as specified by law, certain employers are exempt from the H-1B cap, including institutions of higher education or related nonprofit entities, nonprofit research organizations, and government research organizations.

For our estimate, we use data published by USCIS for H-1B petitions approved for new employment and for continuing employment (i.e., extensions, which do not count against the annual cap even if the original approval was subject to the cap) (USCIS 2014a) as well as unpublished USCIS petition-level microdata acquired through a FOIA request. The USCIS petition data available to us did not distinguish whether a petitioning employer was subject to the cap or was cap-exempt.

In fiscal years 2011, 2012, and 2013, a total of 371,626 petitions were approved by USCIS for initial employment in H-1B status: 192,447 for aliens already in the United States (including those adjusting to H-1B status from another status—for example, from an F-1 student visa) and 179,179 for aliens residing outside the United States. (Since newly issued H-1B status for initial employment is valid for 3 years, workers approved in 2011 would be in their third year of H-1B status in 2013 and workers approved in 2012 would be in their second year of H-1B status.) In addition, 447,369 H-1B petitions were approved for continuing employment by USCIS. (An H-1B visa or status that is approved for continuing employment does not count against the annual cap, even if it was originally subject to the cap, and is valid for an additional 3 years, although a subset of continuing employment approvals are for only 1 year, and some continuing employment approvals are for H-1B workers who change employers, as discussed below.) Combined, 818,995 petitions were approved by USCIS for initial H-1B employment and for continuing employment in H-1B status between 2011 and 2013 (**Table 3**). We did not take into account H-1B visas issued by DOS over this period because we believe that including these visas in the total would likely overcount the number of H-1B workers, since an H-1B worker could potentially be counted twice if he or she first acquires H-1B status from USCIS while already residing in the United States and subsequently acquires an H-1B visa from DOS in order to travel abroad. In addition, DOS data are inadequate because, as with H-2A and H-2B, DOS does not publish any information about the individual H-1B visa beneficiaries, such as their occupations, their work locations, who their employers are, or the wage rates employers have promised to pay them. DOS publishes only the number of new visas issued each year.

Because newly approved H-1B petitions for initial employment, as well as most of the petitions approved for continuing employment, are valid for 3 years, it is logical to review 3 years of data together when attempting to estimate the number of H-1B workers who were authorized to be employed in 2013. Since renewed H-1B workers have been in the country for the past 3 years and have just been approved to remain for 3 more, it is likely that many will not return to their home countries immediately (otherwise they would not be seeking renewal). And we assume that many H-1B workers with newly approved status for initial employment will remain in the country for 3 years (but not all, and we attempt to account for this later in our estimate). Therefore, this group is an adequate proxy to start with in order to estimate the number of H-1B workers who were authorized to be employed in the United States in 2013.

Table 3

### H-1B petitions approved by USCIS for initial and continuing employment, 2011–2013

Year	Initial employment for aliens residing outside the U.S.	Initial employment for aliens residing in the U.S.	Continuing employment in H1-B status	Subtotals by year
2011	48,665	57,780	163,208	269,653
2012	74,997	61,893	125,679	262,569
2013	68,785	59,506	158,482	286,773
<b>Totals</b>	192,447	179,179	447,369	<b>818,995</b>

**Note:** All references to a particular year should be understood to mean the U.S. government's fiscal year (October 1–September 30).

**Sources:** USCIS 2014a

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As we explain below, certain subtractions must be made from our starting total of 818,995 H-1B petitions approved for initial and continuing employment for the 2011–2013 period. However, because reliable data that we could use to calculate some of the following subtractions are lacking, these estimates are inevitably our educated best guesses. We believe the following subtractions are reasonable, and in our subtractions and final estimate we consider and are informed by previous H-1B estimates and methodologies developed by Lowell (2000), North (2011), and Kirkegaard (2005).

A subset of H-1B workers employed in the United States are the beneficiaries of continuing petitions that are valid for 1 year instead of 3. Under the American Competitiveness in the Twenty-First Century Act of 2000 (also known as AC21), if 365 days have elapsed after an employer files for a permanent labor certification or has petitioned for an immigrant visa for an H-1B worker, then USCIS may renew the worker's H-1B status in 1-year increments until a final decision is made on the labor certification or immigrant petition. H-1B workers who are the beneficiaries of successful immigrant petitions, but who are not yet able to adjust to LPR status because an immigrant visa number has not yet become available, are also able to extend H-1B status, but may do so in 1- to 3-year increments.<sup>20</sup> This is especially likely to impact H-1B workers from India, China, the Philippines, and Mexico, because there are multiyear wait times for immigrant visa numbers in the second and third employment-based immigrant visa preference categories (known as EB-2 and EB-3) for workers from those countries (U.S. DOS CA 2017d).

In order to avoid double- or triple-counting H-1B nonimmigrants over the 2011–2013 period who extend their stay in 1- to 3-year increments pursuant to AC21, some share must be subtracted from the total number of visa issuances and approved continuing petitions. However, we do not know exactly how many 1- to 3-year H-1B extensions are approved each year because both published and unpublished USCIS H-1B data do not distinguish the length of time that a petition has been approved for. USCIS does not know the exact total of H-1B workers who have had their status extended beyond 6 years or who have a pending or approved labor certification or immigrant visa petition, although a related

estimate was published in the 2015 final rule on H-4 visas for spouses of H-1B nonimmigrants (U.S. DHS 2015, 10307), which we use to arrive at our estimate. (Note: we do not include H-4 spouses in our estimate of H-1B workers, and in 2013 H-4 spouses of H-1B workers were not eligible to apply for employment authorization.)

First, some additional background is required to explain our estimate of 1- to 3-year H-1B extensions approved under AC21. The DHS final rule on H-4 visas went into effect on May 25, 2015 (U.S. DHS 2015), permitting H-4 spouses of certain H-1B workers to become eligible to apply for employment authorization to work in the United States (before 2015, they were ineligible) (U.S. DHS 2015, 10283). Under the terms of the final rule, the H-4 spouse of an H-1B worker becomes eligible for employment authorization if the principal H-1B worker is the beneficiary “of an approved Immigrant Petition for Alien Worker (Form I-140), or ha[s] been granted H-1B status in the United States under the” AC21 Act (U.S. DHS 2015, 10283). DHS estimated that initially “as many as 179,600” H-4 spouses of H-1B workers would immediately become eligible for employment authorization under the final rule, and 55,900 would annually become eligible in subsequent years (U.S. DHS 2015, 10285).

The estimate of employment-authorization-eligible H-4 spouses, however, does not correspond one-to-one to the number of H-1B workers extending in 1- to 3-year increments because not all H-1B workers have spouses and because the terms of the H-4 regulation are broader than for just the spouses of those H-1B workers who are extending in 1-year increments via AC21. DHS analyzed H-1B petition data and found that:

Based on approximately 90 days of tracking data (which is all that is currently available), DHS estimates that 18.3 percent of approved extension of stay requests filed on behalf of H-1B nonimmigrants are approved pursuant to AC21. (U.S. DHS 2015, 10307)

This information is the best we have to calculate the number of 1- to 3-year AC21 H-1B extensions. The H-1B nonimmigrant workers extending their visa status in 1- to 3-year increments under AC21 should be counted only once in the total estimate of the H-1B labor force (for 2011); they should not be counted for additional years as new workers since they are just extending their visa and are not new workers in the population we are counting. Therefore we feel it is appropriate to apply the DHS AC21 percentage share of 18.3 to only 2012 and 2013, and so we subtract 18.3 percent of the approved extension of stay requests in 2012 (22,999) and 2013 (29,185) for those workers who were likely extending H-1B status via AC21. (We do not subtract this share from 2011.)

Since the enactment of AC21, an employer may petition for an H-1B nonimmigrant worker who is currently working for another U.S. employer. This allows H-1B workers to seek jobs with other employers while they are still employed as H-1B workers. However, an H-1B worker must find an employer who is willing to apply for a new H-1B visa for the worker, and the worker cannot have a gap in employment where he or she is unemployed for any period of time. In any case, since H-1B workers must remain employed to keep their visa status, an H-1B worker who leaves an employer without finding a new sponsoring

employer, or who is fired or loses his or her job for any reason, loses H-1B visa status and becomes deportable.

