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# IMMIGRATION STATISTICS

## Information Gaps, Quality Issues Limit Utility of Federal Data to Policymakers



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United States  
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**General Government Division**

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The Honorable Stephen Horn, Chairman  
The Honorable Dennis J. Kucinich  
Ranking Minority Member  
Subcommittee on Government  
Management, Information, and Technology  
Committee on Government Reform and Oversight  
House of Representatives

The Honorable Carolyn B. Maloney  
House of Representatives

Policy debates on immigration have been important in recent years and will probably continue to be high on the national agenda for some time to come. Relevant demographic, statistical information can inform policy decisions, but concerns continue to be expressed about an apparent lack of such information in the area of immigration.

We are pleased to send you this report, which responds to your request that we study policy-related needs for demographic, statistical information; report on federal statistics that address those needs, including what is known about the quality of those statistics; identify data gaps; and suggest strategies for improving statistics.

As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution of it until 30 days from the date of this letter. At that time, we will send copies to the Chairmen and Ranking Minority Members of other committees with jurisdiction over immigration issues; the Commissioner, INS; and Director, Bureau of the Census. We will also make copies available to others upon request.

If you or your staff have any questions about this report, please call me or Judith A. Droitcour, Assistant Director, who served as project director for this work, at (202) 512-7997. Other major contributors are listed in appendix V.

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# Executive Summary

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## Purpose

Immigration issues are high on the national policy agenda. But there have been repeated indications that statistics that could inform key debates are lacking, misleading, or otherwise inadequate. In response to a request from the House Government Reform and Oversight Subcommittee on Government Management, Information, and Technology, this report (1) identifies policy-related information needs for immigration statistics; (2) identifies federal statistics (and information gaps) on the full range of demographic concepts relevant to immigration policy decisions and determines what is known about the quality of these statistics; and (3) identifies strategies for improving immigration statistics.

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## Background

Published immigration statistics include information on several demographic concepts, such as immigration flow (i.e., the number of persons who come to reside in the United States each year or the number who transition from one legal status to another). Other immigration statistics indicate the size of the resident foreign-born population, net change in size, and emigration (i.e., the estimated number of foreign-born residents who leave the United States to live in another country). Statistics on the legal status of foreign-born residents have also been published.

Most federal statistical information on the foreign-born is provided by two agencies: the Immigration and Naturalization Service (INS) and the Bureau of the Census. INS provides information relevant to flow. INS and the Census Bureau each provide some information on the size of the resident foreign-born population and on annual change in size. The Census Bureau provides an estimate of emigration.

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## Results in Brief

Congress periodically makes decisions about numerous immigration policies, such as whether to decrease numerical limits for legal immigrants or increase them for temporary workers. Thus, informed decision-making, by congressional committees and Members of Congress as well as interested members of the general public, requires information on immigration flow, by legal status. Congress also decides on the eligibility of the foreign-born for government benefits and services—with different benefits typically allowed or restricted for different categories of the foreign-born population, such as legal permanent residents (LPRS) or illegal immigrants. GAO identified 33 discrete categories of demographic information that could be relevant to congressional decision-making.

Information on immigration flow is reported in annual INS Statistical Yearbooks. Statistics on demographic categories other than flow are reported in a more scattered fashion; indeed, a variety of INS and Bureau of the Census publications, including the INS Web page, must be accessed in order to retrieve basic information.

INS records that are maintained for administrative purposes are the basis for most federal statistics on flow. These statistics describe the number of new legal permanent residents (persons with new green-card status), new refugees and asylees, and new naturalized citizens. As reported in the INS Yearbook, however, these statistics are limited by conceptual problems and confused reporting, undercounts, and information gaps. For example, data on annual trends in the number of new green cards authorized, although highlighted in the INS Yearbook, are significantly affected by INS' administrative problems in processing green-card applicants and thus may not accurately reflect flow over time. The number of new asylees—persons granted asylum—and the number of persons granted citizenship are undercounted in the Yearbook tallies because the data omit certain groups of persons, such as those granted asylum on appeal or minor children of new citizens. Statistics for other demographic categories, such as the total number of foreign-born persons who take up residence in the United States each year, are not available.

While the Bureau of the Census provides some information on the size of the resident foreign-born population, annual net change in size, and emigration, Census has not quantitatively evaluated these data with respect to coverage, accuracy of reported place of birth, or nonresponse rates. Moreover, there are no separate Census data on legal status because none of the surveys ask questions about legal status. Such questions are very sensitive, and negative reactions to them could affect the accuracy of responses to other questions on the survey.

INS has made efforts to fill information gaps for some legal statuses by using the limited data that are available and creating assumption-based models. The resulting estimates are necessarily uncertain because assumptions and judgments are substituted for data.

Because of the above problems, GAO attempted to identify existing strategies or develop new ones to improve immigration statistics. In particular, GAO devised a new method for collecting survey data on the legal status of foreign-born respondents. The “three-card method” asks questions that are less sensitive than a direct question about legal status,

and it ensures privacy of response. Yet this method allows statistically unbiased survey estimates for all major legal statuses. GAO conducted a preliminary qualitative test of the new method and concluded that this method appears to show promise and to deserve further testing and development. GAO also identified strategies for evaluating survey data on the foreign-born.

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## Principal Findings

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### Policy-Related Information Needs Include Data on Flow and Other Major Demographic Concepts

Informed decision-making on immigration issues requires data on

- immigration flow, including separate information on flow into the United States and transitions to new legal statuses,
- size of the foreign-born population,
- net change in size, and
- emigration.

Because almost all immigration laws involve specific legal statuses, it is crucial that information on each major demographic concept be reported separately for each of the major legal statuses (legal permanent residents, refugees and asylees, persons here with a temporary visa, illegal immigrants, and naturalized citizens). All together, there are 33 relevant demographic categories. GAO summarized these categories and their interrelationships in an information typology that helps clarify (1) the differences between demographic concepts and (2) which statistics can—and which cannot—be validly compared.

Most of the information specified in GAO's typology is required, either generally or specifically, by existing laws or has been requested by congressional committees. Virtually all of it is directly or indirectly relevant to recurrent congressional activities, such as revising numerical limits for visas issued to immigrants or temporary workers.

### INS Statistics on Immigration Flow Are Limited

The INS Yearbooks present a variety of data on immigration flow, including counts of new LPRS, new refugees and asylees, and new U.S. citizens—all based on administrative records. But as presented, these data do not convey a clear and valid picture of immigration flow that is relevant to policy information needs. Rather, there are instances of conceptual

problems and confused reporting, as well as undercounts and information gaps.

Conceptual problems and confused reporting are evident in the introductions to the INS 1995 and 1996 Yearbooks, which alternatively highlight a “decrease” (1995) and a “rise” (1996) in immigration to the United States. These annual trends mix data on two types of flow: (1) flow of new LPRS into the United States and (2) transitions by persons already living here into LPR status. These trends in “combined-flow” can reflect

- a change in the number of persons coming into the United States,
- an administrative logjam (slowdown) or speed-up in INS’ issuing of green cards to foreign-born persons already living here, or
- some combination of the two.

Mixing two different forms of flow is not a trivial problem because, according to the Yearbook, the majority of new green-card holders were already residing here—often either illegally or on temporary visas—and because, in recent years, INS has experienced problems in processing green cards. (The agency is struggling to catch up with backed-up applications, which numbered approximately 775,000 as of April 1998.) Thus, the trends that INS highlights are very difficult to interpret, but readers of the Yearbook introduction are not alerted to this—unless they turn to the body of the report.

Another instance of a conceptual problem exacerbated by confused reporting occurs when the INS Yearbook presents information relevant to flow for legal immigration (i.e., the number of new green cards authorized in the past year), but not for illegal immigration. Instead, the Yearbook presents information on net change in the size of the illegal population. For a valid comparison of data on legal flow to data on illegals, comparable categories must be used; that is, legal flow should be compared to illegal flow—not to net change in the size of the illegal population. Because the INS Yearbook does not point out the difference between flow and net change, there is a potential for a reader to make an invalid comparison. Net change in the illegal population is likely to be considerably smaller than illegal flow because the net change statistic subtracts out deaths, emigration, and legalizations for all illegal immigrants, regardless of how many years they have resided here. A likely consequence is that—for readers of the INS Yearbook—the flow of illegal immigrants is understated relative to the flow of legal immigrants.

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The 1996 INS Yearbook also presents figures that undercount two other categories of flow:

- Persons granted asylum are undercounted by about a third or more, based on information that GAO obtained from computer systems maintained by INS, the Department of State, and the Department of Justice's Executive Office of Immigration Review (EOIR). Groups omitted from the Yearbook tally include (1) persons who were granted asylum on appeal and (2) trailing relatives of persons granted asylum. (These trailing relatives who "followed to join" a principal asylee were not included in that asylee's original application—often because they were not in the United States at the time.)
- The number of new naturalizations is undercounted by an unknown amount. INS administrative records on naturalizations do not include most minor children who naturalize along with their parents.

There are also information gaps for certain categories of flow. For example, no statistic is reported for the number of new residents who entered the United States with temporary (e.g., student, worker) visas. This number cannot be tallied accurately because INS record-keeping systems are not designed to identify reentries. Thus, a foreign student residing here for 4 years who visits his home country twice a year would be tallied as eight separate 6-month visits by up to eight persons, rather than as a single individual's 4-year stay.

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### Federal Statistics on Other Demographic Concepts Are Marked by Gaps and Uncertain Estimates

Information on the size of the foreign-born population, change in size, and emigration is limited by important data gaps. The data that do exist have not been evaluated, despite important questions about their quality.

The Census Bureau provides census and survey data on size and net change in size for the total foreign-born population and for naturalized citizens. The Bureau also estimates emigration by comparing 1980 and 1990 census data. Analysts have raised a variety of questions about possible problems with data on the foreign-born, such as undercoverage (because, e.g., illegal immigrants may deliberately avoid enumeration). Yet Census has not conducted a quantitative evaluation of its census or survey data on the foreign-born.

The Census Bureau's estimate of emigration represents one instance where census undercoverage of the foreign-born clearly limits the utility of the data. The uncertainty of the emigration estimate is important because

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information on emigration is needed to balance information on flow—and also because estimates of emigration figure importantly in INS' indirect estimates of population size for illegals and legal permanent residents. There are no direct data on emigration. The Census Bureau attempts to fill this gap through a method of examining change in the size of various arrival groups across two points in time. For example, the 1970-79 arrival group (i.e., foreign-born residents who arrived here between 1970 and 1979) was counted in the 1980 and again in the 1990 decennial census. Emigration for that group is estimated according to the amount it dwindled between 1980 and 1990. But the data for certain pre-1980 arrival groups (e.g., Mexican and Salvadoran arrival groups) showed growth between 1980 and 1990 rather than dwindling—a logical impossibility since all had arrived before 1980. This pattern of apparent growth, which could be explained by differential census coverage (i.e., lower coverage of Mexican and Salvadoran residents in 1980 than in 1990), raises questions about the census counts that underlie the emigration calculation.

Data gaps occur for the number of residents in specific legal statuses—from LPRS to illegal immigrants—and for net change in the sizes of these resident population groups. Direct questions on legal status are very sensitive and, according to the Census Bureau, have not been asked in the census or in any survey that it has conducted. The gaps for the population sizes of various legal statuses cannot be easily filled by using INS records, as these are limited to flow. To fill data gaps for the population sizes of certain legal statuses, INS has developed indirect estimates of the number of illegal immigrants and legal permanent residents. These estimates address key gaps and thus would seem to represent a step forward in providing information, but multiple sources of uncertainty remain—owing to the lack of direct empirical data and the need for major assumptions that, in some cases, are not fully supported.

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## Strategies for Improvement

INS is working toward correcting some of the problems in flow statistics discussed above. For example, a system that tracks foreign students over time (and avoids duplicate counts when reentries occur) is being pilot-tested at INS. This system is based on assigning each foreign student a unique high-tech identification card, which he or she must use for all entries to and exits from the United States. INS is also working on an indirect estimate of illegal flow. (INS has worked with Census to obtain some of the necessary data for this estimate.) But INS' current efforts do not address all the problems identified above; for example, the Yearbook

tally of persons granted asylum does not include trailing relatives of principal asylees.

Various strategies for evaluating the quality of census and survey data on the foreign-born would involve joint work on the part of INS and the Bureau of the Census. For example, coverage problems might be assessed by matching INS administrative data and census records.

In addition, testing and developing the “three-card method”—which GAO devised for asking less sensitive questions about legal status in surveys—might help fill important data gaps in the future. That is, if successfully developed and implemented, the three-card method would provide survey data on the number of legal permanent residents residing in the United States, the number of refugees and asylees (without green cards) residing here, and so on; an indirect estimate of the number of persons residing here illegally could also be obtained. By using the method in a series of surveys, net change could also be tracked. GAO’s preliminary test indicated that the less sensitive questions on legal status were acceptable to the interviewers and foreign-born Hispanic farmworkers who participated.

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## Recommendations

GAO recommends that

- to help correct undercounts, reduce conceptual problems, and where possible, fill gaps for information on immigration flow, the Commissioner of INS should (1) evaluate and, where feasible, work toward improving data on flow and (2) utilize a set of demographic categories (or an information typology) that clearly distinguishes different concepts and helps determine which statistics can fairly be compared to others;
- to eliminate confused reporting of data and estimates concerning immigration flow, the Commissioner of INS should more clearly report information about trends in legal immigration flow and about the difference between the concepts of flow and net change in the INS Yearbook—or develop a new reporting format that communicates more effectively to policymakers and interested members of the general public; and
- to reduce the uncertainty associated with statistical estimates of demographic concepts other than immigration flow, fill information gaps for specific legal statuses, and address fragmented reporting, the Commissioner of INS and the Director of the Bureau of the Census should together (1) devise a plan of joint research for evaluating the quality of

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census and survey data on the foreign-born; (2) further develop, test, and evaluate the three-card method that GAO devised for surveying the foreign-born about their legal status; and (3) either publish a joint report or coordinate reports that present information on population size, net change, and emigration.

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## Agency Comments

GAO met with INS officials who had reviewed a draft of this report, including the Director of the Statistics Branch. INS indicated that it is currently working to improve the clarity of statistical reporting in the Yearbook and that it finds GAO's typology very useful.

With respect to GAO's recommendation concerning the three-card method, INS made two comments:

- First, INS suggested that because it is not an expert in survey methodology, its appropriate role would be limited to providing support and consultation to Census in that agency's efforts to develop, evaluate, and test the new method. GAO believes that, as stated above, the recommendation for joint INS-Census work allows latitude for INS and Census to determine their appropriate roles.
- Second, INS indicated that it would need an independent evaluation of the three-card method before committing funds to the method's development. GAO agrees that INS' obtaining an independent evaluation of the method before proceeding with further development would be prudent.

The Bureau of the Census provided written comments (see app. IV), which raised no objections to GAO's findings on data gaps and the quality of federal statistics on immigration.

The Census Bureau stated a concern about its involvement in a survey designed to obtain information on the legal status of the foreign-born. GAO's recommendation is only that the Census Bureau be involved in the development, testing, and evaluation of the new method, not necessarily in any resulting survey. GAO believes that Census would bring essential expertise to designing and overseeing this work. Testing—even large-scale testing—need not involve data collection by the Census Bureau.

The Department of State and the Department of Labor provided technical comments, which were incorporated as appropriate. The Department of Health and Human Services had no comments on the report.

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### Abbreviations

CLAIMS	Computer Linked Application Information Management System
CPS	Current Population Survey
DOL	Department of Labor
EOIR	Executive Office of Immigration Review
EWI	Entry without inspection
GPO	Government Printing Office
INA	Immigration and Nationality Act
INS	Immigration and Naturalization Service
IRCA	Immigration Reform and Control Act
LPR	Legal permanent resident
NAWS	National Agricultural Workers Survey
NCES	National Center for Education Statistics
PES	Post Enumeration Survey
RAPS	Refugee, Asylum, and Parolee System

# Introduction

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## Background

“Reliable data is a necessary ingredient for credible policy and its implementation.” So stated the U.S. Commission on Immigration Reform in 1994 (p. xxxi). But the Commission found that throughout its own inquiry, inadequate data made it difficult to assess the impact of immigration policy and of immigration itself on American society.

Dissatisfaction with information on immigration has also surfaced on Capitol Hill. In spring 1996, the Immigration and Naturalization Service (INS) issued a press release with the headline: “U.S. Legal Immigration Down 10.4 Percent in 1995.” The headline is based on a 1994-95 reduction in the number of green cards authorized, and the reduction appears to have been caused mainly by a logjam in INS’ processing of green-card applications.<sup>1</sup> Subsequently, INS and most of the experts testifying at a congressional hearing reported that, in general terms, legal immigration was increasing.<sup>2</sup> At that hearing, it also became apparent that some policymakers and reporters had been confused about whether immigration was increasing or decreasing.

Recent dissatisfaction with immigration statistics comes roughly a decade after a thorough review of immigration statistics (Levine et al., 1985) summed up the situation as a history of neglect and despite some efforts to provide better information.<sup>3</sup> It has been a decade during which levels of legal immigration increased while patterns of immigration shifted further away from the European dominance of the early and mid-20th century to heavier flows of Asian and Latin American immigrants. At the same time, illegal immigration emerged as a major concern, and the INS budget increased dramatically, mainly because of more intensive efforts to curtail illegal immigration. (During the 1990s, INS’ budget quadrupled; it is expected to reach \$4 billion in fiscal year 1999—up from less than \$1 billion in 1992.)

In recent years, the public—particularly California voters—entered the debate about the value and cost of immigration.<sup>4</sup> And a series of major

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<sup>1</sup>Identity cards attesting the legal permanent resident (LPR) status of an alien in the United States are termed green cards because of their former color.

<sup>2</sup>Hearing before the House Subcommittee on Immigration and Claims, Committee on the Judiciary, May 16, 1996.

<sup>3</sup>For a follow-up on implementation of recommendations from two National Academy of Sciences reports on immigration statistics (Levine et al., 1985; Edmonston, 1996), see [GAO/GGD-98-119](#).

<sup>4</sup>In California, where immigration increases have been concentrated, Proposition 187 was passed in 1994 calling for public agencies, such as schools, to report suspected illegal immigrants to INS—a measure that was blocked in court.

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bills—affecting legal immigration, the transition from illegal to legal status, and the public benefits for which immigrants in various statuses are eligible—were introduced and debated in Congress.

Debates concerning immigration continue. For example, this year Californians passed a hotly contested proposition to end bilingual education. Also, the computer industry asked Congress to increase the number of temporary visas for high-tech workers. Thus, there is an increased need for valid, reliable, and clear policy-relevant information. Congressman Ed Bryant of Tennessee called for INS to answer direct questions, such as: “How many people—in total, including every category . . . enter the United States each year?”<sup>5</sup> The Commission on Immigration Reform (1994) also issued a call for new methods to be developed to meet some of the difficult challenges in immigration statistics, such as estimating the flow of illegal immigrants into the United States.

