A Comparative Analysis of the Official Population Estimates and the American Community Survey Results: 2000-2005

by

Antonio Bruce, Alfredo Navarro and Bashir Ahmed

U.S. Census Bureau

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U S C E N S U S B U R E A U

Helping You Make Informed Decisions

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I. Introduction

The American Community Survey (ACS) is a nationwide survey designed by the U.S. Census Bureau to provide communities a fresh look at how they are changing. It was designed to replace the decennial long form in future censuses and is a critical element in the Census Bureau's reengineered 2010 census. With full geographic implementation in 2005, the ACS, with about 3 million addresses surveyed each year, became the largest national survey conducted by the Census Bureau.

The design of the ACS incorporates the annual estimates of population for counties by age, sex, race, and Hispanic origin developed as part of the Intercensal Population Estimates program. The intercensal estimates are incorporated in the final person-weighting phase of the ACS estimation process to correct for coverage error in the survey.

With about 3 million addresses surveyed each year, some have questioned the incorporation of the independently produced intercensal population estimates, which do not come "error free." Evaluations of the intercensal estimates compared to the Census 2000 counts have questioned the ability of these estimates to provide accurate levels of population change at various geographic levels. Others offered that with a sample of about 3 million addresses each year, the ACS could provide population estimates that are superior to those developed through the intercensal

estimates process. They contend that, at the very least, this type of survey may provide information on demographic and geographic trends to inform the intercensal estimates process. Thus, the Census Bureau staff as well as outside users of the official population estimates and the ACS results are faced with the following question:

- Do the ACS estimates need to be controlled to the official population estimates that are developed as part of the Intercensal Population Estimates program?

To address this question, this paper compares the official population estimates produced through the intercensal population estimates program with the population estimates that result from the ACS prior to the final control to the intercensal estimates. For convenience, we refer to the official sets of intercensal estimates as the "population controls," and the ACS results as "ACS unadjusted estimates."

This paper compares the official population estimates and the ACS results at the national level, by age, sex, and Hispanic origin, and at the state level, for total population only. The comparisons are done for each year from 2000 to 2005.[1] We excluded race comparison because of issues in consistency of race presentation – the official estimates are produced by 31 race groups (no "some other race" category) while the ACS collects "some other race" consistent with the decennial census. The population universe in this study includes both the civilian and military population in households and excludes the group quarters' population. These comparisons should provide information about possible coverage error in the ACS relative to the

[1] For 2000, the benchmark data refer to Census 2000 counts as of April 1 with CQR adjustments. For the official population estimates, the reference date is July 1 for 2001 – 2005. For ACS unadjusted estimates, the reference date is July 1 for all years (2000 – 2005).

Census (or official population estimates) and may yield useful insights on demographic trends leading to enhancements needed for the intercensal population estimates process.

Section II of this paper presents a brief discussion of the ACS operation and the intercensal estimates process, followed by an introduction of MAPE (Mean Absolute Percent Error) that is used to compare the official population estimates and the ACS results. Section III discusses the results of the comparisons. Section IV concludes with a brief summary and thoughts for next steps.

II. Data and Methodology

The American Community Survey

The American Community Survey is designed to replace the decennial long form in future censuses starting with the 2010 census. (For detailed information about the American Community Survey visit the ACS websites, http://www.census.gov/acs/www/ and http://www.census.gov/acs/www/acs-php/quality_measures_sample_2005.php). The ACS in each year from 2000 to 2002 (the survey in 2000 was known as Census 2000 Supplementary Survey and in 2001 as 2001 Supplementary Survey) was conducted in 1,239 counties. The numbers of addresses initially selected for interview were about 891,000 in 2000, 858,000 in 2001 and 742,000 in 2002. In 2003 and 2004, the ACS was implemented in 1,240 counties (the same counties as in 2000-2002 plus Broomfield County in Colorado). The numbers of addresses initially selected in these two years were about 829,000 and 838,000, respectively. Finally, in 2005 the ACS was fully implemented covering each of the 3,141 counties in the United States and 78 municipios in the Commonwealth of Puerto Rico.

The ACS collects information using three response modes: (1) direct mail response, (2) computer assisted telephone interviewing, and (3) computer assisted personal interviewing. Once the ACS data are collected, they are adjusted by a number of weighting factors to account for sample selection, non-interviews, housing unit coverage, and population coverage. As mentioned before, this paper uses the ACS estimates unadjusted for population coverage.

