

## IMMIGRATION AND STEM TALENT

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## **IMMIGRATION AND STEM TALENT**

This paper addresses two questions: First, how many persons are waiting in line in the United States for legal permanent residence via the main three employment-based categories? Second, what information does the New Immigrant Survey provide about STEM talent?

### **1. ESTIMATING THE EMPLOYMENT-BASED PRE-LPR POPULATION IN THE U.S.**

This section summarizes work reported by Wadhwa et al. (2007), who developed a methodology for estimating the number of persons waiting in line for employment-based legal permanent residence visas in the United States and obtained an estimate as of the end of Fiscal Year 2006 (30 September 2006). They also obtained an estimate of those waiting abroad.

#### **1.1. Context and Definitions**

Under U.S. immigration law, persons from other countries may apply for and obtain legal permanent residence (LPR) in the United States, a legal status which authorizes foreign-born persons to reside permanently in the United States, to engage in any occupation except those reserved for citizens, and, after satisfying residence and other conditions, to become citizens of the United States (and then engage in any occupation except President and Vice-President of the United States, which are reserved for native-born citizens).

LPR visas, also known as immigrant visas, are of two main types, numerically unlimited and numerically limited. Numerically unlimited visas are granted to the spouses, minor children (under age 21), and parents of adult U.S. citizens (a set collectively called “immediate relatives of U.S. citizens”). Numerically limited visas are granted to three main categories of immigrants: (1) family immigrants, comprised of the adult children and siblings of U.S. citizens (a set collectively called “close relatives of U.S. citizens”) and the spouses and children of LPRs; (2) employment immigrants, comprised of five subcategories; and (3) diversity immigrants (winners of the lottery visas designated for persons from countries underrepresented in recent immigration). Two additional categories of LPR visas have subsets of both numerically limited and numerically unlimited type. These are (4) humanitarian immigrants (including refugees,

asylees, and parolees) and (5) legalization immigrants, that is, illegal immigrants who are becoming legal, including registry-provision immigrants who qualify in virtue of length of residence) and cancellation-of-removal immigrants, plus immigrants targeted by special legalization legislation (such as the Nicaraguan Adjustment and Central American Relief Act of 1997, or NACARA).<sup>1</sup>

The United States currently admits about a million persons a year to LPR. The annual average during 2001-2005 was 982,819; the total in FY 2006 was 1,266,264.

The LPR visas of interest in this section of the paper are the first three (of five) employment-based categories: EB-1 for priority workers; EB-2 for professionals with advanced degrees or persons of exceptional ability; and EB-3 for skilled workers, professionals, and other workers. The number of visas available each year in these categories is 120,120 plus additional visas if usage is low in the fourth and fifth employment categories and/or in the family preferences. This number – 120,120 – covers both the qualifying principal as well as spouse and minor children. The “other workers” in EB-3 are unskilled or lower-skilled, and the total number of visas cannot exceed 10,000.

The estimates of interest must distinguish between the principal and the accompanying family members.

The process of applying for an EB visa has several steps and involves submission of three main applications: (1) labor certification (ETA-9089 submitted to the Department of Labor); (2) petition for alien workers (I-140 submitted to CIS); and (3) for those in the United States, petition to adjust to LPR (I-485 submitted to CIS when a visa number is available). We define “waiting in line” for an LPR visa as having submitted the first required application, an event

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<sup>1</sup> Other foreign-born in the United States include “nonimmigrants” (who have legal temporary documents) and illegal immigrants, the latter an obvious reflection of the gap between the desire to immigrate and the supply of visas.

which generates a “priority date” used to establish position in the EB visa queue.<sup>2</sup>

## **1.2. Method and Data Sources**

One would think that the size of the pre-LPR population would be known to the relevant U.S. government agencies. However, the data systems currently in operation do not facilitate easy retrieval, or even easy estimation, of the size of the pre-LPR population. Accordingly, Wadhwa et al. (2007) developed a methodology based on the idea that the set of persons waiting in line in the U.S. for LPR via the first three employment categories has six subsets:

1. Labor certification pending
2. Labor certification approved, I-140 not yet filed
3. I-140 pending, I-485 not yet filed
4. I-140 pending, I-485 pending
5. I-140 approved, I-485 not yet filed
6. I-140 approved, I-485 pending

Accordingly, the challenge is to estimate the number in the subsets. As matters turn out, the size of the first subset is known to DOL, which refuses to reveal it, and hence we estimate it using DOL budget and management documents as well as disclosure data on applications processed. The second subset is unknown. The third and fourth subsets can be jointly estimated from figures compiled by the CIS Performance Analysis System (PAS), which were published in the CIS Ombudsman’s (2007) report. The fifth subset (including all persons worldwide whose I-140 had been approved but who were waiting for a visa number) was for many years routinely estimated by the Department of State and published once a year. Unfortunately, State stopped publishing these data after 1997; it is not known whether the figures are compiled and not released or instead not compiled at all. Wadhwa et al. (2007) developed a procedure for

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<sup>2</sup> Labor certification is not required in EB-1. The I-140 is usually filed by the employer; two types of immigrants can self-petition, the “extraordinary ability” subcategory of EB-1 and the “national interest” subcategory of EB-2. Since 31 July 2002, concurrent filing of the I-140 and the I-485 has been permitted.

estimating the size of the fifth and sixth subsets jointly, using PAS information on approved I-140s, published figures of persons admitted to LPR with EB-1, EB-2, and EB-3 visas, and the old State information on the fifth subset.

Implementation of the method faced three complications: (1) some data series pertain to principals only, others to both principals and family members; (2) some data series pertain to all applicants, others to adjustees only; and (3) different data series cover different time periods.