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## Definition of Foreign-Born U.S. Residents

The resident foreign-born population is defined here as all persons who were born abroad (to parents who were not U.S. citizens) and who now either (1) are in a permanent legal status (naturalized citizen, legal permanent resident, refugee, person granted asylum) or (2) if in a temporary legal status or here illegally, remain in this country for over a year. The requirement for remaining more than a year is based on the U.N. definition.

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## Demographic Concepts

Four basic demographic concepts (categories of statistics) are crucial to understanding information on the foreign-born population:

- The inflow—or in this report, **flow**—refers to the movement of foreign-born persons into the United States and, as explained below, their transition into specific legal statuses.
- The **size** of the foreign-born population in the United States (sometimes referred to as “stock”) is the total number of foreign-born persons residing here at any given time, including those who have naturalized.
- **Net change** in the size of the foreign-born population over a specific period of time can be calculated using a demographic balancing equation, accounting for flow, deaths, and emigration (see Bogue et al., 1993; Pollard et al., 1981). The foreign-born population increases when the flow of new residents into the country exceeds the number who emigrate or die.

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<sup>5</sup>Hearing before the House Judiciary Subcommittee on Immigration and Claims, May 16, 1996.

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- **Emigration** refers to persons moving out of the United States to take up residence in a foreign country. In this report, we are concerned with the emigration of only foreign-born persons—not the emigration of persons born in the United States.

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## Legal Statuses

The foreign-born population may be subdivided into groups, such as those defined by the various legal immigration statuses: legal permanent residents, refugees and asylees, those legally permitted to reside here on a temporary basis, illegal immigrants, and naturalized citizens.

Virtually all laws and policies on immigration differentiate foreign-born persons according to their legal status.<sup>6</sup> Thus, from a policy perspective, legal status is critical information. Consistent with this view, in 1994, the U.S. Commission on Immigration Reform, commenting on the need to improve estimates of the costs and benefits of legal and illegal immigration, stated that confusion results from grouping together illegal immigrants, legal immigrants, and refugees.

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## Two Types of Flow

In considering the process of immigration flow, we recognized that transitions from one immigration status to another must be considered. Persons who enter the United States in one immigration status often adjust or change to a different status, and statistics have been reported on this process.<sup>7</sup> Such transitions are a form of “flow” (i.e., flow to a particular status). This means that flow can indicate not only new entries into the United States, but also transitions or adjustments to a different legal category or status. We believe that it is important to recognize—and to clearly distinguish between—these two, very different types of flow.

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## Federal Agencies Providing Statistics on Immigration

Most of the available federal statistical information on the foreign-born is provided by two agencies: the Immigration and Naturalization Service and the Bureau of the Census. INS provides information relevant to flow. INS and Census each provide some information on the size of the resident foreign-born population and net change. Census also provides an estimate of emigration (i.e., the estimated number of foreign-born residents who

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<sup>6</sup>For example, the Immigration and Nationality Act (INA) of 1952, as amended (8 U.S.C. 1101 et seq.) defines various classes of foreign-born persons (legal statuses) and indicates rights and limitations of privileges for persons in those classes.

<sup>7</sup>For example, statistics are currently reported on the aliens who adjust to LPR (or green-card) status—and on LPRs who transition to naturalized citizenship.

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leave the United States to live in another country). Some additional information is maintained by the Departments of State, Health and Human Services, and Labor.

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## Objectives, Scope, and Methodology

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### Objectives

The objectives of this report are (1) to identify policy-related information needs for immigration flow and other key demographic concepts that are relevant to migration; (2) to identify federal statistics on the flow of immigrants (and information gaps) and to determine what is known about the quality of existing statistics on flow; (3) to identify federal statistics relevant to other key demographic categories and to determine what is known about their quality; and (4) to identify strategies for improving immigration statistics.

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### Scope

The scope of this report is limited to current federal statistics that provide basic demographic, statistical information on the resident foreign-born population.<sup>8</sup> Current federal statistics are defined here as those published by a federal agency for fiscal or calendar year 1996—the most recent year for which statistics were generally available during the time we collected data from federal agencies (from Nov. 1997 to Apr. 1998).<sup>9</sup> With respect to policy-related information needs, our focus is on congressional information needs—that is, the statistical data that can inform congressional debates on immigration issues.

In assessing the quality of federal statistics on the foreign-born, we limited our work to determining what is known about their quality, including what can be determined from logical comparisons and analysis. In exploring new strategies, we initially limited our scope to the development of ideas; in one instance, we were subsequently able to conduct a preliminary,

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<sup>8</sup>This report does not address needs for special information, e.g., information on criminal aliens (see [GAO/T-GGD-97-154](#)).

<sup>9</sup>Published federal statistics refer to numbers included in an agency publication or release (e.g., a press release), an agency “working paper” that has been distributed externally, or a specific listing on an agency Internet Web page. (In some instances, published federal statistics based on sample surveys were presented without confidence intervals. In those instances, we requested confidence intervals from the agency and presented that information together with the published federal statistic.)

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qualitative test of a new method for estimating legal status in a census or survey.

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## Methodology

### Identifying Policy-Related Information Needs

To identify policy-related information needs, we reviewed recent congressional debates, bills, and laws concerning immigration to determine the kinds of basic demographic, statistical information on the foreign-born needed by congressional policymakers. We also reviewed basic texts on demography, which identify key concepts, and consulted with immigration experts. (App. I lists the immigration experts we consulted.)

In reviewing federal agency literature, material from relevant hearings, and laws requiring information on the foreign-born, we found that such information has not been gathered or reported according to a common framework or typology. As noted earlier, there have been instances of confusion in interpreting these kinds of information. Therefore, to identify policy-related information needs concerning the legally and illegally resident foreign-born population, we proceeded through a two-step process, which included

- developing a basic typology or set of demographic categories (i.e., a systematic framework defining various types of policy-relevant demographic, statistical information on the foreign-born population and their interrelationships) and
- examining, in a general sense, whether these types of information were, in fact, needed by Congress and interested members of the general public.

We developed our information typology (set of demographic categories) in consultation with immigration experts. We then examined the need for these types of information by reviewing laws requiring demographic, statistical information on the foreign-born, past congressional requests for information, and recurrent congressional activities. We discussed our typology with staff at the Immigration and Naturalization Service.

### Identifying and Assessing Current Federal Statistics

Using our typology, we identified relevant federal statistics and gaps. Briefly, we reviewed literature published by federal agencies and followed up with officials and staff at INS, the Bureau of the Census, and other agencies.

We then evaluated the quality of the relevant statistics, considering technical adequacy and timeliness as well as the adequacy with which the information was reported. To guide our work, we developed checklists for statistical quality, based on a review of literature (including federal agency standards, published empirical assessments of statistical quality, and evaluation and statistical texts) and discussions with agency staff. We used these checklists to ensure comprehensiveness in interviewing federal agency staff, experts, and users about statistical quality and in reviewing relevant literature. We then developed quality ratings to describe published statistics in each demographic category as problem-free or as limited by conceptual problems and confused reporting, as overcounts or undercounts, or as uncertain or unevaluated statistics. If no published federal statistic could be identified for a demographic category, the descriptive rating consists of the notation that a gap exists.

## Identifying Strategies for Improvement

To identify strategies to improve federal statistics on immigration, we (1) logically analyzed the problems we had identified, (2) talked with agency staff and experts about possible approaches, (3) reviewed literature, and (4) developed our own new strategy for collecting relevant data. In particular, based on previous research on survey methods for asking sensitive questions and on demographic methods for estimating illegal immigrants, we devised a new method for interviewing foreign-born respondents and collecting data on their immigration status while protecting privacy—the three-card method. We pretested the three-card method in interviews with foreign-born Hispanics in farmwork settings, at a legal clinic for immigration problems, and at a city “drop-in” center. (These interviews were conducted by members of our staff who are fluent in Spanish.) We then conducted a preliminary test of the acceptability of this method to interviewers and respondents by contracting for 81 interviews with foreign-born farmworkers as a supplement to the National Agricultural Workers Survey (NAWS), debriefing the interviewers who administered the questionnaire, and examining the results for signs of respondent comfort with the series of questions.

We conducted our audit work in accordance with generally accepted government auditing standards between June 1997 and June 1998. Preliminary work on the three-card method was conducted earlier. We did not conduct an audit of how the INS and Census data were initially gathered and processed by the agencies.

We requested comments on a draft of this report from INS, Census, and the Departments of State, Labor, and Health and Human Services. On July 13,

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1998, Census provided written comments, and on July 15, INS provided oral comments at a meeting attended by INS officials including the Director of the Statistics Branch. INS' and Census' comments are discussed in relevant sections of chapter 5 and appendix III. INS, as well as State and Labor, provided some technical comments and suggestions for clarification, which we incorporated as appropriate. Health and Human Services reviewed a draft and said that it had no comments.

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## **Organization of This Report**

Chapter 2 of this report presents our typology of policy-relevant statistical information on the foreign-born population (i.e., the set of demographic categories) and links this typology to policy-related information needs. Chapter 3 identifies and assesses current federal statistical information on immigration flow. Chapter 4 identifies and assesses corresponding information on other key demographic concepts—size of the foreign-born population, emigration, and change in the size of the foreign-born population. Chapter 5 discusses strategies for improvement and makes recommendations to the Commissioner of INS and the Director of the Bureau of the Census.

Appendixes provide more detailed information of concern to technical readers. Appendix I lists the immigration experts we consulted. Appendix II briefly reviews available information on the demographic characteristics of foreign-born residents. Appendix III provides information on the three-card method for collecting survey data on legal status and our preliminary test of its acceptability to both respondents and interviewers. Appendix IV reprints the comments from the Bureau of the Census.

# Policy-Related Information Needs

A basic typology of policy-relevant statistical information on the resident foreign-born population<sup>1</sup> can be defined by combining two dimensions: one consisting of four demographic concepts that are relevant to migration (flow, size of the foreign-born population, net change in size, and emigration) and the other consisting of legal statuses (legal permanent residents, refugees and asylees, persons permitted to reside here on a temporary basis, illegal immigrants, and naturalized citizens). We developed the typology (or set of demographic categories) as a tool for sorting and defining different types of statistical information on the foreign-born population.

Reviewing specific policy-relevant information needs with reference to our typology, we found that

- Congress has passed laws requiring, either generally or specifically, much of the information included in the typology and, in some instances, has indicated that the information is needed to improve decision-making;
- Congressional committees have requested some of the information; and
- Virtually all of the information is directly or indirectly relevant to various congressional activities (e.g., information on immigration flow is relevant to establishing or changing numerical limits for certain classes of immigrants and temporary visas).

## An Information Typology

To build a policy-relevant framework for types of demographic, statistical information on the foreign-born, we crossed the two dimensions—demographic concept and legal status of the foreign-born, as shown in table 2.1. In doing so, we defined flow with three columns to distinguish new arrivals, transitions to a new status, and total flow to specific legal statuses (e.g., all new LPRS). We defined each of the other demographic concepts—the size of the foreign-born population, net change in size, and emigration—with an individual column. The rows of the table represent major legal statuses. In total, we identified 33 discrete categories, each of which specifies a distinct type of information.

<sup>1</sup>In this report, the term foreign-born resident is used to refer to all foreign-born who are in a permanent legal status or who, if in a temporary legal status or here illegally, have remained here for longer than a year.

Table 2.1: Typology of Statistical Information on Foreign-Born Residents<sup>a</sup>

Legal status of foreign-born	Annual flow	
	New residents (entered U.S. during reference year)	Transitions to a new status (during reference year)
<b>A. Legal permanent residents</b>	Number who received green-card status upon admission to the U.S.	Number transitioning to green-card status; entered the U.S. earlier (as B, C, D)
<b>B. Refugees and asylees</b> (without LPR status) <sup>b</sup>	Number who were admitted to the U.S. as refugees or as asylees ("trailing relatives" of those granted asylum)	Number of new asylees who had entered the U.S. earlier (as C, D)
<b>C. Students, temporary workers, and their families; others temporarily here who stayed &gt; 1 year</b> <sup>c</sup>	Number of new residents who entered with student or work visa, or other temporary form of admission	Number already here who newly obtained legal temporary status; entered U.S. earlier (as D)
<b>D. Illegal immigrants (EWIs and overstays) who stayed &gt; 1 year</b>	Number of new illegal immigrants who "entered without inspection" (EWI)	Number who illegally overstayed; entered U.S. earlier (as C)
<b>E. Naturalized citizens</b>	Not an entry status <sup>d</sup>	Number who achieved citizenship; entered U.S. earlier (as A-D)
<b>Total</b>	Total annual flow from foreign countries to U.S. = sum of above	Total not meaningful because of double-counting; some persons make more than one transition per year

**Chapter 2**  
**Policy-Related Information Needs**

<b>Demographic concept</b>			
<b>Combined-flow to each status (sum of first two columns)</b>	<b>Population size</b>	<b>Net change in size</b>	<b>Annual emigration</b>
	<b>Number of foreign-born persons residing here (at given point in time)</b>	<b>Annual increase or decrease in the size of foreign-born population</b>	<b>Foreign-born emigrating (during reference year)</b>
All new LPRs	Number of LPRs	Increase or decrease in the number of LPRs residing here	Number of LPRs who emigrated
All new refugees and asylees	Number of refugees and asylees (without LPR status)	Increase or decrease in the number of refugees and asylees (without LPR status) residing here	Number of refugees and asylees (without LPR status) who emigrated
All residents who newly achieved temporary legal status	Number of residents with student or temporary work visas or other temporary legal status	Increase or decrease in the number of residents with temporary legal status	Number of residents with legal temporary status who emigrated
All new illegal immigrants	Number of residents here illegally	Increase or decrease in number of illegal residents	Number of illegal residents who emigrated
Same as number in previous column	Number of naturalized citizens	Increase or decrease in the number of naturalized citizens residing here	Number of naturalized citizens who emigrated
Total not meaningful because of double-counting; some enter the U.S. and transition to a different status within the same year	Total foreign-born who reside here = sum of above	Net change in the size of the foreign-born population = sum of above	Total foreign-born who emigrated = sum of above

Legend

EWI Entry without inspection  
LPR Legal permanent resident

Note: Statistics are not relevant to the shaded categories.

<sup>a</sup>Current data or estimates and trends.

<sup>b</sup>The term "asylees" refers to persons granted asylum.

<sup>c</sup>Other foreign-born residents who were admitted temporarily include (1) trainees, treaty-traders, and investors as well as their families; (2) special groups, such as those given temporary protected status or extended voluntary departure; (3) parolees, that is, persons allowed to enter the United States on a nonpermanent basis for urgent humanitarian reasons or when significant public benefit is likely; and (4) persons entering on tourist or other short-term visas who nonetheless remain in the United States longer than a year.

<sup>d</sup>In recent years, there has been an average of roughly 300 foreigners per year who—on the basis of having married U.S. citizens employed abroad—attained U.S. citizenship via a special provision that allows naturalization of applicants who have not resided in the United States (see INA section 319(b), 8 U.S.C. 1430(b)). Some of these persons may enter the United States—for the first time—as naturalized citizens.

Source: GAO conceptualization.

What is critical for policy analysts and for users of information is how accurately measures of immigration reflect the actual patterns of immigration (Kraly and Warren, 1992). The typology in table 2.1 represents a step in the direction of measuring actual patterns and reducing confusion. This is because the typology (or set of demographic categories) can be used as a tool for sorting existing statistics and thus determining where gaps exist. It can also help in the interpretation of information by clarifying concepts such as the distinction between two types of flow. The typology also makes plain the interrelationship of different kinds of statistical information and helps clarify which statistics are directly comparable and which are not.

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## A Consideration of Policy-Related Information Needs

A review of major immigration laws indicated that they often include requirements for federal agencies to report information on flow, the size of the foreign-born population, net change in size, and emigration. Notably, the Immigration Reform and Control Act (IRCA) of 1986 requires triennial reports to Congress,<sup>2</sup> which are to describe the number of persons who are legally admitted or paroled into the United States within a specified interval as well as those who illegally enter or overstay temporary visas during that interval.<sup>3</sup> This corresponds to the demographic concept of immigration flow. Note that with respect to illegal immigrants, it is important to distinguish two different types of flow: those who “enter without inspection” (EWIS) and those who overstay temporary visas. The distinction is important from a policy perspective because, for example, stronger border controls would not address the overstay issue.

IRCA also requires information on a variety of impacts of immigration, including, for example, the impact on demographics and population size as well as the impact on social services. We note that the impact on population size would logically involve new entries, but not transitions between legal statuses. The impact on social services would occur as a result of both new entries and transitions of legal status—that is, both types of flow—because the foreign-born resident’s specific legal status determines whether or not he or she is eligible for specific benefits. (It is

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<sup>2</sup>P.L. 99-603, section 401, codified at 8 U.S.C. 1364.

<sup>3</sup>Parole is permission to enter the United States and remain for an undefined temporary period for humanitarian or public interest reasons. Information required for the triennial reports includes (1) the number and classification of aliens (including nonimmigrants) who were admitted, paroled, or granted asylum during the relevant period and (2) a reasonable estimate of the number of aliens who entered the United States during the period without visas or who became deportable during the period under [general classes of deportable aliens named in] section 237 (formerly, 241) of the Immigration and Nationality Act, 8 U.S.C. 1237.

important to note that although information on both types of flow combined is relevant for certain policy purposes, data on combined-flow to a legal status should be treated with caution. This is because it is not always clear to what extent each type of flow is represented; e.g., a change in a combined-flow statistic might reflect a change in the number of new entries or a change in the number of transitions to the status in question—or some combination of the two.)

With respect to the other relevant demographic concepts—the size of the foreign-born population, net change in size, and emigration—the Immigration Act of 1990 requires information on the alien population of the United States as well as rates of emigration and an analysis of trends.<sup>4</sup>

Other laws, while not directly requiring statistical information, nevertheless include mandates that imply such a need. For example, the Illegal Immigration Reform and Immigrant Responsibility Act of 1996 mandates an evaluation of the effort to deter illegal entry into the United States. Such an evaluation would require a variety of statistical information, such as trends in the size of the illegal population (see [GAO/GGD-98-21](#)).

There are other indications of the kinds of information that Congress has wanted in recent years. For example, the House Judiciary Report accompanying IRCA indicated that the requirement for the triennial reports is intended to enable Congress to review and study immigration and refugee programs and to consider possible changes to them with the benefit of reliable and detailed data.<sup>5</sup> Congressional committees have requested that we provide statistical estimates, such as projections of legal immigration, to help in decisions regarding numerical limits.<sup>6</sup> Another example would be the congressional request for estimates of the number of certain nonimmigrant workers who transitioned to green-card status (see [GAO/PEMD-92-17](#)).

