

# Population Division

**MEASURING THE FOREIGN-BORN POPULATION  
IN THE UNITED STATES WITH  
THE CURRENT POPULATION SURVEY: 1994-2002**

by

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This paper reports the results of research and analysis undertaken by U.S. Census Bureau staff. It has undergone a Census Bureau review more limited in scope than that given to official Census Bureau publications. This report is released to inform interested parties of ongoing research and to encourage discussion of work in progress.

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***Measuring the Foreign-Born Population in the United States  
With the Current Population Survey 1994-2002<sup>1</sup>***  
by A. Dianne Schmidley and J. Gregory Robinson

***Introduction***

The estimated size of the foreign-born population of the United States in 2002 was 32.5 million based on data collected in the Current Population Survey (CPS) - Annual Social and Economic Supplement (ASEC).<sup>2</sup> In absolute terms, this estimate represented an increase of 64.2 percent or 12.7 million over the estimated 19.8 million in the 1990 census, the largest foreign-born population living in the United States since record-keeping began in 1850.<sup>3</sup>

The challenge of monitoring the welfare of this newly arrived and large foreign-born population has created a demand for statistical information.<sup>4</sup> Until 1994, when nativity items were added to the CPS, the decennial census was the sole source of regularly collected information about this group.<sup>5</sup> While census data remain a primary source of information about the foreign born for subnational governmental jurisdictions and other small areas, census data are collected only once every ten years and quickly become outdated. In recent years, the American Community Survey (ACS) has become a new source of information. ACS data are collected monthly and tabulated annually, and have been designed to update and eventually replace decennial census sample data.<sup>6</sup> The relatively larger ACS sample yields more precise estimates than the CPS, for both subnational geographic areas and foreign-born population subgroups.

Over the past three years, the Census Bureau has been developing and testing a citizenship question for inclusion in the Survey of Income and Program Participation (SIPP) core questionnaire. The new question is designed to identify who is native and who is foreign born,

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<sup>1</sup> This paper updates an earlier paper that evaluated Current Population Survey (CPS) foreign-born data from 1994 to 1997. See Schmidley, A.D. and Robinson, J. G., *How Well Does the Current Population Survey Measure the Foreign-Born Population in the United States?* Population Division Working Paper Series, No. 22. U.S. Census Bureau, 1998. Comparisons in this paper have undergone statistical testing and are significant at the 90-percent confidence level unless otherwise noted.

<sup>2</sup> Beginning in 2003, the March Annual Demographic Supplement was renamed the Annual Social and Economic Supplement or ASEC. Sometimes referred to as the civilian noninstitutionalized population, and sometimes referred to as the household population, the population universes of the ASEC and basic (monthly) surveys are discussed below.

<sup>3</sup> Schmidley, A.D. *The Foreign-Born Population in the United States: March 2002.* (P20-539). U.S. Census Bureau. 2003. Schmidley, A. D. Section 1. "Trends in Immigration and the Foreign-Born Population." *Profile of the Foreign-Born Population in the United States:2000 (P23-206)*. U.S. Census Bureau. 2002.

<sup>4</sup> In 1996, the U.S. government enacted the *Personal Responsibility and Work Opportunity Reconciliation Act of 1996* and the *Illegal Immigration Reform and Immigration Responsibility Act of 1996*. Both laws contain provisions for monitoring the welfare of the foreign born and native and foreign-born children of foreign born parents. In 2001, the Census Bureau officially implemented a CPS sample expansion of 28,000 households designed to improve the accuracy of state estimates of children's health insurance coverage. The SCHIP expansion is discussed in Section 1.4 below.

<sup>5</sup> Schmidley, A. D. *Profile of the Foreign-Born Population in the United States:2000 (P23-206)*. U.S. Census Bureau. 2001. Appendix A. "Foreign Born and Other Terms: Definitions and Concepts" pp.55-56. The foreign-born population includes both immigrants and non-immigrants. The latter includes temporary workers with work permits, long-term visitors, diplomats, foreign students, unauthorized migrants, etc.

<sup>6</sup> The sample or long-form questionnaire is the source of census nativity data. The ACS questionnaire replicates the long form.

and within the foreign-born-population, who claims U.S. citizenship. As SIPP is a longitudinal survey, chronological timing can be established between factors such as the acquisition of citizenship and participation in social programs.<sup>7</sup> Compared with the CPS, ACS, or census, the SIPP sample is relatively small, and subnational estimates or national estimates by detailed demographic subgroups are not statistically precise.

Several aspects of CPS data make it essential for research and evaluation:<sup>8</sup>

- CPS nativity items produce additional information about the foreign born compared with censuses, ACS, or SIPP. For example the CPS includes questions on two key nativity items--mother's place of birth and father's place of birth, known collectively as the 'parental nativity' questions.<sup>9</sup>
- CPS data can be used to measure longitudinal change in individual cases and changes over time in aggregate variables.<sup>10</sup>
- CPS monthly or basic data are available within 30 days of collection<sup>11</sup>

In this paper, we evaluate CPS nativity data collected between January 1994 and December 2002. Where feasible, we compare these data with data from other sources. We have incorporated a limited amount of the information found in "How Well Does the Current Population Survey Measure the Foreign-Born Population in the United States?" which evaluated the March Annual Social and Economic Supplement (ASEC) nativity data 1994 to 1997.<sup>12</sup> The current paper extends the period to 2002 and includes information about the monthly or basic survey.<sup>13</sup>

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<sup>7</sup> One of the effects of the legislation cited in Footnote 4 may have been increased acquisition of U.S. citizenship.

<sup>8</sup> For more information, see Malone, Nolan J., *Evaluating Components of International Migration: Consistency of 2000 Nativity Data*, Population Division Working Paper Series, No. 66. U.S. Census Bureau, 2002.

<sup>9</sup> Studies involving the welfare of children of the foreign born are dependent on these data.

<sup>10</sup> For example, the Bureau of Labor Statistics tracks monthly unemployment rates using basic CPS data, and economists create 3-month moving averages for econometric models.

<sup>11</sup> ACS annualized estimates lag CPS annualized estimates by about eight months.

<sup>12</sup> U. S. Census Bureau Population Division Working Paper No. 22, 1998. Although ASEC cases are interviewed in February, March, and April, the ASEC has been traditionally linked with March because ASEC second stage weights are based on demographic estimates of the civilian noninstitutionalized population as of March 1. See Section 1.5. "CPS Sample Weighting" for more information.

<sup>13</sup> See Footnote 1.

## ***1. The Current Population Survey and the foreign-born population.***

### ***1.1. Purpose of the survey.***

For over sixty years, the Federal Government has collected information about the population of the United States using the Current Population Survey. The Census Bureau assumed responsibility for the CPS in 1942. In 1959, the Bureau of Labor Statistics in the Department of Labor assumed responsibility for analysis and publication of labor force and employment data from the monthly CPS.<sup>14</sup> The basic or monthly survey captures information about age, race, sex, and, beginning in 1994, nativity status. Supplemental questions have been added to the core questionnaire on both a random and periodic basis. For example, special supplements containing immigration-related questions were added to the basic CPS in selected months in the 1980s and in 1991.<sup>15</sup> On the other hand, the ASEC has never included questions beyond the core items.

### ***1.2. Selected aspects of the CPS sample design.***

The CPS sample design is fully described elsewhere.<sup>16</sup> However, it is important to note a few aspects of the design that affect estimates of the foreign-born population derived from CPS data (discussed in more detail below):

- The CPS is a multistage probability sample of housing units in the U.S. The *Annual Social and Economic Supplement (ASEC)* includes additional sample to increase the precision of estimates associated with selected groups. Neither the *basic* (monthly) or ASEC sample specifically target groups by nativity (native or foreign born).
- CPS sample data are weighted to universe levels through a multistage process. The *initial* stage is based on the inverse proportion of the sampling probabilities. The *last* stage involves a ratio adjustment process where survey estimates are controlled to independent demographic estimates based on selected characteristics such as age, sex, race and Hispanic origin. A demographic estimate of the foreign born is not applied during weighting. (See Section 1.5 below)
- The CPS sample frame and stratification levels are based on geography and socioeconomic data from the latest census. Groups such as the foreign born who are not represented in the sample strata and non-randomly distributed across the United States may be over or under represented from month to month depending on the location of the housing units selected for inclusion in the sample.

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<sup>14</sup> U.S. Department of Labor, *Employment and Earnings, January 2002*.

<sup>15</sup> Throughout the 1980s and in 1991 the Census Bureau collected intercensal data on the foreign born by including supplements to selected monthly CPS surveys fielded in April 1983, June 1986, June 1988, November 1989, and November 1991. For additional information about the 1980s supplements (1991 excluded), see *Guide to International Statistics: The Sources, Collection, and Processing of Foreign-Born Population Data at the U.S.* Census Bureau, J. M. Costanzo, et al., Population Division Working Paper Series, No. 68. U.S. Census Bureau, 2002.

<sup>16</sup> See 'Design of the Current Population Survey Sample', pp. 3-1 to 3-17 in *Design and Methodology*, Current Population Survey Technical Paper 63RV, U.S. Bureau of the Census, Washington DC, March 2002.

- Each monthly CPS sample contains eight rotation panels, and every household in the survey is assigned to a specific panel. Each panel is rotated in for 4 consecutive months, out for 8 months, and back in for 4 months over a 16 month period, and then replaced. In any given month, one of the household panels is interviewed for the first time, one for the second time, and so on, up to eight. The CPS design includes a 75 percent overlap in the sample addresses from month to month and a 50 percent overlap from year to year for the same month, a feature that reduces sample error for month-to-month and year-to-year comparisons.

### ***1.3. CPS sample universe.***

The Bureau of Labor Statistics (BLS) is the primary sponsor of the CPS and refers to it as the ‘Household Survey’ in publications such as *Employment and Earnings*. In published reports, the Census Bureau states that the CPS universe is the civilian noninstitutionalized population. Although it is probably easier for the lay person to think of the CPS as a household survey as opposed to a survey of the civilian noninstitutionalized population, there are a few caveats associated with either classification.

All residents of the U.S. live in either households or group quarters (GQ).<sup>17</sup> The GQ population can be categorized as institutionalized or noninstitutionalized and civilian or military. People living in relatively homogeneous group quarters circumstances, such as soldiers in military barracks, patients in nursing homes, and incarcerated prisoners, are relatively easy to exclude from the civilian noninstitutionalized population. However, other population groups such as households with military members, college students in dorm rooms whose usual place of residence is a parental home, or the staff of prisons and hospitals who live in census defined special places are more difficult to classify.

The Current Population Survey *Annual Social and Economic Supplement (ASEC)* universe is relatively equivalent to the household population because it: 1) includes households with military members who live off post or on post with their families as long as one civilian adult lives in the housing unit; and 2) excludes most GQ units.<sup>18</sup> The CPS *basic* universe is more or less equivalent with the civilian noninstitutionalized population because it excludes the military completely. The basic or monthly survey also excludes most group quarters units. The weighted difference between the basic and ASEC samples is about 700-800,000 people, all military.

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<sup>17</sup> Census 2000 definitions of household and group quarters populations can be found in ‘Appendix B. Definitions’, *Census 2000 Summary File 1 United States*, U.S. Bureau of the Census, Washington DC, 2000. See *Design and Methodology*, Current Population Survey Technical Paper 63RV, U.S. Bureau of the Census, Washington DC, March 2000, pages 3-7 for CPS definitions.

<sup>18</sup> Occasionally a sample housing unit is discovered to be a group quarters after the field representative (FR) begins interviewing. Nevertheless, the FR collects information about each person living in the unit and that information is included in the CPS ‘person’ file. These cases are identified as “in group quarters” on the person file and omitted from the household file. College students in dorm rooms whose usual place of residence is a parental home are classified as part of the CPS household population even though they could be considered members of the GQ population. See Figure 7-5 “Summary table for determining who is to be included as a member of the household” page 7-6, in *Design and Methodology*, Current Population Survey Technical Paper 63RV, U.S. Bureau of the Census, Washington DC, March 2000.

The sample differences described above also pertain to the foreign-born population. For example, the March 2002 *basic or monthly weighted estimate* of the foreign born (excluding all military) was 32.4 million. In contrast, the 2002 *ASEC weighted estimate* of the foreign born (including some military and controlled to March 1) was 32.5 million--a difference of about 100,000 people. Owing to the exclusion of most of the GQ population and military in households, in any given month, the *basic* estimate probably understates the foreign-born population by about 500,000.<sup>19</sup> In contrast, the *ASEC* estimate excludes only about 400,000 people because some military personnel are present in the sample cases.

