



OECD Social, Employment and Migration Working Papers  
No. 57

Unauthorized Migrants  
in the United States:  
Estimates, Methods, and  
Characteristics

**Jeffrey Passel**

<https://dx.doi.org/10.1787/110780068151>

---

**Unauthorized Migrants in the United States:  
Estimates, Methods, and Characteristics**

Jeffrey Passel

---

57

Unclassified

DELSA/ELSA/WD/SEM(2007)12



Organisation de Coopération et de Développement Economiques  
Organisation for Economic Co-operation and Development

05-Sep-2007

English - Or. English

DIRECTORATE FOR EMPLOYMENT, LABOUR AND SOCIAL AFFAIRS  
EMPLOYMENT, LABOUR AND SOCIAL AFFAIRS COMMITTEE

DELSA/ELSA/WD/SEM(2007)12  
Unclassified

OECD SOCIAL, EMPLOYMENT AND MIGRATION WORKING PAPERS No 57

UNAUTHORIZED MIGRANTS IN THE UNITED STATES:  
ESTIMATES, METHODS, AND CHARACTERISTICS

Jeffrey Passel

*JEL Classification: F22, J1, J61, N42*

JT03231448

Document complet disponible sur OLIS dans son format d'origine  
Complete document available on OLIS in its original format

English - Or. English

**DIRECTORATE FOR EMPLOYMENT, LABOUR AND SOCIAL AFFAIRS**

<http://www.oecd.org/els>

**OECD SOCIAL, EMPLOYMENT AND MIGRATION  
WORKING PAPERS**

<http://www.oecd.org/els/workingpapers>

This series is designed to make available to a wider readership selected labour market, social policy and migration studies prepared for use within the OECD. Authorship is usually collective, but principal writers are named. The papers are generally available only in their original language – English or French – with a summary in the other.

Comment on the series is welcome, and should be sent to the Directorate for Employment, Labour and Social Affairs, 2, rue André-Pascal, 75775 PARIS CEDEX 16, France.

The opinions expressed and arguments employed here are the responsibility of the author(s) and do not necessarily reflect those of the OECD

**Applications for permission to reproduce or translate  
all or part of this material should be made to:**

**Head of Publications Service  
OECD  
2, rue André-Pascal  
75775 Paris, CEDEX 16  
France**

**Copyright OECD 2007**

## **ACKNOWLEDGEMENTS**

This document has been prepared by Jeffrey S. Passel (Senior Research Associate, Pew Hispanic Center, Washington DC), Consultant to the OECD Secretariat. It was discussed at the OECD Working Party on Migration on 13-14 June 2007.

## SUMMARY

1. This report discusses methods of measuring unauthorized migration to the United States. The “residual method” involves comparing an analytic estimate of the legal foreign-born population with a survey-based measure of the total foreign-born population. The difference between the two population figures is a measure of the unauthorized migrant population in the survey; it can then be corrected for omissions to provide a measure of the total unauthorized population. The report includes a detailed description of the residual methods and the underlying data and assumptions as it has been applied to recent data from the Current Population Survey (CPS) and decennial censuses. The paper presents new results of estimates derived from the march 2006 CPS which show that the unauthorized population in the U.S. has reached 11.5 million; of these, 6.5 million or 57% are from Mexico. The report also presents derived data on a range of social and economic characteristics of the unauthorized population developed with an extension of the residual estimates. Finally, historical data on trends in unauthorized migration and several alternative estimation methods are presented and discussed.

## RÉSUMÉ

2. Ce document traite de l'analyse des méthodes employées aux Etats-Unis pour mesurer les migrations irrégulières. La méthode résiduelle consiste à comparer les estimations de la population née à l'étranger et résidant légalement aux Etats-Unis avec les enquêtes visant à mesurer l'ensemble de la population née à l'étranger. La différence entre les deux catégories de population permet d'évaluer la population immigrée en situation irrégulière. Il est possible de corriger cette évaluation pour tenir compte de certaines omissions et obtenir ainsi une évaluation de la population en situation irrégulière. Le document présente de manière détaillée les méthodes résiduelles, les données et les hypothèses qui ont été utilisées en s'appuyant sur les données provenant du *Current Population Survey* (CFS) et des recensements décennaux de population. Sur la base des résultats du CPS 2006, la population en situation irrégulière aux Etats-Unis atteindrait 11.5 millions de personnes, dont 6.5 millions de Mexicains (soit 57 %). Le document contient aussi des informations sur les caractéristiques sociales et économiques de la population en situation irrégulière. Enfin, des séries historiques sur l'évolution des migrations irrégulières aux Etats-Unis ainsi que sur les différentes méthodes de leur estimation font l'objet d'une présentation critique.

**TABLE OF CONTENTS**

ACKNOWLEDGEMENTS..... 3

SUMMARY..... 4

RÉSUMÉ..... 5

Introduction..... 7

1. Estimation Methods..... 8

    Overview..... 8

    Methodology for Current Estimates..... 10

2. Results..... 12

    Social & Economic Characteristics..... 14

    Other Measures of Migration..... 18

3. Trends and Historical Estimates of the Unauthorized Migrant Population..... 20

4. Validation and Alternative Estimates..... 21

    Summary & Conclusion..... 23

TABLES..... 24



## UNAUTHORIZED MIGRANTS IN THE UNITED STATES: ESTIMATES, METHODS, AND CHARACTERISTICS

### Introduction

3. For at least a decade, the “unauthorized migrant” “illegal alien”<sup>1</sup> population in the United States has been increasing rapidly and has spread to new regions of the country from its previous concentration in about 6 states. As a result of the practically ubiquitous presence of unauthorized migrants and the obvious failure of attempts to control their numbers, immigration has again become a highly controversial political matter. For several years, the U.S. Congress has attempted to come up with legislation to deal with unauthorized migration. Various bills have passed either the Senate or the House, but none has become law because no consensus or compromise “solution” has yet emerged. Proposals have included: comprehensive overhaul of the nation’s immigration system to reduce incentives for unauthorized migration; granting amnesty or legal status to some or all of the estimated 12 million unauthorized migrants in the U.S.; various temporary worker programs; enhanced border security (including 300–600 miles of additional fencing); further criminalization of unauthorized presence in the country; increased penalties for employers who hire unauthorized migrants. With no definitive action from Congress, some states and even a few local governments have tried to restrict unauthorized migrants’ access to social services and even such basic necessities as health care, education, and housing with the aim of discouraging further unauthorized migration and encouraging those already in the country to depart; the constitutionality of these laws is being tested.<sup>2</sup>

4. In many ways, the current debate mirrors those of roughly 20 years ago that led to the passage of the Immigration Reform and Control Act of 1986 (IRCA), a law that legalized about 2.6 million former unauthorized migrants and made the hiring of unauthorized migrants illegal. One major difference today is the availability of a substantial body of empirical information on both the size and characteristics of the unauthorized migrant population. In the early 1980s, there was considerable uncertainty and disagreement about the number of unauthorized migrants in the country. Although there was published research suggesting 3–6 million as the most likely figure,<sup>3</sup> most commentators used figures in the range of 6–12 million. Notwithstanding the lack of evidence and concern about how many would eventually legalize and how many were working in agriculture, a compromise was eventually reached. In today’s climate, much of the debate continues to rely on stereotypes of unauthorized migrants (both positive and negative), there is remarkably little disagreement about the size of the population. Almost all politicians and commentators use the same figure—12 million unauthorized migrants living in the United States.

5. This estimate of 12 million unauthorized migrants can be directly traced to a 2006 report from the Pew Hispanic Center (PHC)<sup>4</sup>, which stated

...Analysis of the March 2005 CPS shows that there were 11.1 million unauthorized in the United States a year ago. Based on the monthly Current Population Surveys conducted since then and other

data sources that offer indications of the pace of growth in the foreign-born population, the Center developed an estimate of 11.5 to 12 million for the unauthorized population as of March 2006....

Early citations in editorials and news articles referred to “11 to 12 million” undocumented immigrants and attributed the estimate to the author or the Pew Hispanic Center.<sup>5</sup> Within a few months, most references were to “12 million” and the figure was generally given without attribution.<sup>6</sup> Thus, the estimate passed from a research result to “accepted fact” and “conventional wisdom” fairly quickly. Twelve million is virtually the only figure currently cited by politicians and is accepted by organizations with widely disparate agendas—from restrictionist groups such as the Federation for American Immigration Reform (FAIR) and the Center for Immigration Studies (CIS) to pro-immigration organizations such as the National Immigration Law Center (NILC), the National Immigration Forum (NIF), and the National Council for La Raza (NCLR).

6. The PHC estimate is not the only available current estimate but is the most widely cited. Virtually all of the credible, empirically-based estimates rely on some variant of the so-called “residual” methodology which compares an estimate of the legally-resident foreign-born population with the total foreign-born as measured by a census or survey. The most recent estimate from PHC is 11.5 million as of March 2006 based on the Current Population Survey (CPS).<sup>7</sup> Other estimates for nearby dates imply current numbers in the range of 11–12 million: 10.5 million from the Department of Homeland Security (DHS) for January 2005 based on the American Community Survey (ACS); 11.1 million for March 2005 and 10.3 million for March 2004 based on the CPS from PHC.<sup>8</sup> Residual estimates for 2000 based on Census 2000 fell in a range of 7–9 million: 7.0 from the Immigration and Naturalization Service (INS) now in DHS; 8.4 million from Passel, et al. at the Urban Institute; 8.2 million implied by the Census Bureau’s estimate; and 7.1 million from Bean et al.<sup>9</sup> The only real challenge to these estimates based on anything other than sheer speculation is a figure of 20 million from financial analysts at the firm of Bear-Stearns and a report of more than 3 million entrants per year from journalists at *Time* magazine.<sup>10</sup> These two estimates not sound empirical estimates and will be discussed in more detail below.

7. This report first presents an overview of issues surrounding the measurement of unauthorized migration and a brief history of residual estimates. The next section presents a specific implementation of residual method by PHC using data from March 2006. Then, some of the major results from the March 2006 estimates are presented regarding basic demographic measures of population size, change, origins, destinations, and age-sex composition. Extensions of these estimates provide measures of socio-economic characteristics of unauthorized migrants in comparison with those of legal immigrants and natives. From this section, a picture of the unauthorized population as young, working families (rather than solo working males) emerges rather clearly. The report then reverts to methodological issues with a review of historical estimates, comparison of the underlying data and assumptions in the current residual estimates with those used in other available estimates. This section also critiques the major alternative estimates and summarizes some of the further work needed.

## **1. Estimation Methods**

### ***Overview***

8. The basic methodology of the residual approach involves subtracting an analytic or demographic estimate of the legally resident immigrant population from census or survey-based figures<sup>11</sup> on the total number of immigrants residing in the country to measure the unauthorized migrant population included in survey. The resulting differences are then further adjusted for an estimate of the degree of underenumeration of legal and unauthorized immigrants in the survey. Variants of the residual method differ in the following key areas:

- data sources used to derive the estimates;
- population covered;
- geographic and demographic detail of the estimates;
- methods used to estimate components of demographic change;
- assumptions about census/survey coverage;
- definitions and measurement of components of the legal population.