Among the ongoing or recurring congressional activities for which the types of information shown in table 2.1 might be useful are

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<sup>4</sup>P.L. 101-649, section 142, codified at 8 U.S.C. 1103(d).

<sup>5</sup>H. Rept. 99-682(I) at 99 (1986).

<sup>6</sup>In 1988 and 1989, we responded to congressional requests for projections of levels of future legal immigration ([GAO/PEMD-88-7](#), [GAO/T-PEMD-89-1](#), [GAO/PEMD-89-12](#), [GAO/PEMD-90-5](#)). In deciding to change the annual numerical limits in the Immigration Act of 1990, Congress relied heavily on this work (see [Congressional Record](#), July 12, 1989, 14297-312).

- periodic revisions of numerical limits for LPRs, annual setting of levels of refugee inflow, periodic resetting of limits for certain temporary visas, and annual prioritization of funding and special programs intended to reduce illegal immigration;
- periodic redefinitions of (1) the conditions under which illegal immigrants and others can (or cannot) adjust to LPR status and (2) ceilings on the number of asylees who may transition or adjust to LPR status; and
- periodic revisions of public benefits available to persons in different immigration statuses, which can in turn influence personal decisions about changing one's immigration status.

In addition, congressional committees have indicated that they wanted information to address issues such as the impact of foreign workers on the U.S. economy and on the working conditions of Americans (see, e.g., [GAO/PEMD-92-17](#) and [GAO/HEHS-98-20](#)). There has also been some interest in the trends in the numbers of naturalized citizens, because they have the right to bring in certain relatives.<sup>7</sup>

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<sup>7</sup>Academic and government interest in this topic has been addressed in a series of articles in International Migration Review. (For an overview of these articles, see Goering, 1989.)

# Immigration Flow

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INS' annual Statistical Yearbook includes several statistics on immigration flow—particularly, statistics on LPR flow (persons with new green-card status), refugees and asylees, and naturalized citizens. But various quality problems limit the utility of these data for policy purposes.

- Conceptual problems make a key trend difficult to interpret and valid comparisons of certain reported data difficult to make; confused reporting compounds the conceptual problems.
- Administrative data undercount persons granted asylum as well as those attaining naturalized citizenship.
- Data gaps occur for key statistics, such as the number of foreign-born persons who take up residence here each year.

The relevant statistics and descriptive quality ratings (together with the reasons for our ratings) are presented in table 3.1.

The INS Yearbook includes several statistics that seemingly fit our typology for information on immigration flow. As shown in table 3.1, these include, for example, figures for the number of new LPRs who entered the United States in fiscal year 1996 (421,405), the number of persons already here who attained new green-card status (494,495), and the total number of new LPRs (915,900). Similar kinds of data are reported for refugees and asylees and for naturalized citizens (see rows B and E of table 3.1). The INS Yearbook also discusses the sources of these data and some of their limitations.

Few, if any, relevant data on flow are reported outside the Yearbook.

**Chapter 3**  
**Immigration Flow**

**Table 3.1: Published Federal Statistics on Immigration Flow, With Descriptive Quality Rating and Reason<sup>a</sup>**

Legal status of the foreign-born	Demographic concept: annual flow		
	New residents (entered U.S. during reference year)	Transitions to a new status (during reference year)	Combined-flow to each status (sum of first two columns)
<b>A. Legal permanent residents</b>	421,405 new LPRs <b>Overcount:</b> Some persons who transitioned to LPR status (and belong in the next col.) were counted here.	494,495 new LPRs <b>Undercount:</b> Some persons counted as new residents belong here; also, processing slowdown lowered the count.	915,900 new LPRs <b>Conceptual problem:</b> The majority of new LPRs were already living in U.S., so the count does not measure flow into the U.S.; in 1995 and continuing into 1996, a processing slowdown affected the count. <b>Confused reporting:</b> INS Yearbook highlights trends as if meaningful; some statements in the Yearbook imply that new LPRs represent new entries.
<b>B. Refugees and asylees<sup>b</sup></b>	74,791 new refugees <b>Undercount:</b> "Trailing relatives" who enter the U.S. as asylees are not counted in the INS Yearbook.	18,556 new asylees <b>Undercount:</b> Persons granted asylum on appeal and some "trailing relatives" (who were already in the U.S.) are not counted in the INS Yearbook.	93,347 new refugees and asylees <b>Undercount:</b> Some asylees are not counted.
<b>C. Students, temporary workers, and their families; others temporarily here who stayed &gt; 1 year<sup>c</sup></b>	No published estimate. <b>Gap:</b> No data identify the number new to the U.S. who stayed 1 year.	No published estimate. <b>Gap:</b> No data identify the number new to this category who were already in the U.S.	No published estimate. <b>Gap:</b> No data identify the number who stayed 1 year.
<b>D. Illegal immigrants (EWIs and overstays) who stayed for &gt; 1 year</b>	No published estimate. <b>Gap:</b> INS has not estimated illegal flow.	No published estimate. <b>Gap:</b> INS has not estimated illegal flow.	No published estimate. <b>Gap:</b> INS estimates net change in the illegal population, but has not estimated illegal flow.
<b>E. Naturalized citizens</b>	Not applicable. Not an entry status <sup>d</sup>	1,044,689 new citizens <b>Undercount:</b> Most minor children are not counted.	1,044,689 new citizens <b>Undercount:</b> Most minor children are not counted.
<b>Total flow</b>	No published estimate. <b>Gap:</b> Because of gaps for some categories, the total cannot be tallied.	Total not meaningful because of double-counting. Some persons make more than one transition in the same year.	Total not meaningful because of double-counting. Some persons enter the U.S. and then transition to a different status—within the same year.

(Table notes on next page)

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Legend

EWI Entry without inspection  
LPR Legal permanent resident

Note: Statistics are not relevant to the shaded cells.

<sup>a</sup>Fiscal year 1996.

<sup>b</sup>The term “asylees” refers to persons granted asylum.

<sup>c</sup>Other foreign-born residents admitted temporarily include (1) trainees, treaty-traders, and investors as well as their families; (2) special groups, such as those given temporary protected status or extended voluntary departure; (3) parolees, that is, persons allowed to enter the United States on a nonpermanent basis for urgent humanitarian reasons or when significant public benefit is likely; and (4) persons entering on tourist or other short-term visas who nonetheless remain in the United States longer than a year.

<sup>d</sup>In recent years, there has been an average of roughly 300 foreigners per year who—on the basis of having married U.S. citizens employed abroad—attained U.S. citizenship via a special provision that does not require residing in this country (see INA section 319(b), 8 U.S.C. 1430(b)). Some of these persons may enter the United States—for the first time—as naturalized citizens.

Sources: Published federal statistics on immigration flow are from INS 1996 Yearbook, for LPRs, p. 52; for refugees and asylees, p. 85 (INS printed Department of State figures); for naturalized citizens, p. 147. Ratings and reasons are based on interviews with INS, State, and EOIR staff, information obtained from agency datasets, detailed information provided in the INS Yearbook, and GAO analysis.

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## Conceptual Problems and Confused Reporting

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### Trends in the Number of New LPRs

INS' administrative count of the number of new LPRs combines the flow of (1) new LPR entries to the United States and (2) transitions (or adjustments) to LPR status. But there is a conceptual problem; namely, this statistic represents two different measures, each of which can vary independently. This makes results—particularly for trends—difficult to interpret.

The majority of new LPRs are in category 2, transitions to LPR status. That is, they are not new to the United States; as indicated in tables in the INS Yearbook, they have already been living here for years—typically either illegally or as long-term temporary residents. Various factors can raise or lower the number of green cards authorized for such persons,

independently of trends in new entries. Two instances show how this can—and has—happened:

- The late 1980s amnesty (through IRCA) for illegal immigrants who had lived here for more than 5 years created a sudden major upswing in the trend line for new LPRs because a large group of illegal residents became eligible to apply for green-card status. This increase was unrelated to any change in the number of persons entering the United States.
- A recent change in law (1994) allowed illegal immigrants living in the United States who qualified for green cards to transition to LPR status without leaving the United States—thus shifting the processing of thousands of cases from the Department of State to INS. Because INS could not immediately handle the additional workload, there was a logjam, or slowdown, in issuing the cards to persons already living here. The logical effect of a slowdown is a decrease in the number of cards authorized (i.e., a downturn in the trend line), independent of any change in the number of persons newly taking up residence in the United States. Subsequently, as INS' capacity to handle the new workload improves, a speed-up in processing would increase the number of cards authorized for persons already living here, creating an upswing in the combined-flow trend line.

INS statistical staff told us that annual trends in the number of new LPRs do not convey a meaningful indication of any demographic concept.<sup>1</sup> They also said it is unclear how to disentangle the effects of processing logjams and catch-ups.

Despite these problems, INS has repeatedly highlighted annual trends in “immigrants admitted” (what we term the combined-flow LPR statistic in table. 3.1). The 1995 and 1996 INS Yearbooks lead off their introductions with the first highlights of current findings, as follows:

- “720,461 persons were granted legal permanent residence status . . . a decrease of nearly 84,000 from the year before” (INS 1995 Yearbook, p. 11).
- “915,900 persons were granted legal permanent resident status . . . an increase of more than 195,000 over the year before” (INS 1996 Yearbook, p. 11).

In each case, the same page of the Yearbook interprets these trends as either a “decline in immigration to the United States” (1995) or a “rise in immigration to the United States” (1996). The introduction itself does not

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<sup>1</sup>One policy-relevant interpretation of this statistic would be the number of persons newly qualifying for benefits accorded to LPRs.

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mention the recent processing problems or that any of the new immigrants counted were already living here.

Readers who turn to the body of the Yearbook will find caveats. However, although tables in the INS Yearbook indicate that the majority of new LPRS were already living in the United States, the Yearbook text indicates only that some were already here.<sup>2</sup>

INS statistical staff maintain that the agency never claims that the count of newly authorized green cards represents a proxy for all new residents, but the use of the term “admitted” may be confusing to some readers. Indeed, the 1996 Yearbook makes the confusing statement that

“The majority of immigrants [LPRS] **enter the United States** as immediate relatives of U.S. citizens or through the preference system, consisting of family-sponsored and employment-based immigrants. These categories combined accounted for 78 percent of all admissions in 1996.” (p. 18, emphasis added.)

A nonexpert might infer that “enter the United States” means exactly that, not realizing that the majority of new LPRS were already here. (In other words, some readers might **not** realize that the statement quoted above is supposed to refer to persons **entering LPR status**—regardless of whether they are already living here, as the majority are.)

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## Flow of Legals Versus Net Change in Illegals

Another conceptual problem arises because the Yearbook presents statistics relevant to flow for legal immigration—but an estimate for net change in the illegal population. That is, the 1996 Yearbook reports that nearly 1 million persons achieved green-card status in fiscal year 1996 and that the population of illegals is increasing, on average, by 275,000 per year. These two figures are not comparable, however, because flow is a very different concept than net change. Briefly, the difference in concepts is as follows:

- The **flow** of illegal immigrants refers to new illegal EWIS and overstays who resided here for more than a year. (As shown in table 3.1, these two types of flow can be described separately—and a combined number can be provided.)
- **Net change** in the size of the illegal population is calculated, mathematically, as the difference between (1) the flow of illegal residents

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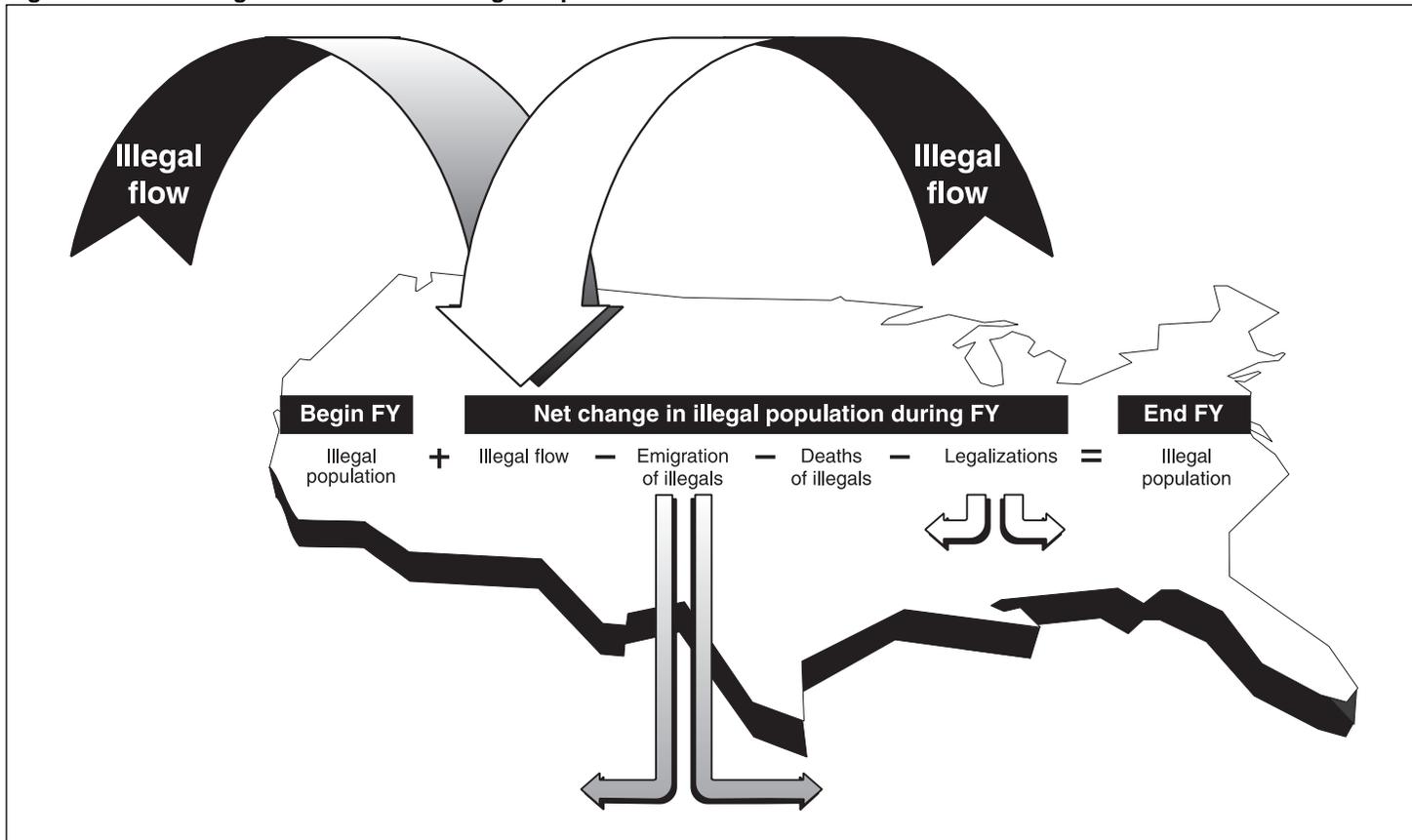
<sup>2</sup>One sentence—in the 1996 Yearbook section, “Limitations of Data” (p. 24)—does mention the fact that those who are transitioning or adjusting have often lived here for years.

and (2) legalizations and other exits (emigration, death) from the entire illegal population, as shown in figure 3.1.

- Net change may be a positive or negative number. When positive, net change measures the extent to which the flow exceeds legalizations, emigration, and deaths—on the part of the entire population of illegals who were already living here. When legalizations, emigration, and deaths outnumber the entries, net change is negative.

Legal flow cannot be validly compared to net change in the illegal population. The fact that the INS Yearbook reports statistics relevant to flow for legal immigration but net change for the illegal population is compounded by the fact that the Yearbook does not discuss demographic concepts. The Yearbook does not clarify the meaning of immigration flow or net change in population size—or the distinction between the two. Reporting flow for legals and net change for illegals, without clearly distinguishing between flow and net change, could lead to misinterpretations; that is, it might invite invalid comparisons. If a comparison of legal and illegal immigration is to be made, the same demographic concept should be used for data on legals and illegals; for example, legal flow should be compared to illegal flow.

Figure 3.1: Net Change in the Size of the Illegal Population



Source for net-change equation: Bogue et al., 1993.

This is important because numerically, the difference (illegal flow versus net change in illegals) could be great. Large numbers of illegal immigrants transition to green-card status (over 120,000 of those authorized to receive green cards in fiscal year 1996 admit to having entered the United States as EWIS), and the emigration of illegal immigrants may also be large. Thus, the flow of illegal immigrants might—in some years—be considerably larger than the reported net change in the size of the illegal population.

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## Undercounts

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### Asylees Are Undercounted

We found that INS Yearbook tallies of persons granted asylum are limited to cases processed through INS' RAPS (Refugee, Asylum and Parole System) data system. Both RAPS and the Yearbook omit asylees whose cases were approved by the Executive Office of Immigration Review (EOIR) rather than INS.<sup>3</sup> Both also omit asylees who enter from abroad after their paperwork is approved by INS—trailing relatives of persons granted asylum (i.e., family members “following to join” a principal asylee)—and processed abroad either by the Department of State or INS.<sup>4</sup> Also omitted were other trailing relatives whose cases were processed in the United States by INS (460 during the first four months of fiscal year 1996).<sup>5</sup>

Table 3.2 summarizes the count of asylees published in the INS Yearbook and the additional counts that we were able to identify by talking with various staff at Department of State, EOIR, and INS and by requesting tabulations from various data systems. INS staff told us that in addition to the 460 cases noted above, they estimate that approximately 1,000 more were processed in the United States during fiscal year 1996; however, the number of trailing relatives approved and processed overseas by INS during fiscal year 1996 could not be estimated.

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<sup>3</sup>EOIR is within the Department of Justice, but is separate from INS. Asylum cases denied or referred by INS are reviewed by EOIR immigration judges. EOIR provides a daily electronic transfer of records to RAPS for administrative purposes. The INS Yearbook notes that asylees processed by EOIR are not counted in the Yearbook's tallies.

<sup>4</sup>On behalf of INS, the Department of State processes “Visa 92” cases in areas where INS does not have facilities. These cases include spouses and children who are in another country at the time when a member of the family was granted asylum inside the United States (see 8 U.S.C. 208(b)(3)). Based on an INS-approved petition, State issues travel papers to these spouses and children, allowing them to come to the United States; once here, they are admitted with asylum status. We believe that, while some of these spouses and children may not have actually come to the United States, most of them likely came—because all of them were processed by the Department of State or INS (albeit in an overseas location). They have not been included in any count reported in INS or State Department publications—nor are they mentioned as omitted from relevant counts in the INS Yearbook.