Intercensal Population Estimates

The Census Bureau's Intercensal Population Estimates Program produces annual population estimates of the resident and group quarters (GQ) population for the nation, states and counties. The Census Bureau develops these estimates by updating the most recent census count by measures of changes in the components of growth: births, deaths, and migration. The component data are estimated mostly from administrative records and some survey data. For a detailed description of the official population estimates methodology and data sources, see the website, http://www.census.gov/popest/topics/methodology/.

Evaluation Measures

We provide descriptive analyses of the differences between the official population estimates and the ACS estimates before the ACS results were controlled to the official estimates, for each year from 2001 to 2005. We also compare the ACS results from 2000 reference to July 1 with the Census 2000 counts. In addition to estimating algebraic differences, we show Mean Absolute Percent Error (MAPE), which is a measure of the average percent difference between the ACS results and official population estimates (or Census 2000 counts), regardless of whether the individual ACS results were higher or lower.[2] MAPE is calculated using the following formula:

[2] To estimate MAPE we assumed the Census 2000 counts reference date for April 1, 2000 with CQR adjustment and the official July 1 estimates from 2000-2005 as benchmark for these estimate dates.

$$MAPE = 100* \sum\{|(E_t - P_t)| / P_t \}/ N$$

Where:

E_t = ACS estimate at time t
P_t = Official population estimate at time t or Census 2000 count
N = Number of observations

III. Comparison of ACS Unadjusted Estimates and Population Controls

As stated at the outset, this paper compares the official population estimates and the unadjusted ACS results at the national level, by age, sex, and Hispanic origin for each year from 2000 to 2005.[3] The population universe in this study includes both the civilian and military population in households and excludes the group quarters' population.

Table 1 shows the numeric and percent differences and MAPEs for total populations for the years 2000-2005. The ACS estimates were consistently lower than the Census counts or official population estimates. The ACS undercoverage was largest in July 1, 2003 – the ACS was lower by 3.88 percent[4] or 10,989,358 people compared to the official population estimates of 282,909,885 people. The smallest percent and numeric differences were in April 1, 2000 (2.79 percent or 7,644,824 people). The smallest difference likely occurred in 2000 because Census 2000 is being compared to a July ACS unadjusted estimate rather than an April estimate.

The MAPEs for total populations vary between 2 and 4 percent for the years 2000-2005, with the smallest MAPE in 2000 (2.77) and the largest MAPE in 2003 (3.58), a pattern observed for numeric and percent differences between the estimates. The state level percent differences

[3] See footnote 1.
[4] The difference between 3.88 percent and the next largest proportion (3.80 percent) was not statistically significant at 90 percent significance level.

between the unadjusted ACS estimates and population controls that were used to calculate these MAPEs are shown in Table 2a. (The corresponding numeric differences between these two sets of estimates are shown in Table 2b.) In general, the state level ACS estimates for total populations were lower than the Census counts or official population estimates in each year. In the following states and years, the ACS estimates were higher than the population controls and statistically significant: Minnesota in 2000, 2002 and 2004, Missouri in 2000, and North Dakota in 2005. It would be interesting to see why the ACS estimates were higher than the population controls in these states and years.

Table 3 shows the percent differences between the ACS estimates and the population controls by sex. The percent differences for males ranged from –3.57 percent in 2000 to –5.08 in percent in 2003. The percent differences for females ranged from –2.05 percent in 2000 to –2.74 percent in 2001 and 2003. The magnitude of the differences for males is higher than for females. This is consistent over time and such patterns are observed with other surveys, such as the Current Population Survey (CPS).

Table 4 shows comparisons of the unadjusted ACS estimates and the population controls by Hispanic origin. The ACS estimates are consistently lower than the population controls for both non-Hispanics and Hispanics. The percent differences between the ACS estimates and population controls are relatively lower for non-Hispanics than Hispanics. The percent differences for non-Hispanics range from -2.69 percent in 2000 to -3.49 percent in 2003. The percent differences for Hispanics, on the other hand, range from -3.53 percent in 2000 to -7.38 percent in 2004.

Age comparisons of the unadjusted ACS estimates and the population controls show that the ACS estimates were generally lower than the Census counts or the official population estimates in each year. However, in the following age groups and years the ACS estimates were higher than the population controls: 65-74 and 75+ in 2003; 65-74 in 2004; and 5-14 and 65-74 in 2005 (see Table 5). The largest percent differences between the unadjusted ACS estimates and the population controls were in age groups 20-24 and 25-29, which is consistent with the CPS patterns.

Table 6 shows sex ratios (the number of males per 100 females) by Hispanic origin and age for the ACS estimates and the population controls for the years 2000-2005. The ACS sex ratios were generally lower than the sex ratios in Census 2000 counts or the population controls in 2001-2005, except for age groups 75+ in 2000 and 2001 and 65-74 in 2005. The lower ACS sex ratios were expected because of the relatively lower coverage of males than females.