9. In the residual methodology, the unauthorized population is, by definition, those foreign-born persons who are not included in the data used to construct the demographic estimate of legal residents. While this definition is relatively clear, there remain a number of ambiguities, particularly surrounding the rules of who is supposed to be included in the underlying survey data with respect to permanence of residence in the U.S. and duration of stay. Attempting clear distinctions based on duration of stay, such as between temporary and permanent migrants, or sojourners and settlers, to use more sociological terms,<sup>12</sup> are particularly important in order not to misunderstand evidence about unauthorized migration flows. Much of the historical and current debate about the size of the unauthorized population derives from different perceptions about whether sojourners or settlers dominate the flows. To the extent that the unauthorized migrant population is made up of sojourners, return migrants represent out flows that help to offset in flows. Out flow is a critical component because, in the case of unauthorized Mexican migrants, the majority of entrances, at least until recently, have been offset by exits, as indicated by estimates of repeat entrances from apprehensions and survey data<sup>13</sup> and net in-flow measures.<sup>14</sup> During the 1970s and 1980s, many observers mistook substantial numbers of border apprehensions as indicating large net in flows. By failing to account for out flow, such observers highly exaggerated the rate of growth of the unauthorized migrant population. In effect, the error was to assume that the number of settlers predominated over the number of sojourners, when in fact just the opposite has been the case for at least three decades. The authors of a *Time* magazine article in 2004 made just this error when they asserted that more than 1 million apprehensions per year along the U.S.-Mexico border of aliens attempting illegal entry into the U.S. translated into more 3 million annual entrants who were added to the unauthorized migrant population residing in the U.S.<sup>15</sup>

10. Notwithstanding the detailed definition of “unauthorized migrant,” there remain a number of ambiguities, definitional issues, and uncertainties in interpreting various estimates. For example, while unauthorized migrants included in the survey are more likely to have lived in the United States for shorter periods than the authorized migrants and are more likely to be sojourners than the authorized migrants, distinguishing sojourners from settlers in either group remains highly problematic. Further, there are a number of categories and a significant number of migrants whose status does not permit unambiguous classification as either authorized or unauthorized. Some examples of such migrants would include persons who have applied for asylum, family members of legal immigrants with admission applications pending, and migrants granted Temporary Protected Status (TPS). There is only a limited amount of data on most of these groups so the PHC methods do not estimate the numbers of migrants in these categories nor include them in the estimated legal population; thus, they are, by default and implication, part of the estimate of the unauthorized population. These groups are not admitted by the government for permanent residence, but are likely to remain in the U.S. for long periods of time. Moreover, many are likely to revert to an unauthorized status. Together they may account for as much as 10% of the estimate. In assessing potential programs for dealing with the unauthorized population, it seems appropriate to treat this quasi-legal group as part of the unauthorized population since a significant share of this group would probably be eligible to participate in any program that might lead to regularization of their status, such as a temporary worker program or an earned legalization program and the policies needed to deal with them would be very similar to those needed for the unauthorized population.<sup>16</sup>

*Methodology for Current Estimates*

11. There are several different approaches to the concepts underlying residual estimates of the unauthorized population. We present here the method used by PHC and the Urban Institute for more than a decade.<sup>17</sup> The essential relationship is that the total number of unauthorized migrants residing in the country is equal to the total number of all immigrants less the total number of legal immigrants residing in the country, or:

$$U_{total} = A_{total} - L_{total} \quad (1)$$

where  $U_{total}$  = Unauthorized migrants, total (counted and uncounted);

$A_{total}$  = All immigrants (Legal and Unauthorized), total;

$L_{total}$  = Legal immigrants, total.

[Note that all computations are done for subgroups of the population based on age group (16), sex (2), country of birth (35), period of entry (5–7), and state of residence (7). Thus, to fully specify the estimates, five additional subscripts should appear in all equations, plus, possibly, a sixth for the reference date. In the interests of notational clarity and simplicity, all of these additional subscripts are omitted from the equations. All immigrants who entered the U.S. are assumed to have attained legal status by 2000.]

12. In addition to the distinction between legal and unauthorized migrants, the PHC formulation makes two other distinctions. An important, but subtle, one is the differentiation between “immigrants” and the “foreign-born” population, discussed below. The other is between those immigrants counted in the survey and those not counted. Estimating one from the other requires information on census/survey coverage. Thus, for the counted population:

$$U_{counted} = A_{counted} - L_{counted} \quad (2)$$

where  $U_{counted}$  = Unauthorized migrants, counted;

$A_{counted}$  = All immigrants (Legal and Unauthorized), counted;

$L_{counted}$  = Legal immigrants, counted.

The two key populations in equation (2) are developed from different data sources. The counted legal immigrant population,  $L_{counted}$ , is developed by first estimating the total legal immigrant population from administrative and census data on various components of legal admissions (see Appendix) and subtracting an estimate of the undercount; that is,

$$L_{counted} = L_{total} - L_{uncounted} = L_{total} * (1.0 - u_{legal}) \quad (3)$$

where  $L_{uncounted}$  = Legal immigrants, not counted in the survey;

$u_{legal}$  = Census/survey undercount rate for legal immigrants.

Based on studies of coverage in Census 2000 (which apply to the population estimates used for CPS controls), the overall undercount rate for legal immigrants in the March 2006 CPS is assumed to be 2.0%.<sup>18</sup>

13. The counted immigrant population,  $A_{counted}$ , is derived from the census, principally by excluding those foreign-born persons who are not considered to be “immigrants” (i.e., permanent residents, not sojourners or temporary residents) or:

$$A_{counted} = FB_{counted} - NI_{counted} \quad (4)$$

where  $FB_{counted}$  = Foreign-born population, counted in the survey;

$NI_{counted}$  = Legal temporary migrants (nonimmigrants), counted in the survey.

The counted foreign-born population,  $FB_{counted}$ , has the conventional meaning used in the census—all people living in the United States who were born outside the United States, its territories, and possessions and who were not U.S. citizens at birth. The foreign-born population includes “immigrants” and “nonimmigrants.” By parsing the population in this manner, it is only necessary to identify potential legal temporary migrants in the survey and not estimate the total number in the country—a much more difficult task, given the available data.<sup>19</sup>

14. Substituting the estimate of counted *legal immigrants* from equation (3),  $L_{counted}$ , and counted *total immigrants* from equation (4),  $A_{counted}$ , into equation (2), we estimate the *counted* unauthorized migrants,  $U_{counted}$ . This estimate is converted into the *total* number of unauthorized migrants,  $U_{total}$ , with information on the coverage of unauthorized migrants in the survey, as:

$$U_{total} = U_{counted} / (1.0 - u_{unauthorized}) = (A_{counted} - L_{counted}) / (1.0 - u_{unauthorized}) \quad (5)$$

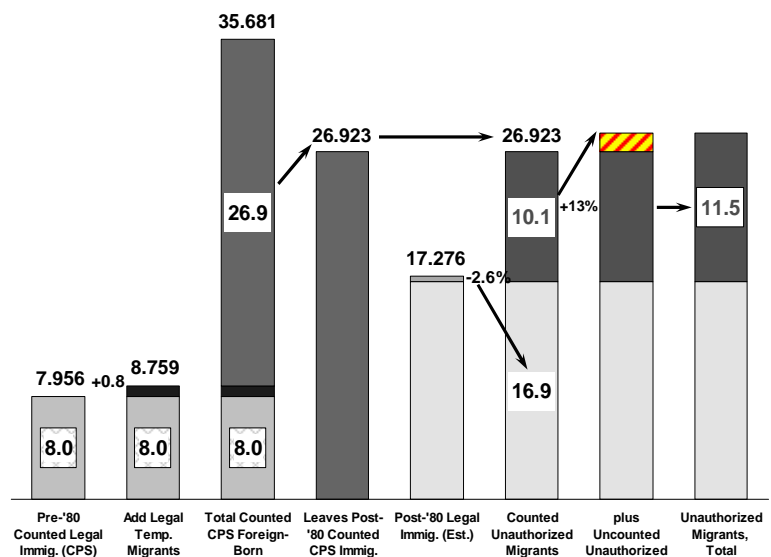
where  $U_{total}$  = Unauthorized immigrants, total (counted and not counted);

$u_{unauthorized}$  = Undercount rate for unauthorized migrants.

Evidence on coverage of unauthorized migrants comes from comparisons with Mexican data, U.S. mortality data, and specialized surveys conducted around the time of Census 2000. Unauthorized migrants are assumed to be missed at rates 2 to 3 times those of legal immigrants (of the same age, sex, country of birth, and period of entry);<sup>20</sup> for the March 2006 CPS, the undercount rate of unauthorized migrants is about 13%. It is clear from these equations that the composition of the unauthorized estimate—in terms of population groups included or excluded—depends critically on which populations are included as *legal* immigrants, how many *legal temporary migrants* are excluded from the survey’s foreign-born population, and the assumptions about *coverage*. (Figure 1 illustrates the logic of the estimation method with data from estimates for March 2006.)

15. Application of the procedures described above generates an estimate of the unauthorized foreign-born population in the U.S. as of March 2006 of slightly more than 11.5 million persons. (See Figure 1 for a schematic representation of the estimation process and Table 1 for some results.) This estimate represents slightly less than 4 percent of the total U.S. population, or about 1 in every 26 persons. When subdivided by period of entry and country of origin, two major features of the U.S. unauthorized population stand out. The first is that an overwhelming majority of unauthorized migrants came to the United States in the since 1995. Almost 2 of 3 unauthorized persons in the country in 2006 had entered in the previous ten years, with only about one in three coming in the decade before. A second distinctive feature is that one single country, Mexico, accounts for 6.5 million or

**Figure 1. Development of Estimate of Unauthorized Migrants from March 2006 CPS Data**



Note: Populations in millions.  
Source: Authors’ estimates. See text for explanation of categories.

57% of the total unauthorized population (Table 1).

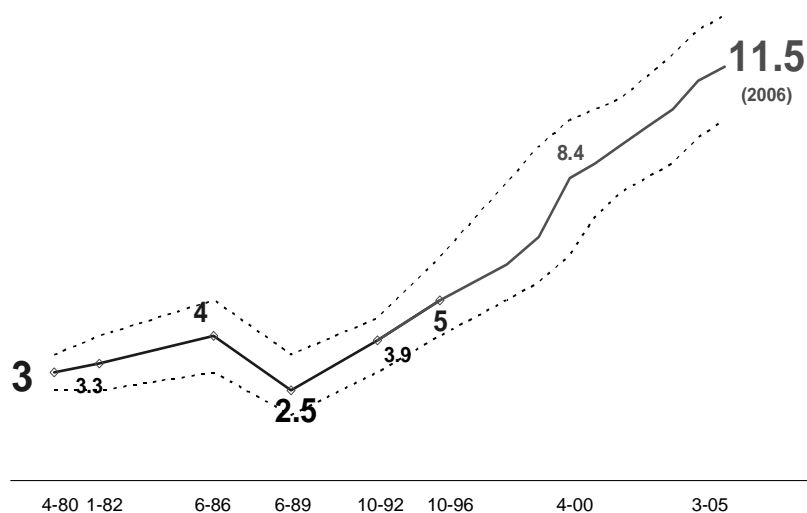
## 2. Results

16. **Population Levels and Trends.** As of March 2006, there were an estimated 11.5 million unauthorized migrants living in the United States. A comparison to past estimates derived with the same methodology shows that the undocumented population has grown rapidly and steadily in recent years. There were 8.4 million unauthorized migrants living in the United States in April 2000 according to estimates derived from Census 2000.<sup>21</sup> (See Figure 2.) Thus, average annual growth over the 5-year period since 2000 was more than 500,000 per year. This number reflects the number of new unauthorized migrants arriving minus those who either die, return to their country of origin, or gain legal status. Data from the monthly Current Population Surveys conducted since March 2006, as well as other evidence such as the number of apprehensions by the Border Patrol, indicate that the unauthorized flow is continuing.<sup>22</sup> Although there is some indication that the in-flow from Mexico may have slowed somewhat, the data suggest continued growth so that a current estimate of 12 million unauthorized migrants living in the U.S is consistent with the most current estimates.

