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**Estimating the immigrant stock in the United States by legal
status using administrative and census data ***

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INTRODUCTION

Data on the size and characteristics of various components of the foreign-born population are needed to assess the impact of immigration and assimilation of immigrants into U.S. society. The decennial census and monthly household surveys of the U.S. Census Bureau include questions on place of birth, citizenship, and year of entry into the United States. These data provide a wealth of information on the total foreign-born population, naturalized citizens, and non-citizens.

However, the legal status of non-citizens is not routinely ascertained in censuses or surveys with sample sizes sufficient for making accurate national population estimates. Immigration data collected by the Department of Homeland Security (DHS) measure administrative events such as the number of aliens granted lawful permanent residence or the number approved for asylum, but not the population of legal permanent residents or the population of asylees living in the United States at a point in time.

This paper presents estimates of the legal and unauthorized resident populations living in the United States as of January 1, 2005 by combining DHS administrative data with U.S. Census survey data. Estimates of the legally resident foreign-born were based primarily on administrative data of the DHS, estimates of the total foreign-born population were obtained from the American Community Survey (ACS) of the U.S. Census Bureau, and estimates of the unauthorized population were based on the “residual” difference between the previous two estimates. The results and methods described here were previously provided in three reports prepared in 2006 by the Office of Immigration Statistics (OIS).¹

DEFINITION OF LEGAL AND UNAUTHORIZED RESIDENTS

U.S. legal residents include legal permanent residents, nonimmigrant residents, and refugees or asylees.

Legal permanent residents (LPRs) are persons who are granted permission to stay permanently in the United States. While the United States does not track whether LPRs leave, they are presumed to stay for more than one year, and are reported to the United Nations Statistical Division as long-term immigrants. Only LPRs may obtain citizenship, with eligibility typically beginning after five years of U.S. residence as an LPR.

Nonimmigrants are foreign nationals who are admitted temporarily to the United States, usually for specified time periods. Examples include students, intracompany transferees, exchange visitors, and temporary workers, along with their family members. Temporary workers and certain other nonimmigrants are reported as short-term immigrants to the UN Statistics Division, although some are authorized to stay for extended periods (up to six years or more). The population estimates reported here

¹ See: Hoefer, Michael, Nancy Rytina, and Christopher Campbell, 2006, *Estimates of the Unauthorized Immigrant Population Residing in the United States: January 2005*,” Population Estimates, Office of Immigration Statistics, available at http://www.dhs.gov/xlibrary/assets/statistics/publications/ILL_PE_2005.pdf; Grieco, Elizabeth M., 2006, *Estimates of the Nonimmigrant Population in the United States: 2004*,” Population Estimates, Office of Immigration Statistics, available at http://www.dhs.gov/xlibrary/assets/statistics/publications/NIM_2004.pdf; and Rytina, Nancy, 2006, *Estimates of the Legal Permanent Resident Population and Population Eligible to Naturalize in 2004*,” Population Estimates, Office of Immigration Statistics, available at <http://www.dhs.gov/xlibrary/assets/statistics/publications/LPRest2004.pdf>.

exclude categories of nonimmigrants that typically stay less than two months, for example, visitors for pleasure or business.

Refugees and asylees refer to persons have been allowed to enter or remain in the United States permanently based on humanitarian reasons. Refugees are allowed to apply for LPR status one year after they are admitted to the U.S., while asylees are allowed to apply one year after they are granted asylee status.

Unauthorized residents refer to foreign-born persons who entered the United States without inspection or who were admitted temporarily as nonimmigrants and stayed past the date they were required to leave. Unauthorized aliens who have applied for but have not yet received approval to lawfully remain in the United States are considered to be unauthorized.

RESULTS

The legal status composition of the foreign-born population resident in the United States in 2005 is shown in Table 1. Note the denominator used for the calculations is 38.4 million, the sum of the components. The estimate of the total foreign born as measured in the ACS is approximately 35.1 million, the average of the ACS estimates for 2004 and 2005. The sum of the estimated components is higher than the ACS, in part, due to the addition for those that may not have been counted in the ACS survey and for foreign-nationals living in group quarters.²

- Naturalized citizens were the largest category, accounting for approximately 38 percent of the total foreign-born population. The estimate of the naturalized citizen population is based on the average of the naturalized citizen population reported in the 2004 and 2005 ACS.
- The next largest category was legal permanent residents (LPRs) or “green card” recipients who accounted for 30 percent of the total. This population has changed little in recent years so the 9/30/2004 estimate is likely a close approximation for the 1/1/2005 population.
- More than one-quarter (27 percent) of the foreign born population were estimated to be unauthorized residents.
- Nonimmigrant residents accounted for close to four percent of the total. Refugees and asylees represented less than one percent.