#### **1.4. CPS 2001 sample expansion.**

Following Census 2000, the Census Bureau began testing an *expanded CPS monthly or basic* sample. In July 2001, the BLS officially included the expanded sample in its labor force statistics.<sup>20</sup> The Census Bureau also increased the *ASEC* sample for minorities and households with children and a white householder. The *expanded ASEC sample* in 2001 consisted of 78,000 interviewed households. The primary goal of the *ASEC* expansion is the production of more precise as well as reliable state estimates of low-income children without health insurance (State Children's Health Insurance Program or SCHIP). Although the SCHIP sample expansion was specifically designed to improve state-based estimates of children's health insurance status, other estimates have been improved as a result of the additional sample. (See section 1.6 below.)<sup>21</sup>

#### **1.5. CPS sample weighting.**

The CPS is a "controlled" survey through which the Census Bureau transforms sample counts into national population totals in several stages.<sup>22</sup> The initial stage of weighting is done at the household level when base-weights are assigned to sample cases (a weight equal to the inverse of the case's probability of selection). The next major step in weighting the sample data is to inflate the base-weights by an average of about 6 to 7 percent to account for non-interview households (units eligible for interview but not actually interviewed).

The second stage of weighting involves individual person cases. This step is designed to compensate for deficiencies resulting from survey under-coverage of the sample frame by controlling the first-stage weighted sample data to demographic estimates derived from combining census data and administrative records data. Second-stage weights are based on three

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<sup>19</sup> The total resident foreign-bom population in April 1, 2000 was 31,107,889 which included 373,863 foreign bom persons living in group quarters, or about 1.2 percent of the foreign bom. In contrast, the foreign-born group quarters population enumerated in the 1990 Census was about 0.5 million people. See "Appendix C. Comparison of Population Universes" in *Profile of the Foreign-Born Population in the United States, 2000*. Washington DC, 2001.

<sup>20</sup> The number of eligible households was increased from 50,000 to 60,000. Of the eligible *basic* households, approximately 56,000 were actually interviewed monthly.

<sup>21</sup> See "Appendix B. Sample Expansion and Introduction of Census 2000-Based Population Controls" page 32, in *Poverty in the United States: 2001* (P60-219). U.S. Bureau of the Census, Washington DC, October 2002.

<sup>22</sup> For more information see "Appendix D. Derivation of Independent Population Controls", *Current Population Survey: Design and Methodology*, Technical Paper No. 63RV. Washington DC, March 2002.



distributions derived independently of the survey:

- State of residence;
- Age, sex, and Hispanic origin; and
- Age, sex and race.

The independent values from the demographic estimates used to weight the survey are benchmarked to the previous census. CPS estimates benchmarked to 1990 differ from the 1990 census universe by the inclusion of a statistical adjustment for net under-enumeration in the 1990 census. No adjustment for under-enumeration resulted following Census 2000.<sup>23</sup> Demographic estimates used to develop second-stage weights benchmarked to 1990 were derived from a *modified census base*, sometimes called MARS for the “Modified Age-Race-Sex-Hispanic origin” distribution, where the category ‘Other’ race has been proportionally distributed to four major race groups.<sup>24</sup> There was no immediate requirement for a fully developed MARS file for Census 2000.<sup>25</sup> Demographic estimates benchmarked to 2000 reflect change since the census for five race groups: White; Black; American Indian and Alaska Native; Asian; and Hawaiian and Pacific Islander. Prior to 2000, the Asian and Pacific Islander groups were combined.

### ***1.6. Change in population controls.***

In 2001, the Census Bureau introduced a new set of demographic estimates benchmarked to Census 2000. These new estimates currently form the basis of the CPS controls or second stage weights described in Section 1.5. For evaluative purposes, the Census Bureau retrofitted the April 2000 census-based weights to *basic* survey data from October 1999 forward.<sup>26</sup> Monthly or *basic* CPS data weighted to population controls benchmarked to the 1990 census and Census 2000 are shown in [Figure 1](#).<sup>27</sup> The 2000 controls increased the *basic* March 2000 foreign-born population from 27.9 million (weights based on estimates benchmarked to 1990) to 29.5 million

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<sup>23</sup> The Census 2000 count of 281.4 million is 0.34 million lower than the revised Demographic Analysis (DA) estimate of 281.8 million. Relative to DA, the difference implies a net undercount of 0.12 percent. This net coverage is dramatically different from that in the 1990 or any other previous census. In 1990, the revised net undercount estimated by DA was 4.2 million or 1.65 percent. See U.S. Bureau of the Census, 2001b, “ESCAP II: Accuracy and Coverage Evaluation: Demographic Analysis results,” by J. Gregory Robinson. Executive Steering Committee For A.C.E. Policy II, Report No.1, October 13.

<sup>24</sup> Beginning in January 2003, the CPS will include a new race question that will undoubtedly lead to additional changes. For more information about the development of the 1990 MARS file, see ‘Modification of the census race and age distributions,’ page D-14 in “Appendix D. Derivation of Independent Population Controls”, *Current Population Survey: Design and Methodology*, Technical Paper No. 63RV. Washington DC, March 2002.

<sup>25</sup> A 1990 type file was obviated by changes in the Census 2000 age question. However, a modified race file was created. See *Modified Race Data Summary File, 2000 Census of Population and Housing Technical Documentation*. Issued September 2002 by the U.S. Census Bureau, Washington DC.

<sup>26</sup> Official CPS data released through December 2001 reflect the 1990 benchmark.

<sup>27</sup> Monthly estimates before 1994 were benchmarked to the 1980 Census. The marked increase between December 1995 and January 1996 is owing to a sample cut in the ten largest states. Apparently, the cut disproportionately affected the native and foreign-born populations.

(weights based on estimates benchmarked to 2000), for a difference of about 1.6 million.<sup>28</sup>

The introduction of the 2000 controls resulted in an increase of 1.9 million foreign born in the 2001 *Annual Social and Economic Supplement*, as shown in [Table A-1](#), column 3.<sup>29</sup> The new controls added 109,000 more children and 56,000 more people 65 years and over. The labor force participation rate increased by 0.7 percentage points; unemployment rate by (0.1 percentage points); educational attainment (0.1 percentage points); child poverty (0.1 percentage points); and the poverty of those age 65 and older (0.2 percentage points).<sup>30</sup> The inclusion of the expanded sample discussed in Section 1.4 produced no statistical differences *for the estimates in Table A-1*. (column 4).<sup>31</sup>

## **2. Conceptualizing and measuring nativity characteristics.**

### **2.1. Identifying the foreign-born population.**

Decennial census and ACS data identify the *native population* by their responses to the citizenship question: (1) Born in the U.S.; (2) Born in a U.S. Island Area e.g. Puerto Rico; or (3) Born abroad of at least one U.S. citizen parent.<sup>32</sup> The *foreign born* are those who reported they are (4) Naturalized citizens or (5) Not U. S. citizens. The CPS classifies native or foreign born based on responses to both birthplace and citizenship questions.

The foreign-born population includes people currently living in the U.S. who:

- Entered the U.S. with immigrant visas issued by the U.S. State Department;
- Entered the U.S. in a refugee, asylum seeker status;
- Entered with student, business, or other extended visas;
- Entered without documents, or violated the terms of their documents while in the U.S.

Although the terms ‘foreign born’ and ‘immigrant’ are sometimes used interchangeably in reference to CPS, ACS, and census data, the Census Bureau does not ask questions about

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<sup>28</sup> The foreign-born population estimate (29,480,000) reflected in Figure 1. “Foreign born in the U.S. Jan 1994 - Dec. 2002”, differs from the estimate shown in Table 5 (30,081,000) of *Evaluating Components of International Migration: Consistency of 2000 Nativity Data*, Population Division Working Paper No. 66 by Nolan Malone. Figure 1 reflects CPS *basic* or monthly results controlled to *final* Census 2000 results, whereas the Malone report reflects the 2000 *ASEC* estimate weighted with preliminary Census 2000 results. The 2000 *ASEC* estimate reweighted with final Census 2000 results is 29,985,000.

<sup>29</sup> In 2000, the *weighted* difference between the basic and *ASEC* foreign-born samples controlled to March 1, 2000 was 29,985,000 - 29,480,000 or 505,000 members of the military living in households. In 2001, this difference was 31,811,000 - 31,435,000 or 376,000.

<sup>30</sup> These differences result from a change in the population control. While there is sampling error associated with these differences, the amount of sampling error is trivial. Therefore, no significance testing was performed on these differences.

<sup>31</sup> Estimates not shown in this table may have been affected by the expanded sample.

<sup>32</sup> Currently, the wording in census and ACS questionnaires asks about birth abroad to an “American” parent. The CPS backs into the question by determining the birth place of the respondent and each parent. Those born abroad with both parents born abroad are asked about citizenship status, but never asked if they were born abroad to an American parent.

immigration status in censuses or *standard* surveys.<sup>33</sup> Although a foreign-born person may acquire U.S. citizenship through naturalization, not all foreign-born persons are immigrants and thus eligible for citizenship (and not all eligible immigrants acquire U.S. citizenship).<sup>34</sup>

Unlike the census and ACS, each with one question about place of birth and one about citizenship, the CPS questionnaire includes three birthplace questions (self, mother, father) as well as three citizenship status questions (See 2.2.1 below).<sup>35</sup> The responses to these questions allow one to deduce the native and foreign-born populations. During an interview, a CPS field representative (FR) asks about the birthplace of every member of the household, as well as the place of birth of each household member's mother and father.<sup>36</sup>

- If the respondent for a given household indicates a household member was born in one of the fifty states or Washington DC, the FR enters the 'U.S.' code for that case, asks the parental nativity questions, and skips the citizenship and year of entry questions.<sup>37</sup>
- If the subject was born in Puerto Rico or another U.S. Island Area, the FR enters the appropriate code, asks the parental nativity questions, skips the citizenship questions, and asks the 'year of entry' question.
- If the subject was born outside the U.S. or U.S. Island Areas, the FR skips the citizenship questions only if responses to the parental nativity questions indicate one or both of the subject's parents was born in the U.S. or a U.S. Island Area. All are asked the 'year of entry' question.
- If the subject was born outside the U.S. or U.S. Island Areas, and responses to the parental nativity questions indicate that neither of the subject's parents was born in the U.S. or a U.S. Island Area, the FR asks the citizenship and year of entry questions.<sup>38</sup>

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<sup>33</sup> Exceptions occur in special supplements. See *Guide to International Statistics: The Sources, Collection, and Processing of Foreign-Born Population Data at the U.S.* Census Bureau, J. M. Costanzo, et al., Population Division Working Paper Series, No. 68. U.S. Census Bureau, 2002..

<sup>34</sup> See Footnote No. 2 in Section 1. "Trends in Immigration and the Foreign-Born Population" Schmidley, A. D. *The Foreign-Born Population in the United States, March 2002* (P20-539). U.S. Census Bureau. 2003.

<sup>35</sup> Although several of these questions are referred to as "screeners", they produce responses that can be examined by Census Bureau analysts. See Table A1 "Citizenship: 'flagged' foreign born cases from the March 1997 CPS" in *How Well Does the Current Population Survey Measure the Foreign Born Population in the United States?* Population Division Working Paper Series No. 22. U.S. Census Bureau, Washington DC. April 1998.

<sup>36</sup> Information about a new respondent is added when his household joins the survey, or when she joins a household already in the survey.

<sup>37</sup> All states receive the same code in the CPS. In the decennial censuses and ACS each state has a unique code.

<sup>38</sup> The field representative asks all persons born outside the 50 states and DC, 'When did [...] come to the United States to live?'

## **2.2. Defining citizenship status.**

### **2.2.1. CPS citizenship questions.**

After the place of birth questions identify who is foreign born, the CPS asks one or more of the following questions about foreign-born household members:

- Are you a citizen of the United States?
- Were you born a citizen of the United States?
- Did you become a citizen of the United States through naturalization?<sup>39</sup>

### **2.2.2. Citizenship status and naturalization.**

The methods used to identify citizenship status and/or naturalization are not strictly comparable across the CPS, ACS, Census 2000, and administratively collected naturalization records:

- Information about citizenship status is self-reported in censuses, the ACS, and CPS. In contrast, naturalization information is recorded by the Office of Immigration Statistics (OIS) in the Department of Homeland Security (DHS) as part of an administrative process.<sup>40</sup>
- CPS, ACS, and census data provide a snapshot of an individual's citizenship status reported on a particular survey date. CPS citizenship information is collected at the time a person enters the survey and carried forward each month the person remains in the survey. With the exception of a few cases where information not collected in the initial interview is obtained at a later date, and actual responses replace imputed values in the data file, citizenship information is never updated. ACS responses are collected once from each person in the sample and the results assembled for an annual composite measure. Census data are collected once every ten years. The OIS compiles information about naturalization events as they occur.
- Information collection processes differ. The initial CPS interview usually takes place in the respondent's home with a field representative and a computer assisted interviewing Instrument. Subsequent interviews are usually conducted by phone. In contrast, ACS and census questionnaires are initially mailed to households, filled out by a household member, and mailed back.<sup>41</sup> Naturalization events are recorded as they occur, and pertain specifically to the person undergoing naturalization.
- Questions about nativity differ. CPS questions about citizenship are driven by place of

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<sup>39</sup> See Appendix A for a topical version of the citizenship questions.

