

Changes to the Estimation Methodology

Historically, the American Community Survey has produced inconsistent estimates between occupied housing units and householders as well as other estimates that should logically be equal. For example, in 2005 there were approximately 3.7 million more householders than households. In addition, there were 1.8 million more spouses than married couple households and 176,000 more unmarried partners than unmarried partner households. These discrepancies were mainly due to the independence of the housing unit and person weighting. This led to research to revise our weighting methodology to minimize these inconsistencies.

Beginning with the 2006 ACS the estimate of householders will be equal to the estimate of households and the estimate of occupied housing units because the housing unit weight for occupied housing units is equal to the person weight of the householder. This weight is used for tabulations of occupied housing units and households. The differences between spouses and married couple households are reduced as well as the differences between unmarried partners and unmarried partner households. The housing unit weight for vacant units is calculated based only on housing unit characteristics and is equal to the final housing unit weight prior to the person weighting and after the housing unit controls from the Population Estimates Program (PEP) are applied.

The final estimate of housing units is no longer controlled to the housing unit estimate from the PEP. Thus there will be a margin of error associated with housing unit estimates. This is seen in several of the housing tables where the estimate of total housing units is shown. Due to the improved estimate of the vacancy rate, there will be an *expected* increase in the estimate of vacant units and an *expected* decrease in the estimate of occupied units, which is shown in tables such as Occupancy Status (B25002). However, as a result of allowing the estimates of occupied and vacant units to be determined independently of each other, it is possible that the estimate of occupied housing units and vacant units in some areas may both increase from one year to the next. The percent occupied and percent vacant, though, will always add to one-hundred percent since the percentages are based on the sum of the occupied and vacant estimates.

The estimates and margin of errors most affected by this change in weighting methodology between 2006 and 2005 are marital status and relationship. These differences are caused by the equalization of estimates such as married couple households and spouses. Equalization in this context means that, for example, the estimates spouses and married couple households are forced to be equal through the use of “raking ratio estimation”. Examples of these tables are Household Type By Relationship For The Population In Households (B09016), Population In Subfamilies By Subfamily By Relationship (B11014), and Sex By Marital Status For The Population 15 Years And Over (B12001).

The weighting methodology changes in 2006 also affect the tables on Per Capita Income (B19301). The estimates of householders, spouses, and unmarried partners who are typically the higher wage earners will shift downward as the estimates of other members of the household shifts upwards. This leads to lower estimates of per capita income.

Changes in the distribution and number of householders will affect numerous tables that involve householders. An example is the table on Age of Householder by Household Income in the Past 12 Months (B19037). The majority of the estimates and variances, however, will not show a significant change due to the revised 2006 weighting and estimation procedure.

Attached are examples of some of the tables discussed above which show the 2005 ACS estimates using the 2005 estimation methodology and the 2005 ACS estimates using the 2006 methodology. Also, provided are the margin of errors with both the previous and current methodology. The tabulations in these tables show the degree to which the revised 2006 weighting and estimation methodology may affect the 2006 ACS estimates.

More information regarding the estimation methodology can be found in the Accuracy of Data Statement. The link is shown below.

<http://www.census.gov/acs/www/UseData/Accuracy/Accuracy1.htm>

A full report on the research on this methodology change will be posted to the ACS webpage at a later date.

An '*****' entry in the margin of error column indicates that the estimate is controlled. A statistical test for sampling variability is not appropriate.