The share of the H-1B petitions approved for changing employers should be subtracted because these do not represent new or continuing H-1B workers. These H-1B beneficiaries already had a petition for initial or continuing employment approved and thus have already been counted in our estimate. According to USCIS, in 2011, 40,476 petitions were approved for H-1B workers changing employers (USCIS 2012b); 37,290 petitions were approved in 2012 (USCIS 2013d); and 43,400 were approved in 2013 (USCIS 2014b). The total number of H-1B workers who changed employers during the 2011–2013 period is 121,166. We do not subtract the number of H-1B workers in 2011 who switched employers, because they should be counted in the first year as part of the total H-1B workforce, but we do subtract the total number of H-1B workers who changed employers in 2012 and 2013 (80,690), because those H-1B workers are not new workers; they have already been counted in a previous year (2011).

The H-1B population is an educated and skilled population and is likely to be mobile as well. While many H-1B workers remain in the country in H-1B status beyond 6 years because they are on a concurrent track for LPR status through one of the employment-based immigrant preference categories, some share of the estimated stock of H-1B workers should be subtracted to account for H-1B emigration, to either the H-1B worker's country of origin or to a third country. To determine this share, we review different estimates regarding emigration of the foreign-born population from the United States.

Using Census survey data, Bhaskar, Arenas-Germosén, and Dick (2013) calculate a midrange emigration rate of 13.8 to 14.3 per 1,000 for foreign-born persons who had entered the United States 10 or fewer years before they were surveyed. While this is a recent estimate looking at emigration during the 2000–2010 period, it strikes us as being too low to apply to skilled temporary migrants. Instead, we believe it is more appropriate to use Ahmed and Robinson's (1994) estimate for foreign-born emigration.<sup>21</sup> They estimate an overall rate of "about 10 percent" for the countries they examine, with the rate for the Asian and Pacific Islander population being "around 10 to 11 percent." The H-1B population hails disproportionately from countries in Asia (especially India and China). With this in mind, we apply a 10 percent emigration rate and subtract that share (81,899) from the total number of H-1B petitions approved for initial and continuing employment during the 2011–2013 period.

The possibility also exists that multiple petitions for initial employment for aliens already residing in the United States may be approved for the same potential beneficiary.<sup>22</sup> In other words, multiple employers may have submitted petitions for the same potential beneficiary, or an employer may have submitted more than one petition for the same potential beneficiary in order to increase the chances that the potential beneficiary will eventually be issued H-1B status (and thus be able to work for the employer). The share of beneficiaries who may be counted twice—or more—in this way is impossible to estimate with any certainty. We take the fiscal 2011–2013 total of H-1B petitions approved by USCIS for initial employment (371,626), and subtract 1 percent (3,716) for possible duplicate petitions.

Table 4

### H-1B nonimmigrants who adjusted to lawful permanent resident (LPR) status through employment-based immigrant preference categories, 2011–2013

Year	Number adjusted to LPR status
2011	47,764
2012	42,318
2013	49,221
<b>Total</b>	<b>139,303</b>

**Note:** All references to a particular year should be understood to mean the U.S. government's fiscal year (October 1–September 30).

**Sources:** Data acquired from USCIS via a FOIA request and published in Zamora 2016

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We must also subtract some share of H-1B workers who have adjusted to LPR status in each year through an employment-based preference category. The U.S. government does not publish this information, but again we use Zamora's (2016) data published by BPC, which was acquired through a FOIA request. These data show the number of H-1B nonimmigrant workers who adjusted to LPR status through the employment-based preference categories; the number who adjusted to LPR status in 2011, 2012, and 2013 is 139,303 (**Table 4**). We subtract this number from our starting total.

We must also subtract some share for H-1B mortality, as Lowell (2000) and North (2011) do. According to USCIS, 70.9 percent of 2011, 2012, and 2013 H-1B petition approvals were for workers between the ages of 25 and 34 (USCIS 2014a, 9; USCIS 2013a, 9; USCIS 2012a, 9), and according to DOS, 79 percent of visas issued in 2011–2013 went to beneficiaries from countries in Asia (U.S. DOS CA 2017a). While we do not know the shares of H-1B workers in each gender, testimony presented before the Senate Judiciary Committee in 2013 claimed that they are disproportionately male (Parker 2013).<sup>23</sup> Therefore we again use the CDC's online tool to calculate a mortality rate for Asian and Pacific Islander males between the ages of 25 and 34, for the years 2011–2013 (CDC 2014). Approximately 55.4 deaths occurred per 100,000 persons in this group. We use this mortality rate and apply it to all 819,995 H-1B workers. At this rate, there are 454 H-1B deaths to subtract.

**We estimate that 460,749 H-1B workers were employed in the United States in 2013 (Table 5).**

## J-1 and J-2 visas: The Exchange Visitor Program

J-1 nonimmigrant visas are issued to foreign nationals who participate in the Exchange Visitor Program (EVP) (U.S. DOS ECA 2017), an international cultural exchange program managed by DOS. J-2 nonimmigrant visas are issued to spouses and children of some J-1 beneficiaries, and J-2 spouses may apply for an Employment Authorization Document (EAD), which is also often referred to as a "work permit."

Table 5

## Estimated number of H-1B workers employed in the United States, 2013

	Number of workers
<b>H-1B petition approvals</b>	
H-1B petitions approved for initial and continuing employment, 2011–2013	818,995
<b>Subtractions</b>	
H-1B one-year extensions, 2012–2013	-52,184
H-1B approved petitions for changing employers, 2012–2013	-80,690
H-1B adjustment to LPR status via employment-based preference, 2011–2013	-139,303
Emigration to country of origin or third country (10 percent)	-81,899
Estimated duplicate petitions approved by USCIS for initial employment (1 percent)	-3,716
Estimated deaths (55 per 100,000)	-454
<b>Total</b>	<b>460,749</b>

**Note:** LPR refers to lawful permanent resident. All references to a particular year should be understood to mean the U.S. government's fiscal year (October 1–September 30).

**Sources:** USCIS 2014a; USCIS 2012b; USCIS 2013d; USCIS 2014b; U.S. DHS 2015; adjustment of status data from Zamora 2016; mortality rate calculated from Centers for Disease Control data at [wonder.cdc.gov](http://wonder.cdc.gov) (CDC 2014)

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DOS does not publish data on J-1 employers and workers, such as the occupations J-1 workers are employed in, their work locations, or the wage rates employers have promised to pay them. While it is likely that DOS collects and stores some of these data on J-1 workers and employers, DOS does not release these data to the public. DOS publishes only the number of J-1 nonimmigrants who participate in each of the J-1 program categories.

The J-1 program encompasses 14 separate programs, each with its own purpose and rules. Ten of these programs authorize employment—in low-, middle-, and high-skilled occupations, depending on the program—and the duration of the program can range from 4 months to 7 years.<sup>24</sup> In the J-1 programs, it is technically possible for some J-1 nonimmigrant workers to have the ability to switch employers in some cases; however, a switch of employers must be approved by a J-1 nonimmigrant's DOS-sanctioned sponsor organization. (The sponsors are for-profit or nonprofit organizations that act as labor recruiters in the J-1 program and to which DOS has largely outsourced the management and oversight of the J-1 program.)

Because of the wide range of individual program duration, the number of J-1 exchange visitors present and employed in the United States may fluctuate greatly in any single year.<sup>25</sup> For our estimate, we use 2014 data from DOS and substitute it for our 2013

estimate, since program-specific data on J-1 categories are not available for 2013 from DOS. As with H-2A workers, the average duration of stay for workers in many of the J-1 programs is less than 1 year, so the number of J-1 workers present in the United States at any given point during 2014 is likely to be much lower than our estimate for the total number of J-1 workers authorized to be employed in 2014.