V. Summary and Conclusions

This study provided a descriptive analysis of the differences between the unadjusted ACS estimates and the official population controls for the years 2000-2005. The study attempted to answer the following question:

- Do the ACS results need to be controlled to the official population estimates that are developed as part of the Intercensal Population Estimates program?

We compared the official population estimates and the ACS results at the national level, by age, sex, and Hispanic origin, and at the state level, for total population only. For the 2000 comparison, we used Census 2000 data as a benchmark, which is a common practice for

evaluation of population estimates. For comparisons in 2001-2005 we used the official population estimates as benchmark because these estimates were derived by updating the Census 2000 data by up-to-date information on administrative records (except for the net international migration component which is based on ACS data) whereas the ACS estimates were based on sample data.

In general, the ACS estimates were lower than the Census counts or the official population estimates for all the selected characteristics in each year from 2000-2005, suggesting that the ACS estimates need to be controlled to the official population estimates. For a few states and years the ACS estimates were higher than the official population estimates, however, there was no consistent pattern suggesting that the uncontrolled ACS estimates could be used to enhance the official population estimates. Nevertheless, it would be interesting to see why the ACS estimates were higher than the population controls in these states and years.

Table 1
Percent Difference Between ACS Unadjusted Estimates and Population (POP) Controls and Mean Absolute Percent Error (MAPE): 2000-2005

Year[1]	Population Controls (1)	ACS Unadjusted Estimates (2)	Diff. ACS Unadj. - POP Controls 3 = [(2) - (1)]	Pct. Diff. ACS Unadj. - POP Controls 4 = [(3)/(1)]*100	MAPE
2000	273,643,479	265,998,655	-7,644,824	-2.79 (0.18)	**2.77**
2001	277,017,622	267,114,218	-9,903,404	-3.58 (0.18)	**3.30**
2002	280,540,331	269,868,240	-10,672,091	-3.80 (0.20)	**3.26**
2003	282,909,885	271,920,527	-10,989,358	-3.88 (0.20)	**3.58**
2004	285,691,501	275,346,258	-10,345,243	-3.62 (0.21)	**3.17**
2005	288,378,137	278,149,194	-10,228,943	-3.55 (0.08)	**3.11**

[1] For the Population Controls (Col. 1), the reference date is April 1 for Census 2000 data with Count Question Resolution (CQR) adjustments and July 1 for 2001 - 2005.

For ACS unadjusted estimates (Col. 2), the reference date is July 1 for all years (2000 – 2005).
The values in the parentheses indicate the standard errors of the percent difference.

Note: Comparison of the estimates was analyzed for each independent year. The unadjusted ACS results do not incorporate the population controls. MAPEs are based on the absolute difference between the ACS estimates and population controls for 50 states plus the District of Columbia.

Source(s): U.S. Census Bureau – Census 2000, America Community Survey and Official Population Estimates.

Table 2a
Percent Difference Between ACS Unadjusted Estimates and Population Controls by State: 2000-2005