B09016. HOUSEHOLD TYPE (INCLUDING LIVING ALONE) BY POPULATION IN HOUSEHOLDS - Universe: POPULATION IN HOUSEHOLDS				
	2005 ACS Production		2005 ACS Using 2006 Weighting and Estimation Methodology	
Description	Estimate	Margin of Error	Estimate	Margin of Error
Total:	288,378,137	*****	288,378,137	*****
In family households:	242,008,079	+/-214,599	242,439,255	+/-162,756
Householder:	77,074,646	+/-83,185	74,223,207	+/-159,048
Male	46,174,793	+/-126,630	44,446,445	+/-163,426
Female	30,899,853	+/-93,996	29,776,762	+/-70,862
Spouse	57,057,621	+/-136,530	55,469,847	+/-153,247
Child	85,374,056	+/-124,566	87,933,993	+/-118,631
Grandchild	5,564,863	+/-71,261	5,662,314	+/-68,691
Brother or sister	2,894,303	+/-46,741	3,396,200	+/-59,197
Parent	2,579,337	+/-36,513	3,194,057	+/-56,500
Other relatives	5,762,617	+/-58,401	6,598,749	+/-78,223
Nonrelatives:	5,700,636	+/-59,953	5,960,888	+/-68,274
Roomer or boarder	449,779	+/-19,038	525,027	+/-21,731
Housemate or roommate	810,834	+/-22,106	959,359	+/-28,653
Unmarried partner	2,603,943	+/-30,838	2,461,071	+/-29,712
Foster child	254,775	+/-14,258	255,423	+/-14,310
Other nonrelatives	1,581,305	+/-27,559	1,760,008	+/-34,039
In nonfamily households:	46,370,058	+/-214,599	45,938,882	+/-162,756
Householder:	37,688,829	+/-130,400	36,653,950	+/-85,285
Male:	17,496,299	+/-106,607	16,973,601	+/-73,939
Living alone	13,567,029	+/-76,364	13,270,516	+/-61,929
Not living alone	3,929,270	+/-57,370	3,703,085	+/-48,696
Female:	20,192,530	+/-60,032	19,680,349	+/-62,980
Living alone	17,279,243	+/-56,413	16,920,046	+/-63,316
Not living alone	2,913,287	+/-33,334	2,760,303	+/-30,370
Nonrelatives:	8,681,229	+/-105,358	9,284,932	+/-125,541
Roomer or boarder	663,865	+/-20,897	779,776	+/-24,435
Housemate or roommate	3,191,335	+/-62,340	3,699,547	+/-83,124
Unmarried partner	3,538,534	+/-40,357	3,368,290	+/-38,187
Foster child	52,516	+/-6,423	52,539	+/-6,424
Other nonrelatives	1,234,979	+/-32,167	1,384,780	+/-38,456

B11014. POPULATION IN SUBFAMILIES BY SUBFAMILY TYPE BY RELATIONSHIP - Universe: POPULATION IN SUBFAMILIES

Description	2005 ACS Production		2005 ACS Using 2006 Weighting and Estimation Methodology	
	Estimate	Margin of Error	Estimate	Margin of Error
Total:	7,818,660	+/-88,682	8,595,299	+/-90,583
In married-couple subfamilies:	2,600,912	+/-56,469	3,006,538	+/-64,379
Husband/wife in a childless subfamily	1,109,566	+/-26,135	1,355,645	+/-33,801
Husband/wife in a subfamily with children	795,154	+/-23,167	954,335	+/-27,673
Child	696,192	+/-25,393	696,558	+/-25,373
In mother-child subfamilies:	4,024,837	+/-61,854	4,301,089	+/-63,045
Parent	1,604,781	+/-22,459	1,879,034	+/-27,749
Child	2,420,056	+/-42,390	2,422,055	+/-42,159
In father-child subfamilies:	1,192,911	+/-32,510	1,287,672	+/-34,475
Parent	516,514	+/-13,311	610,665	+/-15,827
Child	676,397	+/-20,448	677,007	+/-20,465

B12001. SEX BY MARITAL STATUS FOR THE POPULATION 15 YEARS AND OVER - Universe: POPULATION 15 YEARS AND OVER

Description	2005 ACS Production		2005 ACS Using 2006 Weighting and Estimation Methodology	
	Estimate	Margin of Error	Estimate	Margin of Error
Total:	227,798,491	+/-22,649	227,755,531	+/-28,823
Male:	110,298,693	+/-20,137	110,269,435	+/-22,754
Never married	34,171,130	+/-81,645	35,213,874	+/-103,778
Now married:	63,642,224	+/-119,826	62,180,567	+/-150,100
Married, spouse present	58,891,756	+/-139,674	57,094,228	+/-176,380
Married, spouse absent:	4,750,468	+/-50,628	5,086,339	+/-57,365
Separated	1,978,838	+/-28,212	2,052,982	+/-29,206
Other	2,771,630	+/-37,347	3,033,357	+/-44,067
Widowed	2,672,437	+/-28,847	2,755,328	+/-29,179
Divorced	9,812,902	+/-61,997	10,119,666	+/-62,725
Female:	117,499,798	+/-20,223	117,486,096	+/-21,676
Never married	29,943,646	+/-74,944	30,777,678	+/-87,130
Now married:	62,986,717	+/-120,104	61,693,812	+/-129,587
Married, spouse present	57,514,135	+/-132,338	55,922,452	+/-147,185
Married, spouse absent:	5,472,582	+/-53,910	5,771,360	+/-58,489
Separated	3,069,996	+/-35,578	3,137,972	+/-35,125
Other	2,402,586	+/-33,822	2,633,388	+/-39,447
Widowed	11,060,297	+/-37,845	11,247,097	+/-37,395
Divorced	13,509,138	+/-61,888	13,767,509	+/-57,937

