One Person, One Vote: Principle versus Reality in Congressional Reapportionments[*]

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Abstract: Ever since the Supreme Court instituted the one person, one vote principle in congressional elections based on its decision in *Wesberry v. Sanders* (1964), intrastate deviations from equal district populations have become smaller and smaller after each decennial reapportionment. Relying on equal total population as the standard to meet the Court's one person, one vote principle, though, raises serious constitutional questions stemming from, most basically, not every person has the right to vote. As such, the application of the equal population rule creates a considerable level of malapportionment across districts, both within and between states. This study systematically analyzes the differences between district total populations vs. district voting age populations (VAPs), documenting just how far off the use of the district total population is from the one person, one vote principle. Further, we consider how congressional reapportionments would change if instead of total state population, the measure for redistributing seats was based on the VAP and the voting eligible population (VEP). The analyses are performed for each reapportionment year beginning in 1972. Line drawers can do a much better job at meeting the Court's one person, one vote principle by relying on better measures of voter equality and that by failing to do this, we are much further away than we need to be in trying to meet the one person, one vote standard.

Keywords: reapportionment, malapportionment, redistricting, equal population, voting age population, voting eligible population, U.S. House elections

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As any introductory American government textbook explains, the issue of representation carried the most importance among the various debates at the 1787 Constitutional Convention. The opposing positions of delegates representing large states (i.e., Virginia) and small states (i.e., New Jersey) were eventually resolved, appropriately enough by the Connecticut Compromise, a medium-sized state led by Roger Sherman, who successfully advocated for an upper chamber with representation set at two Senators per state and a lower chamber whose representation was based on a state's population. This "Great Compromise" not only mollified the concerns of representation tied to population, but just as fundamental, by denoting slaves as three-fifths of a person, the opposing interests of northern and southern delegates were temporarily assuaged.

The laws guiding the selection of candidates determine which voters have the most influence in affecting the political process and by extension the type, quality, and tenor of representation, and therefore it is no surprise that the question of representation was the Founders' greatest concern. But until the mid 1960s, U.S. House representation was tied more to geography than it was to the number of voters in any given congressional district. By mandating a decennial census, the Constitution guaranteed apportionment of congressional seats according to a state's population, but rare was the state that considered reallocating its districts in accordance with a nod toward population equality. Rather the status quo was generally upheld, and this meant the incorporation of a new U.S. House seat was often done by making it an at-large district—covering the entire state.

Population equality was not a particularly valued principle and often it was actively opposed by northern and southern politicians alike, since most represented districts with proportionally fewer residents outside of major urban centers, where rural voters' interests received outsized attention (see Ansolabehere, Gerber, and Snyder 2002). In partisan terms,

this meant that congressional districts in the North were biased in favor of Republicans and U.S. House boundaries in the South perpetuated the longstanding hegemony of rural Democrats (Cox and Katz 2002).

Failure to adjust district boundaries to satisfy a principle of population equality was met with growing resistance among those constituents residing in more populous metropolitan settings, and in 1946 the Supreme Court addressed the issue of district malapportionment. In the famous 4-to-3 decision handed down by Justice Frankfurter in *Colegrove v. Green*, the Supreme Court chose not to wade into the "political thicket" of setting the criteria for crafting legislative districts. Of course the ruling in this case was not the last word, and in the 1962 *Baker v. Carr* decision not only did the Court deem redistricting a justiciable issue but endorsed a principle of apportionment based on the criterion that each person deserved an equal vote (Levinson 1985). Hence the principle of one person, one vote was established.

In this study we seek to accomplish two primary objectives. First, we contend that the approach to meeting the one person, one vote principle is misguided because it is based on a markedly inferior measure. Because the purpose of the rule is to ensure that each individual has an equal influence on determining who represents them, we can get closer to meeting this lofty standard by using voting age population (VAP). Second, we use data at the district- and state-level to determine the amount of deviation from the one person, one vote principle with intrastate and interstate analyses, respectively. The intrastate analysis shows that despite notable reductions in district deviations from equal population, there has not been a corresponding decline in deviations away from equal voting age population. The interstate analysis reveals that reapportionments based on the VAP and voting eligible

population (VEP) would considerably alter the redistribution of U.S. House seats and this would marginally benefit the Democratic Party in presidential elections.

The Reapportionment Revolutions

In this section we discuss the historical and political contexts that shaped the legal arguments propping up the two major pillars guiding contemporary congressional reapportionment: equal population and safeguards for minority voting rights.

Scholars speak of *Baker v. Carr* as initiating a revolution (Cox and Katz 2002; Fenno 1978), because of its wide reaching effects on district-based elections. The reassignment of residents on the basis of equal population clearly could and would, alter the outcomes of elections both in terms of the incumbency advantage (Desposato and Petrocik 2003) and partisan control (McKee 2008). But this was not the only reapportionment revolution. Thirty years after *Baker v. Carr*, with the equal population rule firmly in place, the second reapportionment revolution occurred with the massive increase in the number of majority-minority districts created for the 1992 congressional elections (McKee 2004).