<sup>40</sup> In 2003 the Immigration and Naturalization Services was absorbed by the new Department of Homeland Security. Naturalization functions are administered by the OIS.

<sup>41</sup> Non-responses are followed up with a telephone interview.

birth items. Citizenship information is solicited for only about 10 percent of the CPS household members – after an interviewer determines the person in question was not a U.S. citizen at birth. In contrast, both the ACS and census forms contain a single question about citizenship status – asked for every member of a household. OIS naturalization information is only collected for naturalized citizens.

**2.3. Year of entry.**

**2.3.1. Length of residence of the foreign born.**

Two processes affect the size of the foreign-born population—death and net migration. Generally, net international migration of the foreign born is the result of movement to and from the U.S. by the foreign born during some specified period. In the first paragraph of the introduction to this paper, we stated the ASEC estimate of the foreign-born population in 2002 was 32.5 million. The difference between this figure and the 19.8 million recorded in 1990 implies an increase of 64.2 percent or 12.7 million people since 1990. This increase is the result of net migration and mortality during the period. These figures also suggest that of the 32.5 million foreign born living in the U.S. in 2002, at least 39.1 percent had lived in the country a dozen years or less (Table 1).<sup>42</sup> In contrast, estimates based on answers to the CPS ‘year of entry’ question suggest 48.6 percent of the foreign born had lived in the U.S. for 12 or fewer years.

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 Table 1. Two illustrative estimates of the foreign born in 2002 who came to the U.S. in 1990 or later.

	Difference	Percent (90% C. I.)
2002 CPS minus 1990 census	12.7 million	39.1 (37.4 - 40.8)
2002 CPS ‘year of entry’ question	15.8 million	48.6 (47.3 - 50.0)

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The 12.7 million difference in Table 1 is the result of subtracting the 1990 Census estimate of the foreign born from the 2002 ASEC estimate. This *residual* estimate excludes the foreign born who entered or re-entered the U.S. in 1990 or later and were not represented in the 1990 Census and who emigrated or died before 2002 and were not represented in the 2002 ASEC. This residual estimate also fails to address issues associated with differential coverage between the 1990 Census and the 2002 ASEC. The 15.8 million difference shown in Table 1 is the weighted estimate of the foreign born who entered the U.S. between 1990 and 2002 and who responded to the ASEC ‘year of entry’ question.<sup>43</sup> Because only people who lived in the U.S. in 2002 are represented in the ASEC, the ‘year of entry’ estimate also excludes the foreign born who entered or reentered the U.S. and died or emigrated before 2002.

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<sup>42</sup> The residual of 12.7 million divided by 32.5 million = 39.1 percent.

<sup>43</sup> Schmidley, A. D. *The Foreign-Born Population in the United States, March 2002* (P20-539). U.S. Census Bureau. 2003.

Sample error might explain some of the discrepancy between the residual proportion (39.1 percent) and ‘year of entry’ proportion (48.6 percent). However the two amounts are statistically different. A 90-percent confidence interval for the ‘year of entry’ estimate yields a range of 47.3 percent - 50.0 percent. A similar statistic can be calculated for the 2002 ASEC - 1990 Census residual of 39.1 percent. Sample error would create an approximate range of 31.9 million - 33.0 million for the ASEC 2002 estimate of 32.5 million; a difference range of 12.2 million - 13.2 million between the 2002 and 1990 census figure; and a proportionate range of 37.4 percent to 40.8 percent.<sup>44</sup> Because the two 90-percent confidence intervals exclude each other they are statistically different.<sup>45</sup>

The CPS excludes most of the population living in group quarters, so it is possible the residual difference is somewhat understated. However, even if all the excluded foreign born were included in the 2002 ASEC estimate, the residual would be increased by only about 400,000 people raising the difference to 13.1 million.<sup>46</sup> Using the exercise above, the residual difference range would increase to 12.6 million - 13.6 million and the corresponding proportionate range would be 38.1 percent - 41.5 percent. This modified range is still outside that calculated for the ‘year of entry’ proportion (47.3 - 50.0 percent).

Another possible cause of the discrepancy between the proportion based on the ASEC-census residual (39.1 percent) and the proportion based on the ‘year of entry’ estimate (48.6 percent) is misreporting. The residual estimate is essentially an indirect estimate because the second stage weights for the ASEC 2002 estimate are based on population estimates benchmarked to Census 2000. In contrast, information from the ‘year of entry’ item rests entirely on the accurate reporting of past events. Evidence suggests foreign-born respondents are not always clear about when they entered the U.S. “to live” because many came as students, workers, or refugees and then sought immigrant status after their actual physical arrival.<sup>47</sup> In addition, even if an individual understands his situation, the respondent providing information may lack the requisite knowledge.

Another source of discrepancy between the results of the residual method and results based on the ‘year of entry’ question shown in Table 1 arises because of timing. Some of the CPS individuals providing a ‘year of entry’ of 1990 were actually enumerated in the census because the census date occurred after one-fourth of 1990 had elapsed. In contrast, the residual results

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<sup>44</sup> The choice of estimates used to calculate these proportions – 19,767,000 versus 19.8 million in 1990; and 32.5 million versus 32,457,000 in 2002; produce results that appear different (owing to rounding error) but are not statistically significant.

<sup>45</sup> Non-overlapping confidence intervals mean that the two estimates can be considered to be statistically different, but if the intervals overlap, the two estimates may or may not be statistically different.

<sup>46</sup> See above “Section 1.3. CPS Sample Universe” for an explanation concerning the source of the excluded 400,000 foreign born.

<sup>47</sup> Wellens, Tracy. Report on the Cognitive Evaluation of the Nativity Questions for the Current Population Survey. Center for Survey Methods Research. U.S. Census Bureau, Washington DC. 1993.

shown in Table 1 exclude the foreign born enumerated in the census who became residents between January 1 and April 1, 1990. Because the CPS does not ask for month and year of entry, there is no way to refine this comparison.

### ***2.3.2. Timing issues associated with ‘year of entry’ or length of residence, and citizenship.***

Because a major qualification for naturalized citizenship status is a length of residence in the United States of five years or longer, analysts sometimes cross-reference ‘year of entry’ or length of residence information with citizenship status for the purpose of examining the internal consistency of reported data or for analyzing the acquisition of citizenship by various groups. A number of caveats are associated with this practice:

- Some individuals who have resided in the U.S. for less than five years have acquired citizenship. For example, adopted foreign-born children, foreign-born spouses, and children born abroad of foreign-born naturalized U.S. citizens may qualify for expedited citizenship status (less than five year wait). If the survey contains these cases, inconsistencies will appear in a cross-reference match.
- In March, when most ASEC interviews take place, only three months of the year have elapsed. Thus a terminal length of residence of “five years or less” for 2002 would include 4 years (1998, 1999, 2000, 2001) and three months (2002). While somewhat imprecise, ASEC year-to-year comparisons finesse this issue and provide reliable measures of change or lack thereof. Annualized averages from the basic files (January - December) provide relatively precise measures of the status quo as well as year-over-year change.<sup>48</sup>
- The issue of validity is associated with month-in-sample (MIS). Generally, the nativity questions ( including ‘year of entry’ and citizenship) are asked once at the beginning of the 16-month rotation period. Citizenship status can change over the interview period while ‘year of entry’ remains stable, but neither question is asked again unless the respondent failed to provide an answer the first time. Even if respondents answer the question and answer it accurately, citizenship is affected by MIS.<sup>49</sup>
- Cross-referencing ‘year of entry’ and citizenship data from the CPS can produce inconsistencies for foreign born who left the U.S. and returned at a later date. For example, a respondent naturalized in 1989, who left the United States in 1997 to visit abroad and returned in 1999, might answer “yes” to the naturalized citizenship question in the March 2002 survey and provide a ‘year of entry’ of 1999, i.e. less than five years.

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<sup>48</sup> Annualized estimates are based on adding 12 months together and dividing by 12.

<sup>49</sup> Because the ASEC sample draws on cases retired in preceding months, some of those interviewed have been in the survey for up to twenty months. These respondents are not re-asked core questions such as sex, race, marital status, place of birth, or citizenship status.

**2.4. The Naturalization Rate.<sup>50</sup>**

Calibrating a rate involves identifying and measuring not only what constitutes the events in the numerator, but who is in the “at risk” universe in the denominator. For example, naturalization rates involve events administered on a recurring basis by the U.S. government to a foreign-born population at risk of being naturalized. Only the foreign-born in an immigrant status who have met the requirements for naturalization are truly eligible or “at risk” of being naturalized. Furthermore, the eligible foreign born meet the criteria for naturalization, die, emigrate, and become citizens every day. Thus the “at risk” population is in a constant state of flux.

Calculating a naturalization rate not only involves determining who is eligible for citizenship, but determining who is eligible as of a specific date since only one number can appear in a denominator. However, should the date of eligibility be at the beginning, middle, end, or some other time during the period when the events in the numerator occur? Table 2 shows a *hypothetical* comparison of percentages calculated using the *same* number in the numerator along with denominators from the beginning, middle, and end of a calendar year. Assuming the data in Table 2 are based on administrative records, and depending on how the figures were calculated, the derived percentages could be expressed as rates. Statistical significance is not an issue with non-sampled administrative data, so the observed differences would be significant. However, because the numerator is a constant, differences are only owing to changes in the denominator.

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 Table 2. Hypothetical Citizenship Percentages of the Foreign Born for Year X

	Foreign Born	Naturalized Citizens	Percent
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January 1	32.0 million	11.9 million	37.1
July 1	32.5 million	11.9 million	36.6
December 31	33.0 million	11.9 million	36.0

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CPS, ACS, and census data should not be used to calculate naturalization rates because the denominator in percentages derived from these data do not accurately reflect the population at risk. Rather, these survey sources should be used to calculate ‘citizenship status’ or the proportion or percentage of the foreign-born population who reported they were citizens on the survey date or another date indicated in the survey. If the hypothetical percentages in Table 2 had been taken from the CPS they would probably not be statistically different from each other. On the other hand, citizenship proportions derived from CPS data frequently are statistically significant.<sup>51</sup>

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<sup>50</sup> Schmidley, A. D. “What is a Naturalization Rate?” *Applied Demography* Winter 2000.

<sup>51</sup> Schmidley, A. D. *Profile of the Foreign-Born Population in the United States:2000 (P23-206)*. U.S. Census Bureau. 2001. Section 7. “Citizenship Status.”



Analysts may argue about whether or not measures based on data from the CPS, ACS, or census understate or overstate the “true” proportion of the foreign born who have become naturalized citizens, however, over time these measures are reliable—they illuminate underlying change in whatever is being measured.

**2.5. Parental nativity, the foreign-stock population, and the second generation.**

Earlier in this paper, we indicated the foreign-born population has been increasing in recent years. Coinciding with this increase has been a large increase in the size of the children-of-the-foreign-born population. In 1970, the last year information about parental nativity was collected in a decennial census, the *foreign stock population* (foreign born and their children) was 33.6 million, or 16.5 percent of the U.S. population (Table 3).<sup>52</sup> By 2002, the foreign-stock population had increased to 62.1 million or 22.0 percent of the population.

Table 3. Foreign Stock Population: 1890, 1930, 1970, 2002<sup>53</sup>  
(Numbers in thousands; numbers in parentheses are percent of total)

Year	Total Population	Foreign Stock	Foreign or Mixed Parentage	Foreign Born
1890	62.6	20.8 (33.2)	11.5 (18.4)	9.2 (14.7)
1930	122.8	40.3 (32.8)	26.1 (21.3)	14.2 (11.6)
1970	203.2	33.6 (16.5)	24.0 (11.8)	9.6 (4.7)
2002*	282.2	62.1 (22.0)	29.6 (10.5)	32.5 (11.5)

\* CPS annualized average; other data from decennial censuses.

Policy makers and analysts have long recognized that parental nativity and child welfare are linked. For example, in 1999 24.0 percent of related children under age 18 living in families with a foreign-born householder were in poverty, compared with 14.9 percent of children residing with a native householder.<sup>54</sup> However, because the majority of the children of the foreign born

<sup>52</sup> Schmidley, A. D. *Profile of the Foreign-Born Population in the United States:2000 (P23-206)*. U.S. Census Bureau. 2001. Section 8. “Nativity, Parentage, and Foreign Stock.” The foreign-stock population consists of the foreign born + those with a foreign-born mother and native father + those with a native mother and foreign-born father + those with two foreign-born parents. Inter-marriage rates between natives and the foreign born affect group measures. The question on nativity or birthplace of parents, which was included in censuses from 1890 to 1970, was replaced in 1980 with a question on ancestry that was based on self-identification, with no restriction on how many generations removed from their ancestors’ country or countries of origin.