One source of data on J-1 workers that is published in addition to that provided by DOS comes from U.S. Immigration and Customs Enforcement (ICE), which publishes quarterly reports containing data from the Student and Exchange Visitor Information System (SEVIS). SEVIS is a database that “track[s] and monitor[s] the status and activities of nonimmigrant students and exchange visitors who enter the United States” (U.S. ICE 2012, 2). Quarterly SEVIS reports list the number of “active” J-1 exchange visitors in the database—those who are likely to be in the United States and actively participating in their program. For example, the July 2012 report shows 218,942 exchange visitors in the United States and 50,426 “dependents” of exchange visitors (spouses and children who have been issued J-2 visas) (U.S. ICE 2012).

While the data provided by SEVIS is key to knowing the size of the J-1 population, the quarterly ICE reports do not separately list how many exchange visitors are participating in each of the 14 J-1 programs. The SEVIS quarterly reports offer only a snapshot of the J-1 population on a particular date. For example, the July SEVIS reports list the active J-1 participants as of July 1 of that year, but some exchange visitors participating in the 4-month Summer Work Travel program will have already departed the United States before July 1, while others will arrive and depart after July 1.<sup>26</sup> As a result, we do not utilize the SEVIS active participant totals; instead, we have reviewed data on J-1 programs from DOS and added together the total number of participants in each of the J-1 program categories that authorize employment.<sup>27</sup> We assume that most J-1 workers were employed in the United States for at least 4 months during 2014 because the 4-month-long Summer Work Travel program is the largest J-1 work program category by far, accounting for over 90,000 J-1 workers in 2014—and has the shortest duration of the J-1 programs (the Camp Counselor program also lasts up to 4 months but is much smaller).

We exclude J-1 beneficiaries in the following program categories from our estimate because of their tenuous link to the labor market: Secondary Student, Government Visitor, International Visitor, and College and University Student. We decided against subtracting any J-1 or J-2 workers from our estimate either for mortality or emigration because the majority of J-1 program categories authorize employment for 18 months or less and because we are reviewing the number of J-1 workers who were present in each applicable program in just 1 year (2014) according to DOS data. Our subtotal estimate of the total number of J-1 workers in the Exchange Visitor Program categories we selected—which includes the Au Pair, Camp Counselor, Intern, Physician, Professor and Research Scholar, Specialist, Summer Work Travel, Teacher, and Trainee programs—is 216,558.

Under U.S. law, the spouses and children of J-1 workers may be issued J-2 visas to reside temporarily in the United States for the same length of time as the validity of the principal J-1 worker’s visa. J-2 spouse beneficiaries may also be employed, but they must apply first for an EAD from USCIS. EADs are normally valid for only 1 year; therefore, our estimate of

J-2 workers counts all EADs issued to J-2 nonimmigrants in fiscal year 2014. Data on the number of EADs approved by USCIS, including data disaggregated by nonimmigrant visa classification, are not published. However, Jessica Vaughan from the Center for Immigration Studies acquired these data via a FOIA request and published them in 2015 (Vaughan 2015). We use Vaughan’s USCIS data for the number of J-2 EAD renewals (3,011) and those issued for initial employment (5,232) to estimate the total number of J-2 nonimmigrants employed in 2014 (8,243).

Finally, we must also subtract some share of J-1 workers who adjusted to LPR status in 2014 through an employment-based preference category because, once they attain LPR status, they are no longer nonimmigrants or part of the J-1 worker population. Because this total is not published by the U.S. government, we again use the same data set from Zamora (2016) on nonimmigrant adjustments to LPR status. The number of J-1 nonimmigrants who adjusted to LPR status in 2014 through an employment-based preference after having previously been in a J-1 status is 692, which we subtract. We choose not to subtract the number of J-2 nonimmigrants who adjusted to LPR status because we did not count all J-2 nonimmigrants, only the subset who applied for and were granted work authorization in 2014.

***We estimate that 224,109 J-1 and J-2 workers were employed in the United States in 2014 (Table 6), and we assume the same number were employed in 2013 for the purposes of the cumulative 2013 total.***

## L-1 visas for intracompany transferees

The L-1 nonimmigrant visa is used by multinational companies with offices in the United States to temporarily transfer foreign employees to work in their U.S. offices, subsidiaries, and/or affiliates. There are two types of L-1 visa: the L-1A visa is for beneficiaries who will be employed as managers or executives (USCIS 2013b), and the L-1B visa is for beneficiaries who possess “specialized knowledge” (USCIS 2013c). For our estimate, we look first to data published by DOS for L-1 visas issued. The DOS data are inadequate, however—as with H-2A and H-2B, DOS publishes only the number of new visas issued every year; it does not publish any information about the individual L-1 visa beneficiaries, such as their occupations, their work locations, who their employers are, or the wage rates employers have promised to pay. USCIS collects and stores valuable data on L-1 workers and employers on forms filled out by employers petitioning for L-1 nonimmigrant workers, but USCIS does not release this information to the public. We were fortunate to have an opportunity to review 4 years-worth of unpublished USCIS petition-level microdata acquired through a FOIA request, which helped inform our L-1 estimate.

The public DOS data on the total number of L-1 visas does not include a disaggregation of the share of L-1 visas that were issued as L-1A or L-1B. This data point is important for estimating the number of L-1 nonimmigrants authorized to be employed because L-1A visas are valid for up to a total of 7 years and L-1B visas are valid for up to 5 years. In 2006, the DHS Office of Inspector General reported that in 2004, for the first time, more L-1Bs were issued than L-1As, highlighting an upward trend for L-1Bs—but these data are now 13

Table 6

## Estimated number of J-1 and J-2 workers employed in the United States, 2014

	Number of workers
<b>J-1 program</b>	
Au Pair	16,035
Camp Counselor	19,523
Intern	22,963
Physician	1,999
Professor and Research Scholar	34,232
Short-Term Scholar	19,757
Specialist	610
Summer Work Travel	90,285
Teacher	1,447
Trainee	9,707
<b>J-1 worker subtotal</b>	<b>216,558</b>
<b>J-1 subtraction</b>	
J-1 adjustment to LPR status via employment-based preference, 2014	-692
<b>Total J-1 workers</b>	<b>215,866</b>
<b>J-2 workers</b>	
Employment authorization document (EAD) approvals for J-2 spouses of J-1 workers	8,243
<b>Total J-1 and J-2 workers</b>	<b>224,109</b>

**Note:** All references to a particular year should be understood to mean the U.S. government's fiscal year (October 1–September 30). The numbers listed for J-1 workers represent new Exchange Visitor Program participants who worked at least 4 months during 2014. (Not all J-1 visa holders are in the country for the entire year.) They exclude the following program categories: Secondary School Student, Government Visitor, International Visitor, and College and University Student. They also exclude government-sponsored exchange visitors in other categories. The J-2 total represents the number of initial and renewed EADs granted to J-2 beneficiaries in 2014.

**Sources:** J-1 participant information from U.S. DOS 2015; EAD data for J-2 spouses acquired from USCIS through a FOIA request and published in Vaughan 2015; J-1 adjustment of status data acquired from USCIS through a FOIA request and published in Zamora 2016

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years old. Thus, to estimate the share of each, we look to the unpublished USCIS microdata for L-1 visa petitions, which does distinguish whether a petition was approved as an L-1A or L-1B visa. For fiscal years 2009–2012 (the only years available to us), 57.6 percent of petitions were L-1A and 42.4 percent were L-1B.