17. Although the growth of the unauthorized population may have slowed very slightly, this population has sustained large increases over at least 15 years. The available estimates, discussed in more detail below, suggest that annual increases have averaged roughly 500,000 for 10–15 years, from a population of about 5 million in the mid-1990s to the current level of 11–12 million (Figure 2).

18. [The residual estimate for March 2005 was 11.1 million and for March 2004, 10.3 million. However, it is not appropriate to assume that growth has slowed over this period. Because the residual estimate is based in part on sample data from the CPS and in part on a demographic estimate, the resulting figure is subject to both sampling and estimation error. In fact, the sampling error is relatively large, since it is determined by the size of the foreign-born population counted, not just by the size of the residual estimate. (See equation (5) above.) A rough estimate of sampling variance is 400,000. Thus, the year-to-year differences noted above are rarely statistically significant nor are the differences in measured change. However, over longer intervals, the measured change is significant.]

**Figure 2. Unauthorized Migrant Population of the United States, 1980–2006**



Note: Millions of unauthorized migrants living in the U.S.  
Source: See text for sources of estimates.

19. Most unauthorized migrants have been in the U.S. for less than a decade. About 41% or 4.8 million arrived since 2000; this figure translates into an average of almost 800 000 unauthorized migrants arriving per year (and who still remain in the country as of March 2006). Note that this number is higher than the annual net increase of the population because it only measures the number of unauthorized migrants being added to the population and does not subtract the number who either die, return home or

gain legal status. About two-thirds of the total have been in the U.S. for 10 years or less (Table 1). Although only 12% of the migrants came before 1990 (and remain in an unauthorized status), this still means that about 1.4 million persons have been in the U.S. for more than 15 years in an unauthorized status.

20. Unauthorized migrants represent about 31% of the 37.6 million foreign-born in the country as of March 2006. In 2005, there were roughly equal numbers of unauthorized migrants (30%), naturalized citizens (35%), and legal permanent resident aliens or “green card” holders (32%). These shares have probably not changed much for 2006.<sup>23</sup>

21. **Origins of Unauthorized Migrants.** Mexico remains by far the largest source of unauthorized migrants with about 57% or 6.5 million from that country. (It also has the largest number of legal foreign-born residents.) The share from Mexico has remained within a fairly narrow range of 55–60% of the total even as the numbers of unauthorized increased from 3 million in 1980 to almost 12 million today. The Mexican-born population in the United States, including both legal and unauthorized migrants, has grown by about 500 000 people a year for the past decade and has reached 11 970 000 by 2006. Overall, somewhat more than half (55%) of the Mexicans in the U.S. are unauthorized. Annual arrivals from Mexico are averaging about 600 000 with almost 500 000 being unauthorized. Of the Mexican migrants in the U.S. for 10 years or less, the estimates show that approximately 80% are unauthorized.

22. The remainder of Latin America contributes another 26% of the unauthorized population representing almost 3 million unauthorized migrants—about half of these or 14% of the total are from Central America. Asia accounts for another 10 percent of the total or 1.2 million. Europe, Canada, Africa, and Oceania all account for much smaller numbers. No single country other than Mexico accounts for as much as 5% of the unauthorized total. El Salvador has been the second largest source with slightly more than 500 000 unauthorized migrants. Other countries with more than 200 000 in recent estimates include: India, Guatemala, China, and Honduras. [Because of sampling variability, specific country estimates can vary considerably from year to year.]<sup>24</sup>

23. **Destinations of Unauthorized Migrants.** There has been a huge amount of geographic diversification in the unauthorized population over the past 15 years. In 1990, 42% of the unauthorized population, or about 1.5 million persons, lived in California; by 2006, the share had dropped to 22% (Table 2). The unauthorized population in California still experienced substantial growth to about 2.6 million, or growth of about 75%. Large-scale growth in numbers occurred almost everywhere, but the distribution changed. The share in New York and Illinois dropped significantly, while Texas’ share changed only slightly from 13% to 12%. In Florida and New Jersey, the shares increased somewhat. Outside these 6 large states, the growth in the unauthorized population was phenomenal as the share more than doubled from 20% to 42%. Numerically, the growth was even more astounding as the unauthorized population increased by a factor of almost seven(!) from about 700 000 to 4.1 million. Note that Mexican unauthorized predominate in California, Texas, Illinois, and the remaining states (as a group).

24. The rapid growth and spreading of the unauthorized population has been the principal driver of growth in the geographic diversification for the total immigrant population into new settlement states all such across the country.. In 1990, only 5 states had as many as 100 000 unauthorized migrants. By 2005, in addition to the states noted above, Arizona, North Carolina, and Georgia had numbers reaching 400 000. Another 6 states—Virginia, Maryland, Colorado, Washington, Massachusetts, and Nevada—had estimated populations that could reach or exceed 200 000; another 9 may have had 100 000. In other words, almost half of the states had 100 000 unauthorized migrants.

### *Social & Economic Characteristics*

25. **Augmentation of the CPS.** The annual March supplement to the CPS serves as the basis for the residual estimate, which results in both estimates of the number of legal and unauthorized immigrants included in the survey and the total number in the country. The survey has been augmented to assign specific legal statuses to foreign-born survey respondents and to adjust the survey weights to account for the immigrants omitted from the file. The augmented file serves as a basis for more detailed tabulations of family, social, and economic characteristics presented in this section. The data and methods employed were developed initially at the Urban Institute by Passel and Clark and have been extended by work at PHC with Bean and Van Hook.<sup>25</sup>

26. The methods involve estimating the number of unauthorized migrants with the techniques described previously. In this process, the CPS data are first corrected for over-reporting of naturalized citizenship on the part of aliens. Then, persons entering the U.S. as refugees and individuals holding certain kinds of temporary visas (including students, diplomats, and “high-tech guest workers”) are identified in the survey and assigned an immigration status using information on country of birth, date of entry, occupation, education, and various family characteristics. Individuals that are definitely legal and those that are potentially unauthorized are identified in the CPS (based on state of residence, age, sex, occupation, country of birth, and date of entry). Next, using probabilistic methods, enough of the potentially unauthorized are selected and assigned to be unauthorized so as to hit the estimated numbers of legal and unauthorized migrants included in the survey. This last step, which assigns more than three quarters of the potentially unauthorized as unauthorized, involves a consistency edit to ensure that the family structures of both legal and unauthorized populations “make sense.” The whole process requires several iterations to produce estimates that agree with the demographically-derived population totals. Finally, the survey weights for the foreign-born are adjusted upward so that the tabulated figures agree with the analytic, demographic estimates of the total number of legal and unauthorized migrants developed in the very first step (and presented above). Similar procedures have been applied to the 5% Public-Use Microdata Samples (PUMS) from Census 2000 and are in the process of being applied to PUMS data from the ACS.<sup>26</sup>



27. **Age and Family Structure.**<sup>27</sup> The stereotype of an unauthorized migrant is a young male worker, usually unaccompanied by a wife or children because most migration is driven primarily by a search for better wages. In fact, the full portrait of the unauthorized migrant population is more varied. Unauthorized migrants also live as couples (sometimes with a spouse who is a U.S. citizen or legal immigrant), and many of these couples have children. Some children are U.S. citizens because they were born in the U.S. and some are unauthorized, and sometimes there are both U.S. citizen and unauthorized children in the same family. There are also hundreds of thousands of single women.

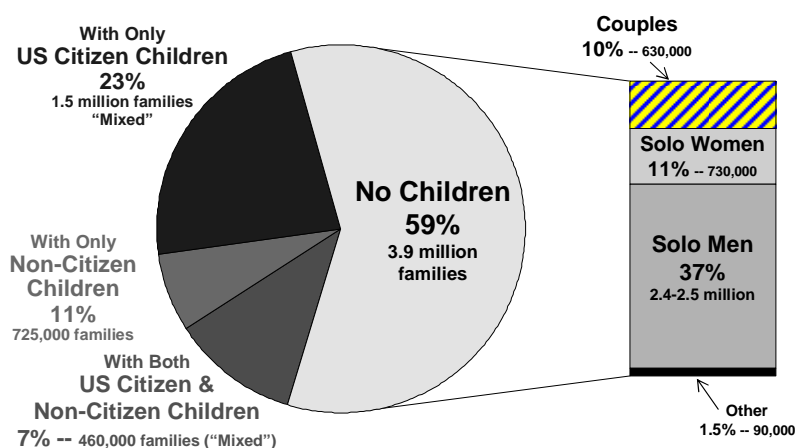
28. The unauthorized population included about 5.4 million adult males which is a little less than half of the 11.1 million total in the March 2005 estimate. There were more unauthorized adult men than women, with those 5.4 million males accounting for 58% of the 8.8 million unauthorized adults in the March 2005 estimates. Approximately half of the adult men, or 2.4 million, were “solo males,” i.e., in the U.S. without wives or children (Figure 3). There were approximately 3.9 million adult women in the unauthorized migrant population, representing 42% of the adults in the March 2005 estimate. Among adult women, only one in five, or about 730,000, is “solo”—in the U.S. without a husband or children.

29. There were 6.6 million unauthorized families in March 2005—defined here as a family unit (or solo individual) in which the head or spouse is unauthorized. Since unauthorized families can include U.S. citizens and legal residents as well as unauthorized migrants, the total number of persons in unauthorized families was 14.6 million, a figure that includes the 11.1 million unauthorized migrants. A majority of these unauthorized families—3.9 million, or 59%—did not have children (Figure 3). They were made up of single adults, couples, or some other combination of adult relatives. The vast majority of these—about 3.2 million of the families without children—were solo individuals.

30. Unauthorized families with children come in many combinations of legal and illegal statuses, both among the parents and their offspring. Of the 14.6 million people in authorized families in the March 2005 estimates, there were approximately 4.9 million children. Of these, about 3.1 million children, or 64% of all the children in unauthorized families, were American citizens because they were born in the United States. About 1.8 million of the children in these families were themselves unauthorized. Thus, children make up 16% of the entire unauthorized population of 11.1 million in the March 2005 estimates.

31. Out of the total of 6.6 million unauthorized families, a significant share can be classified as being of “mixed status”—in other words, families in which at least one parent is unauthorized and at least one child was born in the United States. There were 1.5 million unauthorized families in which all the children were born in the United States. These families represent about one-quarter of all unauthorized families and more than half of unauthorized families with children. Another 460 000 families, or 7% of unauthorized

**Figure 3. Composition of Unauthorized Migrant Families Based on March 2005 CPS Data**



## 6.6 Million Unauthorized Families

Source: Authors' estimates. See text for explanation of categories.

families, had both U.S. citizen children and children who were unauthorized. Taken together, these mixed status families represent about one third of all unauthorized families and five out of six unauthorized families with children. Finally, 725 000 families, or 11% of all unauthorized families, had only unauthorized children.

32. The age distribution of unauthorized children differs significantly from their U.S. citizen siblings (i.e., the native-born children of unauthorized migrants). Almost half (49%) of the U.S. citizen children are under 6 years old; in contrast, only 17% of the unauthorized migrant children are under age 6. These age distributions mean substantially higher percentages of the unauthorized children are enrolled in U.S. schools. About 3.4 million children of unauthorized migrants are enrolled in U.S. primary and secondary schools, representing about 6% of the 55.3 million students. Of these, 1.8 million are U.S. citizens and 1.6 million unauthorized migrants.