<sup>53</sup> Gibson, C. J. and Emily Lennon, Table 12. “Nativity and Parentage of the Population: 1890 to 1930, 1960, 1970” in *Historical Census Statistics on the Foreign-Born Population of the United States: 1850 to 1990*, Population Division Working Paper No. 29. U.S. Census Bureau. 1999; Schmidley, A.D. and C.J. Gibson., Table 4-1A. “Nativity and Parentage of the Population for Regions, Divisions, and States: 1997.” in *Profile of the Foreign-Born Population in the United States, 1997, Detailed Tables (PPL-115)*, U.S. Census Bureau. 2001; Schmidley, A.D., Table 4-1A. “Nativity and Parentage of the Population for Regions, Divisions, and States: 2000,” *Profile of the Foreign-Born Population in the United States, 2000, Detailed Tables (PPL-145)*, U.S. Census Bureau, 2002

<sup>54</sup> See Section 19. “Poverty Status” in P23-206.

are native, child nativity and parental nativity are not equivalent.<sup>55</sup> Programs designed to address the needs of the children of the foreign born, for example *English as a Second Language* programs, must be linked to information about *both* parents.

Parental nativity can be deduced indirectly from ACS and census data using birthplace and citizenship information—as long as the person in question resides with *both* parents. However, most adults and a significant number of children do not reside with both parents. Because parental nativity information is not collected in the ACS and no longer collected in censuses, owing to the replacement of the question with the ancestry question beginning in 1980, the parental nativity of many people cannot be determined from these sources.

In addition to a question about each household member’s place of birth, the CPS asks for mother’s place of birth and father’s place of birth.<sup>56</sup> CPS ASEC data are useful for national level comparisons and reasonably precise annualized estimates of parental nativity can be calibrated for larger states using the basic or monthly data. Subnational detailed parental nativity by characteristics such as age is relatively imprecise compared with data from censuses, however.

*When they are available*, subnational foreign-stock measures can be used to assess need, develop programs, and allocate program funding. For example, an official seeking assistance might argue his school district is deserving of federal help for both child and adult programs because it includes a large foreign-stock population. Legislators seeking an equitable method for disbursing limited funds to assist communities with “immigrant” populations might use foreign-stock measures to rank communities on a needs basis.<sup>57</sup>

Foreign-stock measures are also useful for business firms. Race, ethnic (Hispanic), and ancestry data are necessary, but not always sufficient for target marketing. For example, foreign and U.S. airline companies, desirous of selling country-specific flights will use a variety of means to identify and locate customers with relatively strong links to that particular country because the foreign born and their children have been shown to be more attached to countries of origin than later generations.

Some analysts prefer the phrase *second generation* when discussing children of the foreign born. A perusal of articles, books, policy papers, governmental reports, news articles, etc. suggests many ways of operationally defining and measuring concepts such as “first and second generation” or “second generation.” Characteristics such as: age; age at the time of entry into the U.S. (if foreign born); nativity; nativity of siblings; parental nativity; presence of siblings; and

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<sup>55</sup> See Section 13. “Children Living With Foreign-Born Householders” in *P23-206*

<sup>56</sup> Citizenship status of the parents is not determined.

<sup>57</sup> Schmidley, A. D. *Profile of the Foreign-Born Population in the United States, 2000. Detailed Tables. (PPL-145)*. U.S. Census Bureau, 2001. Table 5-2A. “Nativity and Parentage of the Population for Large Metropolitan Areas: 2000.”

household status (some persons under age 18 are householders and/or spouses); etc. can be combined to produce the following *not exhaustive* list of possibilities:

- All people (native and foreign born), regardless of age, with one or more foreign-born parents (*foreign-stock population as defined by the Census Bureau*).<sup>58</sup>
- All people (native and foreign born), regardless of age, with two foreign-born parents (sometimes referred to as the first and second generation).
- Foreign-born children, regardless of age, with two foreign-born parents.
- Native children, regardless of age with one or more foreign-born parents.
- Native children, regardless of age, with two foreign-born parents (sometimes referred to as the first generation and sometimes referred to as the second generation).
  
- All children 17 or younger with one or more foreign-born parents, etc.
  
- All children 17 or younger who are not householders and/or spouses with one or more foreign-born parents, etc.
  
- All children 12 or younger with one or more foreign-born parents, etc.

## **2.6. Place of birth, race, and ethnicity.**

The racial categories drawn from CPS data for the years 1994 to 2002 include: White; Black; American Indian or Alaska Native; and Asian and Pacific Islander. The ethnic categories include Hispanic origin and not of Hispanic origin. The population in a race category may be Hispanic or not Hispanic, and the population of Hispanic origin may be of any race. The Census Bureau CPS based publications issued between 1994 and 2003 have included four race or ethnic groups for discussion: Blacks; Asians and Pacific Islanders; Hispanics, and White non-Hispanics.<sup>59</sup> Categories of race and ethnicity are not interchangeable with the world geographic regions reported in CPS, census, and ACS reports.<sup>60</sup>

## **3. Data comparability issues.**

### **3.1. Estimates of the foreign born and sample error.**

Estimates based on CPS data are subject to sampling error (non-sampling error is discussed

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<sup>58</sup> Foreign-born people have foreign-born parents.

<sup>59</sup> CPS race and ethnic classifications are scheduled to become consistent with Census 2000 definitions in 2003. However, reports based on CPS data do not show as much detail as census-based reports owing to sample size. Census Bureau foreign-born reports issued through 2003 and based on CPS survey data from 2002 or earlier do not include information about American Indians or Alaska Natives. For an explanation, see Footnote 1 in Section 9, "Hispanic Origin and Race" in *Profile of the Foreign-Born Population in the United States, 2000*. (P23-206). U.S. Census Bureau. Washington DC. 2001.

<sup>60</sup> For example, the CPS reported 15.3 percent of the foreign born were from Europe. However, 67.9 percent of the foreign born were White in 2000, and more than half of the White foreign born were Hispanic and from Spain, Latin America, and other parts of the world. See Table 9-1A. "Race and Hispanic Origin of the Population by Nativity and Parentage: 2000." in *Profile of the Foreign-Born Population in the United States, 2000. Detailed Tables. (PPL-145)*. U.S. Census Bureau. 2001.

below). For example, the 2002 ASEC estimate of the foreign-born population is 32.5 million, and the standard error is 315,000. A calculation of  $1.645 \times 315,000$  produces a 90 percent confidence interval of 31.9 million to 32.9 million. In other words, we are 90 percent confident the true value for the 2002 ASEC estimate lies somewhere between 31.9 million and 33.0 million.

Table A-2 shows estimates of the foreign born by region and country of birth for 2000, 2001, and 2002, based on data from the *Annual Social and Economic Supplement (ASEC)* controlled to March 1 second stage weights. Countries represented by a foreign-born population of 400,000 or more in 2002 have been included. Note that the March 1, 2000 estimate for the foreign-born population from Russia is 364,000. A 90 percent confidence interval for this estimate is  $364,000 \pm (48,000 \times 1.645)$  produces a range of 285,000 to 443,000. This means we are 90 percent confident this interval contains the true value for the foreign-born population from Russia. Furthermore, similarly formed intervals will contain the true population value about 90 percent of the time in repeated sampling. Comparable estimates and ranges for the foreign born from Russia for the other two years shown in Table A-2 are: 2001 = 465,000 with a standard error of 39,000 and a range of 401,000 to 529,000; and 2002 = 508,000 with a standard error of 40,000 and a range of 442,000 to 574,000.

Table A-3 shows estimates of the foreign born by region and country of birth based on *annualized averages* of CPS monthly or *basic* survey data. Owing to the larger sample size of the annualized file (compared with the ASEC file), countries represented by a foreign-born population of 100,000+ in 2002 can be included. The estimates for 2000, 2001, and 2002 shown in this table are calibrated from 12 months of data collected between January and December and the mid-point of these annualized averages is July 1. Figure 2 illustrates the rolling averages line that includes the three July data points in Table A-3.<sup>61</sup>

The July 1, 2000 annualized average for the foreign-born from Russia is 431,000. The standard error of this estimate (28,000) appears to be smaller than the comparable standard error for the March 1, 2000 ASEC estimate (48,000). Standard error size is related to estimate size, however, and bigger estimates generally produce bigger standard errors. Because the ASEC estimate is relatively smaller with a larger standard error, we suspect the annualized averages estimate is more precise. A useful tool for demonstrating this is the *coefficient of variation* (standard error divided by its estimate) which allows one to normalize the relationship between estimates and standard errors. The ASEC coefficient of variation is  $48,000/364,000$  or 13.1 percent. The annualized averages CV is  $28,000/431,000$  or 6.5 percent, half the size of the ASEC CV. The smaller coefficient of variation indicates the annualized averages estimate is more precise.

A 90 percent confidence interval for the annualized averages estimate produces  $431,000 \pm$

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<sup>61</sup> A rolling average consists of a string of consecutive 12-month average estimates. Each 12-month estimate is created by dropping the oldest month and adding the newest month. Thus the average for July in year x would be based on data from January to December of year x, and the average for August of year x would be based data from February of year x through January of year x+1.

(28,000 x 1.645) or a range of 385,000 to 477,000. Recall that the March 1, 2000 ASEC estimate (364,000) produced a range of 285,000 to 443,000. The two ranges overlap and a statistical test indicates they are not statistically different. Comparable estimates and ranges for the other annualized estimates for Russia shown in Table A-3 are: 2001 = 480,000 with a standard error of 21,000 and a range 445,000 to 515,000; and 2002 = 523,000 with a standard error of 22,000 and a confidence interval of 487,000 to 559,000.

The relatively smaller CV of annualized estimates compared with those of ASEC estimates indicates the former are statistically more precise. For example, the 2002 ASEC foreign-born estimate discussed above is 32.5 million. The standard error for this estimate (Table A-2.) is 315,000 with a confidence interval of 31.9 million to 32.9 million. In contrast, the July 1, 2002 annualized average in Table A-3 is also 32.5 million with a standard error of 170,000 and a confidence interval of 32.2 million to 32.8 million. The two estimates are not statistically different, although the annualized averages estimate is more precise as indicated by a smaller CV and a narrower confidence interval.

Table A-4 is a summary table showing information from Table A-2 and Table A-3. As we noted above, the ASEC data were collected over three months in the early part of the year and weighted to March 1. The monthly data reflected in the annualized averages were collected from January to December each year, and as the midpoint of the year is July 1, the annualized averages can be interpreted as estimates for that date.<sup>62</sup> Figure 3 shows the approximate source months for the 12-month annualized averages compared with the March ASEC sample. Note that some of the cases are identical (from the same source month). However, annualized averages have many more cases to draw on and thus can produce more precise results.

### **3.2. Estimates of the absolute difference, coefficients of variation, and test statistics.**

Table A-2 includes the standard errors of the ASEC estimates discussed in the preceding paragraphs, as well as the standard errors of the differences between those estimates. For example, between 2000 and 2001, the ASEC suggests the foreign-born population from Russia increased by 101,000 people. The standard error of the difference between these two dates is 56,000. The ratio of the absolute difference (101,000) over the standard error (56,000) is 1.81, a test statistic well above the 1.645 needed for significance at the 90-percent level of confidence.<sup>63</sup> However, the apparent difference for 2001-2002 (43,000) is not statistically significant because the test statistic is 0.92. On the other hand, the overall difference for the years 2002-2000 (144,000) is statistically significant (2.29). The confidence interval for the estimate of the absolute difference 2002-2000 is 40,000 to 248,000.

Table A-3 includes standard errors for estimates of the difference between annualized averages estimates. Neither the 2001-2000 estimate of the difference of the number of foreign born from

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<sup>62</sup> The CPS sample is designed to produce the effect of sampling with replacement where each monthly sample independently represents the U.S. population. Thus CPS annualized averages are obtained by adding 12 independent samples together and dividing by 12.

<sup>63</sup> The 'coefficient of variation' is the ratio of the standard error over the estimate and thus the inverse of the test statistic.

Russia (49,000), or the 2002-2001 estimate of the difference (43,000) are statistically significant. However, the change between 2000 and 2002 (92,000) is statistically different. The confidence interval for this difference is  $92,000 \pm (6000 \times 1.645)$  or a range of 82,000 to 102,000 and much narrower than the CI calibrated using the ASEC data (40,000 to 248,000).