B19037. AGE OF HOUSEHOLDER BY HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2005 INFLATION-ADJUSTED DOLLARS – Universe HOUSEHOLDS

Description	2005 ACS Production		2005 ACS Using 2006 Weighting and Estimation Methodology	
	Estimate	Margin of Error	Estimate	Margin of Error
Total:	111,090,617	+/-143,575	110,877,157	+/-154,855
Householder under 25 years:	6,006,505	+/-41,348	5,458,678	+/-34,617
Less than \$10,000	1,297,018	+/-20,678	1,185,614	+/-20,451
\$10,000 to \$14,999	602,646	+/-15,097	551,765	+/-14,139
\$15,000 to \$19,999	594,260	+/-14,694	540,814	+/-13,238
\$20,000 to \$24,999	589,195	+/-15,406	539,537	+/-13,164
\$25,000 to \$29,999	489,829	+/-13,246	444,781	+/-11,762
\$30,000 to \$34,999	441,076	+/-14,075	400,065	+/-12,787
\$35,000 to \$39,999	353,385	+/-9,139	320,896	+/-8,820
\$40,000 to \$44,999	331,301	+/-10,912	300,367	+/-9,644
\$45,000 to \$49,999	259,066	+/-9,876	234,756	+/-9,214
\$50,000 to \$59,999	376,549	+/-11,890	338,383	+/-10,578
\$60,000 to \$74,999	331,901	+/-13,176	297,838	+/-11,428
\$75,000 to \$99,999	218,614	+/-8,968	195,474	+/-7,803
\$100,000 to \$124,999	69,875	+/-5,254	62,479	+/-4,942
\$125,000 to \$149,999	22,529	+/-3,135	19,812	+/-2,788
\$150,000 to \$199,999	15,525	+/-2,449	13,582	+/-2,149
\$200,000 or more	13,736	+/-2,543	12,515	+/-2,365
Householder 25 to 44 years:	41,472,949	+/-53,632	41,362,530	+/-72,678
Less than \$10,000	2,758,978	+/-36,919	2,740,890	+/-36,358
\$10,000 to \$14,999	1,752,290	+/-25,640	1,743,570	+/-26,644
\$15,000 to \$19,999	1,857,166	+/-26,984	1,849,513	+/-26,860
\$20,000 to \$24,999	2,253,493	+/-24,273	2,248,453	+/-24,864
\$25,000 to \$29,999	2,246,122	+/-28,386	2,236,912	+/-28,042
\$30,000 to \$34,999	2,446,982	+/-26,651	2,444,537	+/-27,594
\$35,000 to \$39,999	2,252,277	+/-27,381	2,244,678	+/-27,658
\$40,000 to \$44,999	2,374,630	+/-27,911	2,364,868	+/-28,274
\$45,000 to \$49,999	2,101,810	+/-28,258	2,097,275	+/-27,401
\$50,000 to \$59,999	4,020,708	+/-38,818	4,006,632	+/-40,541
\$60,000 to \$74,999	5,084,401	+/-37,485	5,068,016	+/-39,376
\$75,000 to \$99,999	5,489,544	+/-39,411	5,479,428	+/-39,564
\$100,000 to \$124,999	3,004,068	+/-26,534	2,999,982	+/-24,511
\$125,000 to \$149,999	1,450,062	+/-19,045	1,450,372	+/-18,525
\$150,000 to \$199,999	1,278,656	+/-16,070	1,283,160	+/-16,712
\$200,000 or more	1,101,762	+/-16,351	1,104,244	+/-16,283
Householder 45 to 64 years:	41,104,645	+/-88,684	41,511,337	+/-62,852
Less than \$10,000	2,882,665	+/-29,537	2,919,575	+/-30,342
\$10,000 to \$14,999	1,717,023	+/-24,067	1,736,967	+/-23,864
\$15,000 to \$19,999	1,663,472	+/-22,002	1,678,225	+/-23,022
\$20,000 to \$24,999	1,856,693	+/-20,712	1,878,788	+/-21,303
\$25,000 to \$29,999	1,871,907	+/-24,122	1,891,418	+/-24,818