<sup>5</sup>Trailing relatives processed by INS are included in INS' Computer Linked Application Information Management System (CLAIMS). Although INS could identify 460 trailing relatives that were processed in the United States during the first 4 months of fiscal year 1996, INS was not able to identify other cases of asylee approval that were included in the CLAIMS system. The 1996 Yearbook does not report that its tallies omit these asylees.

**Table 3.2: Persons Granted Asylum and Whether Included in Yearbook Count (FY 1996)**

<b>Included in count?</b>	<b>Number new asylees</b>	<b>Agency data source</b>
Yes	18,556	INS
No	5,096	EOIR
	3,652 <sup>a</sup>	State
	1,460 + an additional unknown number <sup>b</sup>	INS
<b>Subtotal</b>	<b>10,208 + an additional unknown number</b>	<b>INS, State, EOIR</b>
<b>Total</b>	<b>28,764 + an additional unknown number</b>	<b>INS, State, EOIR</b>

Legend

EOIR = Executive Office of Immigration Review, Department of Justice  
INS = Immigration and Naturalization Service

<sup>a</sup>These 3,652 cases were approved by INS and processed overseas by the Department of State for admission to the United States with asylum status. State told us that in most instances, a case represents an individual person, but there may be exceptions (i.e., instances where a single case represents multiple persons).

<sup>b</sup>INS approved 460 trailing relatives in the United States during the first 4 months of fiscal year 1996, and estimates that approximately 1,000 more were approved during the remaining 8 months. The additional unknown number represents an unknown number of trailing relatives whose cases INS processed overseas for admission to the United States with asylum status.

Source: GAO analysis of INS, State Department, and EOIR data for fiscal year 1996.

In sum, the count of asylees published in the INS Yearbook should be increased—probably by more than 50 percent (i.e., from 18,556 to 28,764 or perhaps to an even higher figure). The undercount is not fully described in the Yearbook, apparently because the administrative processes are complex and it is difficult to identify all cases in which asylum was granted. By contrast, however, we found no biases in the Department of State counts of refugees reported in the INS Yearbook.

**Naturalized Citizens Are Undercounted**

The number of naturalizations reported by INS (row E of table 3.1) is an undercount of new foreign-born U.S. citizens because the tally excludes most minor children. That is, as explained in the INS Yearbook, minor children automatically receive citizenship (by derivation) when their parents naturalize.<sup>6</sup> A separate form is not required for these children, and they are not listed on their parents' forms. INS counts persons listed on forms; a complete count cannot be obtained without revising the existing

<sup>6</sup>Under section 320 of the Immigration and Naturalization Act (8 U.S.C. 1431), a child automatically becomes a naturalized citizen if he or she is under 18 years old and is living in the United States pursuant to lawful admission for permanent residence at the time of naturalization.

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form. (We also note that trends in naturalization are affected by processing speed-ups and slowdowns similar to those discussed above for LPRS. As of July 1998, the logjam for naturalization applications was estimated to be between 1.6 and 2 million unprocessed applications.<sup>7</sup>)

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### Transitions to LPR Status May Be Undercounted

Transitions to LPR status may be undercounted. INS statistical staff told us that in 1996, transitions to LPR status apparently continued to be deflated (to some extent). That is, even after the change in law allowing illegal U.S. residents to transition to green-card status without leaving and reentering, some continued to exit and reenter—preferring the travel to paying the fee required for transitioning without leaving. Although this number may be relatively small, it represents a subtraction from the transitions column and an addition to the new entries column—thus distorting what is reported about patterns of flow to some extent.

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## Data Gaps

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### Gap for Flow of Long-Term Residents Admitted With Legal Temporary Status

There is a gap in flow statistics for residents who are admitted with temporary visas (i.e., nonimmigrant visas, such as student visas, temporary work visas, and so forth). The gap occurs because the relevant INS data system does not distinguish newly admitted persons from readmissions of the same person. For example, a foreign student living here for 4 years but visiting his parents briefly every 6 months would be represented as eight short stays—for up to eight individuals—rather than one long stay for a single person. Thus, although durations of stay have been calculated (INS, 1996; Lowell, 1996), they do not correspond to the flow of long-term residents who were admitted with legal temporary status. Moreover, problems at INS or with INS contractors (including computer-processing problems and lack of agreement on what constitutes a valid match) have, since 1992, prevented calculations involving matched entries and exits. And with respect to this and other data systems, INS statistical staff told us that there had been no recent audits or evaluations to test the level of error in data processing and data archiving. Such work might reveal, for example, whether double-counting or lost cases occurred.

Department of State information on issuances of temporary visas cannot fill this gap for two reasons. First, in some cases, a visa allows multiple

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<sup>7</sup>The logjam occurred because of an unprecedented increase in applications for citizenship. The process of rolling out new fingerprinting procedures may have also contributed to the slowdown.

entries and exits, whereas other visas allow only a single entry so that a new visa is required for each entry and exit. There is no direct correspondence, then, between the number of visas issued and the number of new residents with visas. Second, a single person can, if qualified, be issued multiple visas in different categories—for example, a temporary work visa and a tourist visa could be issued to the same person on the same day—and it would be very difficult to cross-reference records for statistical purposes.

We believe this gap is important because the number of long-term residents living here with temporary visas may be quite large. One analyst (Woodrow, 1998) puts the flow of nonimmigrant residents into the United States at approximately 1 million, perhaps more, in 1990. Under alternative assumptions, possible figures for fiscal year 1996 might range from very roughly 500,000 to 1 million, but the true dimensions are unknown.<sup>8</sup>

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**Gap for Total Flow of  
Foreign-Born Residents  
Into the United States**

From the perspective of charting the overall impact of immigration on American society, the most important statistic for which there is a gap may be the total number of new entries who take up residence in the United States each year (total for col. 1 in table 3.1). To fill this gap would require dealing with the gaps and biases in the various estimates for new entries in the various legal status categories: LPRS; refugees and asylees; foreign students, temporary workers, and others here legally for a nonpermanent stay; and illegal residents. Indeed, approximate figures developed for lower and upper bounds could differ by as much as one million persons—leaving policymakers still without a proper information base.<sup>9</sup>

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<sup>8</sup>Our analysis—listing all sources of nonimmigrant flow, using what data were available for 1996 and, where necessary, making assumptions concerning minimum numbers—suggests that the annual flow of nonimmigrant residents could easily be over 500,000 and might be considerably higher. However, unsubstantiated assumptions were sometimes necessary; e.g., in making minimum and maximum calculations, we assumed that between 35 and 80 percent of the student visas issued by the State Department represented a new resident who remained for over a year.

<sup>9</sup>We attempted to develop approximate figures by listing all relevant categories, using what data were available for each and, where necessary, making assumptions for lower and upper bounds. We did not report the specific figures because of their speculative nature.

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# The Resident Foreign-Born Population: Size, Net Change, and Emigration

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The Bureau of the Census provides decennial census and intercensal survey data on the size of the foreign-born population and change in size, and it estimates emigration. Although there are no directly relevant administrative records, INS provides some additional information through “composite estimates.”<sup>1</sup> Overall, information on the size of the foreign-born population, change in size, and emigration is limited, as summarized in table 4.1. There are two main reasons for this:

- Decennial census and survey estimates apply only to total foreign-born and naturalized citizens (rows E and total in table 4.1).<sup>2</sup> For specific legal statuses, there are gaps and uncertain estimates (rows A through D in table 4.1). Aside from a question on U.S. citizenship, the census and intercensal surveys do not ask about legal status. (One reason is that questions on the respondent’s legal status are very sensitive and might result in biased answers or affect responses to other questions.) INS efforts to fill data gaps without additional data collection efforts have resulted in uncertain estimates.
- The data provided by Census for total foreign-born and naturalized U.S. citizens have not been rigorously evaluated. The unevaluated estimates are at least somewhat uncertain because of the questions about adequate coverage of the foreign-born population and other quality issues that have been raised by a number of analysts. Moreover, problems have cropped up in estimating emigration—and also in reliably quantifying net change.

We also found that the information in table 4.1 cannot be accessed by referring to just one or two publications. Rather, policymakers and other information consumers must first identify and access a variety of sources (including the Internet), then piece results together—with no guide to their comparability.

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<sup>1</sup>We define “composite estimates” as those made in the absence of direct data. Such estimates draw on what data are available—often a combination of different kinds of data and/or different kinds of estimates—plus major assumptions. (By major assumptions, we mean assumptions that can have important impacts on the estimates.)

<sup>2</sup>Census and survey estimates for total foreign-born would logically include residents in all major legal statuses, including those with temporary legal status as well as illegal immigrants. We believe that such estimates of total foreign-born are probably generally consistent with our definition of foreign-born residents—that is, persons living here who either (1) are in a permanent legal status or (2) if in a temporary legal status or here illegally, remain in the United States for more than a year.

**Chapter 4**  
**The Resident Foreign-Born Population: Size,**  
**Net Change, and Emigration**

**Table 4.1: Published Federal Statistics for Three Demographic Concepts, Descriptive Quality Rating and Reason, 1996<sup>a</sup>**

	Demographic concept		
	Population size	Net change in size	Annual emigration
Legal status of foreign-born	Number of foreign-born persons residing here (at given point in time)	Annual increase or decrease in the size of foreign-born population	Number of foreign-born residents who left the U.S. (calendar 1996)
<b>A. Legal permanent residents</b>	10,525,000 LPRs <sup>b</sup> <b>Uncertain:</b> Composite estimate requires major assumptions.	No published estimate. <b>Gap:</b> No administrative or survey data.	No published estimate. <b>Gap:</b> No administrative or survey data.
<b>B. Refugees and asylees (without LPR status)<sup>c</sup></b>	No published estimate. <b>Gap:</b> No comprehensive administrative data; questions about legal status deemed too sensitive to ask survey respondents.	No published estimate. <b>Gap:</b> No administrative or survey data.	No published estimate. <b>Gap:</b> No administrative or survey data.
<b>C. Students, temporary workers, and their families; others here temporarily who stayed &gt;1 yr<sup>d</sup></b>	No published estimate. <b>Gap:</b> No usable administrative data; questions about legal status too sensitive to ask in a survey.	No published estimate. <b>Gap:</b> No administrative or survey data.	No published estimate. <b>Gap:</b> No administrative or survey data.
<b>D. Illegal immigrants (EWIs and overstays) who stayed &gt; 1 year</b>	5 million EWIs and overstays <sup>e</sup> <b>Uncertain:</b> Composite estimate requires major assumptions.	275,000 more illegal residents <sup>f</sup> <b>Uncertain:</b> Composite estimate requires major assumptions.	No published estimate. <b>Gap:</b> No administrative or survey data.
<b>E. Naturalized citizens</b>	7.9 million naturalized citizens <sup>g</sup> <b>Unevaluated:</b> Survey estimate is disputed in literature owing to possible overreporting of citizenship not firmly resolved.	1.1 million more naturalized citizens (3/97 versus 3/96) <sup>h</sup> 300,000 more naturalized citizens (3/96 versus 3/95) <sup>i</sup> <b>Uncertain:</b> These survey estimates involve time lag in reporting.	No published estimate. <b>Gap:</b> No administrative or survey data.
<b>Total</b>	24.6 million foreign-born residents <sup>l</sup> <b>Unevaluated:</b> Analysts have raised questions about survey estimates' underrepresentation of newcomers, etc.	1.2 million more foreign-born residents (3/97 versus 3/96) <sup>k</sup> 0.1 million more foreign-born residents (3/96 versus 3/95) <sup>l</sup> <b>Uncertain:</b> Survey estimates of year-to-year change are imprecise.	No published estimate. <b>Gap:</b> Census first said estimate of emigration (195,000) referred to all foreign-born; Census now says it refers to emigration of legal residents only.

(Table notes on next page)

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**Chapter 4**  
**The Resident Foreign-Born Population: Size,  
Net Change, and Emigration**

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Legend

EWI Entry without inspection  
LPR Legal permanent resident

<sup>a</sup>The three demographic concepts are size of the foreign-born population, net change in size, and emigration.

<sup>b</sup>As of Apr. 1996; range: 10.175 to 10.875 million LPRs.

<sup>c</sup>The term asylees refers to persons granted asylum.

<sup>d</sup>Other foreign-born residents admitted temporarily include (1) trainees, treaty-traders, and investors as well as their families; (2) special groups, such as those given temporary protected status or extended voluntary departure; (3) parolees, that is, persons allowed to enter the United States on a nonpermanent basis for urgent humanitarian reasons or when significant public benefit is likely; and (4) persons entering on tourist or other short-term visas who nonetheless remain in the United States longer than a year.

<sup>e</sup>As of Oct. 1996; range: 4.6 to 5.4 million EWIs and overstays; best estimate for EWIs (only), 2.9 million; best estimate for overstays (only), 2.1 million. (Note: These INS estimates of EWIs and overstays include some persons who were illegal immigrants but attained a special category status, such as extended voluntary departure.)

<sup>f</sup>Annual average increase (1992-96) in EWIs and overstays combined. (Note: These INS estimates of EWIs and overstays include some persons who were illegal immigrants but attained a special category status, such as extended voluntary departure.)

<sup>g</sup>As of Mar. 1996; 90-percent confidence interval: 7.5 to 8.3 million naturalized citizens.

<sup>h</sup>90-percent confidence interval: 680,000 to 1.6 million more naturalized citizens.

<sup>i</sup>90-percent confidence interval: 240,000 **fewer** to 800,000 **more** naturalized citizens.

<sup>j</sup>As of Mar. 1996; 90-percent confidence interval: 23.9 to 25.3 million foreign-born residents.

<sup>k</sup>90-percent confidence interval: 460,000 to 1.99 million more foreign-born residents.

<sup>l</sup>90-percent confidence interval: 720,000 **fewer** to 840,000 **more** foreign-born residents.

Source: Published federal statistics on the foreign-born are from the INS Web page; INS Yearbook, pp. 197-98; Current Population Reports, Bureau of the Census, Mar. 1997; Schmidley and Robinson, 1998, table A3. Additionally, the confidence intervals in notes to this table were provided to us by the Bureau of the Census. The ratings are based on agency interviews, review of the literature, and logical analysis.

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## The Available Data

The Alien Address Report Program (an annual registration system maintained by INS) was discontinued in 1981. Until its demise, that system was a source of administrative data on the population of legally resident aliens (i.e., noncitizens). Since all resident aliens were required to register, the number living here would be represented by the number registering—provided that all legal aliens complied. The registration system was discontinued partly for budgetary reasons, but also because not all aliens reported, and the value of the information was unclear.

Likewise, administrative systems to record emigration by aliens and U.S. citizens, begun early in this century, were discontinued (in the 1950s) partly because they were believed to underestimate permanent departures.

After the Alien Address Report Program was discontinued, the decennial census represented, until recently, the only remaining regularly scheduled collection of data on the size of the foreign-born population. Occasional supplements to the Current Population Survey (CPS) included questions on nativity and citizenship. Then, starting in 1994, such questions were added to the CPS on a regular basis, providing information on the foreign-born population in intercensal years.<sup>3</sup>

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## Gaps and Uncertain Estimates

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### Lack of Census and Survey Data on Legal Status

Neither the census nor the CPS asks about the legal status of noncitizens—or whether they are, in fact, here illegally. There are good reasons for this: such questions fall under the heading of “threatening” survey questions (Bradburn and Sudman, 1979); many respondents might not answer these questions truthfully; and others might avoid participating altogether if they hear that such questions will be asked. In addition, the Bureau of the Census is concerned about privacy invasion issues.<sup>4</sup>

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### Uncertain Composite Estimates

In an effort to fill data gaps, INS developed “composite estimates” for the number of illegal residents and for the number of legal permanent residents. Although these estimates represent a step forward (because they provide some information that would otherwise not be available), they are necessarily uncertain. That is, it is difficult to determine whether the figures might be underestimates or overestimates and to judge what the magnitude of misestimation might be.

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<sup>3</sup>Concurrent with the addition of these questions to the CPS on a regular basis, cognitive interviewing was conducted to evaluate and improve the questions on nativity and citizenship. (Cognitive interviewing is a method of testing how respondents interpret survey questions; e.g., a test respondent is asked to “think aloud” while coming up with an answer to a question. The results are used to revise questions, as needed, in order to more clearly communicate with respondents.)

<sup>4</sup>The Bureau is concerned that its role not include obtaining (and maintaining) potentially damaging information from survey respondents or persons who cooperate in a decennial census.

INS' composite estimate of the current number of illegals residing here is based mainly on the following three calculations—each of which is characterized by uncertainty:

- First, INS calculates an estimate of illegal “overstays”—persons who entered legally on a temporary basis and failed to depart. These estimates are uncertain for several reasons: INS' data system does not track many legal entries by Mexicans and Canadians (Department of Justice, 1997); so if such persons overstay, they would not be counted. Although the system records other persons' legal entries and departures, a substantial portion of the departure data is missing each year, and the assumptions INS uses to differentiate missing departure data from actual overstays are controversial.<sup>5</sup> Moreover, INS made its current (1996) estimate by projecting old overstay estimates forward (Department of Justice, 1997). (Data collected after 1992 are deemed not usable because of computer processing problems and lack of agreement on what constitutes a valid match.)
- Second, INS calculates the total number of Mexican illegals by comparing administrative data on Mexican legal immigrants to CPS data on total Mexican foreign-born. Here, uncertainty derives from not knowing survey underrepresentation of illegals and from questions about the estimate of emigration (see INS Yearbook).<sup>6</sup>
- Third, INS estimates the number of non-Mexican residents who “entered without inspection” (i.e., EWIs from other countries around the world) based on a variety of data, including data from the late 1980s amnesty (that IRCA provided) as well as more recent data on trends in apprehensions. Translating such data into an estimate of the number of current residents necessarily involves assumptions and uncertainty.<sup>7</sup>

Turning to the size of the LPR population, this INS estimate is based on an indirect method that includes **subtracting the estimated number of illegals** (just discussed) from the number of foreign-born aliens (i.e., noncitizens) estimated in the CPS. Thus, the uncertainties regarding the estimate of illegals are necessarily carried over to the estimate of the number of foreign-born residents with green cards.

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<sup>5</sup>For a critique of INS' method of calculating overstays, see [GAO/PEMD-95-10](#).

<sup>6</sup>The Mexican overstay data are used to divide the estimate of total Mexican illegals into overstays and EWIs.

<sup>7</sup>We also note that the INS estimate of illegal immigrants includes some persons in special categories (such as temporary protected status) whom we have included as long-term temporary residents.

With respect to the INS estimate of net change in the size of the illegal population from year to year (275,000), we note that this estimate is derived by comparing composite estimates for two points in time (October 1992 and October 1996) and dividing the total change into equal amounts of change for each year.<sup>8</sup> Hence, this estimate is marked by the uncertainty of the composite estimates of the size of the illegal population. It also reflects a general level of change rather than depicting current trends.