State	2000	2001	2002	2003	2004	2005
Alabama	-4.33	-3.29	-1.90	-5.05	-5.53	-3.19
Alaska	-1.87	-4.20	-1.58	-4.09	-6.05	-4.34
Arizona	-0.35	-6.02	-3.20	-3.61	-3.02	-4.02
Arkansas	1.33	-1.89	-1.94	-2.50	-0.74	-2.74
California	-4.81	-6.76	-6.88	-6.17	-6.86	-5.66
Colorado	0.12	-0.94	0.75	1.23	0.31	-3.68
Connecticut	-1.00	-1.49	-2.55	-2.54	-1.41	-3.21
Delaware	0.01	-6.79	-1.64	-6.74	-6.61	-4.14
District of Columbia	-5.61	-9.28	-8.52	-5.68	-4.78	-2.78
Florida	-3.55	-4.38	-3.60	-4.99	-4.19	-3.47
Georgia	-5.42	-5.19	-8.31	-6.71	-6.03	-4.93
Hawaii	-7.68	-3.18	-2.37	-6.78	-3.62	-2.04
Idaho	-4.23	0.19	-1.64	0.43	0.45	-0.90
Illinois	-2.46	-4.88	-4.78	-4.48	-5.12	-4.08
Indiana	-1.84	-2.67	-2.23	-2.92	-0.08	-0.67
Iowa	-2.24	-3.93	-4.07	-2.68	-1.96	-0.17
Kansas	-3.36	-2.17	-2.15	-2.08	-2.93	-1.19
Kentucky	-1.36	-2.54	-2.79	-2.97	0.01	-2.55
Louisiana	-2.71	-3.24	-4.88	-4.82	-3.09	-5.55
Maine	-0.76	-0.94	1.84	-3.81	-2.68	-2.23
Maryland	-1.83	-2.93	-2.78	-2.34	-3.54	-3.46
Massachusetts	-4.35	-1.70	-3.61	-3.01	-3.48	-2.11
Michigan	-1.71	-1.30	-2.92	-1.32	-0.99	-2.65
Minnesota	2.07	1.51	2.90	1.01	2.22	-0.48
Mississippi	-4.31	-4.08	-3.69	-4.92	-3.97	-3.36
Missouri	2.65	0.70	0.54	0.82	0.21	-2.22
Montana	1.22	-2.59	-2.39	-2.10	-4.32	-6.56
Nebraska	-2.72	-2.59	-0.95	-3.78	-1.51	-0.88
Nevada	-3.71	-4.69	-4.92	-5.12	-7.03	-3.76
New Hampshire	-3.51	-2.09	-1.75	-2.69	-4.98	-2.16
New Jersey	-3.24	-2.83	-3.36	-2.50	-2.68	-3.90
New Mexico	-5.98	-7.66	-7.31	-6.08	-7.98	-6.30
New York	-3.28	-4.17	-4.65	-3.81	-4.53	-4.80
North Carolina	-2.87	-1.01	-2.60	-1.95	-2.49	-2.23
North Dakota	-0.16	-5.54	-2.59	-1.78	-1.21	1.92
Ohio	-3.12	-2.78	-3.55	-3.12	-2.53	-2.11
Oklahoma	-3.67	-5.52	-2.73	-5.17	-3.82	-3.19
Oregon	0.28	0.91	-0.99	-2.62	-2.73	-4.22
Pennsylvania	-3.44	-3.09	-2.29	-3.11	-2.16	-1.64
Rhode Island	-1.51	-5.23	-3.70	-3.76	-2.89	-4.98
South Carolina	-4.94	-3.33	-4.59	-6.52	-3.92	-4.47
South Dakota	-7.96	-4.31	-6.04	-3.40	-3.53	0.56
Tennessee	-0.98	-1.72	-4.49	-3.14	-2.78	-2.17
Texas	-2.32	-4.09	-5.38	-5.84	-5.50	-5.27
Utah	-0.67	0.27	-0.72	-1.16	-0.57	-3.00
Vermont	-1.66	0.71	-1.62	-5.00	-1.19	-5.32
Virginia	-2.13	-3.59	-3.04	-3.77	-2.24	-3.58
Washington	-2.68	-4.10	-3.47	-4.87	-3.08	-2.65
West Virginia	-3.25	-3.83	-6.03	-3.73	-4.41	-2.96
Wisconsin	-3.02	-3.86	-1.82	-3.17	-2.37	-0.59
Wyoming	-0.88	-1.40	-1.22	-0.73	-1.19	-3.61

Note: The standard error values of the state percent differences are listed in appendix I.
Source(s): U.S. Census Bureau – Census 2000, America Community Survey, and Official Population Estimates.

Table 2b

Numeric Difference Between ACS Unadjusted Estimates and Population Controls by State: 2000-2005