33. **Educational Attainment.** Some have characterized the educational distribution of immigrants as an “hourglass” because immigrants tend to be over-represented at both extremes relative to natives; with natives, the concentration is in the middle, hence the characterization of native education distribution as a “diamond.” However, as Table 3 highlights, a significant share of the over-representation of low levels of education found among immigrants is due principally to unauthorized migrants (and older cohorts of legal immigrants). Almost half of unauthorized migrants have not graduated from high school. In contrast, 25% of legal immigrants fall into this group versus only 9% of natives.

34. At the other extreme, a higher proportion of legal immigrants than natives have college degrees (32% versus 30%) notwithstanding the over-representation of legal immigrants at the bottom. The larger proportion with college degrees can be traced to naturalized citizens and recent legal immigrants. In fact, by 2005, all groups of legal immigrants in the country for less than 10 years are more likely to have a college degree than natives. About 1 in 6 unauthorized migrants has a college degree. Many of these are undoubtedly persons admitted on temporary work visas who simply stayed in the U.S. when their visa expired.

35. **Labor Force.** There were approximately 7.2 million unauthorized migrants in the civilian labor force in March 2005, accounting for about 4.9% of the U.S. workforce of 148 million workers (Table 3). Labor force participation differs substantially by sex and across the groups defined by immigration status. Among men ages 18–64, natives are the least likely to be in the civilian noninstitutional labor force (83%) followed by legal immigrants (86%) and then by the group most likely to be working—the unauthorized (94%). There appear to be a number of factors associated with these differences. One of the simplest is age. Within this age range for workers, those who are older (e.g., 45–64 years) are more likely to be retired or disabled and so, not in the labor force. Very few unauthorized fall in this age range, so overall, they are simply more likely to be working. In addition to disability and retirement, the other principal reason for men not being in the labor force is that they are attending college. Again, very few unauthorized attend college so their labor force participation is higher. Finally, if unauthorized persons do become disabled or retire, they are much more likely than others to leave the country and, thus, not appear in the U.S. population data.

36. Participation patterns among women are just the opposite—with unauthorized being the lowest (at 54%), natives being the highest (72%), with legal immigrants in the middle (63%). The principal reason women do not participate in the labor force is the presence of young children in their family. Secondarily, unmarried women are more likely than married women to participate in the workforce. Immigrant women are more likely to be married than native women; they are also considerably more likely than natives to have children. Among unauthorized migrant women, this pattern is even stronger because more of them are from high fertility areas.

37. **Occupation and Industry.** Although the unauthorized workers can be found throughout the workforce, they tend to be over-represented in certain occupations and industries. Because they tend to have lower levels of education than other workers and generally lack the ability to obtain legal certification, unauthorized migrants' choice of occupations tends to be somewhat circumscribed. Unauthorized workers are notably underrepresented in white-collar occupations. "Management, business, and professional occupations" and "Sales and administrative support occupations" accounted for more than six of ten native workers (62%) and five of ten legal immigrant workers (51%) but less than one-quarter of unauthorized workers (23%) in March 2005. On the other hand, unauthorized migrants are much more likely to be in major occupation groups that require little education or do not have licensing requirements. The share of unauthorized employed in agricultural occupations (4%) and construction and extractive occupations (19%) was about three times the share of native workers in these types of jobs; legal immigrants have distributions in these much closer to natives than to unauthorized workers. The share in service occupations (31%) was about double that of native workers (16%). (See Table 3.)

38. Another perspective on occupations is the share of workers within specific occupations who are unauthorized workers. There are some with very high shares of unauthorized workers, but even the highest concentrations rarely exceed one worker in four. For example, The unauthorized represented: 36% of all insulation workers; 29% of all roofers, drywall installers, and miscellaneous agricultural workers; 27% of all butchers, other food processing workers, and construction helpers. Further, even within these highly concentrated occupations, a majority of the workers nationwide are U.S. natives.

39. The concentration of unauthorized workers in broad industries is not as marked as the concentration in broad occupation groups. Only in "leisure & hospitality" and in "construction" does the share of unauthorized workers greatly exceed the share of natives. About 1 in 5 unauthorized workers is in the construction industry (20%) and 1 in 6 is in the leisure & hospitality industry (17%). Only about 7%–8% of native workers can be found in each of these industries. Neither of these industries tends to require credentials from prospective workers. Further, there are many occupations in these industries that do not require much formal education. In several industries including services, wholesale and retail trade, manufacturing, and professional and business services, the unauthorized are employed in roughly the same shares of natives. (See Table 3.) In more detailed industry classifications, there are few with high concentrations because almost every industry includes a wide range of occupations. The unauthorized were 21% of the workers in private household industries. They were between 12% and 14% of all the workers in food manufacturing, farming, furniture manufacturing, construction, textiles, and food services.

40. There is considerable evidence that the majority of unauthorized workers, perhaps 55–65%, are *not* in the underground economy; that is, most are employed in jobs where social security and income taxes are withheld from their pay. Two principal items point toward this result. First, as noted below, a significant share of unauthorized migrants, perhaps 40%, have overstayed legal visas. A person admitted for legal temporary employment receives a legal Social Security number in his/her own name. This number remains valid and does not expire when the work visa expires. An unauthorized migrant who overstays a work visa can continue working under this number. Second, it is fairly easy to obtain fraudulent documentation with a valid Social Security number in someone else's name or an invalid number. Every tens of billions of dollars in wages are recorded under such invalid numbers.<sup>28</sup>

41. **Family Income.** The incomes of unauthorized migrants and their families reflect their comparatively low levels of education and the occupations/industries where they work. (See Table 3.) Specifically, average family income of unauthorized migrant families (\$29,500) is more than 40% below the average income of either legal immigrant families (\$48,500) or native families (\$48,700). Note that the difference between natives and legal immigrants is negligible. In addition to education and occupation differences, another factor contributing to this difference is the lower labor force participation of unauthorized females that results in fewer workers per family than in the other groups.

42. Immigrants tend to have somewhat larger families (2.3 persons) on average than natives (2.0), with little difference in family size between unauthorized and legal immigrants. A key element of income is the amount available per person in the family, or the per capita family income. Because unauthorized families tend to be larger and have lower incomes than natives, the difference in average income per person<sup>29</sup> is even larger than the difference in income. Thus, the average income per person in unauthorized families (\$12 000) is about 40% less than in legal immigrant families (\$21 100) and more than 50% below the per capita income in native families (\$24 700).

43. **Poverty and Health Insurance.** Poverty levels naturally reflect the income patterns just shown. Notwithstanding the roughly equal family income levels, legal immigrant adults are considerably more likely to be in families with incomes below the Federal poverty line (19.7%) than native adults (13.2%). (See Table 3.) Not surprisingly, poverty levels among unauthorized migrant adults are much higher because their incomes are much lower. Unauthorized migrant adults are more than twice as likely to be living in poverty (25.2%) than native adults.

44. Children have much higher levels of poverty (19.2%) than adults (14.7%) across all groups. However, children of immigrants have much high levels of poverty than children of natives. Moreover, the status of the child has a separate effect on poverty as U.S.-born children of immigrants have somewhat lower levels living below the poverty line than immigrant children of immigrants. In legal immigrant families, U.S.-born children have poverty levels (19.0%) that are considerably lower than those of legal immigrant children (27.4%). There is a similar, but somewhat smaller, difference between native and foreign-born children in unauthorized migrant families, but the key point is that more than one-third of children of unauthorized families are in poverty families. The lower poverty levels among U.S.-born children of immigrants clearly reflects the status of the children's families, but a principal determinant of the difference is probably duration of residence in the U.S. Immigrant families with U.S.-born children tend to have been in the U.S. longer, on average than immigration families with only immigrant children.

45. Lack of health insurance is a serious problem among immigrants, especially unauthorized migrants. More than half of unauthorized adults (58% in Table 3) do not have health insurance as compared with about one-quarter of legal immigrant adults (25%) and 1 in 7 native adults (14%). These high levels of uninsurance for unauthorized migrants reflect their employment in occupations and industries where employers do not routinely provide health insurance and the fact that they are not eligible for publicly-provided insurance.

46. Although poverty levels for children are higher than those of adults, children are more likely to have health insurance than adults. This pattern undoubtedly reflects the availability of coverage through the State Children's Health Insurance Program (SCHIP) in recent years. Children of immigrants are less likely to be covered by health insurance than children of natives, reflecting their higher levels of poverty and the lack of insurance on the part of their parents. Here again, the status of the child has a separate effect on coverage as foreign-born children of immigrants are twice as likely to be without health insurance as the U.S.-born children of immigrants of the same status. Legal immigrant children, while having high levels without insurance (25%), are much more likely to be covered than unauthorized children (59% uninsured). Here, the foreign-born children are not eligible for SCHIP because of their status and their parents generally don't have coverage for themselves or their families.

### *Other Measures of Migration*

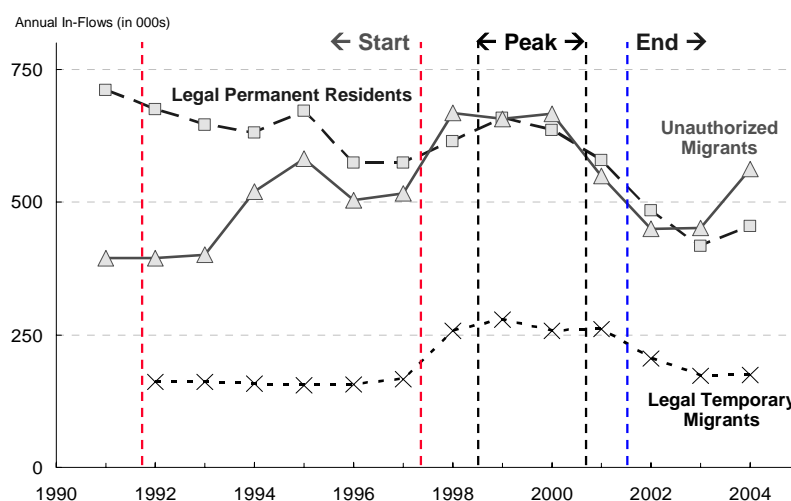
47. Although the residual methods are the primary source of information about levels and trends in unauthorized migration, there is a considerable amount of information on the phenomenon from other analyses. There is only a limited amount of information on whether unauthorized migrants overstay legal visa or enter the U.S. by sneaking across the border. Warren's early work on overstays suggested that 25–

35% of unauthorized migrants overstayed visas and the rest entered clandestinely.<sup>30</sup> Recent work by Passel shows that changes in the nature of unauthorized migration and the resulting population have resulted in a different composition. By 2005, over 40 percent of the unauthorized population consisted of visa overstayers.<sup>31</sup> Further, an additional 5 percent or more had entered through ports of entry along the U.S.-Mexico border with borrowed or counterfeit documents allowing temporary entry. All told, almost half of the unauthorized population had entered through ports of entry. This composition suggests strongly that enhanced border interdiction (e.g., bigger fences, sensors, additional border patrol) may do little to reduce unauthorized migration and that better document control, data systems, and workplace enforcement may be more successful.

48. Measurement of the annual in-flow of unauthorized migrants and changes from year to year have proved to be very difficult to measure. With the exception of Warren's analyses for the 1990s,<sup>32</sup> most of the information on in-flows comes from analytic estimates by period of arrival or from measures of net change derived by differencing population estimates. Passel and Suro combined information on period of arrival and "residence one year ago" from a series of March CPS supplements covering 1995–2005, Census 2000, and a series of ACS data covering 2000–2004 to develop annual estimates of immigration flows (by status) for the 1992–2004 period.<sup>33</sup> The measures must be qualified in that they were investigating relative levels of immigration in-flows across time and not the absolute level of immigration. Specifically, they note that "...the individual sources produced different estimates of the level of the inflow in a given year, but all of the sources yielded the same basic pattern of a rise, a peak and then a decline at roughly the same points in time and the same rate of change."

