

MEMORANDUM

To: U.S. Census Monitoring Board, Presidential Members

From: Jeffrey S. Passel

Subject: Comparison of Demographic Analysis, A.C.E., and Census 2000 Results by Race

Date: February 27, 2001

The Census Bureau has furnished a preliminary demographic analysis (DA) estimate of the total U.S. population by age and sex for the black and “nonblack” populations.¹ The preliminary DA total is 279.9 million. The 2000 Census count of the resident population — 281,421,906 — when compared with the DA estimate implies an *overcount* of about 1.5 million or 0.5 percent. The initial A.C.E. estimates show an estimated *undercount* of about 1 percent (mid-range estimate) or 2.7 million. Thus, the A.C.E. and DA estimates of the total population differ by about 4.2 million. Reconciling this difference, or at least understanding its source is a crucial factor in the adjustment decision.

On the basis of my analyses, two of which are briefly reported here, I conclude: ***The low DA total should NOT be used as a basis for deciding AGAINST adjustment because the current DA estimate underestimates immigration, particularly Hispanic and undocumented immigration. Furthermore, demographic techniques and the A.C.E. are quite consistent in estimates of undercount for the non-Hispanic Black population and the non-Hispanic, non-Black population. They disagree on estimates for the Hispanic population because the demographic figures are too low.***

My initial analysis shows that the current version of DA systematically underestimates the immigration component, especially undocumented immigration and temporary residents but also other areas, by a significant amount. Correcting the underestimation could substantially narrow the gap between DA and A.C.E. by at least 2–3 million, thus bringing the DA estimate within the low-high range of the A.C.E.² In addition, there is some evidence to support even higher estimates of undocumented immigration that would bring the DA estimates closer to the mid-range A.C.E. estimates. Later in this memorandum I briefly address these immigration components of the DA estimates.

A full analysis of the three data sources — Census, A.C.E., and DA — would require, at a minimum, age-sex-race/Hispanic data from all three. These data, particularly the census data, are not yet available. The A.C.E. estimates that Gene Ericksen has supplied provide both adjusted

¹ These race groups correspond to the 1990 “modified age race sex” (MARS) definition. The black population includes black Hispanics. Further, based on results from the Census Bureau’s pre-census testing programs, this version of the black population probably corresponds fairly closely to a grouping from Census 2000 defined by persons choosing the “black” race response either alone or in combination.

² According to some researchers (Sum et al. 2001), underestimation of undocumented immigration might account for the *entire* gap.

(A.C.E.) population totals and unadjusted (“Census”) population totals. These figures represent the non-group-quarters population (NGQ). As such, we cannot compare them to the DA estimates which represent the total population. However, I have used data from the April 2000 Current Population Survey (CPS) to derive some “quasi DA” estimates for comparison. The CPS data are for the civilian, noninstitutional (CNI) population. Although the NGQ and CNI populations are not exactly the same, they are quite similar in that the groups they exclude overlap to a high degree. With these data, one can approximate the estimates that a demographic analysis would yield for more detailed racial groups than *the* DA estimates show.³ While these new data are not an exact representation of what DA will show, they serve very well to address issues of adequacy of DA estimates and consistency of A.C.E. and DA.

Black Population. For the non-Hispanic Black population, the A.C.E. and DA estimates are in very close agreement.

<u>Source</u>	<u>Population (millions)</u>	<u>Percent Undercount</u>	<u>Sex Ratio Ages 18–29</u>	<u>Sex Ratio Ages 30–59</u>
Census	33.470	—	83.1	80.3
A.C.E.	34.211	2.2%	83.5	81.6
Quasi-DA	34.424	2.8%	89.4	90.5

From this comparison (approximate though it is), I conclude several things. First, there is a high degree of similarity in the DA and A.C.E. estimates which both show an *undercount* of the Black population. Second, the A.C.E. actually may *underestimate* the Black undercount, particularly since the revisions I suggest for immigration would raise the DA population estimate slightly. Third, correlation bias in the A.C.E. still remains an issue. The A.C.E. does not find substantially different undercount rates for adult Black males and females, yet the DA sex ratios when compared with the census would imply that the undercount rates for males should exceed those for females by about 6 percent at ages 18–29 and 10 percent at 30–49. (These results are similar in nature to results from the 1990 PES and the 1980 PEP.) None of these results *per se* argues against using the A.C.E.; in fact, they argue that DA and A.C.E. show similar results.