State	2000	2001	2002	2003	2004	2005
Alabama	-187,717	-143,089	-83,003	-221,460	-243,957	-141,760
Alaska	-11,354	-25,861	-9,869	-25,775	-38,492	-27,820
Arizona	-17,762	-313,011	-170,876	-197,422	-170,149	-234,149
Arkansas	34,609	-49,393	-51,175	-66,336	-19,869	-74,137
California	-1,588,434	-2,276,369	-2,358,430	-2,139,288	-2,405,144	-1,995,803
Colorado	5,164	-40,539	33,004	54,893	14,139	-167,813
Connecticut	-33,072	-49,499	-85,406	-85,558	-47,958	-108,954
Delaware	93	-52,376	-12,794	-53,392	-53,270	-33,866
District of Columbia	-30,121	-49,783	-45,652	-30,055	-24,785	-14,331
Florida	-552,883	-701,222	-587,736	-828,528	-711,933	-603,490
Georgia	-431,082	-422,664	-692,064	-566,513	-517,307	-435,119
Hawaii	-90,314	-37,845	-28,584	-82,877	-44,422	-25,236
Idaho	-53,457	2,409	-21,418	5,686	6,090	-12,583
Illinois	-297,059	-593,057	-587,184	-552,026	-634,708	-507,137
Indiana	-108,536	-158,545	-133,143	-176,004	-5,116	-41,022
Iowa	-63,335	-110,804	-115,216	-76,173	-55,757	-4,931
Kansas	-87,535	-56,630	-56,573	-54,858	-77,739	-31,737
Kentucky	-53,544	-100,326	-111,148	-118,918	258	-103,549
Louisiana	-117,463	-140,235	-212,246	-210,080	-135,551	-243,538
Maine	-9,456	-11,787	23,171	-48,421	-34,213	-28,657
Maryland	-94,374	-153,474	-148,102	-125,528	-191,810	-189,037
Massachusetts	-266,631	-104,648	-224,495	-186,878	-215,996	-130,767
Michigan	-166,137	-126,279	-286,192	-129,326	-97,709	-261,325
Minnesota	99,025	73,175	141,555	49,449	110,105	-24,047
Mississippi	-118,591	-112,837	-102,386	-136,921	-111,409	-94,855
Missouri	144,013	38,247	29,957	45,558	11,574	-124,833
Montana	10,731	-22,756	-21,134	-18,758	-38,976	-59,761
Nebraska	-45,193	-43,074	-15,950	-63,856	-25,554	-15,047
Nevada	-72,907	-97,219	-105,315	-112,978	-161,675	-89,605
New Hampshire	-42,141	-25,524	-21,728	-33,693	-62,888	-27,508
New Jersey	-266,545	-234,784	-281,944	-210,700	-227,787	-331,926
New Mexico	-106,575	-137,305	-133,012	-111,807	-148,670	-118,905
New York	-602,912	-768,284	-863,164	-709,491	-843,983	-895,339
North Carolina	-223,688	-79,922	-209,329	-158,603	-205,843	-187,744
North Dakota	-991	-33,849	-15,801	-10,826	-7,400	11,706
Ohio	-345,130	-308,143	-394,601	-346,973	-282,396	-235,412
Oklahoma	-122,477	-184,870	-92,097	-175,600	-130,272	-109,597
Oregon	9,425	30,862	-34,001	-91,130	-95,965	-150,080
Pennsylvania	-407,957	-366,002	-273,030	-371,172	-258,326	-196,009
Rhode Island	-15,252	-53,357	-38,091	-38,978	-29,940	-51,427
South Carolina	-191,464	-130,776	-182,373	-261,528	-159,311	-183,789
South Dakota	-57,847	-31,342	-44,179	-24,994	-26,190	4,190
Tennessee	-54,308	-95,922	-253,395	-178,542	-159,729	-125,806
Texas	-469,784	-848,698	-1,142,312	-1,257,548	-1,205,607	-1,173,775
Utah	-14,649	6,076	-16,403	-26,846	-13,479	-72,813
Vermont	-9,783	4,235	-9,624	-29,936	-7,160	-32,044
Virginia	-145,967	-249,908	-214,587	-269,290	-161,911	-262,776
Washington	-154,324	-239,711	-205,903	-291,580	-186,495	-163,087
West Virginia	-57,418	-67,385	-105,972	-65,857	-78,010	-52,424
Wisconsin	-157,478	-202,597	-96,241	-168,369	-126,670	-31,568
Wyoming	-4,234	-6,707	-5,898	-3,552	-5,876	-17,899

Source(s): U.S. Census Bureau – Census 2000, America Community Survey, and Official Population Estimates.

Table 3
Percent Difference Between ACS Unadjusted Estimates and Population (POP) Controls by Sex: 2000-2005

Year[1]	Population Controls (1)		ACS Unadjusted Estimates (2)		Pct. Difference ACS Unadj - POP Controls (3)	
	Male	Female	Male	Female	Male	Female
2000	133,551,426	140,092,053	128,776,976	137,221,679	-3.57 (0.22)	-2.05 (0.19)
2001	135,310,742	141,706,880	129,292,345	137,821,873	-4.45 (0.21)	-2.74 (0.20)
2002	137,129,670	143,410,661	130,297,544	139,570,696	-4.98 (0.21)	-2.68 (0.22)
2003	138,443,772	144,466,113	131,417,167	140,503,360	-5.08 (0.21)	-2.74 (0.23)
2004	139,906,123	145,785,378	133,066,235	142,280,023	-4.89 (0.22)	-2.40 (0.23)
2005	141,325,129	147,053,008	134,607,005	143,542,189	-4.75 (0.08)	-2.39 (0.09)

[1] For the Population Controls (Col. 1), the reference date is April 1 for Census 2000 data with CQR adjustments and July 1 for 2001 - 2005.

For ACS unadjusted estimates (Col. 2), the reference date is July 1 for all years (2000 – 2005).
The values in the parentheses indicate the standard errors of the percent difference.