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## **Existing Census and Survey Data: Lack of Evaluation**

Valuable as the census and CPS data are—or can be—for estimates of the size of the foreign-born population and other demographic concepts, various analysts have raised questions about quality. The Bureau of the Census believes that the foreign-born are less likely to be enumerated than the native-born, but a rigorous evaluation has not been conducted.

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## **Questions About Underrepresentation of the Foreign-Born in the Census**

The Bureau of the Census has carefully evaluated the quality of 1990 census data in the Post Enumeration Survey (PES), but the PES does not distinguish foreign-born residents from native-born. A wide variety of factors have been hypothesized—or identified in indirect analyses and qualitative studies—as contributing to underrepresentation of the foreign-born (see table 4.2). However, it is also possible that reverse errors could occur (Jasso and Rosenzweig, 1987; Schmidley and Robinson, 1998), and in the absence of a rigorous evaluation targeting the foreign-born, the level of net underrepresentation is unknown. For the 1990 census as a whole, however, a rigorous evaluation indicated that undercounting was the more important factor. (For a discussion of the net undercount in the 1990 census and the gross levels of overcounting and undercounting that occurred, see [GAO/GGD-91-113](#).)

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<sup>8</sup>The INS estimates are for all illegals; the Bureau of the Census estimates annual net change for the counted population of illegals.

**Chapter 4**  
**The Resident Foreign-Born Population: Size, Net Change, and Emigration**

**Table 4.2: Reasons for Underrepresentation of Foreign-Born in a Census or Survey and Type of Evidence**

Reason	Type and source of evidence
Some long-term residents (e.g., those here on temporary visas) may not identify the United States as their usual place of residence—and thus would be omitted from the census.	Hypothesis (Hollman, 1997; Passel and Clark, 1998)
In ad hoc households of recently arrived illegal immigrants with no special ties to each other, omissions on the household roster are more likely; in extreme cases, more than 10 men might share a single unit—working and sleeping in shifts. Indeed, the person speaking with the enumerator may not really know who else lives there.	Qualitative studies (de la Puente, 1993; Velasco, 1992)
Some illegals intentionally avoid enumeration.	Qualitative study (de la Puente, 1993)
Recent immigrants are likely to be boarders in the homes of a more established immigrant family—and thus may be omitted from household rosters. Also, Mexicans from villages do not recognize the Spanish word for boarders (“inquilinos”), which is used in surveys; they use the “Spanglish” term “renteros.”	Small qualitative studies (McKay, 1993; McKay et al., 1996)
Some immigrant households are hidden from enumerators, such as when a newly arrived family rents a back bedroom in an apartment—in violation of the lease—and the lease holder omits the extra persons when enumerating the household. Other examples include families in hidden makeshift shacks, converted garages, or colonias (shantytowns that lack streets, electricity, and other services).	Qualitative studies (Gabbard et al., 1993; de la Puente, 1993; Davies, 1995; Chapa and del Pinal, 1993)
Some Mexican immigrants may falsely claim U.S. birth.	Demographic analysis (Warren and Passel, 1987; Woodrow, 1991; Woodrow and Passel, 1990) <sup>a</sup>

<sup>a</sup>As an example of demographic analysis, Woodrow used the number of Mexican-origin U.S.-born persons reported in, e.g., 1980 and data on subsequent U.S. births to derive an expected level of increase in the Mexican-origin U.S.-born population as of, e.g., 1989. The expected increase was compared to survey data collected in 1989. An unexpectedly high number of Mexican-origin persons claimed U.S. birth in the 1989 survey—a pattern that might be explained by immigration combined with false reports of U.S. birth.

Underrepresentation is thought to be concentrated in certain groups of the foreign-born, such as newcomers and illegals, who currently constitute perhaps one-fifth of all foreign-born residents. Unofficial estimates by Census staff put the undercount of illegal immigrants at about 33 percent in the 1980 census; Passel (1986) has suggested a range between 33 and 50 percent. For the 1990 census, various analyses put the figure at roughly 20-30 percent (Woodrow, 1991; Van Hook and Bean, 1997; Woodrow-Lafield, 1995.)

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**Possible  
Underrepresentation of the  
Foreign-Born in the CPS**

Post Enumeration Survey results are used to adjust the Current Population Survey for misrepresentation of specific groups defined by age, sex, race or Hispanic origin, and state of residence. However, it is not known whether the PES adjustments sufficiently improve representation of the foreign-born. If there were no differences between the coverage of foreign-born and native-born persons of the same age, sex, race, and so forth, the PES adjustments should produce accurate CPS estimates of the foreign-born. But as delineated in table 4.1, foreign-born persons may be less likely to be found or identified as residents than native-born persons are, and it is possible that some foreign-born persons may also falsely claim U.S. birth. Thus, despite the PES adjustments, the CPS data could underrepresent the foreign-born.<sup>9</sup>

A different issue could contribute to added underrepresentation of the foreign-born in the CPS: survey nonresponse. As in any survey, some sampled CPS households do not respond to the CPS.<sup>10</sup> CPS response rates are calculated (and adjustments to correct for nonresponse are applied) to geographically large areas—on average, about five areas per state.<sup>11</sup> If foreign-born residents are as likely to respond to the CPS as native-born persons who reside in the same area, there is no problem. But this may not be the case; possible reasons for lower response rates among certain groups of foreign-born include interviewer problems communicating with non-Hispanic immigrants; possible distrust of government or strangers among certain groups (those illegally here, asylees from repressive countries); and for some groups of new immigrants, less familiarity with polling. Thus, higher rates of nonresponse among the foreign-born may contribute to underrepresentation. (An analysis of nonresponse in subareas where foreign-born are concentrated would settle the issue.)

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**Questions About the  
Estimation of Naturalized  
Citizens**

Turning to estimates of the number of naturalized citizens, the main concern is not with undercoverage (because citizens are likely to be counted) but rather with the potential for overrepresentation because of false claims of citizenship. This issue is currently being disputed in the literature (Passel et al., 1998; Schmidley and Robinson, 1998). We also note

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<sup>9</sup>When using CPS data on Mexicans to estimate illegals, the Commission on Immigration Reform and Secretaria de Relaciones Exteriores (1997) used an additional adjustment to correct for underrepresentation.

<sup>10</sup>The CPS nonresponse rate is less than 10 percent overall, including foreign-born and native-born. It is known to differ by geographic area; e.g., Los Angeles has a much higher nonresponse rate than Seattle.

<sup>11</sup>To illustrate how weights compensate for nonresponse, data from three areas with response rates of 100, 90, and 50 percent would receive relative weights of 1, 1.1, and 2, respectively.

that the CPS, which reinterviews respondents over a 16-month period, has thus far asked the citizenship question **only** at the first interview. Consequently, the CPS estimates omit some of the most recent naturalized citizens. Currently, this is important because of large numbers of naturalizations—over 1 million persons were naturalized in fiscal year 1996. The Census Bureau is now considering asking the citizenship question in every CPS interview.

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### Imprecision and Possible Volatility in Estimates of Year-To-Year Change

Census staff have stated that “The CPS nativity data provide a reliable basis for tracking change in the size of the total foreign-born population at the national level” (Schmidley and Robinson, 1998, p. 17). But various Census staff told us that year-to-year change in the size of the total foreign-born population could—and alternatively that it could not—be reliably measured by CPS data. Current estimates of year-to-year net change in the size of the foreign-born population (see table 4.1, total row) seem imprecise; indeed, the confidence intervals are so broad that the estimates might be deemed too imprecise for policy-making purposes. For example, as shown in table 4.1, the 90-percent confidence interval for 1996-97 net change in the size of the foreign-born population ranges from an increase of under a half million to an increase of about 2 million. In other words, the foreign-born population (24 million) may have increased by as little as 2 percent or as much as 8 percent—in a single year.

At our request, Census staff prepared an “annual averages” estimate for the 1996 to 1997 change.<sup>12</sup> The annual averages estimate is, again, an increase of 1.2 million; the confidence interval (800,000 to 1.7 million) is smaller, but still seems imprecise.

It is also somewhat troubling that the trends in year-to-year change appear to be volatile—going from near zero in one year to an increase of over a million the next. It is not known whether some degree of real change occurred, whether an artifact caused the result, or whether the very large difference in estimates is simply from sampling error.

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### Problems in Estimating Emigration

In using 1980 and 1990 census data to estimate emigration of foreign-born persons, analysts at the Bureau of the Census encountered inconsistent

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<sup>12</sup>Such an estimate is more stable because it draws on larger samples—i.e., it includes the responses of all persons interviewed throughout the 12 months of each year. A separate estimate of the size of the foreign-born population is prepared based on data for each month of the relevant year, and then an average is taken across all 12 months. This is done separately for each year, and the difference between the years is calculated.

results—apparently because of coverage problems. Bureau of the Census analysts attempted to estimate emigration by tracking arrival cohorts—for example, Mexicans who came to the United States to live during the 1970s—across the 1980 and 1990 censuses. The logic was that by observing the extent to which the size of a cohort dwindled between 1980 and 1990 (while accounting for deaths), one could infer the level of emigration.<sup>13</sup> The approach is logical and reflects basic procedures of demographic analysis. But **no dwindling** was apparent for Mexico and several other countries; instead, cohorts that arrived in the 1970s appeared to **grow** between 1980 and 1990, thus yielding negative estimates of emigration—a logical impossibility.<sup>14</sup>

Census staff determined that data for certain countries were unusable, and emigration rates were calculated only for residents from countries with usable data (such as Spain). These rates were then extrapolated to countries with unusable data (such as Mexico).<sup>15</sup> The result was an estimate of 195,000 emigrants each year. But a number of uncertainties are involved; notably, emigration rates may differ for legal and illegal, and if so, extrapolation from countries such as Spain (with mostly legal entries) to countries like Mexico (with large numbers of illegal entries) would be inappropriate. Census staff have recently determined that—in hindsight—the 195,000 is best interpreted as an estimate of emigration on the part of **legal** foreign-born residents only.<sup>16</sup> One possible problem with this interpretation is that in calculating the 195,000, the Bureau extrapolated emigration rates to **all** foreign-born residents—a group that includes some illegals.<sup>17</sup>

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<sup>13</sup>An estimate of deaths is subtracted out.

<sup>14</sup>A similar pattern appears to hold for the 1990s. That is, a recent paper by Census staff indicates that for Mexico and other countries in this hemisphere, the number of persons who say they arrived before April 1990 appears to have grown slightly (rather than dwindled) between the 1990 census and the 1997 CPS (see table A.10 of Schmidley and Robinson, 1998).

<sup>15</sup>Specifically, it was assumed that the emigration rate for residents from countries such as Mexico was half that for countries such as Spain or Argentina (chiefly because economic conditions in countries like Mexico make returning there less attractive).

<sup>16</sup>The Census paper containing the 195,000 figure does not state this qualification, which emerged only after we questioned staff about their figure for net migration. The estimate of 195,000 is used in calculations of net migration that are used in intercensal estimates of the total population (and are control totals for the CPS). In those calculations, the 195,000 estimate is treated as an estimate of emigration by legal (see Hollman, 1998).

<sup>17</sup>Census staff agreed that a small number of emigrating illegals were included in the 195,000; they believed that the resultant overestimation of emigrating legal was probably small.

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**Reporting Data on  
Size of the  
Foreign-Born  
Population, Change in  
Size, and Emigration**

A policymaker or interested member of the general public would have to access four disparate sources to obtain the estimates shown in table 4.1: (1) the 1996 INS Statistical Yearbook, (2) the INS Web page, (3) an issue of Current Population Reports, and (4) a Bureau of the Census “working paper” on trends and methodological issues. In no case does any one publication refer to all the others, and we could find no central source pointing the interested person to all four. In some cases, less widely distributed publications are needed to understand the methodological bases of the figures. The lack of a central publication relating the results found in one source to those found in another means that readers must gauge the relative quality and comparability of the various estimates, and their interrelationship, for themselves.

In some cases, reporting has not provided the complete information that readers need to judge the quality or stability of the estimates. For example, the Bureau of the Census working paper, entitled “How Well Does the Current Population Survey Measure the Foreign-born Population in the United States,” reports that the nonresponse rate for the CPS is about 6.5 percent, but does not let readers know whether the level of response for communities or areas dominated by foreign-born residents is roughly the same as for other areas. To cite another example, the description of the estimates of illegal overstays in the INS 1996 Statistical Yearbook fails to inform readers that data on overstays have not been available since 1992 and that the 1996 estimates of illegals were achieved by projections of data from earlier years.

# Improving Information: Current Initiatives and New Strategies

INS has some initiatives underway to fill data gaps, including an attempt to develop a measure of illegal flow into the United States. In addition, we have identified strategies to improve census and survey data on the size of the foreign-born population. These include (1) eliminating data gaps by collecting survey information on immigration status through a less sensitive form of questioning—the three-card method—and (2) achieving greater certainty for estimates of total foreign-born and naturalized citizens through evaluative analyses, and where needed, corrective adjustments.

## Current Initiatives for Improving Information

A number of new initiatives are underway at INS. Notably, INS is attempting to improve its data on foreign students—a key group of long-term temporary residents. INS is also attempting to develop a measure of illegal flow into the United States and a new measure of the size of the illegal population. These initiatives do not address all of the problems identified in chapters 3 and 4, however.

- For foreign students, INS has created a new approach to record-keeping that should allow estimates of the number of new students who come to reside here each year, the size of the student population, and net change in size. A unique high-tech identification card (with digitally encrypted identifying information) is prepared for each student in advance and issued to him or her upon arrival in the United States. The special card is used for each entry and exit. INS is pilot-testing that approach by tracking a group of 10,000 students—that is, following them individually across time—from prearrival through years of schooling, including exits from the United States and reentries.<sup>1</sup> (Roughly a half-million students resided here during the 1995-96 school year; U.S. Department of Education, 1997.)
- To fill the information gap for illegal flow, INS is currently working to develop a new composite estimate. The new estimation method will utilize CPS data on the number of foreign-born residents and their reported year of

<sup>1</sup>Improved tracking is not only a statistical issue. Tracking of persons here on student visas is also of concern from a law enforcement and intelligence perspective (see Hearing before the Senate Subcommittee on Technology, Terrorism, and Government Information, Committee on the Judiciary, Feb. 24, 1998). Tracking of tourist entries and exits is also needed to monitor the Visa Waiver Pilot Program, which allows tourists from several foreign countries to visit the United States without a visa. By law, the waiver for an individual country must be revoked if the number of overstays exceeds 2 percent of tourist entries. (See [GAO/PEMD-95-20](#) and U.S. Department of Justice, 1997.)

INS also told us that it (1) is pilot-testing an automated entry-and-exit tracking system for all classes of nonimmigrants at two airports (and is planning to expand this test to 10 airports) and (2) is continuing its attempts to solve the computer and other problems that have prevented reliable matches of entries and exits since 1992. However, even if successful, these efforts would not address the issue of distinguishing reentries from new entries—which is crucial for estimating the number of foreign-born persons who newly take up residence here each year.

entry to the United States. It will also utilize INS administrative records for data on the number of new legal residents. Assuming that the method is successful, it will produce estimates of flow and trends in flow that include both EWIS and overstays who remain in the United States longer than a year. (The new method will not provide separate estimates for the flow of EWIS and the flow of overstays, however.) The approach also produces an estimate of the size of the illegal population without relying on the usual overstay data.

With respect to improving the reporting of information on flow, INS statistical staff told us that, intermittently, they have discussed plans for an analytic report that is oriented to policy-information needs. However, due to lack of staff time, such plans have always been shelved.

We know of no new initiatives or special analyses being conducted or planned at the Bureau of the Census. The agency told us that its budget and mission do not allow substantial resources to be devoted to estimates of the foreign-born. However, Census also told us that if the planned American Community Survey is implemented, it will include questions on nativity and U.S. citizenship. The resulting estimates of the foreign-born population would be more stable than CPS estimates because a very large sample is planned for this survey. (Statistically, the larger the sample, the more likely it is that the resulting estimate will fall close to the value that would be obtained in a complete census.)

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## Strategies for Improving Census and Survey Data on the Foreign-Born

Strategies for improving census and survey information include (1) research on a new survey technique that asks less sensitive questions about immigration status (the three-card method) and (2) low-cost evaluations of existing census and survey data on the foreign-born.

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### Survey Data to Fill Gaps for Legal Status: the Three-Card Method

To confirm or improve existing uncertain estimates—and to fill data gaps—we determined that a new approach to asking survey respondents about their legal status might be helpful. Previously developed methods for reducing question threat and protecting respondent privacy (see app. III) do not seem suitable for use with the foreign-born population. We therefore devised a new method that builds on earlier techniques but requires no unusual interview procedures. We discussed this method (which we term the three-card method) with INS staff and with officials and staff at the Bureau of the Census. We also discussed it with a number

of statistical and survey experts. And we conducted a preliminary qualitative test of its acceptability to respondents and interviewers.

The three-card method is designed to encourage truthful responses concerning legal status—yet no foreign-born person need reveal whether he or she (or anyone else) is an illegal immigrant. Indeed, no one could ever discover, even through a series of deductions, whether a respondent was here illegally. Yet when all data are combined, survey-based estimates are available for all legal statuses—including illegal immigrants.

The key to the approach is to use three random subsamples of persons from the foreign-born population (different individuals in each subsample). The following explanation uses a hypothetical example that will be carried through for each of the three cards. The hypothetical example helps explain how an estimate of illegal immigrants is obtained, once information from all responses is gathered and combined.