49. With these measures, it appears that the in-flows of unauthorized migrants exceeded the in-flows of legal immigrants beginning in the late 1990s. Further, there were significant changes in the level of unauthorized migration over time. The levels generally rose from 1992 through the 1990s, with a small peak in 1995. [Note that Warren found much larger flows in 1989–1991 than later. The CPS-based analysis supports this result even though the period pre-dates the principal focus of the analysis.] At the end of the 1990s, unauthorized in-flows increased substantially, reaching peak levels in 1998–2000 that exceeded early levels by 30–50%. (See Figure 4.) Beginning in 2001, unauthorized in-flows began to fall, largely because of economic conditions in the U.S., but possibly from enhanced security. By 2002–2003, the in-flow of unauthorized migrants had declined by 25–35% from peak levels. Data for 2004–2005 suggest that the in-flows may have begun to increase as economic conditions have improved, but they are still well below the 1998–2000 peak. Data for 2004–2005 suggest that the in-flows may have begun to increase as economic conditions have improved, but they are still well below the 1998–2000 peak.

**Figure 4. Annual Immigration to the United States, By Legal Status: 1992–2004**



Source: Passel and Suro, Pew Hispanic Center, 2005.

50. As the previous analysis shows, measuring short-term changes in immigration flows can be quite challenging. Doing so on a timely basis is even more so. Nonetheless, the Pew Hispanic Center has

recently completed an analysis of migration *indicators* to assess short-term changes in migration flows between the U.S. and Mexico.<sup>34</sup> The analysis examined monthly and quarterly data from the CPS on the size of the Mexican-born population in the U.S., quarterly data on remittances received in Mexico, quarterly changes in the employment of foreign-born Hispanics from the CPS, and monthly data on the level of apprehensions along the U.S.-Mexico border. All of these data series pointed to the same general pattern. Specifically, the Mexican population in the U.S. was continuing to grow but that the *rate of growth* had slowed. All of the indicators suggested that the migration flow to the U.S. from Mexico had decreased by the first quarter of 2007, in comparison to the flow in the same quarter a year early and the overall level of in-flow over the 2004–2006 period. Since the residual analysis cited above shows that the vast majority of current migration from Mexico is unauthorized, these data offer some evidence of a slowdown in unauthorized Mexican migration to the U.S. in late 2006 and early 2007.

### 3. Trends and Historical Estimates of the Unauthorized Migrant Population

51. Residual approaches have come to serve as the basis for almost all of the empirically-based estimates of the unauthorized migrant population in the last two decades. Taken together, the various estimates provide a sound picture of growth in the unauthorized migrant population of the U.S. The essential elements of the residual estimate—a survey of the foreign-born and an analytic estimate of the legally-resident foreign-born—have come from a variety of sources. Warren and Passel<sup>35</sup> used data from the 1980 Census together with population estimates based on the Alien Address Registration Program (I-53 data) to estimate that the 1980 Census included 2.1 million unauthorized migrants with about 56% or 1.1 million from Mexico. Because the I-53 data provided individual records that could be tabulated, these initial estimates could be extended to an extensive detailed list of countries, to U.S. states, and even to metropolitan areas.<sup>36</sup> Unfortunately, the I-53 collection program was discontinued after 1981.

52. This initial work on the 1980 Census was a considerable advance in terms of understanding unauthorized migration. In the political climate of the late 1970s and early 1980s, there was considerable concern about unauthorized migration but very little empirically based estimate; in fact, the most widely circulated figure of 6–12 million with a “best” figure of 8 million came from an application of the so-called “Delphi” technique which, in this application, involved little more than semi-informed guesses.<sup>37</sup>

53. The initial work with the 1980 Census only focused on unauthorized migrants in the census, but analysis of data from Mexico and other efforts provided a basis for extending the estimates to the total number in the country; a range of 2.5–3.5 million with a point estimate of 3 million was considerably smaller than conventional wisdom of the time. However, the results from the legalization programs of the late 1980s demonstrated that these initial estimates were sound.<sup>38</sup> Occasional supplements to the CPS during the 1980s collected information on the foreign-born population and a series of studies carried out by Census Bureau and INS demographers provided a basis for monitoring the growth of the unauthorized population through the 1980s with estimates for 1983, 1986, 1988, and 1989. (See Figure 2, above.) By the end of the 1980s, the unauthorized population was approximately the same size as it had been at the beginning. However, this lack of growth was not attributable to the development of methods to control the growth and entry of unauthorized migrants but rather to the legalization of about 2.5 million former unauthorized migrants under the provisions of IRCA.

54. The 1990s saw a significant increase in the unauthorized migrant population. New measurement techniques and data sources permitted somewhat better tracking of this growth. Several innovations were introduced into the residual estimates by Warren at INS during this time.<sup>39</sup> Access to INS administrative data permitted the direct measurement of visa overstays by matching arrival and departure forms but residual methods were still needed to measure clandestine entries. Further, several other INS data systems together with some inventive methodology permitted estimation of arrivals and departures from the unauthorized population through various administrative channels. With these new methods, an estimate of

5.0 million unauthorized migrants as of 1996 showed that the population was growing steadily and that the share from Mexico (54%) remained at virtually the same level as in 1980.<sup>40</sup>

55. In the mid-1990s, questions were added to the CPS to collect information on the foreign-born population every month; no longer was it necessary to rely on specialized supplements or the rarely available decennial census data. Work at the Urban Institute by Passel and Clark refined the residual methods and led to an on-going program to measure various immigrant status categories—including unauthorized migrants, refugees, legal temporary migrants, and naturalized citizens.<sup>41</sup> They extended the estimation work to assign legal status to individual cases in the March CPS, thus permitting the development of much more detailed information on living arrangements and socio-economic characteristics of unauthorized aliens. Estimates from the CPS were based on carrying forward with demographic techniques the estimated legal population from 1990 and earlier; they agreed very closely with the INS estimates of 5 million unauthorized migrants as of 1996 and tracked changes through 2001.

56. The results of Census 2000 introduced a new set of complicating issues into the measurement problem as substantially more immigrants were counted than the previous estimates had found. Residual estimates based on Census 2000 found significantly larger numbers of unauthorized migrants than the previous estimates that relied on CPS data—7 to 8.5 million using Census 2000 data compared with 5 to 6 million for pre-Census estimates.<sup>42</sup> These much larger estimates were supported by subsequent analyses that employed residual estimation techniques with other data sets that were consistent with Census 2000. Residual estimates from CPS data for 2000–2006 show steady increases of approximately 500 000 so that the unauthorized population reached 11.5 million as of March 2006.<sup>43</sup> Initial analyses of data from the ACS supported these results.<sup>44</sup>

#### **4. Validation and Alternative Estimates**

57. Opportunities for validating estimates from the residual method are rare since it would generally require direct measures of the size of the unauthorized population for the country of some specific areas. There have been a few such applications and they have generally supported the results obtained by residual estimation techniques. Alternatively, “triangulation” of U.S. results with population data from Mexico and other principal sending countries offers another mechanism for assessing the residual estimates. The legalization programs associated with IRCA in the late 1990s offered the first chance to compare the results from residual estimates with actual counts of unauthorized migrants. Analysis of applications and approvals for legalization found that the overall levels and their distribution across states agreed very closely with the residual estimates.<sup>45</sup>

58. A truly direct “survey based” methodology developed by Heer and his associates involved asking questions of respondents designed to elicit information on their legal status.<sup>46</sup> Variants of these methods had been used in the 1980s to generate aggregate estimates of unauthorized Mexican migrants in Los Angeles; these more direct measures proved to be very similar to those obtained using residual methodologies.<sup>47</sup> Heer’s new methods were also applied in Los Angeles County and again led to similar values to corresponding residual-based estimates. This congruence between estimates from disparate methods provides a strong indication of the overall validity of the estimates and methods used. Ultimately, a survey of Mexican immigrants that included questions about legal status and participation in Census 2000 not only supported the overall validity of the residual method but has proved to be a reliable source of census coverage estimates to feed into the methodology.

59. These surveys have demonstrated that it is possible to collect information directly on legal status. However, there have been no attempts to do so on large-scale government surveys, largely because of a fear that such questions would impede cooperation, especially on the part of unauthorized migrants, and a suspicion that the information collected would not be valid. To get around these objections, a method has

been developed that would gather the information directly in the aggregate, but would not ask any individual sensitive questions about their own legal status. The proposal, known as the “three-card method,”<sup>48</sup> would ask a sample of individuals to place themselves within a group of legal statuses but not into a specific status. By presenting different groups of respondents with different combinations of statuses, it is possible to derive an estimate of the number in each of the individual statuses. In spite of some promising tests, the method has not been applied on a large scale.

60. Comparisons of U.S. data with Mexican census and survey data has found overall agreement between the unauthorized and legal populations of Mexican in the U.S. and the numbers implied by the Mexican data. A variety of techniques have been employed including analysis of Mexican sex ratios,<sup>49</sup> household migration patterns,<sup>50</sup> as well as much more direct measures of flows.<sup>51</sup>

61. In a recent paper, two financial analysts at a U.S. brokerage firm, Bear-Stearns, argue, largely on the basis of anecdotal evidence and indirect trend analysis, that the census-based estimates of unauthorized migrants understate the actual numbers by half—that there are 20 million, not 10 million unauthorized migrants in the U.S. They do not offer any evidence about where the missing migrants live, either in terms of the 3–5 million housing units these people would occupy or in which areas they could be found nor do they offer an empirical method (demographic, statistical, or otherwise) for deriving their estimate. They do point to growth in housing permits in three New Jersey towns that greatly exceeds population growth. These areas, notably Newark are older areas with established housing stock. Thus, to accurately assess population growth through new housing permits, it is necessary to carefully account for conversions, demolitions, and renovations—factors entirely omitted from this analysis. Moreover, it is hard to generalize from these 3 communities to an excess of 10 million immigrants nationally.

62. A second factor examined is growing school enrollments in excess of births in New York, New Jersey, and North Carolina. There is no doubt that enrollments have grown in these areas. However, the growth rates of school populations and the nativity of school children in these areas agree almost exactly with the census and survey data used to measure unauthorized migration. Indeed the close agreement between school data and census/survey data has been a significant part of the argument for *low* omission rates from the census.<sup>52</sup>

63. Remittances to Mexico have, indeed, increased much faster since 1995 than the estimates of the Mexican-born population of the U.S. However, there are a number of other potential explanations that are much more compelling than unmeasured population growth. For example, over the period cited, government institutions in the receiving countries, especially in Mexico, have made greater efforts to measure the flows of remittances. Moreover, an increasing share of transfers is made through electronic and official channels which increases the share measured.<sup>53</sup> Thus, a significant portion of the “excess” growth in remittances is simply due to better measurement of the transfers. Also, a higher share of the population and longer term residents in particular are now sending money home. Finally, the very large numbers of short-term migrants are also responsible for remittance flows. This is a group explicitly omitted from the residual estimates. All of these factors taken together explain almost all of the “excess growth” in remittances. The data are simply not consistent with omission of half of the unauthorized population from U.S. survey data.