² The American Community Survey (ACS) excludes all persons residing in group quarters. The 2000 U.S. Census found that 1.2 percent of all foreign-born persons lived in group quarters.

Table1. Estimated Immigrant Population by Legal Status as of January 1, 2005

Legal status	Estimate (in millions)	Percent of total
Total foreign born residents	38.4	100.0
Lawful residents.....	27.9	72.7
Lawful permanent residents (LPRs)	11.6	30.2
Refugees and asylees	0.3	0.8
Nonimmigrants	1.4	3.6
Naturalized citizens.....	14.7	38.2
Unauthorized residents.....	10.5	27.3

Note: Totals and percents may not add due to rounding. The estimates are as of (or centered on) 1/1/2005, except for the lawful permanent residents, which are as of 9/30/2004.

Source: DHS Office of Immigration Statistics

METHODOLOGY

The OIS recently published estimates of the number of legal permanents (LPRs), nonimmigrants, and unauthorized residing in the United States. The methods used to estimate the LPR and nonimmigrant populations are presented first since estimates of the legally resident population are used for derivation of the unauthorized estimates.

Lawful Permanent Resident Population: Estimates for 9/30/2004

Estimates of the LPR population were derived primarily from Census and DHS data. The general approach is to estimate a base population as of a certain date and then add components of population change since that date. Estimates were developed separately for foreign nationals becoming LPRs between 1973 and 2004 and prior to 1973. Since DHS administrative records were not automated until 1973, data from the ACS were used to estimate LPRs admitted in earlier years. The two sets of estimates were added together to produce the final estimates.

LPR Status Obtained Between 1973 and 2004

Data on foreign nationals becoming LPRs and on LPRs who naturalized between January, 1973 and September, 2004 were obtained from application based case tracking systems of U.S. Citizenship and Immigration Services (USCIS). For LPR admissions, the Application for Immigrant Visa and Alien Registration (DS-230) of the U.S. Department of State is used by aliens living abroad; the Application to Adjust Status to Permanent Residence (I-485) is used by aliens already living in the United States. The Application for Naturalization (N-400) is used primarily by LPRs ages 18 and over to apply for citizenship. The case tracking systems store basic demographic and administrative information on applicants including name, alien identification number (A-number), date of birth, country of birth, gender, marital status, occupation, U.S. address, date of permanent residence and class of admission (for LPRs), and date of naturalization (for LPRs becoming new citizens).

OIS matched the records of persons becoming LPRs with the records of LPRs who naturalized using their A-numbers. Exclusion of the matched records left a base population of persons who became LPRs between 1973 and 2004 but who had not naturalized as of the end of September 2004. The base population was then reduced because it included LPR children who had derived citizenship. The resulting population was then further reduced for estimated mortality and emigration between the date of admission for permanent residence and September 2004.

LPR Status Obtained Prior to 1973

An estimate of this population was obtained from the Census Bureau's 2004 American Community Survey (ACS). It was assumed that all non-citizens in 2004 who entered the United States before 1973 were LPRs. Under the registry provisions of immigration law, aliens of good moral character who are not deportable or removable and have lived in the United States continuously since January 1, 1972 are eligible for LPR status. Year of entry was assumed to represent the year of admission for permanent residence since most LPRs admitted before 1973 came directly from abroad.

The ACS data were tabulated by country of birth, state of residence, and year of entry. ACS data are not available for countries where estimates are based on small numbers of observations, but this omission should have little effect on the estimates for the leading countries. In addition, LPRs who reported entering the United States before 1973 were excluded from the USCIS administrative data in order to avoid double counting of the pre-1973 population.

Limitations

The major sources of error in the estimates are the assumptions made about emigration, mortality, and derivative citizenship. Errors in the estimate of these components affect the USCIS-based portion of the 2004 LPR estimate (10.6 million or 91 percent of the total 11.6 million). A 25 percent error in either direction in the estimate of these components combined (0.7 for derivative citizenship + 3.5 for emigration and mortality = 4.2 million) would increase/de-crease the total estimated LPR population by 1 million.