Respondents in the first subsample are shown a card with three boxes such as that shown in figure 5.1. The card in figure 5.1 is in Spanish because we pretested the three-card method in Spanish. The English translation is:

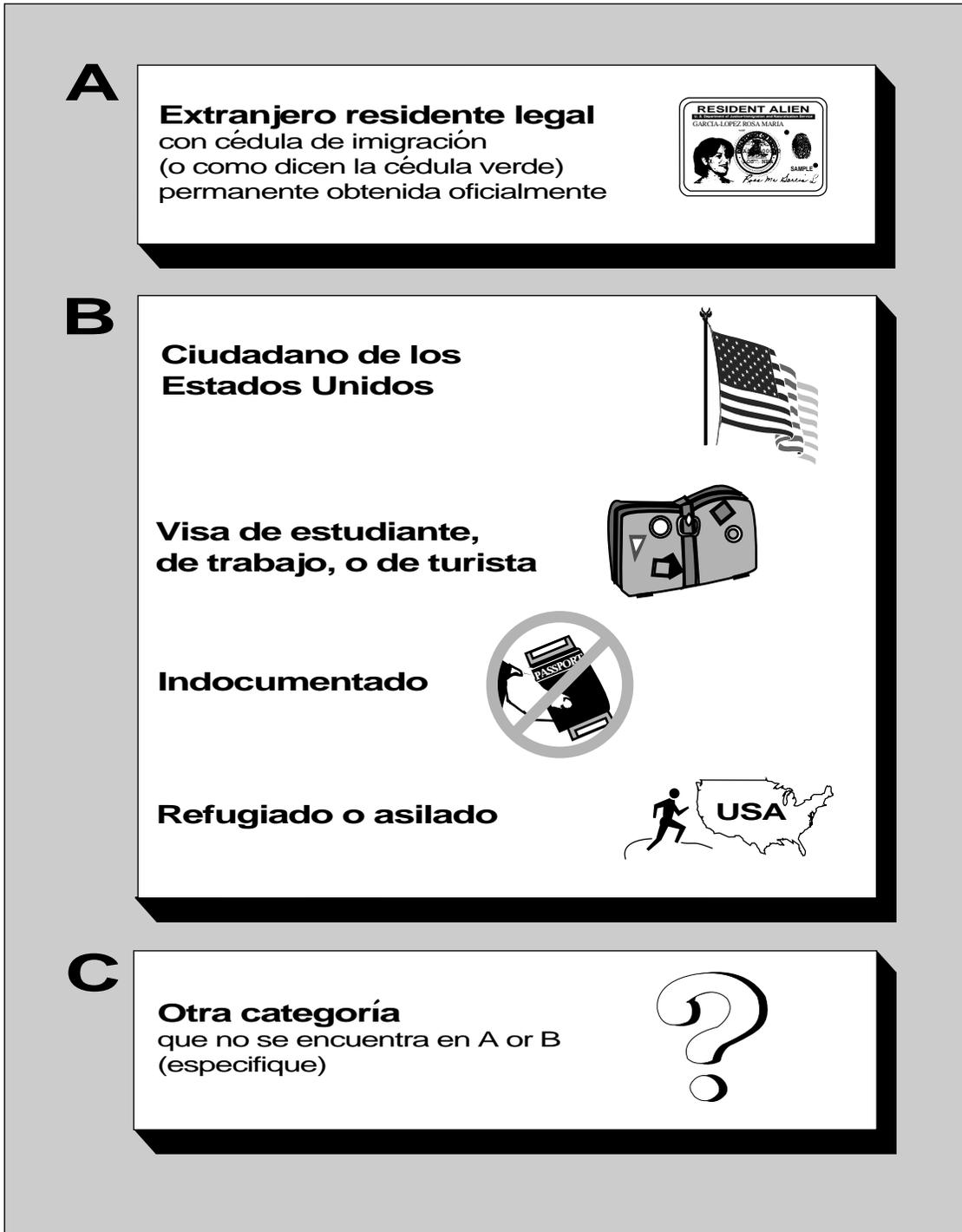
- Box A: legal permanent resident (with an official, validly obtained green card);
- Box B: U.S. citizen; student, work, or tourist visa; undocumented; and refugee or asylee;
- Box C: some other category, not in Box A or Box B (specify).

Respondents are asked which box applies to them and are told that if it is Box B, we do **not** want to know which specific category applies to them. For respondents who pick Box B, it is the end of the interview. However, for respondents who pick Box A, a number of follow-up questions are possible. The purpose of interviews with the first subsample is to obtain a valid estimate of the percent of foreign-born who have officially obtained green cards. (Hypothetical example: 35 percent of the resident foreign-born population have official green cards.)<sup>2</sup>

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<sup>2</sup>Respondents who pick Box C are asked what their specific immigration status is. In our preliminary test, no respondents picked Box C.

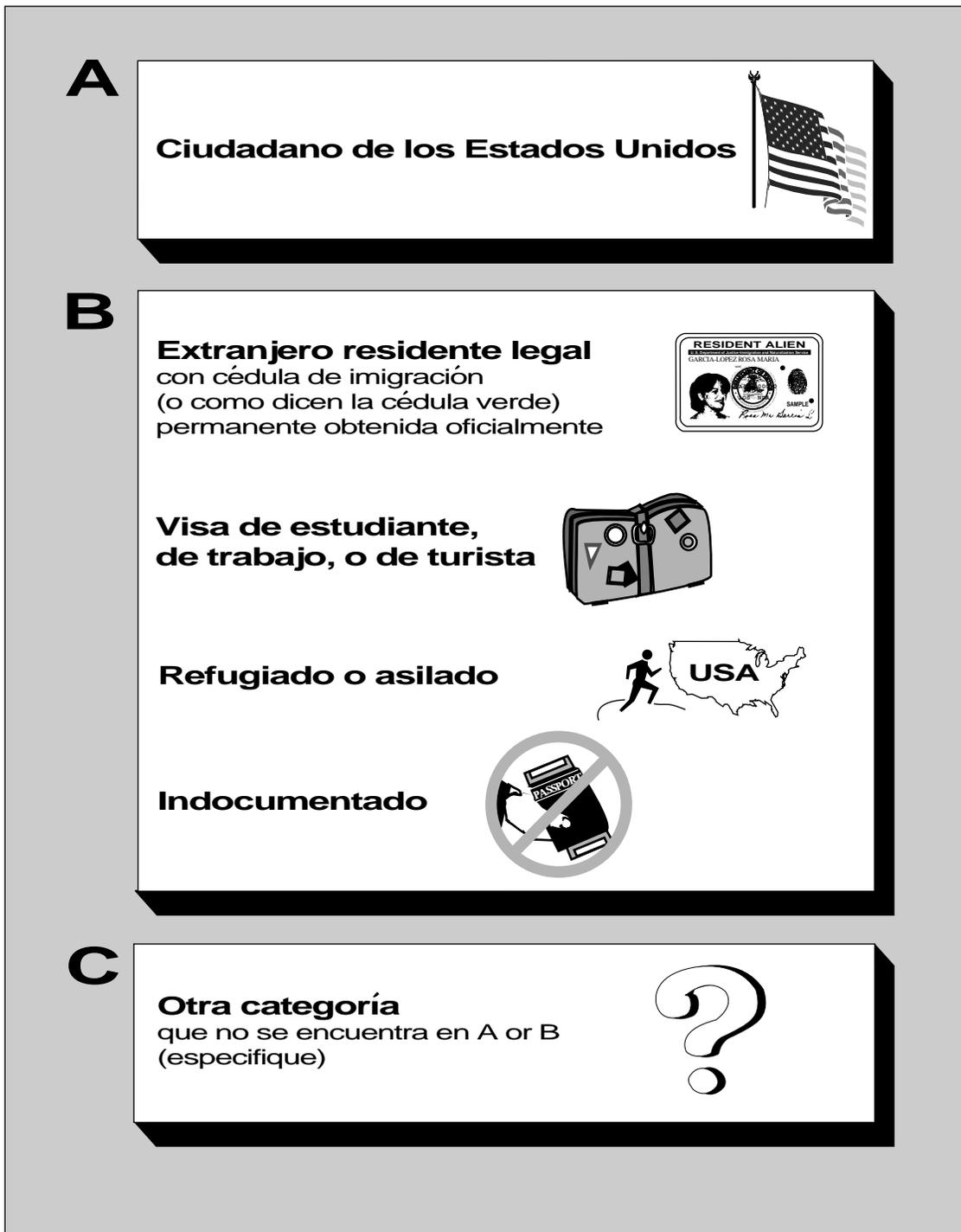
Figure 5.1: Card 1 of the Three-Card Method



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Respondents in the second subsample (completely different individuals) are shown a different card (see fig. 5.2). It also has three boxes. The difference is that Box A shows the status of a (naturalized) U.S. citizen, whereas Box B includes legal permanent resident (LPR) along with other immigration statuses. Respondents in this subsample are also asked to pick the box that applies to them—and told that if it is Box B, we do not want to know which category applies to them. The purpose of interviewing this sample with this card is to obtain a valid estimate of the percentage of the foreign-born who are naturalized citizens. (Hypothetical example: 30 percent are naturalized citizens.)

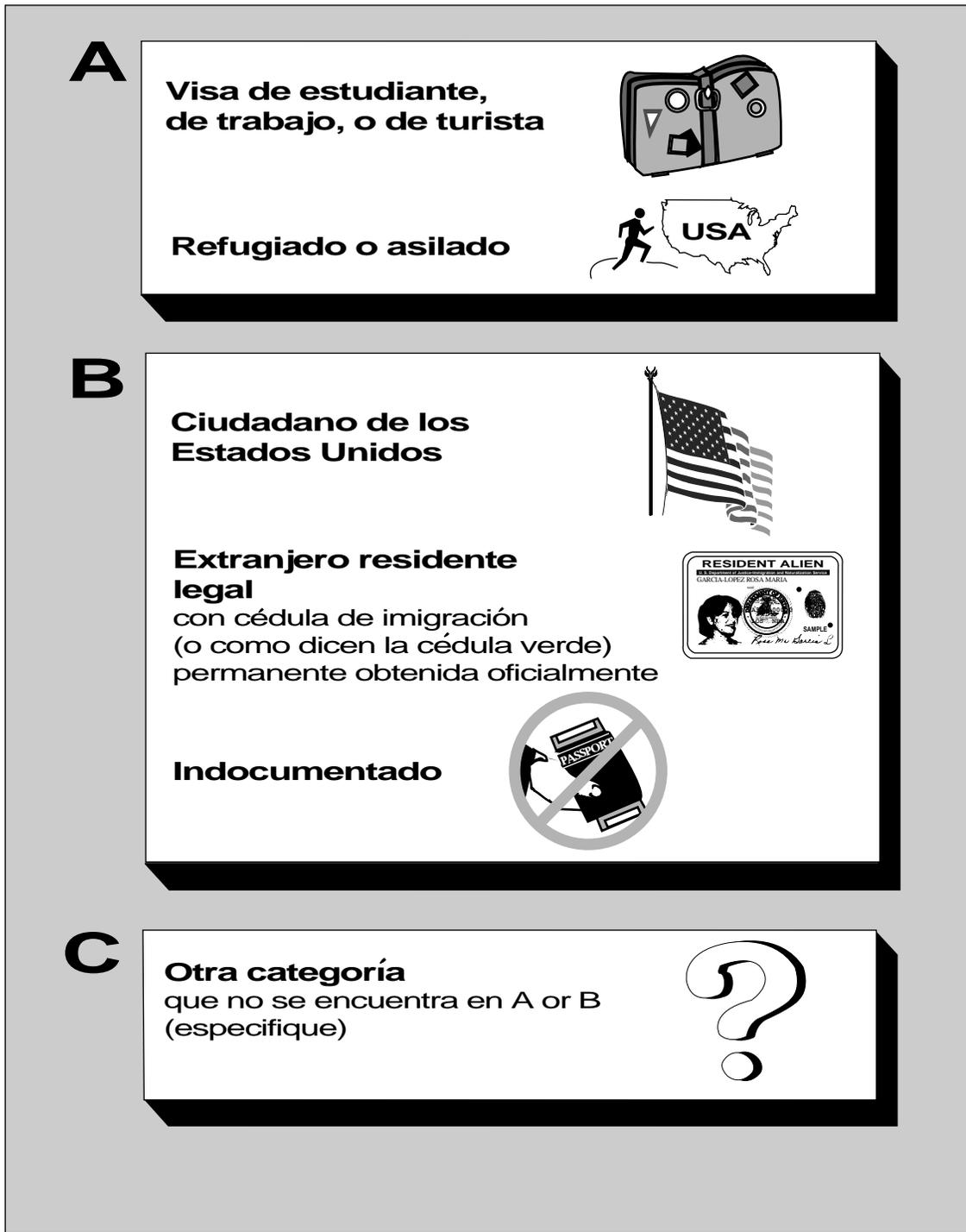
Figure 5.2: Card 2 of the Three-Card Method



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Respondents in the third subsample (again, different persons) are shown yet another card (see fig. 5.3). It also has three boxes, but this time, Box A features refugees and persons granted asylum, as well as residents here legally with temporary visas. Those who pick Box A are asked follow-up questions to determine their exact legal status. Respondents are told that if they are in Box B, we do not want to know which specific category applies to them. The purpose of interviewing this sample is to get estimates of the percentages in the categories in Box A. (Hypothetical example: 5 percent are refugees or asylees; an additional 5 percent are here on temporary visas.)

Figure 5.3: Card 3 of the Three-Card Method



Assuming that the categories are mutually exclusive and exhaustive, it is possible to obtain an estimate of illegals. That is, extending the hypothetical examples above, we would estimate that 75 percent of the foreign-born are in the major legal statuses (35% + 30% + 5% + 5% = 75%).<sup>3</sup> Suppose also that 1 percent picked Box C (some other category). Subtracting these hypothetical estimates from 100 percent yields

$$100\% - 75\% - 1\% = 24\%.$$

In this hypothetical example, an estimated 24 percent did not claim to be in any legal status, and the implication is that 24 percent of the foreign-born population are illegal immigrants.

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## Preliminary Test of the Three-Card Method

We conducted a preliminary test of the acceptability of the card shown in figure 5.1—that is, its acceptability to interviewers and respondents. Our test population consisted of foreign-born farmworkers, chosen because it is thought to have a high percentage of illegals and because almost all speak Spanish. This population also has few naturalized citizens—only about 3 percent of foreign-born respondents claimed to be naturalized citizens in the 1994-95 National Agricultural Workers Survey (Mines et al., 1997). Very few farmworkers are here on legal temporary visas.<sup>4</sup> Nearly one million farmworkers acquired valid green cards under the IRCA amnesty of the late 1980s, although many of them have now moved to other types of work. Thus, we expected that most foreign-born farmworkers would either be illegals or have valid green cards.

The specific questions for use with the cards and the icons shown on the cards were developed through a series of pretests that we conducted with farmworkers and other foreign-born Hispanics. We conducted the pretests using staff who are fluent in both Spanish and English.

The preliminary test consisted of a contract with the survey firm that conducts the National Agricultural Workers Survey for the Department of Labor. Under this contract, 81 interviews featuring the card shown in figure 5.1 were added to the 1997-98 National Agricultural Workers Survey.

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<sup>3</sup>As worded in figs. 5.1-5.3, the category for refugees and asylees may overlap with the LPR category. (A refugee who has attained green-card status may identify as both a refugee and a person with a valid green card.) Thus, we suggest that in future field tests, the cards be modified, adding the phrase “without a green card” to the refugee-asylee category.

<sup>4</sup>According to our recent report, in fiscal year 1996 only about 15,000 farmworkers were brought into the United States with H-2A visas for temporary agricultural work, and this represents less than 1 percent of the agricultural field labor force (GAO/HEHS-98-20).

Each interview was with a foreign-born farmworker.<sup>5</sup> All chose to be interviewed in Spanish. None of those interviewed refused to answer the question on immigration status, using the card shown in figure 5.1. Of the 81 respondents, 30 picked Box A, claiming to have a valid green card. The remaining 51 respondents chose Box B, which contains the illegal category as well as various legal statuses. None chose Box C.

In debriefing sessions, the interviewers told us that overall, the method was acceptable to them and to respondents. Respondents did not voice suspicion of the 3-box card. Rather they appeared to accept it at face value. No special explanations were needed about why we were asking the questions. Criticisms focused on points such as improving the icons (symbolic pictures) used on the cards. (More details concerning the three-card method are included in app. III.)

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## Possible Use of the Method in Current Surveys

We also considered how the three-card method might be used with foreign-born respondents in a more conventional federal household survey. There are two constraints. First, as currently developed, the technique is used in a face-to-face personal interviewer survey, rather than a telephone survey. Second, federal agencies are generally concerned that the sensitivity of a question on legal status (even using the three-card method) might affect responses and so would prefer that it be the last question asked—or that it be used in a linked follow-back survey.<sup>6</sup> The latter is expensive—costing perhaps as much as \$300 per interview, according to Census staff. Eventually, if the three-card method were demonstrated to be nonthreatening, it might be possible to incorporate it as part of a regular federal survey, which would be much less expensive.

However, we believe more testing is needed before the technique is used in a large-scale survey. Such testing should be done under conditions similar to those of a federal household survey, and not only farmworkers should be tested. The tests should further explore the acceptability of the technique to respondents and should involve cognitive testing to ensure that questions are worded and the cards are designed for optimal communication with respondents. There should also be a validity test to estimate whether, or to what extent, respondents tell the truth when answering.

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<sup>5</sup>The contractor did not provide the identities of farm employers to us.

<sup>6</sup>A follow-back survey would interview foreign-born respondents identified in a larger federal survey, such as the CPS or the proposed American Community Survey. The follow-back interviews would be conducted within a few months of the main survey interview.

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**Achieving More Certain  
Estimates Through  
Evaluative Analyses**

Evaluations of the representation of the foreign-born population and key groups within that population, such as illegals, would allow more confident (and through adjustments, potentially better) estimates of the size of the foreign-born population, net change in size, and emigration. There are a range of possible methods for evaluating data and trends. Some methods might be costly, while others would be relatively low cost.

- High-cost approaches would involve new data collection. For example, a survey of self-identified foreign-born workers might be based on a sampling frame that is independent of the typical census or household survey approach. That is, it might be possible to draw a sample of work places and conduct or schedule interviews with foreign-born employees as they enter or exit those work places. Data on foreign-born persons interviewed in this way could then be compared to census results.
- A more moderate-cost approach might involve adding a nativity question to the census short form—but only for households in areas where the Post Enumeration Survey will be conducted. This would allow separate estimates of undercoverage for foreign-born and native-born persons within sex, age, and race (and Hispanic origin) groups. Although no new interviews would be required, some cost is associated with adding questions.
- Less costly methods involve no expansion of data collection. For example, a pilot survey of new green-card holders, sponsored by INS and the National Institutes of Health, draws its sample from recent INS administrative records rather than mail lists or neighborhood enumerations. The pilot survey takes extensive immigration histories, so if the full survey is implemented on an on-going basis, records for respondents in the survey could be matched to results of the decennial census—with a nonmatch indicating a likely lack of coverage. A similar matching approach might be used for persons new to other legal statuses (although we recognize that less information would be available on them). Turning to coverage of illegals, it might be feasible to access records of interior apprehensions just after the decennial census. Again, records could be matched to check coverage.
- Another example of a relatively low-cost approach would involve checking survey claims of U.S. birth against state birth records. The checking might be limited to a few key states, such as California, New York, Florida, and Texas. It might be concentrated among (or begin with) respondents deemed to be at high risk of providing a false answer—perhaps because they live in areas with a high concentration of foreign-born or even areas where a high concentration of illegal immigrants seems likely, based, for

example, on data on all respondents in the area regarding country of origin, recency of arrival in the United States, and occupation.