Non-Black, Non-Hispanic Population. I opted to display results for the non-Black, non-Hispanic population because this group should be similarly defined and reported in the three data sources whereas the more detailed groups (white, API, American Indian) are more affected by differences in race reporting between the CPS and Census 2000. For the non-Black, non-Hispanic population, the A.C.E. and DA estimates are also in very close agreement.

³ Demographic techniques are used by the Census Bureau to make estimate for four race groups (White, Black, Asian/Pacific Islander, American Indian/Alaska Native), for the Hispanic and non-Hispanic populations, and for the full four-by-two matrix of race/Hispanic groups. These estimates are not used for coverage measurement because of concerns about the precision and accuracy of the more detailed groups and because of issues surrounding consistency of race definitions across the census and various demographic data sources.

<u>Source</u>	<u>Population (millions)</u>	<u>Percent Undercount</u>	<u>Sex Ratio Ages 18–29</u>	<u>Sex Ratio Ages 30–59</u>
Census	205.579	—	100.0	98.1
A.C.E.	207.086	0.7%	101.0	98.6
Quasi-DA	206.555	0.5%	100.4*	100.2*

*Based on entire non-Black population.

These data also show a very high degree of agreement between DA and A.C.E., both in terms of the size of the total population and the percent undercount. Thus, contrary to the gross comparisons of the total population where DA is well below the A.C.E. and even below the Census, *DA does show a net undercount for the largest share of the population — the non-Black, non-Hispanic population.* Second, here again, if the DA estimate were corrected for understatement of the immigration component, it might show that the A.C.E. estimate is slightly too low. The addition of more legal non-immigrants and undocumented immigrants would increase the DA estimate to a number somewhat larger than the A.C.E. number, but probably not much larger. Third, for this population, there is not much evidence of substantial correlation bias. The sex ratios seem to be in reasonable agreement, especially given the differences in population definitions. *These results for the non-Black, non-Hispanic population argue strongly that the A.C.E. measurements are sound and that the two systems (A.C.E. and DA) are in agreement as to the size and direction of the undercount and on the differential between the Black (not Hispanic) population and the non-Black (also not Hispanic) population.*

Hispanic Population. The A.C.E. and quasi-DA estimates for the Hispanic population diverge greatly. The differences support the notion that DA has underestimated immigration and that most, if not all, of the overall disagreement between DA and A.C.E. is due to this component.

<u>Source</u>	<u>Population (millions)</u>	<u>Percent Undercount</u>	<u>Sex Ratio Ages 18–29</u>	<u>Sex Ratio Ages 30–59</u>
Census	34.538	—	115.1	104.6
A.C.E.	35.552	2.9%	120.0	107.1
Quasi-DA	33.195	-4.0%	102.8*	101.8*

* Based on CPS, not a true “DA-type” sex ratio.

According to these data, the DA estimates for Hispanics are 2.4 million *lower* than the A.C.E. estimates and even 1.3 million below the census count. These data are quite consistent with the argument that the DA estimates have understated the amount of Hispanic immigration during the decade of the 1990s. Since a very high proportion of Hispanic immigration is undocumented and a large majority of undocumented immigration is Hispanic, this shortfall in the DA estimate points to a significant underestimation of undocumented migration. The sex ratio information also points in this direction. Again, a high proportion of undocumented Hispanic immigration consists of adult males. In fact, the sex ratio of adult undocumented immigrants can often exceed 140 or 150. The addition of 2+ million Hispanic undocumented immigrants to the DA estimates (with a reasonable age-sex distribution) would bring the A.C.E. and DA estimates into close

agreement—for the Hispanic population, but more importantly for the non-Black and total populations. *Thus, on the basis of these data, both the quasi-DA (with corrected undocumented immigration) and A.C.E. estimates point to roughly the same overall undercount in Census 2000 and to the continued existence of a higher than average undercount among Blacks and Hispanics.*

The Immigration Component in DA. The shortfall in DA compared to both the Census count and the A.C.E. can be traced almost entirely to two components of immigration—undocumented immigration and legal, temporary residents. My research and that of others offers: (a) sound empirical evidence for addition of a minimum of 2 million persons from these components; (b) reasonable evidence for perhaps an additional 1 million; and (3) arguments that the number should be even higher. In addition, there are two other components—out-migration of legal immigrants and net movement of legalized immigrants—for which sound logical arguments can be put forth for adding an additional 200,000–400,000 persons to the DA estimates. The latter component is not even addressed in the DA estimates.