The estimates derived from the 2004 ACS (1.0 million or about 9 percent of the total 11.6 million) are subject to both sampling and nonsampling error.

The estimated sampling error at the 90 percent confidence level for a 1.0 million estimate is plus or minus 0.1 million.³ Estimates by country of birth and state of residence are based on smaller numbers of observations and are affected more by sampling error. Major sources of nonsampling error include the possibility of misreporting of citizenship status and year of entry by ACS respondents.

Nonimmigrant Temporary Resident Population: Estimates for 2004

OIS uses a "person year" methodology and administrative flow data to estimate the size of the resident nonimmigrant population. In general, the person year population estimate is calculated by multiplying the number of nonimmigrant admissions in a given year by the mean length of visit (i.e., the average number of days spent per trip by a nonimmigrant admitted to the United States).

The administrative flow data used to calculate the estimates are derived from the Treasury Enforcement Communications System (TECS). TECS compiles and maintains information collected from

³ Calculated using technical documentation for the 2004 American Community Survey (U.S. Bureau of the Census, 2005).

nonimmigrants by DHS Form I-94, which asks for dates of arrival/departure, class of admission, and limited demographic information. TECS is designed to record both the legal admissions of nonimmigrants issued an I-94 Form at arrival as well as their departures.

The nonimmigrant estimates presented in Table 1 refer to resident nonimmigrants. Resident nonimmigrants include all classes of admission permitted to remain in the United States for at least one year (i.e., students, temporary workers, and diplomats and other representatives), but excludes short-term visitors (i.e., tourists and business travelers) expected long-term residents (i.e., those who arrived on nonimmigrants visas but are likely to become permanent residents, such as certain spouses and fiancés(ees) of U.S. citizens).

Person Year Estimates

The person year estimate accounts for the portion of the year that, on average, each nonimmigrant admitted remained in the country. For example, if six nonimmigrants arrived and remained on average for two months, then their visits, when combined, would make one person year of continued presence. This single person year, representing six admissions, would count as one person in the population estimates. Multiplying the total number of admissions that occurred within a given year by the mean length of visit produces an estimate of the total number of days spent in the country by all nonimmigrants. Dividing this product by 365 results in a per day estimate.

The nonimmigrant population estimates calculated using the person year methodology represent the size of the population on a typical day of the year. Because the estimates are a composite measure based on data from an entire year, they do not represent the size of the population on a specific reference day (e.g., the beginning, middle, or end of the year), but rather the average population size for all days throughout the year. The person year methodology produces estimates – not actual counts – of the size of the nonimmigrant population present in the United States.

Assumptions and Limitations

The person year methodology assumes that the arrival data accurately capture the number of nonimmigrants who come to the United States and the departure data capture the length of time they spend in each class of admission. These assumptions are most likely violated for those nonimmigrant classes that commonly change status while in the country, either to another nonimmigrant or legal permanent resident status, since changes in status are not captured by the arrival-departure record. Because temporary workers, and students and exchange visitors commonly change status while in the United States, the population estimates generated by the person year methodology for these categories of admission are likely understated. The impact of change of status on the estimates of the temporary resident population will be further investigated by OIS.

Unauthorized Resident Population: Estimates for 1/1/2005

Estimates of the number of unauthorized immigrants residing in the United States in January 2005 by period of entry, country of origin, and state of residence were calculated using a “residual method.” For this method, estimates of the legally resident foreign-born population as of January 1, 2005 were subtracted from the total foreign-born population at the same point in time. Estimates of the legally resident foreign-born were based primarily on administrative data of the DHS, while estimates of the total foreign-born population were obtained from the ACS. The starting point for the estimates was 1980, as persons who entered the United States earlier were assumed to be legally resident.

Methodology and Data

Conceptually, the methodology involves estimating three population components: 1) the foreign-born population, 2) the legally resident population and 3) the unauthorized immigrant population, which is equal to 1) minus 2). All of these component populations were resident in the United States on January 1, 2005 and entered during the 1980-2004 period. These three components and the data required to estimate them are as follows:

1) Foreign-born population

a. Foreign-born population, entered 1980-2004

The starting point is the foreign-born population that entered the United States from January 1980 through December 2004. It was assumed that persons who entered the United States before 1980 were legal residents since most were eligible for LPR status.⁴ Data were obtained from the Public Use Microdata Sample (PUMS) of the 2004 American Community Survey (ACS).