One particular shortcoming in the USCIS L-1 petition microdata requires explanation. We believe that, unlike with H-1B visas, it makes sense to count DOS visa issuances in the L-1 context instead of USCIS petitions. This is because while many nonimmigrants may obtain an H-1B status from USCIS while they are in the United States (often while as a foreign student with an F-1 visa) without having to initially acquire an H-1B visa from DOS at an embassy or consulate outside the United States, L-1 nonimmigrants are much more likely to be initially issued L-1 visas from DOS since, in order to qualify for an L-1 visa, they must be employed abroad by the petitioning company. However, there is a discrepancy between the USCIS L-1 petition data and DOS visa issuance data: During the 2009–2012 period, DOS issued 272,573 L-1 visas, but USCIS data on approved L-1 petitions show only 142,425 approved L-1 visa petitions over the 2009–2012 period, approximately 52 percent of the number of visas issued by DOS. We believe this means that close to half of all issued L-1 visas (48 percent) over that period were likely processed through the L-1 “blanket” procedure, where employees of preapproved companies that frequently use L-1 visas may apply directly to DOS for L-1 visas at U.S. embassies and consulates abroad. Because approved L-1 blanket petitions do not receive any USCIS scrutiny or review, they do not appear in USCIS data and DOS does not identify or disaggregate published L-1 data by blanket petition (or by L-1A or L-1B petition). We are also not aware of any other publicly available data on blanket L-1 visas (if these data exist at all, they are likely to reside at DOS embassies and consulates abroad). With the caveat of this data gap, for the purpose of our estimate we assume that L-1 blanket visas are issued by DOS as L-1A or L-1B in the same proportion as those approved by USCIS.

For our starting point, we estimate the upper limit of L-1A workers by taking the USCIS fiscal 2009–2012 share of L-1 visas that were L-1A (57.6 percent) and multiplying that share by the total number of L-1 visas issued in the last 7 years, counting backward from 2013 (since the maximum duration of stay for L-1A is 7 years), which gives us an upper limit of 292,541 L-1A workers. We do the same for L-1B workers: 42.4 percent of L-1 visas issued in the last 5 years (the maximum duration of stay for L-1B) gives us an upper limit of 143,852 L-1B workers. Combined, this is an upper limit of 436,393 L-1 nonimmigrants who were authorized to be employed in the United States in fiscal year 2013, if all remained in the United States for the maximum duration of stay of their L-1 visa. But, as with H-1B, certain subtractions must be made from this upper limit of 436,393 because it is unlikely that all L-1 nonimmigrant workers remained in the United States for the maximum allowed length of time or remained in L-1 nonimmigrant status during that entire time. We therefore estimate and subtract for L-1 emigration, mortality, and adjustment to LPR status.

The L-1 population is an educated and skilled population and is likely to be mobile as well. Some share of the estimated stock of L-1 workers should be subtracted in order to account for L-1 emigration, to either the L-1 worker’s country of origin or to a third country. To determine the number likely to have emigrated, we again look to Ahmed and Robinson’s (1994) overall estimate for foreign-born emigration of “about 10 percent.” Like the H-1B population, most L-1 workers hail from Asia (mostly India), but a significant share are also from Europe. However, we believe that a 10 percent emigration rate may be too low for L-1 workers, for two reasons: First, L-1 workers are employed by multinational companies; their jobs are therefore likely to require frequent travel and switching of work locations. Second,

over the 2009–2013 period, while the number of L-1 visas issued has equaled between 44 and 64 percent of the total of H-1B visas issued, annual L-1 admissions have been higher than H-1B admissions over the same period (more than 500,000) (Foreman and Monger 2014). This suggests more frequent cross-border movement by L-1 workers (although it is impossible to know the extent of permanent emigration with any degree of certainty). We estimate that 15 percent of L-1 workers out of the 436,393 have emigrated permanently, and thus subtract 65,459.

To determine the mortality of L-1 workers, we again use CDC’s online tool to calculate a mortality rate for L-1 workers. For the years 2007–2013, we select ages 25–64 and both genders (since no data are available regarding either age or gender). According to DOS’s fiscal year 2013 nonimmigrant visa data, approximately half of L-1 nonimmigrants were from Asia, and approximately one-third were from Europe (U.S. DOS CA 2017a). Therefore, for the race selector from the CDC’s death rates, we have included only “Asian or Pacific Islander” and “White,” and have excluded those of Hispanic or Latino ethnicity/origin. There are approximately 377.2 deaths per 100,000 in this group. We use this mortality rate and apply it to all 436,393 L-1 beneficiaries. We therefore subtract 1,646 for L-1 deaths.

Next we subtract the number of L-1 workers who have adjusted to LPR status from the upper limit of L-1 workers. L-1 nonimmigrant workers with L-1A status are permitted to adjust to LPR status in EB-1 without the need for their employer to file a permanent labor certification through the DOL (often referred to as a “PERM” application or process<sup>28</sup>). The path to an employment-based immigrant visa is less straightforward for L-1B workers because they must first go through the labor certification/PERM process, which their employer controls.

We use the published and unpublished USCIS data acquired by Zamora (2016) for the number of L-1 nonimmigrants who adjusted to LPR status. The data are available for 2010–2014, and the unpublished data separate L-1 adjusters into three subcategories: L-1A, L-1B, and L-1 with no subclassification specified. We use these data for the years 2010–2013, but since L-1A visas are valid for up to 7 years, we must also estimate the number of L-1A nonimmigrants who adjusted during 2007–2009, and because L-1B visas are valid for up to 5 years, we must estimate the number of L-1B nonimmigrants who adjusted in 2009. For the grouping of L-1 adjusters in the data without a subclassification specified, we assume they were all L-1A visas. In order to arrive at our estimates, we take the average number of L-1 nonimmigrants who adjusted per year under L-1A, L-1B, and unspecified L-1s, over the 2010–2014 period, and use the average of each as our estimate for that particular category (**Table 7**). We estimate the total number of L-1 nonimmigrants who adjusted to LPR status through an employment-based immigrant preference category to be 58,031, which we subtract.

One final note about our L-1 estimate is that it does not include Canadian nationals who have been granted L-1 nonimmigrant status. Since the North American Free Trade Agreement went into effect, Canadian petitioners for L-1 status are no longer required to apply for visas at the U.S. embassy or U.S. consulates in Canada. Instead, they may petition U.S. Customs and Border Protection (CBP) officials for L-1 status at a port of entry. Because DOS does not issue L-1 visas in this circumstance, these workers are not included

Table 7

### L-1 nonimmigrants who adjusted to legal permanent resident (LPR) status through employment-based immigrant preference categories, 2007–2013

L-1 subclassification	2007	2008	2009	2010	2011	2012	2013	Total
L-1 (subclassification unspecified)	1,469	1,469	1,469	1,713	1,096	1,537	1,654	10,407
L-1A	6,310	6,310	6,310	6,521	4,272	6,752	6,907	43,382
L-1B	–	–	817	603	825	962	1,035	4,242
<b>Total</b>								<b>58,031</b>

**Notes:** Data shown for 2007–2009 are authors' estimates, arrived at by taking the average number of L-1A's, L-1B's, and L-1's with an unspecified subclassification who adjusted to LPR status between 2010 and 2014 (from unpublished USCIS data provided by Lazaro Zamora at the Bipartisan Policy Center). All references to a particular year should be understood to mean the U.S. government's fiscal year (October 1–September 30).

**Source:** Data acquired from USCIS via a FOIA request and published in part in Zamora 2016; data by L-1 subclassification are unpublished

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in DOS's annual visa statistics. Thus, our estimate does not include the unknown number of Canadian L-1 nonimmigrant workers employed in the United States who were not issued visas by DOS.

**We estimate that 311,257 L-1 workers were employed in the United States in 2013 (Table 8).**

## L-2 visas for spouses of intracompany transferees

Under U.S. law, the spouses of L-1 workers may be issued L-2 visas to reside temporarily in the United States for the same length of time as the validity of the principal L-1 worker's visa. L-2 nonimmigrants may also be employed, but they must first apply for an EAD from USCIS. No data on EADs issued to L-2 nonimmigrants are published by USCIS, but those data are collected and stored by USCIS. The only data available on EADs issued to L-2 nonimmigrants that we know of comes from Vaughan's (2015) data acquired from USCIS through a FOIA request.

EADs are normally valid for only 1 year, but data reveal that a much smaller number of L-2 EAD renewals are approved compared with initial L-2 EAD issuances, which suggests that L-2 EADs may be valid for more than 1 year. For our estimate we only assume that all L-2 nonimmigrants have their EADs issued and renewed with only 1 year of validity at a time. Therefore, for the number of L-2 workers authorized to be employed in 2013, we count all EADs issued to L-2 nonimmigrants in fiscal year 2013, including initial EAD issuances and renewals. If L-2 EADs were sometimes approved for longer than 1 year, then our estimate undercounts the number of L-2 workers employed in the United States during 2013.