The test statistic for the estimate of the difference for Russia 2002-2000 (92,000) is 15.21, well in excess of the 1.645 needed for statistical significance, and the CV is 6.5 percent. Comparable figures for the ASEC estimate shown in Table A-2 (144,000) are 2.29 and 43.8 percent. Even though the annualized averages CV is much smaller and the confidence interval much narrower, the annualized averages difference of 92,000 is not statistically significantly different from the ASEC estimate of 144,000. The annualized averages estimate is more precise, however.

Whether or not an estimate of the absolute difference is statistically significant depends on a combination of factors including: the size of the underlying universe, sample size, the amount of change, and the confidence level:

*Size of the underlying universe:* The size of the underlying universe comes into play more often when one is dealing with smaller universes. In those cases, the finite population correction (FPC) becomes a factor. The FPC is used to adjust the sampling error to account for the fact that we are sampling from a population of finite size instead of from an infinite population as assumed in the usual theory.

*Sample size:* In Table A-3, where sample size has been augmented via the aggregation of 12 months of data, the CV for the 2002 estimate of the foreign-born population (32.5 million) is .52 percent compared with .97 percent for the comparable ADS estimate (32.5 million) shown in Table A-2. As a result of the increased sample, estimates of the difference for the foreign-born population from many countries including Romania (86,000 in 2000) are statistically significant.

*Amount of change:* In Table A-2, the 2000 populations of the Philippines (1.4 million) and Haiti (395,000) differ in size and CV (8.8 percent and 16.7 percent, respectively), but the change in the size of Haitian foreign-born population between 2000 and 2002 (174,000) is statistically significant at the 90 percent confidence level, whereas the apparent change for the Philippines for the same period (90,000) is not.

*Confidence level:* Confidence levels affect statistical significance. It is more difficult to detect statistical change using a confidence level of 99 percent than using a confidence level of 90 percent. However, using a lower confidence level increases the possibility that you decide a statistical change has occurred when it has not.

In general, larger sample sizes produce greater precision and less sample error, but larger samples can have larger non-sample errors which reduce the overall accuracy of estimates. No matter how large the sample size, year-to-year change may not be statistically significant if the difference is

small. If the sample is maximized as in a census (i.e., sample size=population size), all differences are significant.

### **3.3. *Non-sampling Issues.***

Non-sampling issues can affect the reliability of CPS estimates of the foreign born. For example, in New York City and Los Angeles, the CPS primary sampling units (PSUs) generally cover several contiguous neighborhoods and many apartment buildings. The last step of the CPS sample selection process within a PSU is the 'cluster' stage where several housing units in the same block or building are selected for interview. Year-after-year as the survey rotates through the selected PSUs, different neighborhoods and buildings will be included. Characteristically, many newly arrived immigrants live in ethnic clusters in neighborhoods where 'like' ethnic enclaves exist side-by-side. In New York City for instance, Jamaicans, Dominicans and other migrants from the Caribbean live in close proximity. In successive years, as the CPS sample falls in different neighborhoods and buildings in the PSU, the size of the sample of different small groups fluctuates. This underlying process may explain some of the "differences" or lack of them in Table A-3.

### **3.4. *Consistency with 1990 decennial census data.***

#### **3.4.1. *Known differences in the CPS foreign-born estimates with 1990 census data.***

During CPS processing, country of birth values are assigned for missing values. The edits introduce an inconsistency with 1990 census results, because country was not allocated for about 4 percent of the foreign-born population reported in the census. Table A-5 illustrates the numerical effect on country groupings if--to be consistent with the CPS editing--unknown country is assigned in 1990. As an example, the number of Mexican-born would increase by about five percent from 4.3 million to 4.5 million. The percent increase by country grouping does not vary much.

#### **3.4.2. *Consistency by country of origin and period of entry.***

In Table A-6, March 1997 CPS estimates of the foreign-born for country groupings are compared to the 1990 census estimates for the same country groupings.<sup>64</sup> Column 1 to column 3 contrast the 1997 CPS totals with 1990 data to make rough inferences about consistency and growth since 1990. The 27 percent increase in the foreign born population from 20.4 million in 1990 to 25.8 million in 1997 (column 7) is consistent with growth trends, where sustained international migration has more than offset mortality and emigration. As Table A-6 shows, this change varies by region. For example, the increase of the Mexican-born population entered since 1990 (2.3 million or 47 percent), contrasts markedly with the 15 percent decline in the European-born population. The growth of the Mexican-born reflects high migration levels and the low mortality of a younger group, while the reverse is true for the European born.

The "pre-1990" CPS estimates in column 4 to column 6 narrow the consistency comparison in

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<sup>64</sup> See Schmidley, A.D. and Robinson, J. G., *How Well Does the Current Population Survey Measure the Foreign-Born Population in the United States?* Population Division Working Paper Series, No. 22. U.S. Census Bureau, 1998.

terms of effects such as mortality and emigration. In the absence of coverage differences or reporting errors, the 1997 CPS estimates for the pre-1990 entry cohorts should be lower than the corresponding 1990 census counts--because only deaths and emigration can affect the size of the cohort. The relative larger decline in the European-born population that entered before 1990 (-28 percent) can be attributed to the combined forces of mortality and emigration, especially mortality. The anomalous increase in the Mexican-born population represents some residual inconsistencies in the data (such as misreporting of period of entry, different coverage levels in the CPS and Census, or other sources).

### **3.5. Consistency with Census 2000 data.**

#### **3.5.1. Census 2000 nativity data.**

In 2000, a number of changes occurred which led to greater consistency between the census and CPS data series. First, Census 2000 nativity items were fully allocated for missing values. In other words, cases with place of birth item non-response were assigned imputed values using a procedure similar to that employed in the CPS.<sup>65</sup> Secondly, Census 2000 data were not adjusted for a net undercount and therefore the census-based estimates that drive the second stage weights have not been adjusted.<sup>66</sup> Third, the rewording of the Census 2000 age question and other improvements limited the need to modify the census based file used to create population estimates to only the race item.<sup>67</sup>

#### **3.5.2. Census 2000 and CPS 2000.**

Census 2000 indicates 31,107,889 foreign born people were living in the U.S. on April 1, 2000. On the other hand, several CPS ASEC-based reports suggest the foreign-born population in March 2000 was 28.4 million.<sup>68</sup> More recently, products issued by the Census Bureau, such as the *Foreign Born Population of the United States, Current Population Survey – March 2000 Detailed Tables (Revised)*, show the 2000 foreign-born number as 29,985,000.<sup>69</sup>

Universe coverage explains some of the observed difference between census and CPS figures. As we noted above, census data include every resident of the United States, whereas the CPS (ASEC or basic) covers a subset of the total population – most of the household population plus relatively few individuals living in group quarters. In 2000, the census enumerated 373,863

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<sup>65</sup> The nativity questions: place of birth, citizenship, and year of entry, are all sample items in censuses.

<sup>66</sup> See Population Division Working Papers No. 58 to 66, especially Malone, Nolan. *Evaluating Components of International Migration: Consistency of 2000 Nativity Data*, Population Division Working Paper No. 66. U.S. Census Bureau. 2001.

<sup>67</sup> See *Modified Race Data Summary File, 2000 Census of Population and Housing Technical Documentation*. Issued September 2002 by the U.S. Census Bureau, Washington DC.

<sup>68</sup> Lollock, Lisa. "The Foreign-Born Population in the United States" (P20-534), U.S. Census Bureau, 2001. Schmidley, A. D. *Profile of the Foreign-Born Population in the United States:2000 (P23-206)*, U.S. Census Bureau. 2002.

<sup>69</sup> Paper product listing (PPL-162), released in February 2003.



foreign born people living in group quarters, or about 1.2 percent of the foreign born population. Most of these individuals are not included in the CPS. Second stage weights explain the remainder of the difference (Section 1.5 and Figure 1).

Data users interested in which source to use, Census 2000, ACS or CPS, should consider options relative to needs. Census data provide more precise estimates for every level of geography but become outdated for some purposes. The ACS is designed to replace the census long form and provide annual subnational estimates. Both the ACS and CPS are “controlled” with demographic estimates benchmarked to the last census so national and state totals from these two sources should be very similar.<sup>70</sup>

Flexibility and timeliness are great strengths of the CPS. CPS national level estimates, and beginning with 2001 state level estimates, are available on a monthly (basic) and annual (ASEC) basis and can be used to build a time series. Table 4 shows derived estimates from the ASEC - based products for the years 1999 to 2002. Included are the median ages, proportions age 65 and older, and poverty rates for the total, native and foreign-born populations. Although the 2000 estimates appear to be dissimilar, the observed differences are owing to changes in underlying population controls. While there is sampling error associated with these differences, the amount of sampling error is trivial.

Table 4. Median Age, Percent Age 65 and Older, and Poverty Rates for the Foreign Born, 1999-2002

Year	Census Base	Foreign Born (000)	Total			Native			Foreign born		
			Median Age	Age 65+	Poverty Rate	Median Age	Age 65+	Poverty Rate	Median Age	Age 65+	Poverty Rate
1. 1999 - (1990)		26,448	34.9	11.9	12.7	34.2	12.0	12.1	38.1	11.4	18.0
2. 2000 - (1990)		28,379	35.1	11.9	11.8	34.5	12.0	11.2	38.1	11.0	16.8
3. 2000 - (2000)		29,985	35.2	12.1	11.9	34.7	12.2	11.3	37.5	10.5	16.8
4. 2001 - (2000)		31,811	35.4	12.0	11.3	34.9	12.2	10.8	37.5	10.2	15.4
5. 2002 - (2000)		32,543	35.6	12.0	11.7	35.1	12.2	11.1	37.5	10.2	16.1

Source: Current Population Survey, Annual Social and Economic Supplement, 1999 to 2002.

### Conclusions.

This paper addresses the question posed in our earlier paper, “How Well Does the Current Population Survey Measure the Foreign-Born Population in the United States?” The answer is – pretty well. The analyst must determine when the data effectively measure a condition, and when the range of error is so great as to make assessment impossible. The CPS nativity data provide a reliable basis for tracking the total foreign-born population at the national level and with the introduction of the SCHIP sample offer interesting possibilities for tracking states where the

<sup>70</sup> Malone, Nolan. *Evaluating Components of International Migration: Consistency of 2000 Nativity Data*, Population Division Working Paper No. 66. U.S. Census Bureau, Washington DC. November 2001.

foreign born population is concentrated. Furthermore, annualized averages of CPS data may prove to be useful for some research purposes such as identifying country-specific trends.

The nativity data series is being used to monitor everything from child welfare to compositional shifts. The potential for tracking key social and economic indicators associated with the foreign-born population in the United States increases as the series expands. The accumulating data series allows analysts to derive two-year and three-year moving averages for tracking educational attainment, income, poverty, program usage, and other measures of well-being using the Annual Social and Economic Supplement. Changes in moving averages can be assessed with time series analysis techniques that mitigate some of the limitations of year-to-year data comparisons. Another methodological approach that can overcome some of the data limitations involves the use of annual averages, based on 12 calendar months of data and comparable to the annual averages found in *Employment and Earnings*.

The new Current Population Survey nativity questions provide a rich and useful body of information about an important segment of the population of the United States of America. With the data from the CPS, policy makers will have access to information that can be used to track the process by which the foreign born become integrated into the U.S. economy and society.

**Table A-1. Comparison of Selected Characteristics of the Foreign Born: Current Population Survey -- Annual Social and Economic Supplement (ASEC): 2001 and 2002**

(Numbers in thousands. Data are for civilian noninstitutional population of the United States. Members of the Armed Forces living off post or with their families on post are included if there is at least one civilian adult living in the household.)