64. Numerous analysts and commentators, including the Bear-Stearns authors, point to the large numbers of apprehensions along the U.S.-Mexico borders as evidence that the estimates of *resident* unauthorized migrants are seriously understated. There are at least two fundamental errors in the connection. First, a very high proportion of the apprehensions are repeat apprehensions of individuals who are making a second, third, or higher crossing after having been apprehended. Indeed, in recent years, almost 40% of apprehensions along the southern border are repeat events.<sup>54</sup> Second, the very high proportion of males in the flow points to short-duration labor migration rather than long-term settlement. Also, the apprehensions



are sensitive to enforcement strategies, border patrol deployments, and availability of detention facilities. Further, no attempt is made to interdict persons returning to Mexico so that all of the measurement is of in-flows to the U.S. and none of outflows. Had the annual settlement of Mexicans in the U.S. been as large as the apprehensions measures (1 million per year) or even larger (3 million per year) as some commentators have suggested,<sup>55</sup> Mexico would have long ago been emptied of its male population. The apprehension numbers do respond to economic conditions both in Mexico and in the U.S., but they do not provide a sound foundation for measuring the number of Mexicans living in the U.S. as unauthorized migrants.

### **Summary & Conclusion**

65. Over the past 25 years, a considerable amount of research on measuring unauthorized migration to the U.S. has been done. Of the various techniques employed, the most successful have been variants of the residual method. This method compares an analytic estimate of the legal foreign-born population derived from administrative data with a survey-based estimate of the total foreign-born population. The difference between the two is an estimate of the unauthorized migrant population (or the group not accounted for in the administrative data). Variants have used alternative methods and data to construct the estimated legal population and to account for groups missed by the underlying survey data. The methods used to check the residual methods and to develop the coverage measures included direct measures of legal status and of survey omissions, comparisons of trends in vital statistics, and combinations of data from the principal sending countries with the data in the receiving country (in this case, the U.S.). These various survey and demographic methods might be extended to provide independent measures of the unauthorized population, but to date, they have served principally as adjuncts and checks on the residual method.

## TABLES

**Table 1. Adjusted Residual Estimates of the Unauthorized Foreign-born Population, by Region of Birth and Period of Entry: Based on March 2006 CPS**

Populations in thousands

Area of Birth	Unauthorized Population			Percentage Distribution		
	Total	Entered 1995-2006	Entered 1980-1994	Total	Entered 1995-2006	Entered 1980-1994
Total	11,532	7,815	3,717	100%	100%	100%
Europe & Canada	239	127	113	2%	2%	3%
Asia	1,193	582	611	10%	7%	16%
Mexico	6,534	4,780	1,754	57%	61%	47%
Central America	1,609	1,039	570	14%	13%	15%
Caribbean	493	332	161	4%	4%	4%
South America	857	630	227	7%	8%	6%
Africa	220	86	134	2%	1%	4%
All Other*	387	239	147	3%	3%	4%

Source: Pew Hispanic Center estimates.

Note: Estimates are adjusted for census undercount. "Canada+" refers to Canada plus other Northern America.

**Table 2. Adjusted Residual Estimates of the  
Unauthorized Foreign-born Population, by State of Residence:  
Based on March 2006 CPS and 1990 Census**

Populations in thousands

State	Unauthorized Population, 2006					1990		1990-2006 Change				
	Total	Born in Mexico	Other	% of Total	Born in Mexico	Total	% of Total	In Pop.	In % of Total	% Growth	Avg. Annual Growth	Time to Double (yrs.)
Total	11,532	6,534	4,998	100%	57%	3,500	100%	8,032	(x)	230%	7.7%	9.0
California	2,580	1,787	793	22%	69%	1,480	42%	1,100	-20%	75%	3.5%	19.6
Texas	1,337	1,111	226	12%	83%	440	13%	897	-1%	200%	7.2%	9.6
New York	888	204	684	8%	23%	360	10%	528	-3%	145%	5.8%	11.9
New Jersey	531	154	377	5%	29%	95	3%	436	2%	460%	11.4%	6.1
Florida	1,086	248	837	9%	23%	240	7%	846	3%	350%	9.9%	7.0
Illinois	304	241	63	3%	79%	195	6%	109	-3%	55%	2.8%	24.6
Other States	4,805	2,788	2,017	42%	58%	690	20%	4,115	22%	600%	12.9%	5.4

Source: Pew Hispanic Center estimates for 2006; Warren, 1997 for 1990. See text.

**Table 3. Social and Economic Characteristics, by Nativity and Legal Status:  
Based on March 2005 CPS.**

Characteristic or Measure	Population (in 000s)				Distribution or rate			
	Total	Native	Legal	Unauthor- ized	Total	Native	Legal	Unauth
<b>Educational Attainment, Ages 25-64</b>					<b>Education Distribution</b>			
Total, Ages 25-64	154,974	129,465	17,991	7,518	100%	100%	100%	100%
<HS graduate	19,225	11,220	4,433	3,573	12%	9%	25%	48%
HS graduate	48,318	41,950	4,517	1,851	31%	32%	25%	25%
Some college	41,601	37,520	3,286	795	27%	29%	18%	11%
Bachelor's+	45,830	38,776	5,756	1,299	30%	30%	32%	17%
<b>Mean Family Income (in 2004) &amp; Family Size</b>					<b>Ratio to Natives (=100)</b>			
Family Income	(x)	\$48,700	\$48,500	\$29,500	(x)	100	100	61
Family Size	(x)	1.97	2.30	2.29	(x)	100	117	116
Income per Person	(x)	\$24,700	\$21,100	\$12,900	(x)	100	85	52
<b>10 years or less in US</b>								
Family Income	(x)	(x)	\$35,400	\$28,100	(x)	(x)	73	58
Family Size	(x)	(x)	2.07	2.06	(x)	(x)	105	105
Income per Person	(x)	(x)	\$17,100	\$13,600	(x)	(x)	69	55
<b>More than 10 years in US</b>								
Family Income	(x)	(x)	\$52,100	\$31,800	(x)	(x)	107	65
Family Size	(x)	(x)	2.37	2.66	(x)	(x)	120	135
Income per Person	(x)	(x)	\$22,000	\$12,000	(x)	(x)	89	49
<b>Below Federal Poverty Line</b>					<b>Percent</b>			
Adults	32,081	25,091	4,641	2,350	14.7%	13.5%	19.7%	25.2%
Children by Nativity								
Native	13,160	10,265	1,814	1,081	18.6%	17.7%	19.0%	34.3%
Foreign-Born	1,116	(x)	408	708	34.1%	(x)	27.4%	39.6%
<b>Without Health Insurance (in 2004)</b>					<b>Percent</b>			
Adults	37,843	26,553	5,865	5,426	17.3%	14.3%	24.8%	58.1%
Children by Nativity								
Native	7,117	5,146	1,195	776	10.1%	8.9%	12.5%	24.7%
Foreign-Born	1,134	(x)	306	828	34.6%	(x)	20.6%	46.3%
<b>Labor Force, Ages 18-64</b>					<b>Participation Rate</b>			
Males	78,090	64,364	8,643	5,083	84%	83%	86%	94%
Females	67,460	58,822	6,539	2,099	70%	72%	63%	54%

(continued)

**Table 3. Social and Economic Characteristics, by Nativity and Legal Status:  
Based on March 2005 CPS (Part 2).**

Characteristic or Measure	Population (in 000s)				Distribution or rate			
	Total	Native	Legal	Unauthor- ized	Total	Native	Legal	Unauth
<b>Major Occupation</b>					<b>Occupation Distribution</b>			
Labor Force	147,866	125,419	15,227	7,220				
Status Distribution	100.0%	84.8%	10.3%	4.9%	100%	100%	100%	100%
Mgmt., business, & finance	20,418	18,398	1,744	276	14%	15%	11%	4%
Professional & related	29,211	25,726	2,948	537	20%	21%	19%	7%
Service	24,682	19,465	3,007	2,210	17%	16%	20%	31%
Sales & related	17,109	15,122	1,529	459	12%	12%	10%	6%
Office & admin. support	20,371	18,385	1,612	374	14%	15%	11%	5%
Farming, fish, & forestry	1,141	642	224	274	1%	1%	1%	4%
Construction & extractive	9,798	7,225	1,168	1,404	7%	6%	8%	19%
Install, maint., & repair	5,428	4,742	505	181	4%	4%	3%	3%
Production	10,447	8,059	1,483	904	7%	6%	10%	13%
Transportation & material moving	9,262	7,655	1,006	601	6%	6%	7%	8%
<b>Major Industry</b>					<b>Industry Distribution</b>			
Labor Force	147,866	125,419	15,227	7,220				
Status Distribution	100.0%	84.8%	10.3%	4.9%	100%	100%	100%	100%
Agriculture, forestry, fish., & hunting	2,312	1,765	265	283	2%	1%	2%	4%
Mining	652	596	41	16	0%	0%	0%	0%
Construction	11,807	9,090	1,279	1,438	8%	7%	8%	20%
Manufacturing	17,245	14,207	2,008	1,030	12%	11%	13%	14%
Wholesale & retail trade	22,347	19,305	2,223	819	15%	15%	15%	11%
Transportation & utilities	7,452	6,447	786	218	5%	5%	5%	3%
Information	3,466	3,122	255	89	2%	2%	2%	1%
Financial activities	10,394	9,160	1,004	230	7%	7%	7%	3%
Professional & bus. services	15,133	12,487	1,713	933	10%	10%	11%	13%
Education & health services	30,112	26,835	2,869	407	20%	21%	19%	6%
Leisure & hospitality	12,882	10,241	1,399	1,241	9%	8%	9%	17%
Other services	7,340	5,881	942	517	5%	5%	6%	7%
Public admin.	6,725	6,283	441	(x)	5%	5%	3%	(x)

Source: Pew Hispanic Center tabulations from augmented March 2005 CPS; adjusted for omissions.

(x) Not applicable.

---

## NOTES

<sup>1</sup> This report uses the term “unauthorized migrant” to mean a person who *resides* in the United States but who is *not* a U.S. citizen, has *not* been admitted for permanent residence, and is *not* in a set of specific authorized temporary statuses permitting longer-term residence and work. Various labels have been applied to what the group termed unauthorized migrants, including “undocumented,” “illegals,” “illegal aliens,” and “illegal immigrants,” each of which has a somewhat different meaning and connotation. One of the best discusses of these distinctions remains one of the earliest—C.B.Keely, 1977, “Counting the Uncountable: Estimates of Undocumented Aliens in the United States,” *Population and Development Review* 3 (4, Dec.): 473–481. The term unauthorized migrant best encompasses the population as estimated because many migrants now enter the country or work using counterfeit documents and thus are not truly “undocumented,” in the sense that they have documents, but not completely legal documents. Further, although the unauthorized are residents of the U.S., they are more likely to emigrate than legal immigrants, so that the term “migrant” is more appropriate.

<sup>2</sup> Lozano v. Hazleton is the principal case concerning local ordinances. For a description of the various local and state ordinances, see <http://www.aclu.org/immigrants/discrim/>

<sup>3</sup> J.S.Siegel, J.S.Passel, and J.G.Robinson, 1980, “Preliminary Review of Existing Studies of the Number of Illegal Residents in the United States,” *U.S. Immigration Policy and the National Interest, The Staff Report of the Select Commission on Immigration and Refugee Policy*, Appendix E: Papers on Illegal Immigration to the U.S. and J.S.Passel, 1985, “Undocumented Immigrants: How Many?” *Proceedings of the Social Statistics Section of the American Statistical Association: 1985*: 65–72. The results of the subsequent legalization suggest that even the lower range overestimated the size of the unauthorized population.

<sup>4</sup> Jeffrey S. Passel, 2006, *Size and Characteristics of the Unauthorized Migrant Population in the U.S.: Estimates Based on the March 2005 Current Population Survey*, Pew Hispanic Center: Washington, DC, March. Also, <http://pewhispanic.org/reports/report.php?ReportID=61>.

<sup>5</sup> See, for example, Nina Bernstein, “In the Streets, Suddenly, An Immigrant Groundswell,” *New York Times*, March 27, 2006 and Sheryl Gay Stolberg, “After Immigration Protests, Goal is Still Elusive,” *New York Times*, May 3, 2006.