Table 8

## Estimated number of L-1 workers employed in the United States, 2013

	Number of workers
<b>Estimated L-1 approvals</b>	
L-1A: 57.6% of all L-1 visas issued, 2007–2013	292,541
L-1B: 42.4% of all L-1 visas issued, 2009–2013	143,852
<b>Subtotal</b>	<b>436,393</b>
<b>Subtractions</b>	
Emigration to country of origin or third country (15 percent)	-65,459
Estimated deaths (377.2 per 100,000)	-1,646
L-1 adjustment to LPR status via employment-based preference, 2007–2013	-58,031
<b>Total</b>	<b>311,257</b>

**Note:** All references to a particular year should be understood to mean the U.S. government's fiscal year (October 1–September 30).

**Sources:** U.S. DOS CA 2017a; USCIS I-129 microdata for fiscal years 2009–2012 acquired through a FOIA request; mortality rate calculated from Centers for Disease Control data at [wonder.cdc.gov](http://wonder.cdc.gov) (CDC 2014); adjustment of status data from Zamora 2016

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According to Vaughan's (2015) data, 31,371 initial EADs were issued for L-2 nonimmigrants and 7,581 EAD renewals were approved, for a total of 38,952 EAD approvals for L-2 nonimmigrants in 2013.

It should be noted that the EAD totals in Vaughan's data set from USCIS are identified as being for "Intracompany Transferees and Family," that is, they do not specify that they are for L-2 nonimmigrants only. However, given that L-1 nonimmigrants are already authorized to work incident to their L-1 status, meaning they are not required to obtain an EAD in order to be employed in the United States, we assume that EAD approvals in this category are for L-2 spouses only.

And finally, because we do not count the entire L-2 population (we count only L-2 nonimmigrants who had EADs approved, and we assume their EADs are valid for only 1 year), we do not subtract any L-2 workers who may have emigrated, adjusted to LPR status, or died in fiscal year 2013, as we do for other visa classifications.

**We estimate that 38,952 L-2 workers were employed in the United States in 2013 (Table 9).**

Table 9

## Estimated number of L-2 workers employed in the United States, 2013

L-2 employment authorizations	Number of workers
Initial approvals of employment authorization documents for L-2 nonimmigrants, 2013	31,371
Renewals of employment authorization documents for L-2 nonimmigrants, 2013	7,581
<b>Total</b>	<b>38,952</b>

**Notes:** While employment authorization document (EAD) data totals are identified by USCIS as being for “Intracompany Transferees and Family,” L-1 nonimmigrants are already authorized to work incident to their L-1 status, meaning they are not required to obtain an EAD in order to be employed in the United States. Therefore EAD approvals in this category are assumed to be for L-2 spouses only. All references to a particular year should be understood to mean the U.S. government’s fiscal year (October 1–September 30).

**Source:** EAD data acquired from USCIS through a FOIA request and published in Vaughan 2015

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## O-1 visas for persons with extraordinary ability in the sciences, arts, education, business, or athletics, and O-2 visas for their assistants

The O-1 nonimmigrant visa authorizes workers with “extraordinary ability” to work in the United States temporarily. The Immigration and Nationality Act (INA) describes the O-1 visa as intended for a worker who:

has extraordinary ability in the sciences, arts, education, business, or athletics which has been demonstrated by sustained national or international acclaim or, with regard to motion picture and television productions a demonstrated record of extraordinary achievement, and whose achievements have been recognized in the field through extensive documentation, and seeks to enter the United States to continue work in the area of extraordinary ability.<sup>29</sup>

The O-1 visa classification is divided into two visa subclassifications, O-1A and O-1B. In addition, O-2 visas are available for nonimmigrants who will accompany and work with O-1 beneficiaries, and O-3 visas are available for the spouses and children of O-1 and O-2 nonimmigrant beneficiaries. The USCIS website describes these classifications in detail:

O-1A: individuals with an extraordinary ability in the sciences, education, business, or athletics (not including the arts, motion pictures or television industry)

O-1B: individuals with an extraordinary ability in the arts or extraordinary achievement in motion picture or television industry

O-2: individuals who will accompany an O-1, artist or athlete, to assist in a specific event or performance. For an O-1A, the O-2’s assistance must be an “integral part” of the O-1A’s activity. For an O-1B, the O-2’s assistance must be “essential” to the

completion of the O-1B's production. The O-2 worker has critical skills and experience with the O-1 that cannot be readily performed by a U.S. worker and which are essential to the successful performance of the O-1

O-3: individuals who are the spouse or children of O-1s and O-2s (USCIS 2017b)

Other than this general information about the purpose and structure of the O visa program, very little is known about the O visa because neither DOS nor USCIS publishes any information about the individual O-1 and O-2 visa beneficiaries, such as their occupations, their work locations, who their employers are, or the wage rates their employers have promised to pay. DOS publishes only the number of visas issued each year. USCIS collects and stores valuable data on O-1 and O-2 workers and employers on forms filled out by employers petitioning for O-1 and O-2 nonimmigrant workers, including the number of visas that are extended each year, but it does not release this information to the public.

For our estimate, we focus on O-1A, O-1B, and O-2 visas. O-3 visa beneficiaries are not eligible to obtain employment authorization; therefore, we exclude them. There is no annual limit on the number of O visas that can be issued. They are valid for an initial period of 3 years and can be extended in 1-year increments.

Because the O-1 and O-2 visas are initially valid for up to 3 years, but no public data are available revealing how many are extended, we take as our starting point the sum of O-1 and O-2 visas issued during the fiscal year 2011–2013 period, which equals 48,620 (see **Table 10**). While we use this total as our upper limit of O-1 and O-2 nonimmigrants who are likely to have worked in the United States during 2013, there are reasons to believe that the actual number of O-1 and O-2 workers could be either significantly larger or smaller: First, as mentioned, no data are available from USCIS showing the number of 1-year extensions granted to O-1 and O-2 workers, but some unknown number of O-1 and O-2 extensions are granted every year, and some O-1 nonimmigrants may reside in the United States for many years,<sup>30</sup> therefore, the number of O-1 and O-2 workers could be much larger or smaller, depending on these factors. Second, the number of O-1 and O-2 admissions reported by DHS (Foreman and Monger 2014) is vastly larger than the number of visas issued over the same fiscal 2011–2013 period. Nonimmigrant “admissions” data, it must be noted, are not the same as the number of visas issued or the actual number of O-1 and O-2 nonimmigrants in the country; instead, the number of admissions represents the number of times O-1 or O-2 nonimmigrant workers have been admitted into the United States at a port of entry using their O-1 or O-2 visas. This may include multiple entries for each visa holder each year, as visa holders travel back and forth to their countries of origin or to third countries. We believe this is relevant because the ratio of admissions to visas during fiscal 2011–2013 is large—each O-1 or O-2 worker would have had to enter the country four to five times per year—and the vast majority of O-1 and O-2 visas were issued to beneficiaries from Europe and Asia during fiscal 2011–2013; these beneficiaries would have to travel long distances to go back and forth between the United States and their home country (U.S. DOS CA 2017a). On the other hand, it is also possible that many nonimmigrant workers with O-1 and O-2 visas do not stay in the United States for long, because they may be working on short-term artistic projects, film productions,

Table 10

**O-1 and O-2 visas issued and admissions, 2011–2013**

	Visas issued			Totals
	2011	2012	2013	
<b>O-1</b>	8,828	10,590	12,359	31,777
<b>O-2</b>	4,863	5,357	6,623	16,843
				<b>48,620</b>
	Admissions			Total
	2011	2012	2013	
<b>O-1/O-2</b>	87,366	70,611	67,724	<b>225,701</b>

**Note:** All references to a particular year should be understood to mean the U.S. government's fiscal year (October 1–September 30).