My analysis of data from the March 2000 CPS in conjunction with estimates of legal immigration yields an estimate of 6.8 million undocumented aliens counted in the CPS. In comparison, the DA estimates include an implied figure of “only” 6 million undocumented immigrants in the entire population. The difference between DA and my own work is also consistent with the degree of underestimation shown by the Census Bureau’s estimates of the foreign-born population in comparison with the CPS figures. Further, because my own work only represents the undocumented population *included in the CPS*, it can be expected to underestimate the undocumented population. Thus, there are clearly at least 1 million more undocumented immigrants in the population than are included in DA. Other analyses, such as the Sum et al. (2001) analysis of the employment gap between the establishment and population surveys, point to numbers that are much, much larger still.

The DA estimates assume that the number of legal temporary foreign-born residents (i.e., legal non-immigrants) has not changed since 1990. This group includes foreign students and scholars, guest workers (such as the so-called “hi-tech” guest workers), intracompany transferees, exchange visitors, and their dependents. All of these are defined as part of the U.S. population for census purposes and should be included in the census, A.C.E., and DA. There are no “official” estimates of the legal non-immigrant population, but INS keeps track of the annual number of arrivals by visa category. Between 1990 and 1998, the annual number of arrivals in the visa categories that include the legal non-immigrants who should be counted in the census increased by more than 80%, or by more than 800,000. There are two nonimmigrant categories where estimates of the population numbers actually do exist. The number of foreign students and guest scholars increased by more than 150,000 between 1990 and 2000 according to survey data from the Institute for International Education. The number of H-1B guest workers living in the United States increased over this period by more than 200,000 according to estimates by a researcher at Georgetown University (Lowell 2000). As a group, the legal non-immigrant population increased by at least 750,000 according to estimates I have developed from admissions data, the previously mentioned estimates, and some INS data on duration of stay.

DA estimates out-migration of legal foreign-born residents by applying a set of rates derived from the 1980–90 period to their estimates of legal foreign-born residents. Given the strong economy of the 1990s, particularly the late 1990s, it is reasonable to think that the rate of out-migration would have *decreased* during the decade. Further, the “legal” foreign-born population that the Bureau uses in its computation of out-migration for groups other than Mexicans and Central Americans includes some undocumented immigrants. All of this argues that emigration might be overstated by as much as 10-15 percent. If out-migration were actually 10 percent lower than the DA estimate, it would *add* 200,000 persons to the population estimate.

During the late 1980s and early 1990s a significant number of formerly undocumented immigrants (2.7 million) were granted legal status under the Immigration Reform and Control Act of 1986 (IRCA). About 2 million of these were from Mexico. Of the total, about 1 million were special agricultural workers (SAWs) who did not have to actually live in the United States to acquire legal status. The number of legalized aliens living in the United States at any given time has been subject to a great deal of uncertainty. For the 1990 DA estimates, only half to two-thirds of the SAWs were assumed to be in the U.S. Again, given the relative economies of Mexico and the United States during the 1990s, it is reasonable to assume that many of the SAWs who did not live in the U.S. in 1990 would have moved here since then. Further, many of these legalized aliens, even if they live in Mexico most of the time, may have endeavored to be counted in the 2000 Census, in part to prove their continuing right to legal U.S. residence. Based on such arguments, it is reasonable to assume that there was an increase between 1990 and 2000 in the number of legalized immigrants living in the United States. In the 2000 DA estimates, this component is assumed to be zero, in effect, because there is no explicit allowance for it.

Thus, taken together, correcting the underestimation of immigration components in DA could add a minimum of 2 million to the DA estimate and, with quite reasonable assumptions, add 3.5–4 million. At this level then, the DA estimate would show an overall undercount of more than 2 million and would differ by an insignificant amount from the A.C.E. estimate. Further, since most of the additional immigration would be Hispanic, the DA and A.C.E. estimates for Blacks, Hispanics, and non-Black non-Hispanics would all show quite consistent levels and patterns of undercount.