<sup>6</sup> For example, Lawrence Downes, “Day Laborers, Silent and Despised, Find Their Voice,” *New York Times*, July 10, 2006 or “Rebooting the Peons,” *New York Times* editorial, July 29, 2006.

<sup>7</sup> Jeffrey S. Passel, 2007, *Updated Estimates of Unauthorized Migrant Population for March 2007*, Factsheet from Pew Hispanic Center: Washington, DC, June (forthcoming).

<sup>8</sup> Note that most year-to-year differences of estimates based on the CPS are not statistically significant as measures of change. The sources of these estimates are:

Michael Hofer, Nancy Rytina, and Christopher Campbell, 2007, *Estimates of the Unauthorized Immigrant Population Residing in the United States: January 2005*, Office of Immigration Statistics, Department of Homeland Security, Washington, DC.

---

Jeffrey S. Passel, 2006, *op.cit.*

Jeffrey S. Passel, 2005, *Unauthorized Migrants: Numbers and Characteristics*. Pew Hispanic Center: Washington, DC. June. Also, <http://pewhispanic.org/reports/report.php?ReportID=46>

<sup>9</sup> Robert Warren, 2003, "Estimates of the Unauthorized Immigrant Population Residing in the United States: 1990 to 2000." Office of Policy and Planning. Washington, DC.: U.S. Immigration and Naturalization Service. January. Also, [http://uscis.gov/graphics/shared/statistics/publications/III\\_Report\\_1211.pdf](http://uscis.gov/graphics/shared/statistics/publications/III_Report_1211.pdf).

Jeffrey S. Passel, Jennifer Van Hook, and Frank D. Bean, 2004, "Estimates of Legal and Unauthorized Foreign Born Population for the United States and Selected States, Based on Census 2000," Report to the Census Bureau, Urban Institute: Washington, DC, June 1. Also, [http://www.sabresys.com/i\\_whitepapers.asp](http://www.sabresys.com/i_whitepapers.asp).

J. Costanzo, C.J. Davis, C. Irazi, D.M. Goodkind, and R.R. Ramirez, 2002, "Evaluating Components of International Migration: The Residual Foreign Born," *Technical Working Paper No. 61*, Population Division, U.S. Census Bureau, Washington, DC., January.

F.D. Bean, R. Corona, R. Tuiran, K. Woodrow Lafield, and J. Van Hook, 2001, "Circular, Invisible, and Ambiguous Migrants: Components of Difference in Estimates of the Number of Unauthorized Mexican Migrants in the United States," *Demography* 38 (3, August): 411–422.

<sup>10</sup> Robert Justich and Betty Ng, 2005, "The Underground Labor Force Is Rising To the Surface," Bear Stearns Asset Management, New York, January 3.

Donald L. Bartlett and James B. Steele, 2004, "Who Left the Door Open?" *Time*, September 20.

<sup>11</sup> For most purposes, a census and a survey can be treated as equivalent in the estimation process. To simplify the discussion, we will use the term "survey" to encompass census data obtained from sample questionnaires and surveys such as the CPS or CPS.

<sup>12</sup> F.D. Bean, G. Vernez and C.B. Keely, 1989, *Opening and Closing the Doors: Evaluating Immigration Reform and Control*, Washington, DC: Urban Institute Press.

L. Chavez, 1988, "Settlers and Sojourners: The Case of Mexicans in the United States," *Human Organization* 47 (2, Summer): 95–107.

U.S. Commission on Immigration Reform, 1997, *Becoming an American: Immigration and Immigrant Policy, Report to Congress*, Washington DC: U.S. Commission on Immigration Reform.

<sup>13</sup> Gordon H. Hanson, 2006, "Illegal Immigration from Mexico to the United States," Working Paper 12141, National Bureau of Economic Research: Cambridge, MA, March.

Joseph C. Chang, Richard Kohout, H. Ric Blacksten, Scott Bernard, and John Sopko, 2006, *CBP Apprehensions at the Border*, Final Report, Homeland Security Institute, Department of Homeland Security: Washington, DC, June 21.

T.J. Espenshade, 1995, "Using INS Border Apprehension Data to Measure the Flow of Undocumented Migrants Crossing the U.S.- Mexico Frontier," *International Migration Review* 29 (2): 545-565.

<sup>14</sup> For example, Jeffrey S. Passel and Roberto Suro, 2005, *Rise, Peak, and Decline: Trends in U.S. Immigration 1992–2004*, Pew Hispanic Center: Washington, DC, September, Also, <http://pewhispanic.org/reports/report.php?ReportID=53>

---

15 Bartlett and Steele, 2004, *op.cit.*

16 For a contrary view, see David A. Martin, 2005, *Twilight Statuses: A Closer Examination of the Unauthorized Population*, Independent Task Force on Immigration and America's Future Policy Brief No. 2, Migration Policy Institute: Washington, DC, June. Also, [http://www.migrationpolicy.org/pubs/MPI\\_PB\\_6.05.pdf](http://www.migrationpolicy.org/pubs/MPI_PB_6.05.pdf)

17 Passel, Van Hook and Bean, 2004, *op.cit.*

Jeffrey S. Passel, 2002, "Estimates of Undocumented Immigrants: U.S. and States," Proceedings of the Conference on Demographic Impacts of Legalization Programs, Washington, DC: NICHD. Forthcoming.

Bean et al., 2001, *op.cit.*

18 The undercount rate cited is a summary rate. The specific assumptions vary by country of birth (race), age, sex, and period of entry with more recent immigrants having higher undercount rates than longer-term residents. See Hogan, H., 2001, "Accuracy and Coverage Evaluation: Data and Analysis to Support the ESCAP Report," DSSD Census 2000 Procedures and Operations Memorandum Series B-1, Report to the Executive Steering Committee for A.C.E. Policy, U.S. Census Bureau: Washington, DC. March 1.

Costanzo et al., 2002, *op.cit.*

Jeffrey S. Passel, 2001, "An Evaluation of Demographic Analysis," in *Final Report of the Census Monitoring Board, Presidential Members*, Washington, DC. September. Also, [www.cmbp.gov](http://www.cmbp.gov)

19 For a discussion of nonimmigrants and estimation issues, see Jeffrey S. Passel, Jennifer Van Hook, and Frank D. Bean, 2006, "Narrative Profile with Adjoining Tables of Unauthorized Migrants and Other Immigrants, Based on Census 2000: Characteristics and Methods," Report to the Census Bureau, Sabre Systems: Alexandria, VA. Also, [http://www.sabresys.com/i\\_whitepapers.asp](http://www.sabresys.com/i_whitepapers.asp)

20 For measures of undercount of unauthorized migrants, see F.D. Bean, R. Corona, R. Tuirán, and K. Woodrow-Lafield, 1998, "The Quantification of Migration Between Mexico and the United States," pp. 1–90 in *Migration Between Mexico and the United States, Binational Study, Vol. 1*, Mexico City and Washington, DC: Mexico Ministry of Foreign Affairs and U.S. Commission on Immigration Reform.

Leighton Ku et al., 2002. *How Are Immigrants Faring After Welfare Reform? Preliminary Evidence from Los Angeles and New York City - Final Report*, Urban Institute: Washington, DC, March. Also <http://www.urban.org/url.cfm?ID=410426>

Enrico A. Marcelli and Paul M. Ong, 2002, "2000 Census Coverage of Foreign-Born Mexicans in Los Angeles County: Implications for Demographic Analysis," paper presented at the 2002 annual meeting of the Population Association of America, Atlanta, GA.

21 Passel, Van Hook and Bean, 2004, *op.cit.*

22 Pew Hispanic Center Factsheet, 2007, "Indicators of Recent Migration Flows from Mexico," Washington, DC, forthcoming May.

23 The final data on citizenship require further processing of the March 2006 CPS and will be completed in June 2006.

24 Final estimates for individual countries in 2006 are forthcoming.



- 25 For a detailed description of the methods, see Jeffrey S. Passel and Rebecca L. Clark, 1998, *Immigrants in New York: Their Legal Status, Incomes and Tax Payments*, Urban Institute: Washington, DC, April. Also, <http://www.urban.org/url.cfm?ID=407432> and Passel, Van Hook, and Bean, 2006, *op.cit.*
- 26 Augmented CPS data are presented for 2005. Estimates for 2006 are forthcoming.
- 27 “Families” are defined as nuclear families, consisting of : (1) married (or unmarried) couples with children; (2) married (or unmarried) couples without children; (3) other adults with children; or (4) solo adults. An unauthorized family has either a head or spouse who is unauthorized. A legal immigrant family does not have an unauthorized head or spouse, but has a head or spouse who is a naturalized citizen, an LPR alien, or a refugee alien. Native families have heads (and spouses) who are US natives. Families with legal temporary migrants are not shown separately. This definition of family is used throughout this report.
- 28 Passel and Clark, 1998, *op.cit.* and Steven A. Camarota, 2004, *The High Cost of Cheap Labor: Illegal Immigration and the Federal Budget*, Center for Immigration Studies: Washington, DC, August. Also, <http://www.cis.org/articles/2004/fiscal.html>
- 29 Average income person or per capita income is defined as average family income divided by average family size.
- 30 Robert Warren, 1990, “Annual Estimates of Nonimmigrant Overstays in the United States: 1985 to 1988.” In F.D. Bean, B. Edmonston, and J.S. Passel (eds.), *Undocumented Migration to the United States: IRCA and the Experience of the 1980s*. Urban Institute Press: Washington, D.C.
- Robert Warren, 1994, “Estimates of the Unauthorized Immigration Population Residing in the United States, By Country of Origin and State of Residence: October 1992,” Washington, DC: U.S. Immigration and Naturalization Service.
- 31 Jeffrey S. Passel, 2006, “Modes of Entry for the Unauthorized Migrant Population,” Pew Hispanic Center Factsheet, Washington, DC, May 22. Also, <http://pewhispanic.org/factsheets/factsheet.php?FactsheetID=19>
- 32 Robert Warren, 2001, “Illegal Alien Resident Population: Estimates of the Undocumented Immigrant Population Residing in the United States (October 1996),” Office of Policy and Planning, Washington, DC.: U.S. Immigration and Naturalization Service, December (Updated). Also, <http://uscis.gov/graphics/shared/statistics/archives/illegal.pdf>
- Robert Warren, 2000, “Annual Estimates of the Unauthorized Immigrant Population Residing in the United States and Components of Change: 1987 to 1997,” unpublished paper, Office of Policy and Planning, Washington, DC: U.S. Immigration and Naturalization Service.
- 33 Passel and Suro, 2005, *op.cit.*
- 34 Pew Hispanic Center Factsheet, 2007, *op.cit.*
- 35 Robert E. Warren and Jeffrey S. Passel, 1987, “A Count of the Uncountable: Estimates of Undocumented Aliens Counted in the 1980 United States Census,” *Demography* 24 (3, August): 375–393.
- 36 Jeffrey S. Passel and K.A. Woodrow, 1984, “Geographic Distribution of Undocumented Immigrants: Estimates of Undocumented Aliens Counted in the 1980 Census by State,” *International Migration Review* 18 (3, Fall): 642–671 and Jeffrey S. Passel, 1985, “Estimates of Undocumented Aliens in the 1980 Census for SMSAs,” Research memorandum, U.S. Bureau of the Census: Washington, DC, August 16.