**Sources:** U.S. DOS 2017a; Foreman and Monger 2014

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performances, or lecture tours. That would instead result in smaller shares of O-1 and O-2 workers still remaining to work in the United States in 2013. With these caveats in mind, we use as our starting point 48,620 O-1 and O-2 workers based on DOS visa issuances, and then we subtract to account for emigration and adjustment to LPR status.

As with H-1B and L-1 visas, which are longer-term, we subtract the share of O-1 and O-2 workers who we estimate to have emigrated. While in the H-1B context we use Ahmed and Robinson's (1994) estimate for foreign-born emigration of 10 percent, we believe that because of the occupations O-1 and O-2 workers are authorized to work in—which include professional athletics and entertainment—these workers are likely to emigrate more frequently than the foreign-born population in general or than H-1B workers. Thus, we estimate that 50 percent of O-1 and O-2 nonimmigrant workers who were issued visas in 2011 and 2012 either emigrated to their country of origin or a third country before 2013 or simply did not renew their visa for 2013 (14,819). We assume that the O-1 and O-2 workers who were issued visas in 2013 were employed as nonimmigrant workers in the United States at some point during 2013 (except for those we subtract for mortality and adjustment to LPR status, below); therefore, we do not include the 2013 visas in our emigration calculation.

Another share should be subtracted from the upper limit of 48,620 for O-1 and O-2 workers who have adjusted to LPR status in each year and are therefore no longer temporary foreign workers. However, these data are not published by the government; therefore, we again use the (both published and unpublished) USCIS data from Zamora (2016) for the number of O-1 and O-2 nonimmigrants who adjusted to LPR status from 2011 to 2013. According to those data, 3,801 O-1 and O-2 nonimmigrants adjusted to LPR status through an employment-based immigrant preference category, which we subtract.

For our estimate we also subtract a share to account for O-1 and O-2 mortality. The age and gender of O-1 and O-2 workers is unknown. We do know from DOS data that most O-1

Table 11

## Estimated number of O-1 and O-2 workers employed in the United States, 2013

	Number of workers
<b>Visas issued</b>	
O-1 and O-2 visas issued, 2011–2013	48,620
<b>Subtractions</b>	
Emigration to country of origin or third country or nonrenewal	-14,819
O-1 and O-2 adjustment to LPR status via employment-based preference, 2011–2013	-3,801
Estimated deaths (217.9 per 100,000)	-106
<b>Total</b>	<b>29,894</b>

**Notes:** Estimated emigration is calculated as 50 percent of the visas issued in 2011 and 2012. All references to a particular year should be understood to mean the U.S. government's fiscal year (October 1–September 30).

**Sources:** U.S. DOS CA 2017a; U.S. DOL OFLC 2017; adjustment of status data acquired through a FOIA request by Lazaro Zamora of the Bipartisan Policy Center (includes both unpublished data and data published in Zamora 2016); mortality rate calculated from Centers for Disease Control data at [wonder.cdc.gov](http://wonder.cdc.gov) (CDC 2014)

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and O-2 workers are from Europe and Asia, a nontrivial share are from the Americas, and a very small share are from Africa and Oceania. Therefore, we use the CDC's online tool and calculate for both genders, and in the following subgroups: ages 25–64, "Asian and Pacific Islanders" and "White" (race), and "Hispanic or Latino" (ethnicity). This calculation results in a mortality rate of 217.9 deaths per 100,000. Assuming this mortality rate, we subtract 106 O-1 and O-2 deaths from our upper limit of 48,620.

***We estimate that 29,894 O-1 and O-2 workers were employed in the United States in 2013 (Table 11).***

## Optional Practical Training program for recent foreign graduates of U.S. universities (F-1 visas)

The Optional Practical Training (OPT) program allows foreign graduates of U.S. universities with valid F-1 nonimmigrant visas to remain and work in the United States for up to 1 year immediately following graduation in an occupation that is related to his or her field of study. In addition, on April 8, 2008, a rule went into effect allowing F-1 nonimmigrants with degrees in qualifying "STEM" fields (science, technology, engineering, or mathematics) to extend their OPT employment authorizations by 17 months (for a total of 29 months) (U.S. DHS 2008). On March 11, 2016, DHS issued an updated final rule that increased this 17-month "STEM OPT" extension to 24 months, meaning that an F-1 student with a qualifying STEM degree may work in the United States for up to a total of 3 years; the student may repeat the process once if another qualifying degree is earned, for a grand

Table 12

### Work-authorized participants in the Optional Practical Training (OPT) program (F-1 visa), 2008–2014

Year	Total OPT approvals	STEM OPT extension approvals (subset of total OPT approvals)
2008	28,497	1,143
2009	90,896	5,237
2010	96,916	9,984
2011	105,357	12,961
2012	115,303	15,827
2013	123,328	19,034
2014	unavailable	21,513
<b>Total</b>	<b>560,297</b>	<b>85,699</b>

**Notes:** Numbers represent approvals of employment authorization applications for OPT. STEM OPT extensions are available to F-1 visa holders with degrees in qualifying “STEM” fields (science, technology, engineering, or math). STEM OPT extension approvals are a subset of total OPT approvals. All references to a particular year should be understood to mean the U.S. government’s fiscal year (October 1–September 30).

**Sources:** U.S. GAO 2014; STEM OPT extension data acquired from DHS through a FOIA request

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total of 6 years in STEM OPT status (USCIS 2016d).<sup>31</sup> Under OPT and STEM OPT rules, an F-1 nonimmigrant student who is employed via OPT or STEM OPT may switch employers if he or she finds a new employer, as long as the change is reported in a timely manner (USCIS 2017a) (and, in the case of STEM OPT, as long as the new employer is enrolled in USCIS’s employment eligibility verification system, E-Verify).

Until 2014 no data on OPT or STEM OPT approvals were published by the U.S. government. In 2014, the U.S. Government Accountability Office (GAO) published a report listing the number of OPT approvals between 2008 and 2013 (U.S. GAO 2014). The GAO report did not list STEM OPT approval totals, but we acquired those data from another source who acquired them via a FOIA request. (The STEM OPT data acquired via FOIA request do not include the total number of non-STEM OPT approvals.) **Table 12** shows the total number of OPT approvals for 2008–2013 (560,297) and the total number of STEM OPT approvals for 2008–2014 (85,699). (Note that in Table 12, the STEM OPT extension approvals are a subset of total OPT approvals.)

For our estimate of OPT and STEM OPT workers authorized to be employed in the United States in 2013, we count the total number of OPT approvals in 2013 (123,328) and the number of STEM OPT approvals in 2012 (15,827), for a total of 139,155. We do not subtract for OPT emigration or mortality because of the shorter-term nature of the visa: OPT work authorization is valid for 1 year, and the STEM OPT extensions in the years included in our estimate were valid for 17 months (1 month less than our 18-month cutoff for including mortality), having been either approved in 2012 and extending into 2013 or having been newly approved in 2013. We also do not subtract for OPT workers adjusting to LPR status

Table 13

### Estimated number of F-1 nonimmigrants employed in the United States through the Optional Practical Training (OPT) program, 2013

OPT approvals	Number of workers
STEM OPT extension approvals, 2012	15,827
<b>Total OPT approvals, 2013</b>	<b>123,328</b>
<b>Total</b>	<b>139,155</b>

**Note:** Numbers represent approvals of employment authorization applications for OPT. STEM OPT extensions approved in 2012 represent the subset of 2012 OPT workers who are authorized to continue working in 2013. Total OPT approvals in 2013 represent all OPT applications approved that year, including STEM OPT applications. All references to a particular year should be understood to mean the U.S. government’s fiscal year (October 1–September 30).

**Sources:** U.S. GAO 2014; DHS OPT data acquired through a FOIA request

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because F-1 nonimmigrants are generally not permitted to adjust directly to LPR status<sup>32</sup> (although some may adjust in certain circumstances, including marriage to a U.S. citizen).