- Other low-cost analyses are also possible. For example, the possibility of underrepresentation of foreign-born respondents because of high nonresponse rates would be ruled out if response rates separately calculated for areas with high concentrations of foreign-born were similar to those for other areas. Alternatively, if response rates are shown to be different, compensatory adjustments might be used. Other data analyses could help investigate apparent trends (year-to-year change). These would include technical analyses such as, for example, checking whether increases in the number who reported recently arriving correspond to trends showing increases in the estimated number of foreign-born residents—and vice versa.

The high- and moderate-cost methods have the advantage of more generalizable results; for example, they are not limited to persons who recently received green cards. Some of the less costly methods require cooperation and data-sharing between, for example, INS and the Bureau of the Census; but besides lower cost, these have the advantage of allowing checks on valid reporting of nativity as well as checks for coverage. Equally important, the data-sharing methods can provide information on specific legal-status groups.

While we have outlined some of the possible approaches, we realize that other strategies might also be possible.

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## Conclusions

For informed decisions on immigration issues, policymakers need information on immigration flow, by legal status. Separate information is needed on the two different types of flow—new entries into the United States and transitions to new legal statuses—because, for example, Congress sets levels of funding for programs to deter illegal immigrants from coming into the United States and also defines conditions for allowing illegals to transition to legal status.

Policymakers also need information on the size of the foreign-born population—again by legal status. And information on emigration helps to gauge the meaning of statistics on immigration flow and on population sizes; that is, it balances information on entries with information on exits, and it indicates the amount of turnover in the resident population.

INS records that are maintained for administrative purposes describe the number of new legal permanent residents (green-card holders), new refugees and asylees, and new naturalized citizens. As reported in the Yearbook, however, these statistics are limited by (1) conceptual problems and confused reporting, (2) undercounts, and (3) information gaps.

- Annual trends in the number of green cards issued—a potentially key trend in legal immigration flow—is difficult to interpret because of conceptual problems, and the way it is reported in the Yearbook can confuse readers. Similarly, invalid comparisons of legal flow to data on illegals may occur—again because of conceptual problems exacerbated by confused reporting.
- The number of new asylees is an undercount, because the Yearbook tally omits certain categories of persons, such as those who are granted asylum on appeal. The number of persons who newly attained citizenship is also an undercount.
- Federal statistics are not available for some categories of immigration flow, such as the number of long-term temporary residents who come to the United States each year. Perhaps most importantly, there is no estimate of the total number of foreign-born persons who take up residence in the United States each year.

Turning to relevant demographic concepts other than flow, statistics are reported in a more scattered fashion; indeed, a variety of INS and Bureau of the Census publications, including the INS Web page, must be accessed.

The Bureau of the Census provides information on the size of the resident foreign-born population, annual net change in size, and emigration. However, decennial census and survey data on the foreign-born have not been evaluated with respect to coverage, misreporting of nativity, and nonresponse. Moreover, there are no separate data for legal permanent residents, illegal immigrants, or most other statuses. (Neither the decennial census nor surveys that target the general population ask questions about foreign-born respondents' legal status. This is so, in part, because such questions are very sensitive and might result in problems, such as distorted answers to the legal-status question or to other items on the questionnaire.)

The inability to differentiate between key subgroups of the foreign-born population is important from a policy perspective because virtually all laws on immigration are based on specific legal statuses. INS has made efforts to fill gaps for some legal statuses by using the limited data that are

available and creating assumption-based models. The resulting estimates are necessarily uncertain because assumptions and judgments are substituted for data.

We identified or developed strategies that might improve immigration statistics. Specifically, we devised a new method for collecting survey data on the legal status of foreign-born respondents. The “three-card method” asks questions that are less sensitive than a direct question requiring the respondent to state his or her specific legal status. It ensures absolute privacy of response and requires no unusual interview procedures. Yet this method allows statistically unbiased survey estimates for all major legal statuses. A preliminary qualitative test of the new method indicated that **no one** refused to answer the questions. The test population consisted of farmworkers, and although the test was not designed to make statistical estimates, farmworkers’ answers were consistent with an interview population that contains a high proportion of illegal immigrants. Thus, the new method appears to show promise and to merit further testing and development.

We also identified strategies for evaluating survey data on the foreign-born. For example, if a household does not respond to a survey, it is not known whether the residents are foreign-born. Nevertheless, levels of nonresponse can be compared across communities or areas that are known to differ in terms of nativity (based on decennial census data or on the nativity of those who did participate in the survey).

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## Recommendations

To help correct undercounts, eliminate conceptual problems, and where possible, fill gaps for information on immigration flow, we recommend that the Commissioner of INS (1) evaluate and, where feasible, improve data on flow and (2) utilize an effective information typology (either the one put forward in table 2.1 or an alternative designed by INS) to clearly distinguish different demographic concepts and to determine which statistics can fairly be compared to others.

To eliminate confused reporting of data and estimates concerning immigration flow, we recommend that the Commissioner of INS more clearly report information about trends in legal immigration flow and about the difference between the concepts of flow and net change in the INS Yearbook—or develop a new reporting format that communicates effectively to policymakers and interested members of the general public.

To reduce the uncertainty associated with statistical estimates of relevant demographic concepts other than immigration flow, fill information gaps for specific legal statuses, and address fragmented reporting, we recommend that the Commissioner of INS and the Director of the Bureau of the Census together

- devise a plan of joint research for evaluating the quality of census and survey data on the foreign-born;
- further develop, test, and evaluate the three-card method that we devised for surveying the foreign-born about their legal status; and
- either publish a joint report or closely coordinate reports that present information on population size, net change, and emigration.

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## Agency Comments

INS indicated that it is currently working to improve the clarity of statistical reporting in the Yearbook and that it finds the typology very useful. INS also indicated that attempts to fill certain information gaps may be limited by inherent difficulties and cost considerations. In response to this concern, we added the phrase “where feasible” to the relevant recommendation.

With respect to our recommendation concerning the three-card method, INS made two comments:

- First, INS suggested that because it is not an expert in survey methodology, its appropriate role would be limited to providing support and consultation to Census in that agency’s efforts to develop, evaluate, and test the new method. We believe that, as stated above, the recommendation for joint INS-Census work allows latitude for INS and Census to determine their appropriate roles.
- Second, INS indicated that it would need an independent evaluation of the three-card method before committing funds to the method’s development. We agree that INS’ obtaining an independent evaluation of the method before proceeding with further development would be prudent.

The Bureau of the Census provided written comments, which raised no objections to our findings on data gaps and the quality of federal statistics on immigration. The Census Bureau also did not object to our recommendation that Census improve reporting and further evaluate existing data on the foreign-born.

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However, the Census Bureau stated a concern about its involvement in a survey designed to obtain information on the legal status of the foreign-born. Specifically, Census is concerned that even with the privacy protections of the three-card method, such data collection might compromise the trust and cooperation of the public. Our recommendation is only that the Census Bureau be involved in the development, testing, and evaluation of the new method—not necessarily in any resulting survey. We believe that Census would bring essential expertise to designing and overseeing this work. Testing—even large-scale testing—need not involve data collection by the Census Bureau. We have not revised our recommendation, but in the interest of clarity, we modified appendix III to indicate that contractors or other federal agencies might be used for actual data collection involving the three-card method.<sup>7</sup>

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<sup>7</sup>The full text of the Census Bureau's written response is reproduced in app. IV.

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# Experts on Immigration Whom We Consulted

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## Experts on Immigration

Charles B. Keely, Center for Immigration Policy and Refugee Assistance and Chair, Department of Demography, Georgetown University, Washington, D.C.

Daniel B. Levine, Westat, Inc., Rockville, Md.

Demetrios G. Papademetriou, Senior Associate and Director, Immigration Policy Program, Carnegie Endowment for International Peace, Washington, D.C.

Jeffrey S. Passel, The Urban Institute, Washington, D.C.

Michael S. Teitelbaum, Alfred P. Sloan Foundation, New York, N.Y.<sup>1</sup>

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<sup>1</sup>Mr. Teitelbaum was Vice Chair of the President's Commission on Immigration Reform.

# Demographic Characteristics

This appendix summarizes the available published data on demographic characteristics of foreign-born persons with respect to current (1996) flow and “stock”—that is, the size of the total foreign-born population. Major demographic characteristics include country of origin or birth, age or age group, sex, race and Hispanic origin, and marital status. Other variables of interest include area or state of U.S. residence and economic characteristics such as occupation, employment status, homeownership, poverty status, benefit receipt, and so forth. Not all demographic and other characteristics identified above were available for all legal statuses of foreign-born persons.

## Flow of Foreign-Born Population

This section discusses the available demographic information for categories of flow for which we were able to identify relevant published data—legal permanent residents (LPRS), refugees and asylees, and naturalized citizens (see ch. 3, table 3.1).<sup>1</sup>

## Legal Permanent Residents

The 1996 INS Statistical Yearbook reports only one demographic characteristic separately for new entries, transitions (adjustments),<sup>2</sup> and combined-flow (total) legal permanent residents: the country of birth. Other demographic characteristics—age group, sex, marital status, and state of intended residence—are reported only for combined-flow LPRS, which totaled 915,900 in fiscal year 1996. For one group of new LPRS—employment-based principal immigrants—the 1996 INS Yearbook also reports occupation.<sup>3</sup> Occupational detail is shown for just 261,000 of the remaining 864,000 LPRS; over 551,000 of these LPRS are students, children, homemakers, retirees, or unemployed workers.

<sup>1</sup>As explained in chapter 3, relevant flow data are not available for (1) foreign students, persons with temporary work visas, and others admitted temporarily who stay for longer than a year, and (2) illegal residents, i.e., EWIs and overstays who stay longer than a year. We also were unable to identify relevant flow data for the total number of foreign-born residents into the United States. Therefore, demographic characteristics are not discussed for these groups.

<sup>2</sup>As noted elsewhere in this report, aliens who transition to LPR status have often already been living in the United States for years; therefore, the demographic characteristics enumerated should be understood in that context, rather than interpreted as uniformly applying to the group of aliens newly arriving in the United States in 1996.

<sup>3</sup>Employment-based principal immigrants are persons who qualify for green-card status based on their labor market skills. Employers wishing to sponsor an alien for permanent residence in order to fill a job must first apply for labor certification from the Department of Labor. Labor certification is awarded when there are insufficient numbers of U.S. workers available to undertake the employment sought by an applicant and when the alien’s employment will not have an adverse effect on the wages and working conditions of U.S. workers similarly employed.

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More detailed tabulations for the 915,900 LPRS can be achieved by analyzing public use files.<sup>4</sup> Education and income are not included in these administrative records. When fully implemented, the new green-card survey (now in pilot stage) should provide a wealth of demographic information about new LPRS (Jasso et al., 1997). Such information will, no doubt, prove useful in policy-related analyses, such as assessing potential labor market impacts.

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### Refugees and Asylees

The 1996 INS Yearbook reports the country of birth for 93,347 newly admitted refugees and approved asylees in fiscal year 1996. No other demographic data on refugees or asylees are reported in the 1996 INS Yearbook, other than for those who became LPRS that year (there is no requirement for a refugee or asylee to become an LPR). The Department of Health and Human Services annually reports country of citizenship and state of initial resettlement (in the United States) for newly admitted refugees.<sup>5</sup>

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### Naturalized Citizens

The 1996 INS Yearbook reports the sex, age group, marital status, state of residence, major occupational group, region, and country of former allegiance for 1,044,689 aliens who became naturalized citizens in fiscal year 1996. As noted in chapter 2, these persons were already living in the United States.

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### Foreign-Born Population (“Stock”)

This section discusses the available demographic characteristics for categories of the resident foreign-born population for which we were able to identify relevant published data—legal permanent residents, illegal

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<sup>4</sup>The public use files contain information on aliens granted legal permanent resident status. They are available on magnetic tapes or cartridges from the National Technical Information Service. These files contain information on demographic characteristics, which may be broken out separately for new entries and transitions by the computer-oriented analyst. More information about the public use files, which are currently available for fiscal years 1972-96, is listed on p. 201 of the 1996 INS Yearbook.

<sup>5</sup>The fiscal year 1996 data are reported in “Table 4: Amerasian, Entrant, and Refugee Arrivals by Country of Citizenship and State of Initial Resettlement” (U.S. Department of Health and Human Services, 1998, p.A-8). The report also contains certain overall 1996 demographic characteristics (such as employment rate, labor force participation rate, and unemployment rate, by sex, and English proficiency, hourly wages, and homeownership at time of arrival). However, these data refer to refugees age 16 and older in a “five-year sample population consisting of Amerasians, Entrants, and Refugees of all nationalities who arrived in the years 1991-1996.” Thus, demographic characteristics for 1996 refugees are not reported separately, but the capacity to report them separately may exist, depending upon the characteristics of the sampling frame and whether the sample of refugees would be sufficiently large to obtain reliable statistical results.

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residents, naturalized citizens, and the total foreign-born (see ch. 4, table 4.1).<sup>6</sup>

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## Legal Permanent Residents

On its Internet site, the INS reports the estimated state of residence for its estimated 10,525,000 legal permanent residents (plus or minus 350,000, and ranges for each state) as of April 1996.<sup>7</sup> No other demographic data are reported. The state-level distributions of LPRs are based on separate calculations for each state as follows: (1) adding post-1990 LPRs to the 1990 census count of noncitizens, (2) subtracting 1990 estimates of illegal aliens and nonimmigrants, (3) subtracting estimates of post-1990 illegal aliens and nonimmigrants, and (4) adjusting for emigration and mortality. The ranges are based on adjustments to the 1990 Census. The ranges in the estimates, INS stated, resulted from adjustments made to the number of noncitizens counted in the 1990 census.<sup>8</sup>

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## Illegal Aliens

The 1996 INS Yearbook reports two demographic characteristics—the top 20 countries of origin and the top 20 U.S. states of residence—for 5 million illegal aliens as of October 1996.<sup>9</sup> No other demographic data are reported. A separate publication (Warren, 1997) provides estimates for all states (with upper and lower ranges) and point estimates for 97 countries.

The 1996 state-level distributions of illegals in the 1996 INS Yearbook were constructed from separate estimates of the distribution of EWIS and

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<sup>6</sup>As explained in ch. 4, we were unable to identify published statistics on the size of (1) the current population of refugees and asylees or (2) the current population of foreign students, legal temporary workers, and others legally here for a temporary period who have stayed longer than a year. We do not discuss demographic characteristics for these groups.

<sup>7</sup>The Internet address is <<http://www.ins.usdoj.gov/hqopp/>>. Some details of the estimation procedures are not stated there, however.

<sup>8</sup>Specifically, “the census undercount of non-citizens was assumed to range between 5 and 7 percent, while the percentage of aliens who reported that they were citizens but who were actually non-citizens was assumed to range between 1 and 5 percent.”

<sup>9</sup>The countries are Mexico, El Salvador, Guatemala, Canada, Haiti, Philippines, Honduras, Dominican Republic, Nicaragua, Poland, Bahamas, Colombia, Ecuador, Trinidad and Tobago, Jamaica, Pakistan, India, Ireland, Korea, and Peru. The states are California, Texas, New York, Florida, Illinois, New Jersey, Arizona, Massachusetts, Virginia, Washington, Colorado, Maryland, Michigan, Pennsylvania, New Mexico, Oregon, Georgia, District of Columbia, Connecticut, and Nevada. The information in the 1996 INS Yearbook is also listed on the INS Internet site at <<http://www.ins.usdoj.gov/stats/illegalalien/index.html>>.

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overstays.<sup>10</sup> For EWIs who entered the United States from 1988 to 1996, the totals were distributed to states “using INS statistics for the early 1990s on the destination of the beneficiaries of aliens who legalized” under the Immigration Reform and Control Act (IRCA) of 1986. Estimates of overstays who arrived during 1988-96 were distributed to state of residence “based on annual estimates of overstays by state of destination **for 1986 to 1989**” (emphasis added). The state-level data for 1996, therefore, reflect the distributions of illegal immigration for earlier years or legal (rather than illegal) immigrants and thus may not represent the actual current distributions.

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**Naturalized Citizens**

In the Bureau of the Census Current Population Reports, the characteristics reported for naturalized citizens include age group, sex, race, year of entry to the United States, educational attainment, labor force status, income, receipt of means-tested cash benefits (Aid to Families With Dependent Children, Supplemental Security Income, and general welfare), poverty status, and homeownership.

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**Total Foreign-Born**

Also in its publication Current Population Reports, Census reports age group, sex, race, citizenship (naturalized citizen or not a citizen), period of entry to the United States, educational attainment, labor force status, income, receipt of means-tested cash benefits (Aid to Families With Dependent Children, Supplemental Security Income, and general welfare), poverty status, and homeownership for 24,557,000 foreign-born persons in 1996.<sup>11</sup> It reports, for selected states, the percentage of state populations that were foreign-born.<sup>12</sup> It also reports the number and percentage of foreign-born from selected regions of the world and countries of birth.<sup>13</sup>

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<sup>10</sup>As explained in ch. 4, these estimates were made by combining estimates of illegal aliens from two major groups. The first group is aliens who entered surreptitiously across land borders, usually between official ports of entry, who often are referred to as EWIs (entries without inspection). The second group is “nonimmigrant overstays”—aliens who were legally admitted to the United States temporarily and stayed beyond the specified period of admission.

<sup>11</sup>The Bureau of the Census has placed numerous publications, including those pertaining to the foreign-born population, on its Internet site at <<http://www.census.gov>>.

<sup>12</sup>The states are those with the highest level of concentration: California, New York, Hawaii, Florida, New Jersey, Nevada, Texas, Arizona, and Rhode Island.

<sup>13</sup>The regions are Central America, Caribbean, South America, Europe, and Asia. The countries are Mexico, Canada, El Salvador, Cuba, Dominican Republic, Jamaica, Germany, Great Britain, Philippines, China, India, Vietnam, and Korea.

# The Three-Card Method

This appendix presents the logic of the three-card method and its roots in the literature; a summary of the development and initial field test of the method; the statistical expression of the three-card estimator, together with its variance and a discussion of the “technique effect” (i.e., variance costs); and finally, a discussion of how the method might be applied.

