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Potential House Apportionment Following the 2010 Census Based on Census Bureau Population Projections[1]

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Summary

The Census Bureau's 2005 population projections for the year 2010 raise the possibility of potentially significant changes in the allocation of Representatives among the states. If the projections for the year 2010 presage the actual Census, 10 seats will shift, affecting a total of 15 states. CRS experience with prior Census Bureau population projections suggests, however, they are an imperfect predictor of actual number of Representatives states will be granted after a census.

Although the Bureau of the Census estimates the population for each state annually, state-level population *projections* are usually issued once each decade. On April 21, 2005, the Bureau released projected state populations for the year 2010. If the House of Representatives were to be reapportioned based on these projected numbers, 10 seats would shift among 15 states from the official apportionment following the 2000 Census. Arizona, California, Georgia, Nevada and Utah would each gain one seat; Florida would gain two seats; and Texas would gain three seats. The following states would lose one seat: Alabama, Illinois, Iowa, Massachusetts, Missouri, and Pennsylvania; New York and Ohio would lose two seats if these projections prove to be accurate.

Caveats

The official apportionment based on the 2010 Census will probably differ from the trial apportionment based on the projections. This is because population projections are of uncertain accuracy.

First, projections for large geographic units are more likely to be accurate than those for smaller units. Thus, a projection of the total U.S. population is likely to be more accurate than one for an individual state. Also, adding or subtracting a small number of

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[1] This report originally was authored by David C. Huckabee, who has retired from CRS.

people from a state's population can make a difference in whether or not a seat is assigned to that state.

Second, the assumptions that underlie the projections and that can have a significant effect on the resulting apportionment estimates may prove to be erroneous. For example, the 1983 population projection for California for 1990 was 27,525,600, compared to 29,839,250 in the actual 1990 census count — the 1983 projection suggested a four-seat gain, but the 1990 numbers resulted in a seven-seat increase of Representatives for California. Furthermore, the Census Bureau population projections for 2000 were imperfect predictors of the actual reapportionment of the House of Representatives. Ten states had different totals of Representatives after the census than had been expected based on the population projections.[2]

Third, population projections are not directly comparable to Census figures. For example, following the practice of the annual population estimates, projections are computed for July 1 of the projection year, whereas the Census is taken on April 1 of each year ending in zero. Thus, the date used for the projection is three months later than the 2000 Census.

Fourth, a further complicating factor in using projections to compute prospective apportionments concerns the status of federal employees who are stationed abroad (chiefly military personnel and their dependents, totaling 574,330 persons in 2000). In 2000, the Census Bureau included these people in the populations used to reapportion the House.[3] The projections used to calculate the prospective apportionment in this report are not adjusted to account for federal employees stationed abroad.

Nevertheless, as imperfect as population projections are, they provide a rough basis for estimating what representation in the House may be after the next reapportionment.

Tables

Table 1 sets out the state populations used to reapportion the House of Representatives after the 2000 Census (the April 1, 2000, census apportionment population), and the Census Bureau's July 1, 2010 population projection. It also illustrates the change from 2000 (shown by total and percent), the current House seat allocation, and what it would be if the House were to be reapportioned based on these population projections.

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[2] U.S. Bureau of the Census, *Population Projections for States, by Age, Sex, Race, and Hispanic Origin: 1993 to 2020*, Current Population Reports, P25-1111, (Washington: 1994). The projections suggested that Arizona would have received seven seats instead of eight it actually received. Other states would have changed as follows if the projections had been used to apportion seats rather than the actual census results: California would have received 55 seats, rather than 53; Colorado 6, rather than 7; Florida 24, rather than 25; Georgia 12, rather than 13; Indiana 10, rather than 9; Massachusetts 9, rather than 10; Montana 2, rather than 1; North Carolina 12, rather than 13; and Washington 10, rather than 9 seats.

[3] See CRS Report RS20768, *House Apportionment 2000: States Gaining, Losing, and on the Margin.* by David C. Huckabee, p. 3. This report describes how the equal proportions formula allocates Representatives among the states.

Table 1. Possible Apportionment of Seats in the House of Representatives Based on the 2000 Census and 2010 Census Bureau Population Projections