Note: Comparison of the estimates was analyzed for each independent year.
The unadjusted ACS results do not incorporate the population controls.
Source(s): U.S. Census Bureau – Census 2000, America Community Survey, and Official Population Estimates.

Table 4
Percent Difference Between ACS Unadjusted Estimates and Population (POP) Controls
By Hispanic Origin: 2000-2005

Year[1]	Population Controls (1)		ACS Unadjusted Estimates (2)		Pct. Difference ACS Unadj - POP Controls (3)	
	Non-Hispanic	Hispanic	Non-Hispanic	Hispanic	Non-Hispanic	Hispanic
2000	239,050,926	34,592,553	232,628,770	33,369,885	-2.69 (0.23)	-3.53 (1.11)
2001	240,758,166	36,259,456	233,047,486	34,066,732	-3.20 (0.23)	-6.05 (1.05)
2002	242,497,540	38,042,791	234,500,061	35,368,180	-3.30 (0.24)	-7.03 (1.03)
2003	243,729,702	39,180,183	235,218,358	36,702,169	-3.49 (0.24)	-6.32 (0.99)
2004	245,094,590	40,596,911	237,746,366	37,599,892	-3.00 (0.24)	-7.38 (1.00)
2005	246,422,692	41,955,445	238,278,234	39,870,960	-3.31 (0.11)	-4.97 (0.34)

[1] For the Population Controls (Col. 1), the reference date is April 1 for Census 2000 data with CQR adjustments and July 1 for 2001 - 2005.

For ACS unadjusted estimates (Col. 2), the reference date is July 1 for all years (2000 – 2005).

The values in the parentheses indicate the standard errors of the percent difference.

Note: Comparison of the estimates was analyzed for each independent year. The unadjusted ACS results do not incorporate the population controls.

Source(s): U.S. Census Bureau – Census 2000, America Community Survey, and Official Population Estimates.

Table 5

Percent Difference Between ACS Unadjusted Estimates and Population Controls by Age: 2000-2005

Percent Difference						
	ACS Unadj. vs Census	ACS Unadjusted Estimates vs Population Controls				
Age	2000	2001	2002	2003	2004	2005
0 to 4	-5.35	-5.45	-5.89	-6.79	-7.04	**-8.23**
5 to 14	-3.13	-2.33	-1.78	-2.12	**0.13**	**0.57**
15 to 17	-2.45	-2.32	-2.19	-2.20	-2.50	-1.01
18 to 19	-3.95	-5.85	-4.81	-4.39	-3.38	-2.50
20 to 24	-6.18	**-9.55**	**-10.66**	**-11.32**	**-10.78**	**-9.88**
25 to 29	-6.61	-7.15	**-9.64**	**-9.08**	**-10.38**	**-10.25**
30 to 34	-4.06	-5.66	-6.74	-7.00	-7.50	-7.24
35 to 44	-3.14	-3.98	-4.83	-5.36	-5.34	-4.62
45 to 49	-1.22	-2.64	-1.78	-3.34	-3.34	-4.10
50 to 54	**0.02**	-0.66	-1.57	-1.24	-1.37	-1.01
55 to 64	-0.91	-2.26	-1.59	-0.65	-0.42	-0.35
65 to 74	**0.22**	-0.01	**0.95**	**1.80**	**2.49**	**1.17**
75 plus	**1.11**	-0.24	-0.08	**1.20**	**0.50**	-1.02

[1] For the Population Controls (Col. 1), the reference date is April 1 for Census 2000 data with CQR adjustments and July 1 for 2001 - 2005.

For ACS unadjusted estimates, the reference date is July 1 for all years (2000 – 2005).
The standard error values of the age percent difference are listed in appendix II.

Note: Comparison of the estimates was analyzed for each independent year. The unadjusted ACS results do not incorporate the population controls.

Source(s): U.S. Census Bureau – Census 2000, America Community Survey and Official Population Estimates.

Table 6
Sex Ratio (number of males per 100 females) by Hispanic Origin and Age for ACS Unadjusted Estimates and Population (POP) Controls: 2000 - 2005