Characteristic	Annual Social and Economic Supplement 2001					ASEC 2002 expanded sample with 2000-based controls (6)	Expanded sample change, 2001 to 2002 <sup>4/</sup> (6) - (4) = (7)
	Original sample with 1990 population controls (1)	Original sample with 2000 population controls (2)	Difference owing to changes in population controls <sup>1/</sup> (2) - (1) = (3)	Expanded sample with 2000-based controls <sup>2/</sup> (4)	Difference due to expanded sample <sup>3/</sup> (4) - (2) = (5)		
<b>Total.....</b>	<b>29,912</b>	<b>31,804</b>	<b>1,892</b>	<b>31,811</b>	<b>7</b>	<b>32,453</b>	<b>642</b>
Under age 18.....	2,955	3,064	109	3,065	1	3,038	-27
Age 65 and over.....	3,244	3,300	56	3,257	-43	3,309	52
<b>Education universe<sup>5/</sup> .....</b>	<b>23,774</b>	<b>25,217</b>	<b>1,443</b>	<b>25,152</b>	<b>-65</b>	<b>25,790</b>	<b>638*</b>
High school graduate or more (%).....	67.7	67.8	0.1	67.7	-0.1	67.2	-0.5
Bachelor's degree or more (%).....	27.0	27.1	0.1	27.2	0.1	26.5	-0.7*
<b>Labor force universe<sup>6/</sup> .....</b>	<b>27,500</b>	<b>29,314</b>	<b>1,814</b>	<b>29,331</b>	<b>17</b>	<b>29,991</b>	<b>660*</b>
Labor force participation (%).....	67.4	68.1	0.7	68.2	0.1	67.8	-0.4
Employed (% of labor force).....	95.1	95.0	0.1	94.8	-0.2	93.1	-1.7*
Unemployed (% of labor force).....	4.9	5.0	0.1	5.2	0.2	6.9	1.7*
<b>Poverty universe<sup>7/</sup> .....</b>	<b>29,883</b>	<b>31,774</b>	<b>1,891</b>	<b>31,782</b>	<b>8</b>	<b>32,422</b>	<b>640</b>
Below poverty level (%).....	15.7	15.8	0.1	15.4	-0.4	16.1	0.7
Under 18.....	2,926	3,034	108	3,036	2	3,008	-28
Below poverty level (%).....	28.2	28.3	0.1	26.0	-2.3	26.9	0.9
Age 65 and older.....	3,244	3,300	56	3,257	-43	3,309	52
Below poverty level (%).....	13.7	13.9	0.2	13.8	-0.1	14.7	0.9

1/ These differences result from a change in the population control. While there is sampling error associated with these differences, the amount of sampling error is trivial. Therefore, no significance testing was performed on this column.

2/ Expanded sample includes under age 18 cases eligible for participation in State Children's Health Insurance Programs.

3/ Asterisk (if any) indicates that difference is significant at the 90-percent confidence level.

4/ Asterisk (if any) indicates that difference is significant at the 90-percent confidence level.

5/ Population age 25 and over.

6/ Population age 16 and over.

7/ Most of those under age 18 with one or more foreign-born parents are native. See Section 13, "Children Living With Foreign-Born Householders" in Profile of the Foreign Born Population: 2000 (P23-206), page 34.

Source: U.S. Bureau of the Census, Current Population Survey, Annual Social and Economic Supplement: 2001 and 2002. Population Division Working Paper No. 73.

Internet Release Date: October 29, 2003

**Table A2. Foreign-Born Population by Regions and Selected Countries of Birth - Annual Social and Economic Supplement (ASEC): 2000, 2001, and 2002**

(Numbers in thousands. Data are for civilian noninstitutional population of the United States. Members of the Armed Forces living off post or with their families on post are included if there is at least one civilian adult living in the household.)

REGION AND COUNTRY+ OF BIRTH	ASEC 2000+		ASEC 2001+		ASEC 2002+		Difference 2001-2000			Difference 2002-2001			Difference 2002-2000		
	Number (1)	Standard error (2)	Number (3)	Standard error (4)	Number (5)	Standard error (6)	Difference (3) - (1) = (7)	Standard error of the absolute difference (8)	Absolute difference / SE Absolute difference* (7) / (8) = (9)	Difference (5) - (3) = (10)	Standard error of the absolute difference (11)	Absolute difference / SE Absolute difference* (10) / (11) = (12)	Difference (5) - (1) = (13)	Standard error of the absolute difference (14)	Absolute difference / SE Absolute difference* (13) / (14) = (15)
<b>TOTAL</b>	<b>29,985</b>	<b>425</b>	<b>31,811</b>	<b>312</b>	<b>32,452</b>	<b>315</b>	<b>1,826</b>	<b>477</b>	<b>3.83 *</b>	<b>641</b>	<b>371</b>	<b>1.73 *</b>	<b>2,467</b>	<b>529</b>	<b>4.66 *</b>
<b>Europe</b>	<b>4,382</b>	<b>165</b>	<b>4,476</b>	<b>119</b>	<b>4,548</b>	<b>120</b>	<b>94</b>	<b>185</b>	<b>0.51</b>	<b>72</b>	<b>142</b>	<b>0.51</b>	<b>166</b>	<b>203</b>	<b>0.82</b>
Germany	660	65	661	46	638	45	1	72	0.01	-23	54	0.42	-22	79	0.28
Russia	364	48	465	39	508	40	101	56	1.81 *	43	47	0.92	144	63	2.29 *
Poland	444	53	415	37	472	39	-29	58	0.50	57	45	1.27	28	66	0.43
England	515	57	466	39	464	39	-49	63	0.78	-2	46	0.04	-51	69	0.74
Italy	458	54	404	36	405	36	-54	59	0.92	1	43	0.02	-53	65	0.82
Other Europe	1,941	110	2,066	81	2,061	81	125	124	1.01	-5	96	0.05	120	137	0.88
<b>Asia</b>	<b>7,916</b>	<b>286</b>	<b>8,509</b>	<b>208</b>	<b>8,281</b>	<b>206</b>	<b>593</b>	<b>317</b>	<b>1.87 *</b>	<b>-228</b>	<b>245</b>	<b>0.93</b>	<b>365</b>	<b>354</b>	<b>1.03</b>
Philippines	1,339	118	1,495	88	1,429	87	156	133	1.17	-66	104	0.64	90	146	0.62
India	1,117	108	1,284	82	1,304	83	167	122	1.37	20	97	0.21	187	136	1.38
China**	1,543	126	1,657	93	1,449	87	114	142	0.80	-208	107	1.95 *	-94	154	0.61
Vietnam	953	99	786	64	819	66	-167	107	1.55	33	77	0.43	-134	119	1.13
South Korea	782	90	907	69	756	63	125	102	1.22	-151	78	1.93 *	-26	110	0.24
Japan	305	56	356	43	439	48	51	64	0.80	83	54	1.53	134	74	1.81 *
Other Asia	1,875	139	2,022	103	2,084	104	147	156	0.94	62	123	0.51	209	174	1.20
<b>Other</b>	<b>2,364</b>	<b>156</b>	<b>2,839</b>	<b>122</b>	<b>2,680</b>	<b>118</b>	<b>475</b>	<b>178</b>	<b>2.66 *</b>	<b>-159</b>	<b>142</b>	<b>1.12</b>	<b>316</b>	<b>196</b>	<b>1.61</b>
Africa	709	86	780	64	789	64	71	97	0.73	9	76	0.12	80	107	0.75
Canada	682	84	703	61	714	61	21	94	0.22	11	72	0.15	32	104	0.31
Other	973	100	1,355	84	1,178	79	382	118	3.24 *	-177	96	1.83 *	205	128	1.61
<b>Latin America</b>	<b>15,323</b>	<b>405</b>	<b>15,987</b>	<b>291</b>	<b>16,943</b>	<b>300</b>	<b>664</b>	<b>448</b>	<b>1.48</b>	<b>956</b>	<b>352</b>	<b>2.72 *</b>	<b>1,620</b>	<b>506</b>	<b>3.20 *</b>
Mexico	8,352	301	8,855	220	9,659	229	503	336	1.50	804	266	3.02 *	1,307	380	3.44 *
Cuba	985	104	877	70	919	72	-108	114	0.95	42	84	0.50	-66	127	0.52
El Salvador	833	96	846	69	868	70	13	107	0.12	22	82	0.27	35	119	0.30
Dom. Rep	732	90	646	60	652	60	-86	98	0.88	6	71	0.08	-80	108	0.74
Haiti	395	66	495	53	569	57	100	76	1.31	74	65	1.14	174	87	2.00 *
Colombia	458	71	529	54	540	55	71	81	0.88	11	65	0.17	82	90	0.91
Jamaica	420	68	501	53	532	55	81	78	1.04	31	64	0.49	112	87	1.28
Guatemala	348	62	366	45	407	48	18	69	0.26	41	55	0.74	59	78	0.75
Other LA	2,800	175	2,873	126	2,796	125	73	196	0.37	-77	149	0.52	-4	215	0.02

+ Population in the U.S. 400,000 or more in 2002

\* Asterisk (if any) indicates that difference is significant at the 90-percent confidence level (1.645+).

\*\*China includes Taiwan and Hong Kong

Source: U.S. Census Bureau, Current Population Survey: Annual Social and Economic Supplement 2000, 2001, and 2002. Population Division Working Paper No. 73.

Internet Release Date: October 29, 2003

**Table A-3. Foreign-Born Population by Regions and Selected Countries of Birth - Annualized Averages: 2000, 2001, 2002** <sup>53</sup>

(Numbers in thousands. Data are for civilian noninstitutional population of the United States. Members of the Armed Forces living off post or with their families on post are included if there is at least one civilian adult living in the household.)

REGION AND COUNTRY OF BIRTH	2000+		2001+		2002+		2001-2000			2002-2001			2002-2000		
	Number (1)	Standard error (2)	Number (3)	Standard error (4)	Number (5)	Standard error (6)	Difference (3) - (1) = (7)	Standard error of the absolute difference (8)	Absolute difference / SE Absolute difference* (7) / (8) = (9)	Difference (5) - (3) = (10)	Standard error of the absolute difference (11)	Absolute difference / SE Absolute difference* (10) / (11) = (12)	Difference (5) - (1) = (13)	Standard error of the absolute difference (14)	Absolute difference / SE Absolute difference* (13) / (14) = (15)
<b>TOTAL.....</b>	<b>30,527</b>	<b>231</b>	<b>31,610</b>	<b>168</b>	<b>32,513</b>	<b>170</b>	<b>1,083</b>	<b>254</b>	<b>4.26 *</b>	<b>903</b>	<b>211</b>	<b>4.27 *</b>	<b>1,986</b>	<b>61</b>	<b>32.53 *</b>
<b>Europe</b>	<b>4,474</b>	<b>90</b>	<b>4,513</b>	<b>65</b>	<b>4,514</b>	<b>65</b>	<b>39</b>	<b>99</b>	<b>0.39</b>	<b>1</b>	<b>81</b>	<b>0.01</b>	<b>40</b>	<b>26</b>	<b>1.56</b>
Germany	605	33	633	24	618	24	28	37	0.76	-15	30	0.50	13	9	1.39
Russia	431	28	480	21	523	22	49	31	1.56	43	27	1.58	92	6	15.21 *
England	485	30	461	21	446	20	-24	32	0.74	-15	26	0.58	-39	9	4.12 *
Poland	434	28	439	20	465	21	5	31	0.16	26	26	1.01	31	7	4.18 *
Italy	447	29	439	20	416	20	-8	31	0.26	-23	25	0.92	-31	9	3.46 *
Ukraine	272	22	230	15	194	14	-42	24	1.75 *	-36	18	2.04 *	-78	9	8.75 *
Portugal	157	17	174	13	176	13	17	19	0.90	2	16	0.12	19	4	4.55 *
Ireland	173	18	156	12	149	12	-17	19	0.88	-7	15	0.47	-24	6	3.97 *
Yugoslavia	129	15	133	11	151	12	4	17	0.24	18	14	1.25	22	4	6.24 *
France	116	15	124	11	135	11	8	16	0.49	11	14	0.80	19	3	5.63 *
Greece	114	15	109	10	113	10	-5	16	0.32	4	13	0.31	-1	4	0.24
Romania	86	13	103	10	95	9	17	14	1.20	-8	12	0.66	9	3	2.85 *
Other Europe	1,026	44	1,031	31	1,034	31	5	48	0.11	3	39	0.08	8	12	0.65
<b>Asia</b>	<b>8,076</b>	<b>154</b>	<b>8,403</b>	<b>112</b>	<b>8,424</b>	<b>112</b>	<b>327</b>	<b>169</b>	<b>1.93 *</b>	<b>21</b>	<b>140</b>	<b>0.15</b>	<b>348</b>	<b>42</b>	<b>8.33 *</b>
China**	1,640	70	1,613	50	1,542	49	-27	76	0.35	-71	61	1.16	-98	22	4.53 *
Philippines	1,362	64	1,355	46	1,407	46	-7	70	0.10	52	57	0.91	45	18	2.56 *
India	1,152	59	1,283	44	1,331	45	131	65	2.00 *	48	56	0.86	179	14	13.03 *
South Korea	802	49	842	36	776	34	40	54	0.74	-66	44	1.50	-26	15	1.77 *
Vietnam	871	51	815	35	845	36	-56	55	1.01	30	45	0.67	-26	15	1.71 *
Japan	342	32	382	24	384	24	40	36	1.12	2	30	0.07	42	8	5.36 *
Pakistan	233	27	271	20	229	19	38	30	1.28	-42	24	1.72 *	-4	8	0.52
Iran	265	28	267	20	301	21	2	31	0.06	34	26	1.30	36	7	5.31 *
Thailand	146	21	150	15	150	15	4	23	0.17	0	19	0.00	4	6	0.69
Cambodia	130	20	137	15	142	15	7	22	0.32	5	18	0.27	12	5	2.38 *
Laos	92	17	128	14	156	15	36	19	1.87 *	28	18	1.52	64	1	53.93 *
Bangladesh	89	16	126	14	117	13	37	19	1.95 *	-9	17	0.53	28	3	9.38 *
Lebanon	100	17	121	14	120	14	21	20	1.07	-1	17	0.06	20	4	5.27 *
Indonesia	97	17	103	13	101	12	6	19	0.32	-2	16	0.13	4	5	0.86
Israel	94	17	78	11	103	13	-16	18	0.89	25	15	1.70 *	9	4	2.11 *
Other Asia	659	45	734	34	720	33	75	50	1.51	-14	42	0.34	61	11	5.38 *

**Table A-3. Foreign-Born Population by Regions and Selected Countries of Birth - Annualized Averages: 2000, 2001, 2002** <sup>53</sup>

(Numbers in thousands. Data are for civilian noninstitutional population of the United States. Members of the Armed Forces living off post or with their families on post are included if there is at least one civilian adult living in the household.)