The ACS is a nationwide survey that collects information from U.S. households on social, demographic, and economic characteristics, including country of birth and year of immigration of the foreign-born population. The ACS consists of non-overlapping samples from which information is collected monthly over the course of a year. The ACS was selected for the estimates because of its large sample size, nearly 840,000 households in 2004 compared to 99,000 for the March 2005 Current Population Survey, the primary alternative source of national data on the foreign-born population.

b. Shift in reference date to January 1, 2005

The reference date for population estimates from the ACS is mid-year. The reference date for the 2004 ACS, the most recently available ACS data, was shifted to January 1, 2005 by multiplying the population of 2004 entrants by 1.8, the ratio of the estimated population in 2004 that entered the United States during 2003 compared to the population in the 2003 ACS that entered in 2003. The adjustment ratio has been relatively stable across previous ACS surveys.

c. Population living in group quarters

The 2004 ACS does not include persons living in group quarters, e.g. college dormitories, nursing homes, or prisons. An estimate of the group quarters population was calculated by multiplying the ACS 1980-2004 entrants by 1.2 percent, the percent of the foreign-born population from Census 2000 that entered after 1979 and lived in group quarters.

d. Undercount of nonimmigrants in the ACS

Undercount refers to the number of persons who should have been counted in a survey or census, but were not. A rate of 10 percent was used to estimate the nonimmigrant undercount. This rate was used in the previous DHS 2000 estimates of the unauthorized immigrant population.

⁴ The Registry Provision of the Immigration and Nationality Act (INA) allows persons who have been in the United States since January 1, 1972 to apply for LPR status. Additionally, persons who had lived in the United States before 1982 as unauthorized residents were eligible to adjust to LPR status under the Immigration Reform and Control Act (IRCA) of 1986.

e. Undercount of LPRs, refugees, and asylees in the ACS

A rate of 2.5 percent was used. This was the same rate used in the previous DHS 2000 estimates of the unauthorized immigrant population.

f. Undercount of unauthorized immigrants in the ACS

A rate of 10 percent was used. This was the same rate used in the previous DHS 2000 estimates of the unauthorized immigrant population.

g. Estimated foreign-born population, January 1, 2005

The sum of 1a. through 1f. (above) is the estimated foreign-born population on January 1, 2005 that entered the United States during the 1980-2004 period.

2) *Legally resident population*

h. Legal permanent resident (LPR), refugee, and asylee flow, entered 1980-2004

Data on persons who obtained LPR status by country of birth, state of residence, age, category of admission, and year of entry were obtained from DHS administrative records maintained in an application case tracking system of U.S. Citizenship and Immigration Services (USCIS). LPRs consist of two groups: new arrivals and adjustments of status. New arrivals include all persons with immigrant visas issued by the State Department who were approved for admission at a U.S. port of entry during 1980-2004. Data come from the DS-230 Application for Immigrant Visa and Alien Registration of the U.S. Department of State. For these LPRs, the date of admission is the date of entry.

LPR adjustments of status include all persons whose last entry into the United States was during the 1980-2004 period. The year of last entry prior to adjustment of status was assumed to represent the year of entry. Data on adjustments come from the I-485 Application to Register Permanent Residence or Adjust Status. Since 1997, a significant proportion (approximately 30-40 percent) of adjustment of status records have been missing data on the last entry date. Year of entry was assigned to records with a missing last date using randomly selected records with the same category of admission, year of LPR adjustment, and known last entry date.

Added to the LPR flow total were refugees and asylees who entered the United States during 1980-2004 but who had not adjusted to LPR status as of January 1, 2005. Refugees who obtained LPR status during 2000 to 2004 spent an average of 3.5 years before adjusting status, and asylees spent an average of 7 years. Therefore, it was assumed that refugees who arrived in the United States during the 3.5 years preceding 2005 and persons granted asylum during the 7 years preceding 2005 had not adjusted to LPR status by January 1, 2005. Data on refugees arriving during mid-2001 to 2004 by country of origin were obtained from the Department of State. Data on persons granted asylum during 1998 to 2004 by country of origin were obtained from USCIS for those granted asylum affirmatively and from the Executive Office of Immigration Review of the Department of Justice for those granted asylum defensively through judicial proceedings. The state of residence of refugees and asylees was assumed to be the same as that of refugees and asylees from the same countries who became LPRs during 2000-2004.