	2000		2001		2002		2003		2004		2005	
National, Hispanic Origin and Age Groups	CENSUS CQR	ACS Unadjusted Estimate	POP Controls	ACS Unadjusted Estimate	POP Controls	ACS Unadjusted Estimate	POP Controls	ACS Unadjusted Estimate	POP Controls	ACS Unadjusted Estimate	POP Controls	ACS Unadjusted Estimate
U.S.	**95.3**	**93.8**	**95.5**	**93.8**	**95.6**	**93.4**	**95.8**	**93.5**	**96.0**	**93.5**	**96.1**	**93.8**
Non-Hispanic	94.2	92.8	94.3	92.7	94.3	92.6	94.5	92.6	94.5	92.6	94.6	92.8
Hispanic	103.8	101.1	103.9	101.8	104.6	98.4	104.8	99.5	105.0	99.7	105.2	99.6
0 to 4	104.8	102.7	104.7	105.1	104.6	103.4	104.6	104.2	104.6	103.4	104.6	103.6
5 to 14	104.9	104.0	104.9	104.5	104.8	103.2	104.8	104.3	104.8	104.8	104.7	104.2
15 to 17	105.0	104.3	104.3	104.6	104.0	105.2	103.9	105.4	103.8	104.1	103.9	104.8
18 to 19	105.7	107.4	107.5	104.1	107.7	104.5	107.5	104.9	107.1	104.2	106.8	105.9
20 to 24	99.6	96.3	99.9	96.7	100.4	94.3	101.4	95.6	101.8	96.3	102.1	96.7
25 to 29	98.6	95.3	99.0	95.4	99.5	93.3	100.2	94.7	100.7	92.0	101.0	94.2
30 to 34	98.2	93.8	98.5	94.3	98.5	94.8	98.7	93.1	98.8	93.5	99.0	93.1
35 to 44	96.3	94.6	96.5	93.9	96.6	93.9	96.9	93.2	97.1	93.5	97.3	93.7
45 to 49	95.3	95.1	95.4	92.3	95.5	92.5	95.7	93.3	95.9	93.5	96.1	93.3
50 to 54	94.8	93.4	94.8	93.8	94.7	93.3	94.7	91.7	94.7	92.2	94.9	93.2
55 to 64	91.6	90.8	91.8	90.7	92.0	91.0	92.2	91.9	92.3	91.2	92.5	90.9
65 to 74	82.3	82.5	82.8	82.9	83.2	83.6	83.6	83.7	83.9	84.6	84.3	85.1
75 plus	61.9	62.9	62.5	63.3	63.3	63.6	63.9	64.4	64.4	64.8	64.9	65.1

[1] For the Population Controls (Col. 1), the reference date is April 1 for Census 2000 data with CQR adjustments and July 1 for 2001 - 2005.

For ACS unadjusted estimates, the reference date is July 1 for all years (2000 – 2005).
The standard error values of the sex ratios are listed in appendix III.

Note: Comparison of the estimates was analyzed for each independent year. The unadjusted ACS results do not incorporate the population controls.
Source(s): U.S. Census Bureau – Census 2000, America Community Survey, and Official Population Estimates.

APPENDIX I

Standard Errors of the Percent Difference Between ACS Unadjusted Estimates and Population Controls by State: 2000-2005

State	2000	2001	2002	2003	2004	2005
Alabama	1.38	0.83	1.12	1.09	1.31	1.10
Alaska	1.72	2.25	3.50	1.83	1.86	2.14
Arizona	0.84	1.29	1.59	0.90	0.78	0.96
Arkansas	1.82	1.70	1.14	1.00	1.59	1.68
California	0.54	0.51	0.64	0.64	0.52	0.47
Colorado	1.54	2.28	1.24	1.19	1.41	0.95
Connecticut	1.14	1.10	1.04	0.78	1.08	1.04
Delaware	1.41	1.17	1.18	1.06	1.23	2.38
District of Columbia	1.84	1.40	1.51	1.52	1.63	2.69
Florida	0.46	0.62	0.51	0.56	0.49	0.58
Georgia	1.26	0.83	1.28	1.11	0.89	0.75
Hawaii	5.80	1.46	1.21	1.41	1.54	2.22
Idaho	2.85	2.37	2.77	2.30	2.83	1.82
Illinois	0.65	0.60	0.55	0.64	0.65	0.60
Indiana	1.45	1.05	1.20	1.26	1.75	0.93
Iowa	0.99	1.61	0.93	1.28	1.46	1.07
Kansas	1.63	1.54	1.45	1.51	1.68	1.26
Kentucky	1.31	1.65	1.26	1.06	1.10	1.16
Louisiana	1.10	0.96	1.11	0.96	0.96	1.06
Maine	1.41	1.26	1.39	1.09	1.29	1.90
Maryland	1.35	1.41	1.22	1.38	1.40	0.90
Massachusetts	0.72	0.66	0.87	0.67	0.73	0.93
Michigan	1.06	1.23	1.10	0.99	1.46	0.75
Minnesota	1.04	1.23	1.35	1.29	0.86	0.70
Mississippi	1.33	1.19	1.25	1.78	1.41	1.43
Missouri	0.86	1.31	1.07	0.79	1.12	0.93
Montana	1.73	1.97	1.34	2.38	1.66	1.66
Nebraska	1.13	0.94	1.18	1.21	1.41	1.19
Nevada	2.08	1.60	1.68	1.82	1.43	1.47
New Hampshire	1.23	1.22	1.17	1.01	1.19	1.71
New Jersey	0.82	0.63	0.77	0.63	0.70	0.66
New Mexico	3.24	3.21	3.69	2.61	2.71	1.75
New York	0.57	0.44	0.49	0.56	0.71	0.47
North Carolina	1.83	0.98	1.49	1.86	1.44	0.76
North Dakota	1.39	1.74	2.31	1.44	0.91	2.04
Ohio	0.98	0.92	0.85	0.68	0.75	0.60
Oklahoma	1.16	0.87	1.59	1.43	0.84	1.10
Oregon	1.39	1.01	1.20	0.99	0.72	1.04
Pennsylvania	1.31	1.10	1.08	0.86	0.90	0.54
Rhode Island	1.16	1.16	1.29	1.14	1.11	1.80
South Carolina	2.40	3.16	4.34	2.87	2.34	1.14
South Dakota	1.27	1.02	1.30	1.25	1.39	2.47
Tennessee	0.93	0.79	0.69	0.65	1.11	1.04
Texas	0.70	0.75	0.73	0.75	0.81	0.51
Utah	1.56	1.80	1.60	1.54	1.66	1.23
Vermont	1.40	1.50	1.65	1.24	1.13	2.18
Virginia	0.78	0.85	1.01	0.85	1.05	0.70
Washington	1.97	1.96	1.62	1.40	1.86	0.75
West Virginia	2.11	2.29	2.22	2.40	2.11	1.33
Wisconsin	3.23	2.71	3.05	2.77	3.03	0.83
Wyoming	1.40	1.98	2.43	1.89	2.51	2.56