***We estimate that 139,155 F-1 nonimmigrant workers were employed in the United States through the OPT and STEM OPT programs in 2013 (Table 13).***

## TN visas or statuses for Canadian and Mexican nonimmigrant professional workers under NAFTA

In 1992, the governments of Canada, Mexico, and the United States agreed to the terms of the North American Free Trade Agreement (NAFTA). NAFTA was signed into law by President William J. Clinton in 1993, and the agreement went into effect on January 1, 1994. Chapter 16 of NAFTA, “Temporary Entry for Business Persons,” contains provisions for the temporary entry of professional workers who are Canadian and Mexican nationals—and created the TN (Trade National) visa classification and status—with the requirement that the applicant for a TN visa or status possess “at least a baccalaureate degree or appropriate credentials demonstrating status as a professional” and be employed in a job that is “in a profession set forth in Appendix 1603.D.1 of the NAFTA” (USCIS 2008).<sup>33</sup> In order to work and be admitted into the United States, a Mexican national applying for TN must be issued a TN visa from a U.S. embassy or consulate, while Canadian nationals have the option of either applying for a visa at a U.S. embassy or consulate or applying for TN status—without being issued a visa— at a designated U.S. Customs and Border Protection (CBP) port of entry.

Data on TN visas or statuses are virtually nonexistent. DOS and DHS do not publish data on the number of TN workers employed in the United States, the occupations they are employed in, their work locations, or the wages they earn. That makes the number of TN workers in the United States difficult to estimate with any degree of reasonable certainty.

The number of TN visas issued according to DOS for fiscal year 2013 (9,548) is an unreliable starting point because it almost exclusively represents Mexican nationals who were issued TN visas. Only 68 Canadians are included in this total because, as noted previously, Canadian nationals (unlike Mexican nationals) are not required to apply for a TN visa at a U.S. embassy or consulate. Instead, Canadian professionals can apply for TN nonimmigrant status at a port of entry “by presenting required documentation to a CBP officer at certain CBP-designated U.S. ports of entry or at a designated pre-clearance/pre-flight inspection station” (USCIS 2013e). Because this separate process is available to Canadian nationals, and because CBP does not publish the number of TN statuses granted to Canadian nationals, the number of Canadian TN workers in the United States is unknown.<sup>34</sup>

There is no limit on the number of TN visas or statuses that can be granted each year, and the TN nonimmigrant visa and status allows Canadian and Mexican nationals to be employed for up to 3 years at a time, with no maximum limit on how long they can be employed. The TN visa and status are not considered to be dual intent, which means there is no direct path to LPR status for TN workers. A TN worker may not change employers but may seek a new TN visa or status for employment with a new employer or may work for more than one employer at a time as long as two separate TN visas and/or statuses have been approved (one for each employer).

In order to roughly estimate the number of TN workers authorized to be employed in the United States in 2013, we first look to the number of TN admissions reported by DHS. In fiscal year 2013, 612,535 admissions of TN nonimmigrants were reported (Foreman and Monger 2014). As noted before, these data do not represent the number of individuals who entered with a nonimmigrant visa or status, since an individual nonimmigrant may have been counted two, three, four, or more times—as many times as that person happened to enter the United States with that nonimmigrant visa or status. We believe it is reasonable to assume that TN nonimmigrant workers are likely to enter and exit the country more often than most other nonimmigrants because Canada and Mexico are contiguous to the United States, which means traveling back and forth is relatively quick and inexpensive. According to a report published by DHS in 2012, the ratio of TN admissions to individuals admitted in TN status had been increasing sharply since 2009, while the number of individual TN nonimmigrants had remained relatively flat. However, DHS’s estimate of admissions and individuals who were admitted ends at 2011 (Monger 2012). Also, the report does not list the estimated annual totals of individuals and admissions, but offers only a small line graph with a large scale on the y-axis. Thus, it is difficult to tell whether DHS is estimating that 25,000, 50,000, or 100,000 individual TN nonimmigrants were admitted in 2011.<sup>35</sup>

In light of the lack of available data and these considerations, we estimate that 50,000 TN workers were authorized to be employed in the United States in 2013. The high number of TN admissions in 2013 suggests this could well be a low-end estimate: if 50,000 individual TN workers were employed in the United States in 2013, each worker would have had to enter the United States 12.25 times in 2013, slightly more than once per month. But without additional information, we do not believe it is appropriate to estimate a higher number of TN workers who were employed in the United States.

Table 14

## Estimated number of temporary foreign workers employed in the United States, 2013

Nonimmigrant visa classification or status	Number of workers
H-2A visa for seasonal agricultural occupations	74,859
H-2B visa for seasonal nonagricultural occupations	94,919
H-1B visa for specialty occupations	460,749
J-1 visa for Exchange Visitor Program participants	215,866
J-2 visa for spouses of J-1 exchange visitors	8,243
L-1 visa for intracompany transferees	311,257
L-2 visa for spouses of intracompany transferees	38,952
O-1/O-2 visa for persons with extraordinary ability (O-2 for their assistants)	29,894
F-1 visa for foreign students, Optional Practical Training program (OPT) and STEM OPT extensions	139,155
TN visa or status for Canadian and Mexican nationals in certain professional occupations under NAFTA	50,000
<b>Total</b>	<b>1,423,894</b>

**Note:** All references to a particular year should be understood to mean the U.S. government's fiscal year (October 1–September 30).

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*We estimate that 50,000 TN workers were employed in the United States in 2013.*

## Conclusions and recommendations

*We estimate that the total number of temporary foreign workers authorized to be employed in the United States in 2013 was 1,423,894 (Table 14). Table 14 provides a summary of our estimates by visa classification and calculates the total estimated number of temporary foreign workers.*

Beyond the final numerical estimates we provide in this report, our overarching assessment of these data also finds that while the U.S. government collects a substantial amount of information on nonimmigrants and the employers that hire them—which is the main source of information on U.S. temporary foreign worker programs—this government-collected data on nonimmigrant visas is inadequate, generally of poor quality, and recorded in an inconsistent manner across federal agencies. Congress and the federal agencies in charge of immigration have clearly not made it a priority to achieve a detailed understanding of the size, scope, and economic impact of U.S. temporary foreign worker programs and the workforce made up of employed nonimmigrants. In addition, as documented in media and elsewhere, many temporary foreign workers have been abused and exploited. The dearth of information on temporary foreign worker programs can make it difficult for federal enforcement agencies to hold perpetrators accountable and protect

temporary foreign workers from wage theft, human trafficking, and other abuses. Lack of information also makes it harder for immigrant and worker advocates to adequately assist workers and uncover lawbreaking. To improve the quality of the public debate, better protect workers, and enable policymakers to make informed decisions regarding temporary foreign worker programs, we recommend that:

1. U.S. federal agencies in charge of managing immigration and collecting immigration data—especially DHS, DOS, and DOL—should improve their record-keeping practices by beginning to collect all nonimmigrant visa data electronically and by using consistent categories and classification codes across visa classifications for work locations and occupational categories for temporary foreign workers. The current record-keeping practices are far from adequate. For example, a 2015 report from the GAO found that:

When adjudicating H-2A and H-2B petitions, DHS’s USCIS does not electronically record standardized occupational information on workers who are approved; although, the information is available in the paperwork provided by the employer. Instead, when reporting to Congress on occupations of H-2B workers, DHS provides Congress with occupational data collected by DOL, which include the specific occupations employers want H-2B workers to fill. These data, however, do not reflect the number of workers who are ultimately approved by DHS to work in these occupations. (U.S. GAO 2015)

This is just one of many instances in which multiple U.S. federal agencies share responsibility for a single temporary foreign worker program but have not standardized the record-keeping process, even—as in this case—when one of the agencies is required to periodically report to Congress on that temporary foreign worker program. As this passage reveals, DHS (specifically USCIS) collects but does not electronically record key occupational information for H-2A and H-2B workers. DOL does in fact collect occupational information and publish it, but that information is not linked to individual approved petitions for H-2A and H-2B workers. In the H-1B program, DOL electronically records occupational information on labor condition applications for H-1B workers and publishes that information, using Standard Occupational Classification (SOC) codes for occupational data. USCIS, on the other hand, collects occupational data, but instead uses a much broader classification system—one that is far inferior to SOC codes—making it difficult to discern which specific occupations H-1B workers are employed in, and therefore also making it difficult to compare the economic outcomes of H-1B workers with those of similarly situated U.S. workers. In other large nonimmigrant visa classifications, USCIS collects key information on occupations and wages only on paper-based forms, making these data impossible to obtain and review, even if a FOIA request is made and granted.