REGION AND COUNTRY OF BIRTH	2000+		2001+		2002+		2001-2000			2002-2001			2002-2000		
	Number (1)	Standard error (2)	Number (3)	Standard error (4)	Number (5)	Standard error (6)	Difference (3) - (1) = (7)	Standard error of the absolute difference (8)	Absolute difference / SE Absolute difference* (7) / (8) = (9)	Difference (5) - (3) = (10)	Standard error of the absolute difference (11)	Absolute difference / SE Absolute difference* (10) / (11) = (12)	Difference (5) - (1) = (13)	Standard error of the absolute difference (14)	Absolute difference / SE Absolute difference* (13) / (14) = (15)
<b>Latin America</b>	<b>15,351</b>	<b>216</b>	<b>16,002</b>	<b>157</b>	<b>16,891</b>	<b>161</b>	<b>651</b>	<b>238</b>	<b>2.74 *</b>	<b>889</b>	<b>199</b>	<b>4.47 *</b>	<b>1,540</b>	<b>55</b>	<b>28.10 *</b>
Mexico	8,405	162	8,829	118	9,419	122	424	178	2.38 *	590	150	3.93 *	1,014	40	25.43 *
Cuba	963	56	904	38	924	39	-59	60	0.98	20	48	0.41	-39	17	2.33 *
El Salvador	847	52	857	37	891	38	10	57	0.18	34	47	0.72	44	14	3.14 *
Dom Rep	695	47	603	31	672	33	-92	51	1.82 *	69	40	1.71 *	-23	14	1.63
Haiti	466	39	554	30	499	29	88	44	2.02 *	-55	37	1.50	33	10	3.25 *
Jamaica	490	40	547	30	580	31	57	44	1.29	33	38	0.87	90	9	10.12 *
Colombia	513	41	517	29	548	30	4	44	0.09	31	37	0.84	35	11	3.28 *
Guatemala	294	31	371	25	412	26	77	35	2.20 *	41	32	1.30	118	5	24.63 *
Ecuador	256	29	320	23	339	24	64	33	1.97 *	19	29	0.65	83	5	16.13 *
Honduras	277	30	280	21	306	22	3	33	0.09	26	27	0.95	29	7	3.88 *
Peru	309	32	257	21	261	21	-52	34	1.55	4	26	0.16	-48	11	4.42 *
Guyana	219	27	240	20	244	20	21	29	0.71	4	25	0.16	25	7	3.81 *
Nicaragua	269	29	222	19	205	18	-47	31	1.50	-17	23	0.73	-64	11	5.77 *
Brazil	177	24	210	19	224	19	33	27	1.23	14	24	0.59	47	5	9.96 *
Trin & Tob	183	24	191	18	205	18	8	27	0.30	14	23	0.62	22	6	3.70 *
Argentina	117	19	111	13	130	15	-6	21	0.28	19	18	1.08	13	5	2.70 *
Venezuela	125	20	107	13	105	13	-18	21	0.84	-2	16	0.12	-20	7	2.88 *
Other LA	743	49	880	38	929	39	137	55	2.50 *	49	48	1.02	186	10	18.79 *
<b>Other</b>	<b>2,626</b>	<b>89</b>	<b>2,693</b>	<b>64</b>	<b>2,683</b>	<b>64</b>	<b>67</b>	<b>97</b>	<b>0.69</b>	<b>-10</b>	<b>80</b>	<b>0.13</b>	<b>57</b>	<b>25</b>	<b>2.31 *</b>
Africa	702	46	708	33	822	35	6	50	0.12	114	43	2.67 *	120	10	11.44 *
Egypt	121	19	116	13	119	14	-5	21	0.24	3	17	0.18	-2	6	0.36
Nigeria	104	18	93	12	146	15	-11	19	0.58	53	17	3.12 *	42	3	15.31 *
Other Africa	477	38	499	28	557	29	22	42	0.53	58	36	1.63	80	9	9.20 *
Canada	693	46	676	32	667	32	-17	50	0.34	-9	40	0.22	-26	14	1.90 *
Other	1,231	61	1,308	45	1,193	43	77	67	1.15	-115	55	2.11 *	-38	18	2.10 *

\* Asterisk (if any) indicates difference is significant at the 90-percent confidence interval (1.645+).

+ Population in the U.S. 100,000 or more between 2000 and 2002

\*\* Population includes Hong Kong and Taiwan

Source: U.S. Census Bureau, Current Population Survey. Population Division Working Paper No. 73.

Internet Release Date: October 29, 2003

**Table A-4. Foreign-Born Population by Regions and Selected Country of Birth - Annual Social and Economic Supplement (ASEC) and 12-Month Annualized Averages: 2000, 2001, 2002**

(Numbers in thousands. Data are for civilian noninstitutional population of the United States. Members of the Armed Forces living off post or with their families on post are included in the Annual Social and Economic Supplement data if there is at least one civilian adult living in the household. Basic or monthly survey data contain no military personnel)

NATIVITY, REGION AND COUNTRY	Annual Social and Economic Supplement**						NATIVITY, REGION AND COUNTRY	12-Month Annualized Averages**					
	March 1, 2000	March 1, 2001	March 1, 2002	Difference 2001 - 2000	Difference 2002 - 2001	Difference 2002 - 2000		July 1, 2000	July 1, 2001	July 1, 2002	Difference 2001 - 2000	Difference 2002 - 2001	Difference 2002 - 2000
<b>TOTAL.....</b>	<b>29,985</b>	<b>31,811</b>	<b>32,452</b>	<b>1,826 *</b>	<b>641 *</b>	<b>2,467 *</b>	<b>TOTAL.....</b>	<b>30,527</b>	<b>31,610</b>	<b>32,513</b>	<b>1,083 *</b>	<b>903 *</b>	<b>1,986 *</b>
<b>Europe</b>	4,382	4,476	4,548	94	72	166	<b>Europe</b>	4,474	4,513	4,514	39	1	40
Germany	660	661	638	1	-23	-22	Germany	605	633	618	28	-15	13
Russia	364	465	508	101 *	43	144 *	Russia	431	480	523	49	43	92 *
England	515	466	464	-49	-2	-51	England	485	461	446	-24	-15	-39 *
Poland	444	415	472	-29	57	28	Poland	434	439	465	5	26	31 *
Italy	458	404	405	-54	1	-53	Italy	447	439	416	-8	-23	-31 *
Ukraine	n/a	n/a	n/a	n/a	n/a	n/a	Ukraine	272	230	194	-42 *	-36 *	-78 *
Other Europe	1,941	2,066	2,061	125	-5	120	Other Europe	1,026	1,031	1,034	5	3	8
<b>Asia</b>	<b>7,916</b>	<b>8,509</b>	<b>8,281</b>	<b>593 *</b>	<b>-228</b>	<b>365</b>	<b>Asia</b>	<b>8,076</b>	<b>8,403</b>	<b>8,424</b>	<b>327 *</b>	<b>21</b>	<b>348 *</b>
China***	1,543	1,657	1,449	114	-208 *	-94	China***	1,640	1,613	1,542	-27	-71	-98 *
Philippines	1,339	1,495	1,429	156	-66	90	Philippines	1,362	1,355	1,407	-7	52	45 *
India	1,117	1,284	1,304	167	20	187	India	1,152	1,283	1,331	131 *	48	179 *
South Korea	782	907	756	125	-151 *	-26	South Korea	802	842	776	40	-66	-26 *
Vietnam	953	786	819	-167	33	-134	Vietnam	871	815	845	-56	30	-26 *
Japan	305	356	439	51	83	134 *	Japan	342	382	384	40	2	42 *
Pakistan	n/a	n/a	n/a	n/a	n/a	n/a	Pakistan	233	271	229	38	-42 *	-4
Laos	n/a	n/a	n/a	n/a	n/a	n/a	Laos	92	128	156	36 *	28	64 *
Bangladesh	n/a	n/a	n/a	n/a	n/a	n/a	Bangladesh	89	126	117	37 *	-9	28 *
Israel	n/a	n/a	n/a	n/a	n/a	n/a	Israel	94	78	103	-16	25 *	9 *
Other Asia	1,875	2,022	2,084	147	62	209	Other Asia	753	812	720	59	-14	-33
<b>Latin America</b>	<b>15,323</b>	<b>15,987</b>	<b>16,943</b>	<b>664</b>	<b>956 *</b>	<b>1,620 *</b>	<b>Latin America</b>	<b>15,351</b>	<b>16,002</b>	<b>16,891</b>	<b>651 *</b>	<b>889 *</b>	<b>1,540 *</b>
Mexico	8,352	8,855	9,659	503	804 *	1,307 *	Mexico	8,405	8,829	9,419	424 *	590 *	1,014 *
Cuba	985	877	919	-108	42	-66	Cuba	963	904	924	-59	20	-39 *
El Salvador	833	846	868	13	22	35	El Salvador	847	857	891	10	34	44 *
Dom Rep	732	646	652	-86	6	-80	Dom Rep	695	603	672	-92 *	69 *	-23
Haiti	395	495	569	100	74	174 *	Haiti	466	554	499	88 *	-55	33 *
Jamaica	420	501	532	81	31	112	Jamaica	490	547	580	57	33	90 *
Colombia	458	529	540	71	11	82	Colombia	513	517	548	4	31	35 *
Guatemala	348	366	407	18	41	59	Guatemala	294	371	412	77 *	41	118 *
Ecuador	n/a	n/a	n/a	n/a	n/a	n/a	Ecuador	256	320	339	64 *	19	83 *
Nicaragua	n/a	n/a	n/a	n/a	n/a	n/a	Nicaragua	269	222	205	-47	-17	-64 *
Brazil	n/a	n/a	n/a	n/a	n/a	n/a	Brazil	177	210	224	33	14	47 *
Other LA	2,800	2,873	2,796	73	-77	-4	Other LA	743	880	929	137 *	49	186 *
<b>Other</b>	<b>2,364</b>	<b>2,839</b>	<b>2,680</b>	<b>475 *</b>	<b>-159</b>	<b>316</b>	<b>Other</b>	<b>2,626</b>	<b>2,693</b>	<b>2,683</b>	<b>67</b>	<b>-10</b>	<b>57 *</b>
Africa	709	780	789	71	9	80	Africa	702	708	822	6	114 *	120 *
Nigeria	n/a	n/a	n/a	n/a	n/a	n/a	Nigeria	104	93	146	-11	53 *	42 *
Other Africa	n/a	n/a	n/a	n/a	n/a	n/a	Other Africa	477	499	557	22	58	80 *
Canada	682	703	714	21	11	32	Canada	693	676	667	-17	-9	-26 *
Other	973	1,355	1,178	382 *	-177 *	205	Other	1,231	1,308	1,193	77	-115 *	-38 *

\* Asterisk (if any) indicates difference is significant at the 90-percent confidence interval (1.645+).

\*\* Annual Social and Economic Supplement data are controlled to March 1 of the year given and shown for populations 400,000+ in 2002. Annual averages are shown for selected countries.

\*\*\* Population includes Hong Kong and Taiwan

Source: U.S. Census Bureau, Current Population Survey, Population Division Working Paper No. 73.

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**TABLE A-5. ILLUSTRATION OF EFFECT OF CPS NATIVITY EDITS AND ADJUSTMENT FOR UNDER-COVERAGE IN 1990 FOREIGN-BORN NUMBERS**

(Numbers in thousands)

Country of birth	Foreign born: Published 1990 census (1)	Allocation of Country Not Reported		
		Allocated unknown country (2)	Revised (1) 1990 Census 1+2 = (3)	Percent increase (3-1) / 1 = (4)
Total Foreign born	19,767	0	19,767	0.0
In specified countries by *region:				
Europe	3,722	136	3,859	3.7
Asia	4,294	157	4,451	3.6
Mexico	4,298	226	4,524	5.3
Other North & South America	3,423	163	3,586	4.8
In all Other countries	3,221	126	3,347	3.9
Unknown country	808	-808	0	-100.0

\* Selected countries in Europe, Asia, and the Americas from the 40 tracking countries; not equivalent to the regions in published reports.