## Logic of the Method

The three-card method involves two processes: First, separate estimates of each **legal** status—that is, each status except that of illegal immigrant—are obtained through subsampling (i.e., by drawing three random nonoverlapping samples of foreign-born respondents) and asking each subsample a different legal-status question. Second, an estimate of the percentage who are here **illegally** is derived through subtraction. Specifically,

- As explained in chapter 5, the first subsample of respondents is shown the 3-box card in figure 5.1, which features the status “legal permanent resident” in Box A. The percent of subsample 1 who choose Box A represents an estimate of the percentage of the foreign-born population who are legal permanent residents.
- The second subsample (completely different persons) is shown the 3-box card in figure 5.2, which features the status “U.S. citizen” in Box A. The percent of subsample 2 who choose Box A represents an estimate of the percentage of the foreign-born population who are U.S. citizens.
- The third subsample (again, completely different persons) is shown the 3-box card in figure 5.3, which features two statuses—temporary visas and refugees or asylees (who have not obtained a green card) in Box A. The percentage of subsample 3 who choose Box A represents an estimate of the percentage of the foreign-born who are in these statuses.
- Box C on each card allows an estimate of the percentage who fall into categories not covered in Boxes A or B.<sup>1</sup>

No respondent is ever asked about illegal status—nor is any specific respondent ever identified as illegal. Each respondent is shown one (and only one) immigration status card, so no one could ever deduce whether a particular respondent is here illegally. However, an estimate of the percentage of foreign-born who are here illegally can be obtained by subtraction, that is, by subtracting from 100 percent each of the estimates of legal statuses detailed above.

<sup>1</sup>We expect that most respondents choosing Box C would be recoded as Box A or B, depending on their explanation of what their status is. A very small percentage of respondents should fall into immigration statuses not covered by the categories shown on the cards.

While the three-card method is unique, previously reported survey techniques also involved subsampling. These techniques include “randomized response” (Warner, 1965; Greenberg et al., 1969; Locander et al., 1976), “aggregated response” (Boruch and Cecil, 1979), and “item count” (Droitcour et al., 1991). The stratagem used in the three-card method of obtaining an estimate of illegals by subtracting estimated legals from total foreign-born is a “residual method” that derives from demographic techniques (Schryock, Siegel, and Associates, 1980; Warren and Passel, 1987).

Depending upon the sample design, the three-card method can be used to obtain a separate estimate of illegals for a sizable geographic area (such as California), simply by separately analyzing the data for the area of interest. This would require the sample design to include enough respondents from a particular subgroup or geographic area. In this way, estimates could potentially be obtained for several key states—for example, California, New York, and Texas—and the main characteristics of the illegal population could be described. Similarly, a separate estimate of illegals can be obtained for a particular demographic subgroup (such as women of child-bearing age or persons below the poverty line).

A unique element of the three-card method consists of a set of follow-up questions addressed to respondents who choose Box A. These questions are essential because they can help confirm the validity of answers for respondents choosing Box A or, alternatively, provide the information needed to reclassify certain respondents into Box B or C.<sup>2</sup>

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## Development and Initial Field Test

We developed a bilingual (English-Spanish) questionnaire through a series of pretests and then contracted for an initial, qualitative field test of the technique. Only one immigration-status card was tested: the card with “legal permanent resident” in Box A (see fig. 5.1). The field test was intended to gauge the acceptability of the 3-box card and the question series to both respondents and interviewers.

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<sup>2</sup>For example, some subsample 1 respondents who initially choose Box A in fig. 5.2 (U.S. citizenship) may actually have only applied for U.S. citizenship. By a line of questioning that asks when the respondent applied for citizenship and whether he or she has as yet actually received a notification and attended a swearing-in ceremony, those who have only applied for citizenship should be identified. Such respondents would then be recoded into Box B or C as appropriate.

The pretests to develop the three-card survey method were conducted by four GAO staff who are fluent in Spanish.<sup>3</sup> The pretest respondents consisted of Hispanic immigrants. GAO staff introduced themselves to prospective respondents and gained their cooperation at four locations—a “drop-in” center in Los Angeles; a legal clinic in Arlington, Virginia; and farms and farm-related facilities in Colorado and Pennsylvania.<sup>4</sup> In all, 27 pretest interviews were conducted by GAO staff.

Throughout the pretests and questionnaire revisions, our aims were to emphasize respect for the respondent; make sure the respondent understood the questions; and minimize “question threat.” For example, to reassure the respondents, just before being shown the immigration status card, they were told that the topic of the card would be immigration status. They were also told that the categories were arranged in such a way that the questions would not zero in on anything they might not want to tell us.

For respondents who picked Box A (legal permanent resident), follow-up questions were designed to help us judge the validity of the response. For example, respondents who picked Box A were asked to state the specific program through which they obtained their green card. No follow-up questions were asked of anyone who picked Box B.

We subjected the three-card survey method to a preliminary test of respondent (and interviewer) acceptance. Specifically, we contracted with Aguirre International, the survey organization that conducts the Department of Labor’s (DOL) National Agricultural Workers Survey (NAWS), to administer our survey in interviews that would be added on to the regular NAWS data collection effort.<sup>5</sup> A total of 81 interviews were completed by four interviewers at multiple sites in six states (Arizona, California, Florida, Georgia, Kentucky, and Texas) between November 1997 and February 1998. Consistent with NAWS procedures, farmworker respondents were paid \$10 cash as an incentive to participate.

Interviewers reported encountering varying degrees of apprehensiveness on the part of respondents. For example, in Florida, the interviewer’s impression was that all respondents were illegal, fearful of the

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<sup>3</sup>Three are bilingual Hispanics; the fourth had lived and worked in Hispanic countries for a total of 5 years.

<sup>4</sup>We identified these locations through the help of charitable organizations and health clinics, and by directly contacting farms in the vicinity of our Denver Field Office.

<sup>5</sup>The contractor did not provide the identities of farm employers to GAO.

Immigration and Naturalization Service (INS), and nervous about the survey. At some locations, there were instances where respondents voiced hostility, seemed to identify the survey with INS, or initially mistook the interviewer for a tax collector. At other locations, respondents appeared to be relaxed, and some even volunteered to the interviewer that they were here illegally.

All 81 respondents answered the immigration questions. Interviewers in Arizona, California, and Kentucky specifically mentioned, in debriefings, that respondents did not find the 3-box question on legal status too intrusive.

Of the 81 respondents, 30 selected Box A, that is, claimed to have a valid green card. Each respondent who selected Box A was able to identify a specific category or program under which he or she obtained a green card. Most of these (23 out of 30) said they had obtained their green cards through the amnesty (Immigration Reform and Control Act/Seasonal Agricultural Workers) program or through the Family Unity program.

Fifty-one respondents selected Box B, which contained the undocumented worker category and three other legal immigration categories. Most of those who selected Box B were probably working without legal authorization, based on NAWS and our prior work; that is, the population of foreign-born farmworkers is thought to contain few naturalized U.S. citizens and very few workers here with temporary work visas.<sup>6</sup>

The interviewer working in Florida said that some respondents hesitated to select a box. However, the data indicate that all Florida respondents did make a selection—and all picked Box B.

No one selected Box C—“Other categories not included in Box A or B.” No one was coded as “unsure” about which box applied to him or her.

Overall, the general approach—including the 3-box card, the explanation leading up to the card, and the specific questions asked—appeared to be acceptable to respondents. However, three issues emerged, as follows:

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<sup>6</sup>Only about 3 percent of farmworkers claim to be naturalized citizens in National Agricultural Workers Surveys (Mines et al., 1997). According to a recent GAO report, in fiscal year 1996, only about 15,000 farmworkers entered the country through the H-2A nonimmigrant guestworker program (i.e., temporary agricultural work visas); this “represents less than 1 percent of the agricultural field workforce” (GAO/HEHS-98-20, p. 18).

- Although most respondents did not appear to be confused about which box to choose, a few respondents who told interviewers that they had “fake” green cards or had “border crossing cards” were unsure which box to pick. There was also one respondent in Arizona who was initially not sure which of two legal categories applied to him. Interviewers had been trained to help respondents, when necessary, by restating (paraphrasing) questions and providing explanations. In the future, to help protect the privacy of illegal immigrants (by avoiding the need for them to ask a question that reveals their status), more specific instructions might be voiced to all respondents at the outset. For example, “Persons with a ‘fake’ green card—not a valid one—belong in Box B.”
- Although some respondents in Florida said they found the icons (pictures) on the cards useful, others voiced criticisms. Interviewers reported that some respondents thought the icons were childish and unnecessary, and even that the card was unnecessary because they had understood the verbal instructions and felt that they did not need help. The California interviewer indicated that respondents with less education tended to like the card more than those with more education—perhaps reflecting reactions to the icons.<sup>7</sup>
- There were also criticisms of some specific icons: The icon for refugees shows a person running toward the United States, and some respondents interpreted the icon as being an undocumented worker running away from U.S. law enforcement officers. The icon for student, worker, or tourist visa is a suitcase with various stickers, and some felt that a suitcase was not clearly linked to an immigration status.

The reactions to the icons suggest there is a need for focus groups or other qualitative work aimed at evaluating and possibly revising the icons and, if possible, finding a way to present them that is more acceptable to those respondents who do not need them.

More generally, as stated in chapter 5, we believe that extensive testing—including testing to explore the acceptability of the technique to respondents and to estimate the validity of responses—should be conducted before the technique is used in a large-scale survey.

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<sup>7</sup>In addition, one might reason that not all respondents would appreciate the 3-box card. Specifically, those respondents who do have their green cards would not need the 3-box card; i.e., logically, they might just as soon answer a direct question. By contrast, illegal immigrants might appreciate the card. (The Florida interviewer, who said that some respondents found the 3-box card useful, thought that all respondents there were working illegally; all chose Box B.)

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## Statistical Expression of the Estimator and Variance

The statistical expression of the three-card estimator of the percent illegal, its variance, and the “technique effect” are shown in figure III.1. Clearly, there are variance costs associated with using an indirect method. First, each estimate of legal status is based on a subsample, rather than the full sample. Second, the indirect estimate of illegals is affected by the variance of each of the estimates that is included in its calculation. Assuming that the three subsamples are of equal size and that for each card 25 percent of respondents belong in Box A, the confidence interval for a three-card method estimate of illegals would be three times as large as a corresponding direct estimate. However, it must be kept in mind that variance costs depend heavily upon (1) the distribution of immigration status in the population surveyed and (2) the relative sizes of the three subsamples. Two examples are presented below to give the reader a flavor of what “real world” precision might be:

- Example 1: In a population of foreign-born agricultural workers, the distribution of immigration status might be 55 percent illegal; 36 percent legal permanent residents; 3 percent U.S. citizens; and 6 percent temporary workers, refugees, or asylees. Assuming this distribution and a total sample size of only 1,000, allocated with 100 respondents to answer the card with U.S. citizen in Box A; 200 to answer the card with temporary visas, refugees, or asylees in Box A; and 700 to answer the card with legal permanent resident in Box A, the 95-percent confidence interval for an estimate of 55 percent illegal would be 49-61 percent.
- Example 2: In the residential foreign-born population of the United States, taken as a whole, the distribution might be 22 percent illegal; 30 percent U.S. citizens; 38 percent legal permanent residents; and 10 percent temporary workers, refugees, or asylees (without green cards). Assuming this distribution and a total sample size of 13,000—the approximate number of foreign-born in the March Current Population Survey (CPS) supplement—with 6,000 respondents allocated to answer the card with legal permanent resident in Box A; 5,500 allocated to answer the card with U.S. citizen in Box A; and 1,500 to answer the card with temporary workers, refugees, or asylees in Box A, the 95-percent confidence interval would be 20-24 percent.

**Appendix III**  
**The Three-Card Method**

**Figure III.1: Statistical Expression of the Three-Card Estimator, Its Variance, and Technique Effect**

Let

- $P_x$  = the proportion of foreign-born persons with illegal status
- $P_1$  = the proportion of foreign-born persons who are U.S. citizens
- $P_2$  = the proportion of foreign-born persons who are resident aliens
- $P_3$  = the proportion of foreign-born persons here legally with a temporary work/study visa or as a refugee or asylee
- $P_1', P_2', P_3'$ , and  $P_x'$  = direct-question estimates of  $P_1, P_2, P_3,$  and  $P_x$ , respectively
- $n_1, n_2,$  and  $n_3$  = sample sizes chosen for estimating  $P_1, P_2,$  and  $P_3,$  respectively
- $EST(P_x)$  = the indirect estimator of the proportion with illegal status

Assuming that  $P_x, P_1, P_2,$  and  $P_3$  sum to 1.00 (i.e., that taken together, the legal categories asked about plus the illegal category are exhaustive), the indirect estimator of  $P_x$  and its variance are defined as follows:

$$EST(P_x) = 1.00 - (P_1' + P_2' + P_3')$$

$$VAR(EST(P_x)) = 0 + VAR(P_1') + VAR(P_2') + VAR(P_3') = VAR(P_1') + VAR(P_2') + VAR(P_3')$$

Further assuming, for purposes of simplicity, that  $n_1 = n_2 = n_3 = 1/3 n$  (where  $n$  is the total sample size):

$$VAR(EST(P_x)) = [(P_1Q_1)/(1/3n)] + [(P_2Q_2)/(1/3n)] + [(P_3Q_3)/(1/3n)]$$

$$= (P_1Q_1 + P_2Q_2 + P_3Q_3)/(1/3n)$$

$$= 3(P_1Q_1 + P_2Q_2 + P_3Q_3)/n$$

where  $Q$  is the complement of  $P$

And assuming, again for purposes of simplicity, that  $P_x = P_1 = P_2 = P_3 :$

$$VAR(EST(P_x)) = 3[(3)(P_xQ_x)]/n = 9(P_xQ_x)/n$$

$$TECH-EFF = VAR(EST(P_x))/VAR(P_x') = 9(P_xQ_x/n)/(P_xQ_x/n) = 9$$

A technique effect of 9 implies a tripling of the standard error; a 95% confidence interval for  $EST(P_x)$  would be 3 times as wide as for a direct estimate based on the same total  $n$ .

We note that in the foregoing examples, the sizes of the three samples were chosen according to the general statistical principle of “optimal allocation.”<sup>8</sup> The confidence intervals in the examples would have been larger if three equal-sized samples had been used.

<sup>8</sup>Optimal allocation minimizes the variance of an estimate by assigning a greater proportion of the sample where the variance is highest—and a smaller proportion where the variance is lowest.

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## Possibilities for Implementation

This section considers possibilities for implementing the three card method—assuming that further research proves its viability. There are two key points: First, the three-card method is designed for use in a face-to-face survey in which the questionnaire is administered by a professional interviewer. It cannot be used in a telephone survey, because respondents could not see the cards.<sup>9</sup> Second, because the relevant population consists of the foreign-born, an appropriate survey to utilize the method would be either (1) a survey that targets populations with high concentrations of foreign-born (e.g., NAWS or a survey of a community with high concentrations of foreign-born) or (2) an ongoing survey conducted for other purposes that is large enough to include a sizable foreign-born group.

The CPS is one example of a relatively large survey. The proposed American Community Survey is much larger. Neither survey conducts all interviews in person. (The CPS, e.g., repeatedly interviews the same households, but of eight total interviews, only the first and the fifth are conducted in person.) A special plan would be required if the three-card method were to be used with surveys that do not conduct all interviews in person. Various other federal surveys conducted by agencies other than Census—or surveys conducted by contractors—might also be considered.

Another issue is that—at least initially—the sponsors of ongoing surveys would probably deem the three-card method too sensitive to include. Therefore, one possibility that was suggested in conversations with staff and officials at the Bureau of the Census is a “follow-back” survey. For example, a large ongoing survey might be used to identify a sample of foreign-born respondents who would be “followed back” within, for example, a few months of the survey interview; a brief reinterview would then be conducted, including the three-card method.<sup>10</sup>

It would be more costly to conduct house-to-house canvassing to identify foreign-born respondents, but the specific costs would depend on the extent to which canvassing efforts could be targeted, based on existing census and survey data on the locations where foreign-born persons are concentrated.

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<sup>9</sup>It is not known at this time whether the three-card method could be modified for use in a mail survey.

<sup>10</sup>If such a plan were acceptable to an ongoing survey, the cost might be roughly \$300 per completed follow-back interview. This would put the cost of 12,000 interviews at roughly \$3.5 million. Of course, if the three-card method were eventually accepted as an add-on to the questions asked in an ongoing survey, the cost per interview would be a small fraction of \$300.

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**Agency Comments**

The Census Bureau indicated a concern that appendix III gives an “overly optimistic evaluation” of the three-card method. To ensure clarity, we added a sentence to appendix III, which summarizes the caveat stated in chapter 5—that is, that extensive testing is needed before including the new method in a large-scale survey.

# Comments From the Bureau of the Census



**UNITED STATES DEPARTMENT OF COMMERCE**  
**Bureau of the Census**  
Washington, DC 20233-0001

OFFICE OF THE DIRECTOR

July 13, 1998

Mr. L. Nye Stevens  
Director, Federal Management and Workforce Issues  
General Government Division  
General Accounting Office  
Washington, DC 20548

Dear Mr. Stevens:

Thank you for the opportunity to respond to certain technical and policy issues raised in the General Accounting Office (GAO) draft report entitled *Immigration Statistics: Information Gaps, Quality Issues Limit Utility of Federal Data to Policymakers*. These concerns reflect a review of the draft report by the Census Bureau.

Our major concern relates to the statement in the third recommendation that "the Commissioner of INS and the Director of the Bureau of the Census should together . . . further develop, test, and evaluate the three-card method that GAO devised for surveying the foreign-born about their legal status . . ." The three-card method is described in Appendix III (p. III-1) of the report as follows:

"The three-card method involves two processes: (1) obtaining separate estimates of each **legal** status through subsampling (i.e., by drawing three random nonoverlapping samples of foreign-born respondents) and asking each subsample a different legal-status question and (2) deriving an estimate of the percentage who are here **illegally** through subtraction."

For each subsample, one of the three possible response categories includes "undocumented" along with other immigration statuses.

We are concerned that Appendix III gives an overly optimistic evaluation of the three-card method and that the potential problems associated with this method could be more serious than described in the report. Respondents may have difficulty understanding the categories presented in the cards, and those who are in this country illegally may be unwilling to select a response category on immigration status that includes "undocumented." Elsewhere, the report does acknowledge that extensive testing, including field testing, cognitive testing, and validity testing, is needed before the technique is used in a large scale survey (pp. 5-14 and 5-15).

Now on p. 69.

Now on p. 56.

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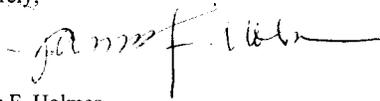
**Appendix IV**  
**Comments From the Bureau of the Census**

Mr. L. Nye Stevens

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Finally, we have a major policy concern. Even if the technical issues related to the three-card method were resolved favorably, we would have serious reservations about the Census Bureau's involvement in any survey designed to obtain information on the legal status of the foreign-born population. The Census Bureau has a mandate to collect information on the characteristics of the resident population of the United States, regardless of legal status. A survey designed to provide estimates of the undocumented population, even if the respondent is asked to respond to a category including undocumented along with other immigration statuses (as in the case of the three-card method), would seriously risk compromising the Census Bureau's ability to maintain the trust and cooperation of the public in carrying out its surveys and censuses, including most notably the 2000 decennial census of population and housing.

Sincerely,



James F. Holmes  
Acting Director

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