State	2000 Census		2010 population projection				Seat change from 2000[b]
	Apportionment population[a]	No. of Seats	Projected population	Expected change from 2000		No. of seats	
				Total	Percent %		
AL	4,461,130	7	4,596,330	135,200	3.03	6	-1
AK	628,933	1	694,109	65,176	10.36	1	
AZ	5,140,683	8	6,637,381	1,496,698	29.11	9	+1
AR	2,679,733	4	2,875,039	195,306	7.29	4	
CA	33,930,798	53	38,067,134	4,136,336	12.19	54	+1
CO	4,311,882	7	4,831,554	519,672	12.05	7	
CT	3,409,535	5	3,577,490	167,955	4.93	5	
DE	785,068	1	884,342	99,274	12.65	1	
FL	16,028,890	25	19,251,691	3,222,801	20.11	27	+2
GA	8,206,975	13	9,589,080	1,382,105	16.84	14	+1
HI	1,216,642	2	1,340,674	124,032	10.19	2	
ID	1,297,274	2	1,517,291	220,017	16.96	2	
IL	12,439,042	19	12,916,894	477,852	3.84	18	-1
IN	6,090,782	9	6,392,139	301,357	4.95	9	
IA	2,931,923	5	3,009,907	77,984	2.66	4	-1
KS	2,693,824	4	2,805,470	111,646	4.14	4	
KY	4,049,431	6	4,265,117	215,686	5.33	6	
LA	4,480,271	7	4,612,679	132,408	2.96	7	
ME	1,277,731	2	1,357,134	79,403	6.21	2	
MD	5,307,886	8	5,904,970	597,084	11.25	8	
MA	6,355,568	10	6,649,441	293,873	4.62	9	-1
MI	9,955,829	15	10,428,683	472,854	4.75	15	
MN	4,925,670	8	5,420,636	494,966	10.05	8	
MS	2,852,927	4	2,971,078	118,151	4.14	4	
MO	5,606,260	9	5,922,078	315,818	5.63	8	-1
MT	905,316	1	968,598	63,282	6.99	1	
NE	1,715,369	3	1,768,997	53,628	3.13	3	
NV	2,002,032	3	2,690,531	688,499	34.39	4	+1
NH	1,238,415	2	1,385,560	147,145	11.88	2	
NJ	8,424,354	13	9,018,231	593,877	7.05	13	
NM	1,823,821	3	1,980,225	156,404	8.58	3	
NY	19,004,973	29	19,443,672	438,699	2.31	27	-2
NC	8,067,673	13	9,345,823	1,278,150	15.84	13	
ND	643,756	1	636,623	-7,133	-1.11	1	
OH	11,374,540	18	11,576,181	201,641	1.77	16	-2
OK	3,458,819	5	3,591,516	132,697	3.84	5	
OR	3,428,543	5	3,790,996	362,453	10.57	5	
PA	12,300,670	19	12,584,487	283,817	2.31	18	-1
RI	1,049,662	2	1,116,652	66,990	6.38	2	
SC	4,025,061	6	4,446,704	421,643	10.48	6	
SD	756,874	1	786,399	29,525	3.90	1	
TN	5,700,037	9	6,230,852	530,815	9.31	9	
TX	20,903,994	32	24,648,888	3,744,894	17.91	35	+3
UT	2,236,714	3	2,595,013	358,299	16.02	4	+1
VT	609,890	1	652,512	42,622	6.99	1	

State	2000 Census		2010 population projection				
	Apportionment population[a]	No. of Seats	Projected population	Expected change from 2000		No. of seats	Seat change from 2000[b]
				Total	Percent %		
VA	7,100,702	11	8,010,245	909,543	12.81	11	
WA	5,908,684	9	6,541,963	633,279	10.72	9	
WV	1,813,077	3	1,829,141	16,064	0.89	3	
WI	5,371,210	8	5,727,426	356,216	6.63	8	
WY	495,304	1	519,866	24,562	4.96	1	
	281,424,177	435	308,405,442	26,981,265	9.59	435	

Notes: a. U.S. Bureau of the Census, Population Projections Branch, Population Division, *Florida, California and Texas to Dominate Future Population Growth, Census Bureau Reports,* Census Bureau Press Release CB05-52, April 21, 2005. (Seat allocations computed by CRS .)
b. Numbers following + and - signs represent net gain or loss in projected seats over 2000 levels.

Priority Lists and Seat Assignments

The reapportionment process for the House relies on rounding principles, but the actual procedure involves computing a "priority list" of seat assignments for the states. The Constitution allocates the first 50 seats because each state must have at least one Representative. A priority list assigns the remaining 385 seats for a total of 435. Table 2 displays the end of the "priority list" that would be used to allocate Representatives based on 2010 projections. The law only provides for 435 seats in the House, but the table illustrates not only the last seats assigned by the apportionment formula (ending at 435), but the states that would just miss getting additional representation.[4]

Table 2. Population Needed to Gain or Lose a Seat Using Census Bureau Population Projections for 2010

Priority rank	State	Seat	2000 apportionment population	Priority value[a]	Population needed to gain or lose seat[b]
420	CA	52	38,067,134	739,202.40	-1,543,551
421	IL	18	12,916,894	738,409.65	-510,451
422	TX	34	24,648,888	735,869.63	-892,358
423	TN	9	6,230,852	734,312.62	-212,841
424	NY	27	19,443,672	733,854.07	-652,445
425	FL	27	19,251,691	726,608.22	-460,464
426	CA	53	38,067,134	725,121.12	-834,292
427	MN	8	5,420,636	724,362.69	-113,249
428	NE	3	1,768,997	722,189.92	-31,747
429	NJ	13	9,018,231	722,036.17	-159,960
430	MI	15	10,428,683	719,646.94	-150,969
431	PA	18	12,584,487	719,407.20	-178,044
432	TX	35	24,648,888	714,535.55	-183,053

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[4] Please note that the figures in table 2 for the "population needed to gain or lose a seat" are misleading because it is unlikely that one state's population total would be adjusted without others changing as well. Since the method of equal proportions used to allocate seats in the House uses all state populations simultaneously, changes in several state populations may also result in changes to the "population needed to gain or lose a seat."