\$30,000 to \$34,999	2,025,353	+/-23,517	2,045,734	+/-23,893
\$35,000 to \$39,999	1,902,190	+/-24,765	1,921,996	+/-24,376
\$40,000 to \$44,999	2,012,418	+/-25,867	2,037,851	+/-26,259
\$45,000 to \$49,999	1,832,630	+/-21,208	1,852,538	+/-21,539
\$50,000 to \$59,999	3,569,808	+/-33,456	3,603,932	+/-33,381
\$60,000 to \$74,999	4,668,497	+/-34,615	4,714,472	+/-32,314
\$75,000 to \$99,999	5,593,044	+/-40,646	5,640,605	+/-39,039
\$100,000 to \$124,999	3,644,078	+/-32,230	3,673,560	+/-30,806
\$125,000 to \$149,999	2,039,409	+/-21,943	2,055,556	+/-21,166
\$150,000 to \$199,999	1,932,283	+/-20,754	1,950,523	+/-20,561
\$200,000 or more	1,893,175	+/-22,135	1,909,597	+/-20,900
Householder 65 years and over:	22,506,518	+/-69,928	22,544,612	+/-49,794
Less than \$10,000	2,671,950	+/-23,959	2,683,448	+/-24,109
\$10,000 to \$14,999	2,816,432	+/-19,716	2,825,759	+/-19,426
\$15,000 to \$19,999	2,367,034	+/-22,372	2,375,533	+/-23,294
\$20,000 to \$24,999	2,104,933	+/-18,567	2,111,852	+/-19,121
\$25,000 to \$29,999	1,709,902	+/-19,571	1,715,992	+/-19,203
\$30,000 to \$34,999	1,516,336	+/-16,722	1,518,140	+/-15,781
\$35,000 to \$39,999	1,294,333	+/-13,978	1,294,207	+/-13,226
\$40,000 to \$44,999	1,110,113	+/-14,762	1,109,661	+/-14,727
\$45,000 to \$49,999	925,513	+/-13,457	925,496	+/-12,658
\$50,000 to \$59,999	1,473,834	+/-15,311	1,470,834	+/-15,710
\$60,000 to \$74,999	1,475,583	+/-17,122	1,475,075	+/-16,370
\$75,000 to \$99,999	1,346,772	+/-16,589	1,345,874	+/-16,017
\$100,000 to \$124,999	685,097	+/-12,068	685,427	+/-11,545
\$125,000 to \$149,999	342,418	+/-7,247	342,184	+/-6,918
\$150,000 to \$199,999	317,331	+/-8,257	316,770	+/-8,394
\$200,000 or more	348,937	+/-9,704	348,360	+/-9,806

B19049. MEDIAN HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2005 INFLATION-ADJUSTED DOLLARS) BY AGE OF HOUSEHOLDER - Universe: HOUSEHOLDS				
Description	2005 ACS Production		2005 ACS Using 2006 Weighting and Estimation Methodology	
	Estimate	Margin of Error	Estimate	Margin of Error
Median household income in the past 12 months (in 2005 inflation-adjusted dollars) --				
Total:	46,242	+/-104	46,382	+/-83
Householder under 25 years	24,212	+/-255	24,045	+/-250
Householder 25 to 44 years	51,314	+/-125	51,352	+/-112
Householder 45 to 64 years	57,375	+/-158	57,305	+/-146
Householder 65 years and over	28,722	+/-119	28,653	+/-109

B19301. PER CAPITA INCOME IN THE PAST 12 MONTHS (IN 2005 INFLATION-ADJUSTED DOLLARS) - Universe: TOTAL POPULATION				
Description	2005 ACS Production		2005 ACS Using 2006 Weighting and Estimation Methodology	
	Estimate	Margin of Error	Estimate	Margin of Error
Per capita income in the past 12 months (in 2005 inflation-adjusted dollars)	25,035	+/-50	24,719	+/-53

B25002. OCCUPANCY STATUS – Universe HOUSING UNITS

Description	2005 Production		2005 Using 2006 Methodology	
	Estimate	Margin of Error	Estimate	Margin of Error
Total:	124,521,886	****	124,619,438	+/-6,793
Occupied	111,090,617	+/-143,575	110,877,157	+/-154,855
Vacant	13,431,269	+/-143,575	13,742,281	+/-160,405