Appendix II

Standard Errors of the Percent Difference Between ACS Unadjusted Estimates and Population Controls by Age: 2000-2005

Age	ACS Unadj. vs Census	ACS Unadjusted Estimates vs Population Controls				
	2000	2001	2002	2003	2004	2005
0 to 4	0.55	0.56	0.57	0.45	0.61	0.30
5 to 14	0.48	0.38	0.44	0.44	0.42	0.19
15 to 17	0.69	0.69	0.51	0.56	0.65	0.35
18 to 19	0.76	0.72	0.78	0.79	0.86	0.44
20 to 24	0.78	0.72	0.64	0.73	0.78	0.25
25 to 29	0.55	0.55	0.57	0.53	0.64	0.28
30 to 34	0.52	0.49	0.54	0.46	0.44	0.29
35 to 44	0.35	0.35	0.33	0.35	0.37	0.16
45 to 49	0.47	0.44	0.47	0.47	0.46	0.25
50 to 54	0.47	0.43	0.52	0.51	0.50	0.27
55 to 64	0.44	0.46	0.46	0.44	0.45	0.28
65 to 74	0.48	0.54	0.60	0.58	0.62	0.39
75 plus	0.68	0.56	0.54	0.58	0.58	0.38

Appendix III

Sex Ratio Standard Errors by Hispanic Origin and Age for ACS Unadjusted Estimates: 2000 - 2005

National, Hispanic Origin and Age Groups	2000	2001	2002	2003	2004	2005
U.S.	**0.16**	**0.15**	**0.17**	**0.20**	**0.16**	**0.08**
Non-Hispanic	0.16	0.17	0.17	0.21	0.18	0.08
Hispanic	0.80	0.66	0.62	0.57	0.62	0.32
0 to 4	1.03	0.99	0.97	0.96	0.89	0.49
5 to 14	0.69	0.60	0.57	0.68	0.59	0.37
15 to 17	1.25	1.23	1.14	1.05	1.15	0.66
18 to 19	1.61	1.60	1.44	1.42	1.58	0.78
20 to 24	1.07	0.86	1.03	0.94	0.99	0.50
25 to 29	0.85	0.75	0.82	0.77	0.76	0.45
30 to 34	0.75	0.60	0.75	0.63	0.76	0.40
35 to 44	0.44	0.40	0.47	0.38	0.36	0.22
45 to 49	0.69	0.63	0.50	0.55	0.63	0.34
50 to 54	0.68	0.66	0.58	0.61	0.65	0.36
55 to 64	0.44	0.52	0.57	0.42	0.40	0.24
65 to 74	0.59	0.57	0.58	0.54	0.44	0.32
75 plus	0.53	0.41	0.54	0.44	0.42	0.27

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