**1.3. Estimates of the Employment-Based Pre-LPR Queue**

Wadhwa et al. (2007) estimated the number of principals waiting in the U.S. for employment-based LPR visas as of late 2006 at half a million, with another half a million family members; the corresponding worldwide total was 1.2 million, as shown below:

**Table 1. Estimated Employment-Based Pre-LPR Population at the End of FY 2006**

	<b>Resident in the U.S.</b>	<b>Resident Abroad</b>	<b>Worldwide</b>
Principals	500,040	59,915	559,955
Family Members	555,044	66,506	621,550
Total	1,055,084	126,421	1,181,505

These estimates have several limitations: (1) they assume no double-counting; (2) they leave unmeasured the second subset as well as deaths in the queue; (3) they leave unmeasured those who left the queue after 1997 and did not obtain EB LPR; (4) estimates of U.S. residents are based on adjustees, but some new arrivals are already in the U.S. (I-140 applicants can choose consular processing); and (5) at each step there are denials.

These estimates can be updated as soon as information becomes available for FY 2007. Moreover, alternative procedures for estimating one or more of the subsets of the pre-LPR population may become available. Finally, the U.S. may provide official figures or estimates,

obviating the need for scholarly estimates.

The approximately 1.2 million persons in line for these EB-1, EB-2, and EB-3 visas are competing for approximately 120,120 granted annually.

## **2. LEARNING ABOUT STEM TALENT IN THE NEW IMMIGRANT SURVEY**

Two things motivate this section: First, STEM talent is not confined to immigrants with employment-based visas; indeed, Wadhwa et al. (2007) report, inter alia, that in the 2003 cohort studied in the New Immigrant Survey, among new LPRs adjusting from an F1 academic student visa, 78.9 percent did so as the spouse of a U.S. citizen, and among new LPRs who had ever been an F1, 59.1 percent acquired LPR as the spouse of a U.S. citizen. Second, understanding the career trajectories of foreign-born STEM talent requires following them over time and obtaining a wide range of information. For example, Wadhwa et al. (2007) report that while 17.4% of all new LPRs experience depression due to the visa process, the rate is higher among adjustee employment principals – 21.9 percent.

Accordingly, we turn to the New Immigrant Survey (NIS), the first longitudinal study of nationally representative cohorts of new legal immigrants. In this section we focus on information about schooling, occupation, and training -- and their venue -- as well as on migration history. Of course, the NIS includes a wealth of information about health, marriage and fertility, assets and transfers, religion and language – information which may help create a full and rich picture of foreign-born STEM talent in the United States.

### **2.1. Schooling, Training, and English Instruction**

Questions A20-A42. Schooling, degrees, and country in which obtained.

Questions A54-A121, A168-A173. Same questions about spouse.

Questions A278-A284. Same questions about offspring.

Questions A338-A343. Same questions about spouse of offspring.

Questions A407-A413. Same questions about adopted children.

Questions A467-A472. Same questions about spouse of adopted child.

Questions A534-A540. Same questions about stepchild.

Questions A594-A599. Same questions about spouse of stepchild.

Questions A824-A829. Same questions about parents.

Question J27. Taken classes in English abroad.

Questions J28-J29. English classes in the last 12 months.

## **2.2. Occupation**

Question A220. Occupation of spouse.

Questions A331-A332. Occupation of offspring.

Questions A390-A391. Occupation of spouse of offspring.

Questions A460-A461. Occupation of adopted child.

Questions A519-A520. Occupation of spouse of adopted child.

Questions A587-588. Occupation of stepchild.

Questions A646-647. Occupation of spouse of stepchild.

Questions A876-A877. Occupation of parents.

Questions A959-A961. Occupation of parents & surrogate when R was 16.

Questions A966-A967. Occupation of spouse's parents when spouse was 16.

Questions B25-B73. Occupational history abroad since age 16.

Questions B74-B99. Occupational history in U.S. since age 16.

Section C. Current employment, occupation, earnings.

Questions G1-G21. Earnings of respondent and spouse.

## **2.3. Visas**

Questions B3-B14. Visa sponsor/employer.

Questions J184-J187. Before LPR, temporary work visa or work authorization.

Question J195. Before LPR, temporary work visa.

Questions K11-K15. Before LPR, student/training visas and institutions.

## 2.4. Brief Glimpse of EB-1, EB-2, and EB-3 in the NIS-2003

**Table 2. EB-1, EB-2, and EB-3 Immigrants in the NIS-2003 Adult Sample**

Visa	Percent of Sample	Percent Adjustee	N
EB-1 Principal	0.86	61.0	195
EB-2 Principal	1.14	86.8	258
EB-3 Principal	3.34	67.3	765
All Immigrants	100	57.4	8,573

*Note:* EB-3 excludes “other workers”. Percent adjustee for “All Immigrants” is based on weighted data, to adjust for sample stratification.

**Table 3. Schooling, Depression, Home Ownership, and Intention to Stay among EB LPRs**

Visa	Schooling	Visa Depression	Own Home	Intend to Stay
EB-1 Principal	17.2 (17.6)	14.7 (17.9)	60.3 (61.3)	59.1 (61.0)
EB-2 Principal	17.5 (17.4)	19.6 (22.1)	47.2 (47.9)	50.8 (47.6)
EB-3 Principal	14.7 (14.7)	23.4 (24.9)	32.7 (44.5)	70.1 (72.7)
All Immigrants	11.9 (12.1)	17.4 (18.7)	25.7 (36.6)	78.3 (80.4)

*Note:* EB-3 excludes “other workers”. Figures in parentheses pertain to adjustees. Figures for “All Immigrants” are based on weighted data, to adjust for sample stratification.

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