i. Mortality of legally resident flow 1980-2004

There are no data collected on the mortality of legally resident immigrants. LPRs were survived to 2005 by gender and age (at the time LPR status was obtained) using mortality rates by age and sex from 1989-1991 life tables (National Center for Health Statistics, 1997).⁵ An annual crude death rate of 5.7 per 1,000 was used for refugee and asylees who had not adjusted status since information was not available on their age and sex. This mortality rate was used in the previous DHS 2000 estimates.

j. Emigration of legally resident flow 1980-2004

Emigration is a substantial component of immigrant population change. Since no data are available that directly measure emigration from the United States, researchers have developed indirect estimates based largely on Census data. Annual emigration rates by race, age, and year of entry used in this report were based on estimates of emigration of the foreign-born population by race, ethnicity, and age using Census data from 1980 and 1990 (Ahmed and Robinson, 1994). Race of legally resident immigrants was approximated by country of birth (Asia versus other countries). Age was represented by three categories: under 20 years of age, 20 to 34 years, and 35 years and over. Refugees and asylees were assumed to emigrate at one-half the rate of other LPRs.

k. LPR, refugee, and asylee population on January 1, 2005

Subtracting mortality (2i.) and emigration (2j.) from the LPR, refugee, and asylee flow during 1980-2004 (2h.) results in the estimated LPR, refugee, and asylee resident population on January 1, 2005.

l. Nonimmigrant population on January 1, 2005

The number of nonimmigrants living in the United States on January 1, 2005 was estimated by multiplying the number of nonimmigrant admissions between July 1, 2004 and June 30, 2005 by the average length of visit and dividing this figure by 365. Data by country of citizenship, state of residence, age, and class of admission were obtained from the Treasury Enforcement Communications System (TECS) of U.S. Customs and Border Protection, which compiles information on nonimmigrants entering and leaving the United States on the arrival/departure Form I-94. The estimate was restricted to classes of admission such as students, temporary workers, and exchange visitors where the length of stay typically exceeds two months. The estimates do not include border crossers or visitors for business or pleasure. The year of entry of the 2005 nonimmigrant population was based on the distribution of year of entry for nonimmigrants used in the previous DHS 2000 unauthorized immigrant population estimates (Department of Homeland Security, 2003).

m. Estimated legally resident immigrant population on January 1, 2005

Adding the population of LPRs, refugees, and asylees on January 1, 2005 (2k.) to the nonimmigrant population on the same date (2l.) results in the total estimated legally resident immigrant population in the United States on January 1, 2005.

3) *Unauthorized immigrant population*

⁵ For immigrants in the 1980-2004 legally-resident flow, 1990 represents the median year they obtained LPR status.

- n. Estimated unauthorized immigrant population on January 1, 2005

Subtracting the estimated legally resident immigrant population (2m.) from the total foreign-born population on January 1, 2005 (1g.) yields the estimate of the unauthorized immigrant population.

The estimates were generated by country of birth and state of residence for the unauthorized population living in the 50 States and the District of Columbia. The Cuban-born population living in the United States was excluded from the estimates since, according to immigration law, few Cubans living in the United States more than a year are at risk of being unauthorized.

Limitations

Assumptions about undercount of the foreign-born population in the ACS and emigration. These are the primary sources of error in these estimates. The estimates are sensitive to the assumptions that are made about these components (see Results).

Accuracy of year of entry reporting. Concerns exist among immigration analysts regarding the validity and reliability of Census survey data on the year of entry question (“When did this person come to live in the United States?”). Errors also arise in converting DHS administrative dates for legally resident immigrants to year of entry dates.

Assumptions about the nonimmigrant population estimate. The estimates are based on admission counts and length of visit by class of admission, not actual population counts. The estimates do not capture changes in status that may result in the double counting of nonimmigrants and persons adjusting to LPR status. For example, in recent years, large numbers of nonimmigrants from India have obtained LPR status.

Sampling error in the ACS. The 2004 ACS data are based on a sample of the U.S. population. Thus the estimates of the total foreign-born population that moved to the United States in the 1980-2004 period are subject to sampling variability. The estimated margin of error for the estimate of the foreign-born population in the 2004 ACS at the 90 percent confidence level is approximately 250,000.

Assumptions about internal migration. The estimates assume no net internal migration of the legally resident immigrant population since their state of residence refers to their residence when they obtained their LPR, refugee or asylee status. The reported state may or may not be their current state of residence.