2. U.S. federal agencies should begin to regularly publish data on nonimmigrant visas by specific visa classification, including population estimates and data on the employers, occupations, work locations, and wages of temporary foreign workers. It is likely that U.S. federal agencies already have the legal authority they require to make the decision to publish more and better data on nonimmigrant visas, and in cases in

which Administrative Procedure Act requirements must be complied with, agencies should follow the appropriate procedures to promulgate any regulations necessary to achieve these goals.

3. The U.S. Congress should pass legislation requiring the annual electronic publication of basic data on nonimmigrant visa classifications—including population estimates and data on the employers, occupations, work locations, and wages of temporary foreign workers. The legislation should also require cooperation between federal agencies in order to standardize, digitize, and improve the quality of data on nonimmigrant visas, and it should appropriate a reasonable level of funding to achieve these goals.
4. The U.S. Congress should pass legislation to create a new independent advisory commission, staffed with labor market and other technical experts who could advise Congress and the president on immigration and the labor market. These experts would be tasked with improving data collection and dissemination. Such a commission could provide members of Congress with new and improved analyses on nonimmigrant visas and all other U.S. labor migration programs. A commission could eventually provide greater visibility and transparency regarding future flows of foreign workers, and it could recommend annual numerical targets for future flows of foreign workers. Models exist for such an expert advisory body—most notably the Migration Advisory Committee in the United Kingdom—and many experts and research institutes have called for one to be established in the United States to help make the immigration system more responsive to economic conditions and to improve the evidence base for public policy decisions on immigration.<sup>36</sup>

## Acknowledgments

The authors are grateful to Randy Capps, Ray Marshall, Ron Hira, Philip Martin, Lindsay Lowell, Sarah Pierce, David North, Ross Eisenbrey, Jeffrey Passel, and D’Vera Cohn for their insightful comments, observations, and/or other technical assistance provided during the drafting of this report, and to Lazaro Zamora for sharing key data. However, no one mentioned here is responsible for the report’s content, and the authors are solely responsible for any errors or omissions.

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## Endnotes

1. For a quick explanation of stock and flow in regards to the migrant population, see, e.g., Cornwell (2006), Box 1. The “net” flow of migrants is sometimes discussed in relation to the stock and flow; the net flow refers to the number of migrants who enter a country minus the number who depart over a set period of time (usually 1 year).
2. Nonimmigrant students are allowed to work part time or full time during their studies through the Curricular Practical Training (CPT) program and the Optional Practical Training program.
3. See the figure “About one-in-four U.S. immigrants are unauthorized” in Passel and Cohn (2016). (In the online version of the report, the figure is the sixth [last] figure in the introductory section on the opening page. In the PDF version, the figure appears on page 9.)
4. Personal communication between Daniel Costa and Jeffrey Passel. For more background, see the Methodology section of Passel and Cohn (2016).
5. For example, H-2A visas are normally valid for less than 1 year (although they can be extended for up to 3 years in some cases). Because the H-2A visa must be renewed each year, an H-2A nonimmigrant who has died would not renew his or her visa for the next year and so would not be counted; therefore, we do not account for mortality in the H-2A estimates. On the other hand, when we estimate the number of H-1B workers we do subtract for mortality: since H-1B visas are usually valid for 3 years at a time, an H-1B nonimmigrant worker could die still having multiple years of validity left on his or her visa. The 18-month cutoff is admittedly arbitrary, but we feel it is reasonable given the range of validity periods of the visa classifications analyzed in this report.
6. 8 C.F.R. §§ 214.2(h)(5)(viii)(C), (15)(ii)(C); see *also* 20 C.F.R. § 655.103(d); USCIS (2016b).
7. EPI analysis of DOL H-2A labor certification disclosure data, fiscal year 2013 (U.S. DOL OFLC 2017).
8. Acquired through a FOIA request by Jobs With Justice; see also [guestworkerdata.org](http://guestworkerdata.org).
9. USCIS Form I-129, *Petition for a Nonimmigrant Worker*, page 4, part 2, question 2.
10. Individual I-129 petitions for H-2A workers may include more than one beneficiary, which is why the number of beneficiaries is much higher than the number of approved petitions.

11. EPI analysis of DOL H-2B labor certification disclosure data, fiscal year 2013 (U.S. DOL OFLC 2017), also published in Costa (2016).
12. INA § 214(g)(1)(B) [8 U.S.C. § 1184(g)(1)(B)].
13. In fiscal year 2016, what's known as the "returning worker exemption" became law through an appropriations rider. This exemption allows the 66,000 annual cap to be exceeded if an employer hires an H-2B nonimmigrant worker who was previously employed as an H-2B worker during one of the 3 fiscal years that preceded fiscal year 2016. See, e.g., Costa (2016).
14. For more information, see U.S. Citizenship and Immigration Services (USCIS), "[Guidance on 'Temporary Need' in H-2B Petitions](#)" (webpage last updated April 13, 2016).
15. 20 C.F.R. 655.6(c); 8 C.F.R. 214.2(h)(6)(ii); USCIS 2016c.
16. See U.S. DOL (2011), [note 34](#). DOL and DHS restated this methodology to count the stock of H-2B workers in a joint regulation published in 2015 that significantly amended the rules of the H-2B program; see U.S. DHS and U.S. DOL (2015), [24091](#).
17. See, e.g., AU and CDM (2010).
18. We realize this is an imperfect method for calculating mortality since most H-2B workers are Mexican nationals, not persons in the United States who are of Hispanic or Latino origin or ethnicity (which includes immigrants), the category that CDC uses for its calculation. However, we believe it is the best tool available to us. Later sections of this report also use the same CDC tool to estimate mortality for visa classifications where the majority of nonimmigrants hail from Asia, using CDC's calculation based on persons in the United States of Asian descent (which includes immigrants from Asia), rather than nationals of, for example, China or India.
19. See, e.g., USCIS (2016a).
20. AC21 §§ 106(a) and 104(c).
21. For a literature review of emigration estimating methodologies, see Leach and Jensen (2013).
22. See, e.g., Jordan (2015).
23. Congressional testimony from Karen Panetta of the Institute of Electrical and Electronics Engineers in the United States of America, reported in Parker (2013).
24. For a listing of relative skill level and duration of status for J-1 categories, see Costa (2011), 24, Table 2.
25. For example, in the summer months, the J-1 population is the largest, because most J-1 beneficiaries participate in the Summer Work Travel program, where they work during the North American summer months.
26. Exchange visitors working in the SWT program may work in the United States during the summertime in their country of origin. For example, exchange visitors from South America work in the United States during the winter season in the United States.
27. Costa has also estimated the total number of exchange visitors working in the United States from 2002 to 2010 using a similar methodology (Costa 2011, 23–24), counting those who worked full- or part-time at some point during the year they were issued their J-1 visas.
28. See, e.g., U.S. DOL ETA (2014).

29. INA 101(a)(15)(O).
30. Two examples are Justin Bieber and Hugh Jackman (Baum 2016).
31. For more information about, and critique of, the 2016 STEM OPT rule, see Costa and Hira (2015).
32. This is because the F-1 visa is not considered to be “dual intent.” For background, see Chang (2011).
33. For more background on NAFTA and TN visas and status, see USCIS (2013e), U.S. DOS CA (2017c), and NAFTA (1992).
34. We are also unaware of whether CBP keeps track of this total internally.
35. We requested the exact totals from DHS but were not provided the data before the date of publication.
36. For examples and further discussion, see, e.g., Papademetriou et al. (2009), Marshall (2009), Ruhs and Martin (2013), and Marshall and Eisenbrey (2010).

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