- 
- 37 Lesko Associates, 1975, *Final Report: Basic Data and Guidance Required to Implement a Major Illegal Alien Study During Fiscal Year 1976*, Washington, DC: U.S. Immigration and Naturalization Service.
- 38 Susan Gonzalez Baker, 1990, *Cautious Welcome: The Legalization Programs of the Immigration Reform and Control Act*, Washington, DC: Urban Institute Press.
- 39 Robert Warren, 1990, *op.cit.* and 2001, *op.cit.*
- 40 Warren, 1990, *op.cit.* and 2000, *op.cit.*
- Robert Warren, 1997, "Estimates of the Undocumented Immigrant Population Residing in the United States: October 1996," Office of Policy and Planning, Immigration, Washington, DC: U.S. Immigration and Naturalization Service.
- 41 Passel and Clark, 1998, *op.cit.*
- Jeffrey S. Passel, Randolph Capps, and Michael E. Fix, 2004, "Undocumented Immigrants: Facts and Figures," Immigration Studies Program, Urban Institute: Washington, DC. January 12. Also, <http://www.urban.org/url.cfm?ID=1000587>
- Jeffrey S. Passel, 2002a, "New Estimates of the Undocumented Population in the United States," *Migration Information Source*, Washington, DC. May 22, [www.migrationinformation.org](http://www.migrationinformation.org)
- Jeffrey S. Passel, 1994, "Data and Methods for Estimating the Number of Undocumented Immigrants in the 1990 Census," Appendix A in Clark, R.L. et al., 1994, *Fiscal Impacts of Undocumented Aliens: Selected Estimates for Seven States*, Project Report to the Office of Management and Budget, Washington, DC: The Urban Institute, September 16.
- Jeffrey S. Passel, 1998, "Estimates of Undocumented Immigrants in 1995," Chapter VI in Passel, J.S. and J. Kahn with B. Edmonston and J. E. Marcotte, *Immigration, Fertility, and the Future American Work Force*, Report to the Social Security Administration, Washington, DC: The Urban Institute, March.
- Jeffrey S. Passel, 1999, "Undocumented Immigration to the United States: Numbers, Trends, and Consequences," in D.W. Haines and K.E. Rosenblum (editors), *Illegal Immigration in America: A Reference Handbook*, Westwood, CN: Greenwood Press.
- 42 Passel, 2001, 2002, 2002a, *op.cit.*; Costanzo et al., 2001, *op.cit.*; Warren 2003, *op.cit.*
- J.G. Robinson, 2001, "Accuracy and Coverage Evaluation: Demographic Analysis Results," DSSD Census 2000 Procedures and Operations Memorandum Series B-4, Report to the Executive Steering Committee for A.C.E. Policy, U.S. Census Bureau: Washington, DC. March 2.
- Kevin E. Deardorff and Lisa M. Blumerman, 2001, "Evaluating Components of International Migration: Estimates of the Foreign-Born Population by Migrant Status in 2000," Technical Working Paper No. 58, Population Division, U.S. Census Bureau, Washington, DC, December.
- 43 Passel, 2006, *op.cit.*
- 44 Hoefler et al., 2007, *op.cit.*
- 45 Baker, 1990, *op.cit.*

- 
- <sup>46</sup> David M. Heer, V. Agadjanian, F. Hammad, Y. Qui and S. Ramasundaram, 1992, "A Comparative Analysis of the Position of Undocumented Mexicans in the Los Angeles County Work Force in 1980," *International Migration* 3 (2): 101–126.
- Enrico Marcelli and David M. Heer, 1997, "Unauthorized Mexican Workers in the 1990 Los Angeles County Labor Force," *International Migration* 35 (1): 59–83.
- Enrico Marcelli, M. Pastor Jr., and P.M. Joassart, 1999, "Estimating the Effects of Informal Economic Activity: Evidence from Los Angeles County," *Journal of Economic Issues* XXXIII (3, September): 579–607.
- <sup>47</sup> David M. Heer and Jeffrey S. Passel, 1987, "Comparison of Two Methods for Estimating the Number of Undocumented Mexican Adults in Los Angeles County," *International Migration Review* 21 (4, Winter): 1446–1473.
- <sup>48</sup> U.S. General Accounting Office, 1999, *Survey Methodology: An Innovative Technique for Estimating Sensitive Survey Items*, Report GAO/GGD-00-30, Washington, DC, November. Also, <http://www.gao.gov/archive/2000/gg00030.pdf>
- <sup>49</sup> Frank D. Bean, Allan G. King, and Jeffrey S. Passel, 1983, "The Number of Illegal Migrants of Mexican Origin in the United States: Sex Ratio-Based Estimates for 1980," *Demography* 20 (1, February): 99–109.
- <sup>50</sup> Douglas S. Massey and Audrey Singer, 1995, "New Estimates of Undocumented Mexican Migration and the Probability of Apprehension," *Demography* 32: 203–213.
- <sup>51</sup> Bean, Corona, Tuirán, and Woodrow-Lafield, 1998, *op.cit.*
- <sup>52</sup> See for example, Thomas Mueller and Thomas Espenshade, 1985, *The Fourth Wave: California's Newest Immigrants*, Urban Institute Press: Washington, DC.
- <sup>53</sup> Pedro De Vasconcelos, 2004, *Sending Money Home: Remittances to Latin America and the Caribbean*, Inter-American Development Bank: Washington, DC.
- <sup>54</sup> Chang et al., 2006, *op.cit.*; Hanson, 2006, *op.cit.*; Espenshade, 1995, *op.cit.*
- <sup>55</sup> Bartlett and Steele, 2004, *op.cit.*

**OECD SOCIAL, EMPLOYMENT AND MIGRATION WORKING PAPERS**

Most recent releases are:

- No. 56 *LA POLITIQUE MIGRATOIRE FRANÇAISE À UN TOURNANT (2007)*  
Martine Durand et Georges Lemaître
- No. 55 *THE UNIFICATION OF THE SOCIAL INSURANCE CONTRIBUTION COLLECTION SYSTEM IN KOREA (2007)*  
Sinchul Jang
- No. 54 *ASSESSING THE IMPACT OF LABOUR MARKET POLICIES ON PRODUCTIVITY: A DIFFERENCE-IN-DIFFERENCES APPROACH (2007)*  
Andrea Bassanini and Danielle Venn
- No. 53 *PENSION REFORM IN CHINA: PROGRESS AND PROSPECTS (2007)*  
Felix Salditt, Peter Whiteford and Willem Adema
- No. 52 *INTERGENERATIONAL TRANSMISSION OF DISADVANTAGE: MOBILITY OR IMMOBILITY ACROSS GENERATIONS? A REVIEW OF THE EVIDENCE FOR OECD COUNTRIES (2007)*  
Anna Christina d'Addio
- No. 51 *WHAT WORKS BEST IN REDUCING CHILD POVERTY: A BENEFIT OR WORK STRATEGY? (2007)*  
Peter Whiteford and Willem Adema
- No. 50 *THE LABOUR MARKET INTEGRATION OF IMMIGRANTS IN DENMARK (2007)*  
Thomas Liebig
- No. 49 *THE LABOUR MARKET INTEGRATION OF IMMIGRANTS IN AUSTRALIA (2007)*  
Thomas Liebig
- No. 48 *THE INTEGRATION OF IMMIGRANTS INTO THE LABOUR MARKET: THE CASE OF SWEDEN (2007)*  
Georges Lemaître
- No. 47 *THE LABOUR MARKET INTEGRATION OF IMMIGRANTS IN GERMANY (2007)*  
Thomas Liebig
- No. 46 *MINIMUM WAGES, MINIMUM LABOUR COSTS AND THE TAX TREATMENT OF LOW-WAGE EMPLOYMENT (2007)*  
Herwig Immervoll
- No. 45 *PUBLICLY PROVIDED SERVICES AND THE DISTRIBUTION OF RESOURCES (2006)*  
François Marical, Marco Mira d'Ercole, Maria Vaalavuo and Gerlinde Verbist
- No. 44 *THE TURKISH PENSION SYSTEM: FURTHER REFORMS TO HELP SOLVE THE INFORMALITY PROBLEM (2006)*  
Anne-Marie Brook and Edward Whitehouse
- No. 43 *THE ROLE OF DERIVED RIGHTS FOR OLD-AGE INCOME SECURITY OF WOMEN (2006)*  
Jongkyun Choi
- No. 42 *ACTIVATION STRATEGIES AND THE PERFORMANCE OF EMPLOYMENT SERVICES IN GERMANY, THE NETHERLANDS AND THE UNITED KINGDOM (2006)*  
David Grubb and Peter Tergeist
- No. 41 *IS TRAINING MORE FREQUENT WHEN THE WAGE PREMIUM IS SMALLER? EVIDENCE FROM THE EUROPEAN COMMUNITY HOUSEHOLD PANEL (2006)*  
Andrea Bassanini and Giorgio Brunello
- No. 40 *NEUTRAL OR FAIR? ACTUARIAL CONCEPTS AND PENSION-SYSTEM DESIGN (2006)*  
Monika Queisser and Edward Whitehouse

Recent available working papers can be found on the OECD website: <http://www.oecd.org/els/workingpapers>.

Other series of working papers available from the OECD include: OECD HEALTH WORKING PAPERS

**RECENT RELATED OECD PUBLICATIONS:**

*JOBS FOR IMMIGRANTS (VOL. 1): LABOUR MARKET INTEGRATION IN AUSTRALIA, DENMARK, GERMANY AND SWEDEN* (2007)

*FACING THE FUTURE: KOREA'S FAMILY, PENSION AND HEALTH POLICY CHALLENGES* (2007)

*PENSIONS AT A GLANCE: Public policies across OECD countries* (2007)

*SOCIETY AT A GLANCE: OECD Social Indicators* (2006)

*JOBS FOR YOUTH: BELGIUM* (2007)

*JOBS FOR YOUTH: SPAIN* (2007)

*JOBS FOR YOUTH: SLOVAK REPUBLIC* (2007)

*OECD EMPLOYMENT OUTLOOK* (2007)

*INTERNATIONAL MIGRATION OUTLOOK - 2007 Edition*

*WOMEN AND MEN IN OECD COUNTRIES* (2006)

*PENSIONS PANORAMA: RETIREMENT INCOME SYSTEMS IN 53 COUNTRIES*  
(joint publication with the World Bank) (2006)

*SICKNESS, DISABILITY AND WORK: BREAKING THE BARRIERS (VOL. 1) – NORWAY, POLAND AND SWITZERLAND* (2006)

*AGEING AND EMPLOYMENT POLICIES: LIVE LONGER, WORK LONGER* (2006)

*BABIES AND BOSSES: Reconciling Work and Family Life, Volume 4 Canada, Finland, Sweden and the United Kingdom* (2005)

*EXTENDING OPPORTUNITIES – How active social policy can benefit us all* (2005)

*AGEING AND EMPLOYMENT POLICIES: AUSTRALIA* (2005)

*AGEING AND EMPLOYMENT POLICIES: AUSTRIA* (2005)

*AGEING AND EMPLOYMENT POLICIES: CANADA* (2005)

*AGEING AND EMPLOYMENT POLICIES: DENMARK* (2005)

*AGEING AND EMPLOYMENT POLICIES: FRANCE* (2005)

*AGEING AND EMPLOYMENT POLICIES: GERMANY* (2005)

*AGEING AND EMPLOYMENT POLICIES: IRELAND* (2006)

*AGEING AND EMPLOYMENT POLICIES: NETHERLANDS* (2005)

*AGEING AND EMPLOYMENT POLICIES: UNITED STATES* (2005)

*MIGRATION, REMITTANCES AND DEVELOPMENT* (2005)

*BENEFITS AND WAGES: OECD Indicators* (2004)

For a full list, consult the OECD On-Line Bookstore at [www.oecd.org](http://www.oecd.org)