Col.2--Allocation based on proration of country not reported amount (808,158) specific to age, sex, period of entry, and origin (Hispanic, not Hispanic) categories.

Source: U.S. Census Bureau, Current Population Survey. Population Division Working Paper No. 73.

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**TABLE. A-6 1990 DECENNIAL-BASED AND 1997 CPS ESTIMATES OF THE FOREIGN BORN**

(Numbers in thousands)

Country of birth	Foreign born = Total			Foreign Born = Entered before 4-1-90			Percent Change	
	1997 CPS (1)	1990 Census (2)	Change from Census 1-2 = (3)	1997 CPS (4)	1990 Census (5)	Difference 4-5 = (6)	CPS '97 vs Census '90 3/2 = (7)	CPS before '90 vs Census '90 6/5 = (8)
Total Foreign born	25,779	20,346	5,433	18,240	20,346	-2,106	26.7	-10.4
<i>In specified countries by *region:</i>								
Europe	3,293	3,866	-573	2,774	3,866	-1,091	-14.8	-28.2
Asia	5,763	4,538	1,226	3,913	4,538	-624	27.0	-13.8
Mexico	7,017	4,766	2,251	4,781	4,766	15	47.2	0.3
Other North & South America	5,116	3,760	1,356	3,853	3,760	94	36.1	2.5
In all Other countries	4,589	3,416	1,172	2,917	3,416	-499	34.3	-14.6

\* Selected countries in Europe, Asia, and the Americas from the 40 tracking countries; not equivalent to the regions in published reports.

Note: To maximize comparability of the CPS and census, the 1990 census estimates include adjustments for under-coverage and allocation of country not reported. The percent change amounts in cols. 7 and 8 would differ if unadjusted 1990 census numbers (col.1) are used. For example, the 26.7 percent increase of the total foreign born from 20,346 in 1990 (census) to 25,779 in 1997 (CPS) would be 30.4 percent if the published 1990 census figure (19,767) is used. The 1990-97 increase in the Born in Mexico population would be 63.3 percent (4,298 to 7,017) instead of 47.2 percent (4,766 to 7,017).

Source: U.S. Census Bureau, Current Population Survey. Population Division Working Paper No. 73.

Internet Release Date: October 29, 2003

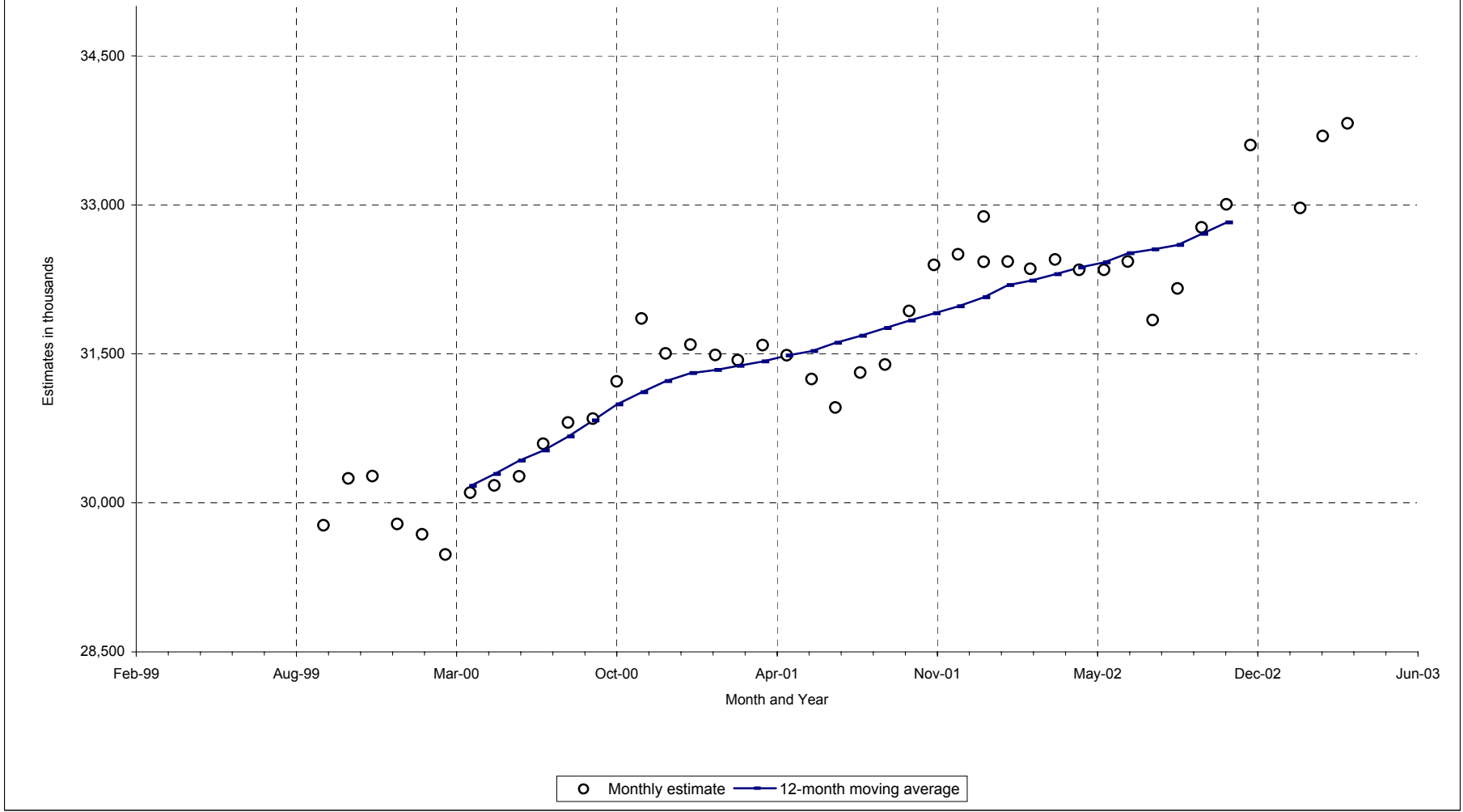
Figure 1. Foreign Born in the United States: Current  
Population Survey January 1994 - June 2003  
Monthly estimates shown with 1990 and 2000 weights (in thousands)



Source: U.S. Census Bureau  
Internet Release date: October 29, 2003

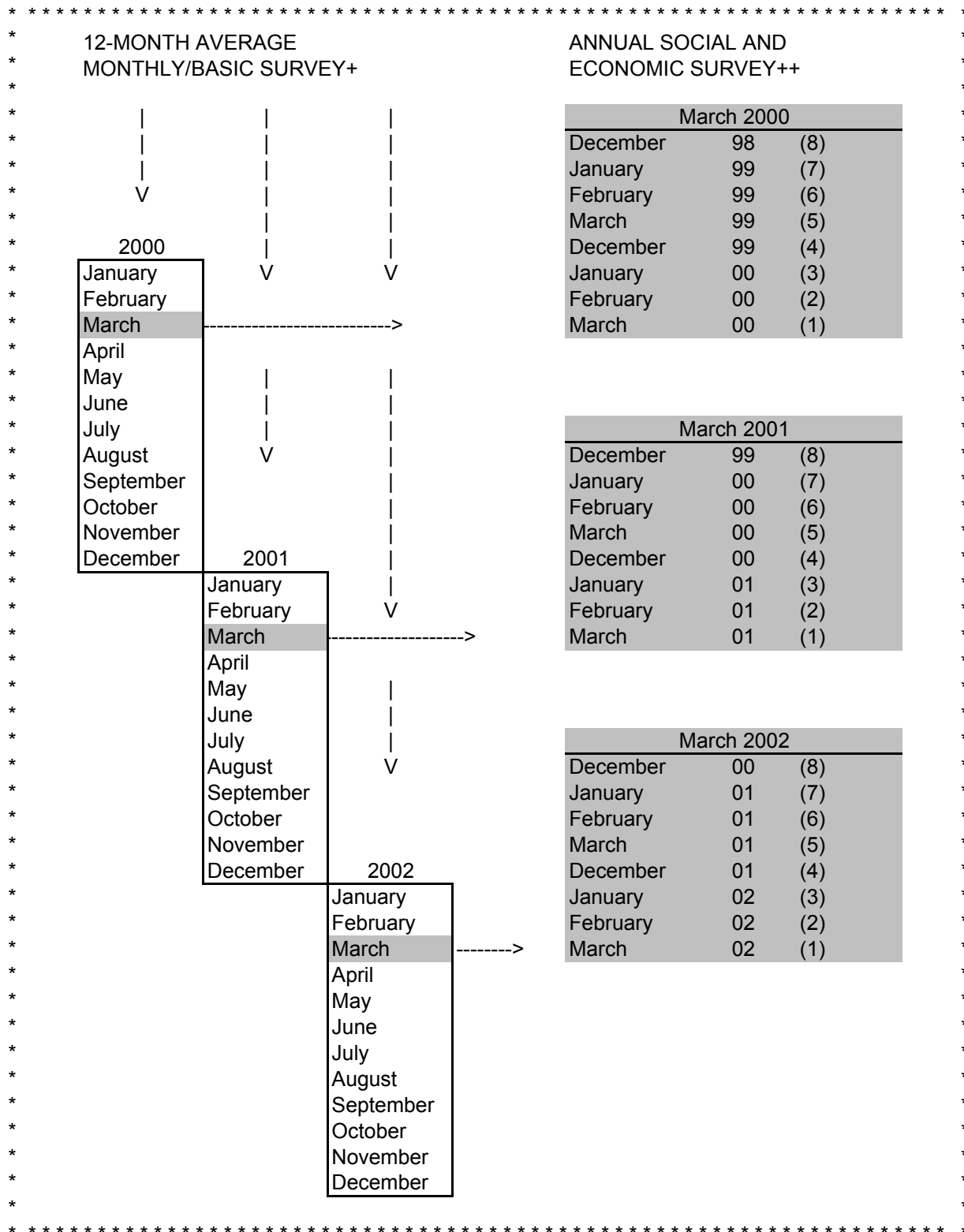
## Figure 2. Foreign Born in the United States: Current Population Survey October 1999 - April 2003

Monthly estimates shown with 12-month moving average (2000 weights)



Source: U.S. Census Bureau  
Internet Release date: October 29, 2003

FIGURE 3. SCHEMATIC SHOWING APPROXIMATE SOURCE MONTHS OF SAMPLE CASES FOR 12-MONTH ANNUALIZED AVERAGES AND ANNUAL SOCIAL AND ECONOMIC SURVEY



+ Monthly or basic files include cases from 8 rotation groups interviewed over a 16-month period. No military personnel are included in the basic survey. Months included in the March basic survey are indicated with an arrow.

++ The Annual Social and Economic Survey (ASEC) includes basic cases plus SCHIP and Minority oversample cases. The ASEC also includes selected members of the military. See the text for more explanation. Month in sample shown in parentheses.

## APPENDIX A: NATIVITY QUESTIONS ON THE CURRENT POPULATION SURVEY

The next few questions ask about each household member's country of birth.

**NATVTY** In what country (were/was)..... born? (Enter Code) \_\_\_\_\_

**MNTVTY** In what country was.....'s mother born? \_\_\_\_\_

**FNTVTY** In what country was.....'s father born? \_\_\_\_\_

(screens with country codes not shown)

---

**AUTOMATED SKIP PATTERN:**

**If NATVTY = US (1) --> END sequence for this person**  
**If NATVTY = PR\* (2) or OA\* (3) --> go to INUSYR**  
**If MNTVTY and FNTVTY = US (1), PR\* (2) or OA\* (3) --> go to INUSYR**  
**ALL OTHERS --> go to CITIZN**

---

**CITIZN** (Are/Is) . . . a **CITIZEN** of the United States?

1. YES --> go to CITYTPA
2. NO --> go to INUSYR
3. DK\* --> go to INUSYR
4. R\* --> go to INUSYR

---

**CITYTPA** (Were/Was) . . . born a **citizen** of the United States?

1. YES --> go to INUSYR
2. NO --> go to CITYTPB
3. DK\* --> go to CITYTPB
4. R\* --> go to INUSYR

**CITYTPB** Did . . . become a **citizen** of the United States through naturalization?

1. YES --> go to INUSYR
2. NO --> go to INUSYR
3. DK\* --> go to INUSYR
4. R\* --> go to INUSYR

---

**INUSYR** When did . . . come to live in the United States?

1. YEAR 19\_\_\_\_\_
2. \_\_\_\_\_ years --> programmed exact year verification
3. DK\*
4. R\*

---

\* PR= Puerto Rico; OA= Outlying Area; DK= Don't Know; R= Refused.

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