Priority rank	State	Seat	2000 apportionment population	Priority value[a]	Population needed to gain or lose seat[b]
433	LA	7	4,612,679	711,751.64	-16,348
434	CA	54	38,067,134	711,566.24	-125,030
435	GA	14	9,589,080	710,789.33	-21,048
Last seat assigned by law					
436	AL	7	4,596,330	709,229.12	+10,112
437	NY	28	19,443,672	707,159.50	+99,804
438	OH	17	11,576,181	701,909.06	+146,457
439	MA	10	6,649,441	700,912.28	+93,702
440	FL	28	19,251,691	700,177.22	+291,785
441	AZ	10	6,637,381	699,641.05	+105,762
442	CA	55	38,067,134	698,508.84	+669,259
443	IL	19	12,916,894	698,465.63	+227,905
444	MO	9	5,922,078	697,923.27	+109,172
445	VA	12	8,010,245	697,202.23	+156,104
446	MD	9	5,904,970	695,907.08	+126,280
447	TX	36	24,648,888	694,403.72	+581,631
448	NC	14	9,345,823	692,757.94	+243,257
449	OR	6	3,790,996	692,137.88	+102,158
450	WA	10	6,541,963	689,583.11	+201,180

Notes: a. Each state's claim to representation in the House is based on a "priority value" determined by the following formula: $PV = P / [n(n - 1)]^{1/2}$; where PV = the state's priority value, P = the state's population, and n = the state's n^{th} seat in the House. For example, the priority value of Alabama's 7th seat is:

$$PV_{AL7} = 4,596,330 / [7(7 - 1)]^{1/2}$$
$$= 4,596,330 / [42]^{1/2}$$
$$= 4,596,330 / 6.480741$$
$$= 709,229.12$$

The actual seat assignments are made by ranking all of the states' priority values from highest to lowest until 435 seats are allocated.

b. These figures represent the population a state would either need to lose in order to drop below the 435th seat cutoff, or to gain to rise above the cutoff. If, in the case of Alabama, the population projection had yielded 10,111 more persons, the state's priority value would increase to 710,789.43 which would result in a new sequence number of 435 because Georgia's 14th seat would now occupy the 436th position in the priority list.

Source: Computations by CRS using Census Bureau 2010 population estimates. See CRS Report RL30711, *The House Apportionment Formula in Theory and Practice*, by David C. Huckabee, for an explanation of the formula for allocating House seats.

Options for States Losing Seats

Apportionment counts transmitted by the Census Bureau to the President after a decennial census (who then sends them to Congress) are considered final. Thus, most states that will lose seats after the 2010 Census will have only one possible option for retaining them: urge Congress to increase the size of the House. Any other option, such as changing the formula used in the computations or changing the components of the

apportionment population (such as omitting the foreign-based military and federal civilian employees) will only affect a small number of states if the House stays at 435 seats.[5]

The 435 seat limit was imposed in 1929 by 46 *Stat.* 21, 26-27. Altering the size of the House would require a new law setting a different limit. Article 1, Section 2 of the Constitution establishes a minimum House size (one Representative for each state), and a maximum House size (one for every 30,000, or 9,380 based on the 2000 Census). An increase of the size of the House to 473 would have resulted in no states losing seats they held from the 103rd to the 107th Congresses. Those states retaining seats through an increase in the House size would not have been able to retain their pre-2000 Census proportional share of House seats, because other states would also have their delegations become larger. At a House size of 473, California's delegation size, for example, would have been 57 instead of 53 seats.[6]

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[5] After the 1990 Census, Montana and Massachusetts challenged the apportionment formula and the inclusion of the foreign-based military and civilians in the apportionment population. The Supreme Court affirmed the constitutionality of the equal proportions formula and the inclusion of the foreign-based military and civilians in the counts in two separate cases: *U.S. Dept. of Commerce* v. *Montana* 112 S.Ct. 1415 (1992) and *Franklin* v. *Massachusetts* 112 S.Ct. 2767 (1992).

[6] For a fuller discussion of this topic see U.S. Library of Congress, Congressional Research Service, *The House Apportionment Formula in Theory and Practice*, by David C. Huckabee, CRS Report RL30711 (Washington: July 11, 1995).