The principle guiding the first reapportionment revolution was of course technically colorblind, but the context surrounding its advocacy had much to do with the issue of race (Levinson 2002). Especially in southern states, congressional district populations variedly enormously (Bullock 2010). This was not by accident, rather the historical strength of the Democratic Solid South resided in rural counties that often contained relatively large, and primarily disfranchised, African American populations (Key 1949). The whites in these rural settings knew that readjustment of district boundaries on the basis of equal population would weaken their hold on political power. Not surprisingly, the triumvirate of cases (*Baker v. Carr*; *Reynolds v. Sims*; *Wesberry v. Sanders*) forming the backbone of the one person, one vote

standard involved lawsuits from southern states (Tennessee, Alabama, and Georgia, respectively). Redrawing district lines to better suit the one person, one vote rule would eventually bolster the clout of African Americans (Bullock and Gaddie 2009) and whites residing in burgeoning metropolitan areas (Black and Black 2002).

Enforcement of the equal population rule as espoused in *Baker*, centered on the simple counting of the number of people residing in a given district. As we will demonstrate, compliance with this standard has increased with every subsequent reapportionment in response to essentially a zero tolerance policy laid out by the Supreme Court in *Karcher v. Daggett* (1983). In this case the Court ruled that even miniscule deviations from equal population violated the Constitution because the state of New Jersey could clearly comply with implementing a plan with more equal district populations.

With practically no justifiable wiggle room from the equal population standard established by the Court in *Karcher*, the question of minority vote dilution reemerged in the 1986 case of *Thornburg v. Gingles*. Responding to a history of southern apportionment and redistricting schemes that were devised to weaken the likelihood that African Americans would have the opportunity to elect candidates of their choice (see Davidson 1984; Parker 1990), in *Thornburg v. Gingles*[1] the Supreme Court laid out a set of criteria, that if met, would allow for the creation of districts controlled by minority populations (for details see Butler 2002; McKee and Shaw 2005). Because of the timing of the decision, the 1992 U.S. House elections would be the first to occur with a large expansion in the number of newly created majority-minority districts.

Table 1 displays data on the number of majority black and majority Hispanic congressional districts (according to voting age population) from 1972 to 2002. Whereas

[1] This was a North Carolina case.

there were eight majority black districts in 1972 and twelve in 1982, in the wake of the *Thornburg* decision the number increased to 27 in 1992. Most of the new majority black districts were located in southern states covered by the 1965 Voting Rights Act (VRA). Under the Preclearance Provision in Section 5 of the VRA, the Department of Justice oversees redistricting plans and during the 1990s round it insisted that certain southern states maximize their number of majority black districts (Bullock 2010; Butler 2002; Cunningham 2001). In 2002 the total is reduced to 21 and the decline was a response to the *Shaw v. Reno* (1993) decision and subsequent rulings (e.g., *Miller v. Johnson* 1995; *Bush v. Vera* 1996; *Hunt v. Cromartie* 2001) that declared several majority black districts unconstitutional racial gerrymanders (see Butler 2002).

(Table 1 here)

In contrast with majority black districts, the large jump in the number of majority Hispanic districts from 1982 (N=6) to 1992 (N=16) is followed by another increase to 21 in the 2002 elections. Also, the average percent Hispanic is notably higher and actually goes up after 1982, while the maximum, minimum, range, and standard deviations remain much higher than the corresponding statistics for majority black districts. One obvious explanation for the differences is that Hispanic populations have much higher rates of non-citizen voting age populations and this is taken into account when the purpose is to give Hispanics the opportunity to elect representatives of their choice.

Against the backdrop of the equal population rule, the increase in majority-minority districts, as numerous studies have documented (Black and Black 2002; Lublin 1997; Epstein and O'Halloran 1999; Hill 1995; Petrocik and Desposato 1998), necessarily reduced the overall number congressional districts won by Democratic candidates. This was so because minority voters, especially African Americans, are the most Democratic in their voting

preferences and thus concentrating them into fewer districts increased the portion of Republican voters in adjoining districts.

The progression of case law squarely rests the metric of the one person, one vote principle on counting the total population in a state and then dividing it by the assigned number of congressional districts. By contrast, the question of apportioning districts where minority vote dilution comes into play is an ever-evolving legal issue. Suffice it to say that it has become a highly contentious and partisan-laden dispute because the concentration of minority populations generally benefits the Republican Party in congressional elections, at least in the aggregate (but see Shotts 2001).

Empirical Assessments of the One Person, One Vote Principle

We seek to determine the extent to which congressional districts deviate from the one person, one vote principle on the basis of VAP. Specifically, we begin with an analysis that shows just how much variability exists between a measure of equal district population versus one based on the district voting age population. The disparities we uncover are notable because the VAP standard gets us closer to the one person, one vote ideal. Second, we demonstrate what the reapportionment of House seats would look like if it were based on the VAP and the VEP, instead of merely total population, and what the implications would be for the partisan allocation of Electoral Votes.

Intrastate Deviations

Beginning with *Wesberry* and continuing through current jurisprudence, the Court has insisted that U.S. House districts within a state be drawn, as mathematically as possible, with equal populations. This constitutional requirement has become increasingly refined since the

1960s equality revolution because (1) the Census has provided considerably more micro-level data and (2) these data work in conjunction with advances in computer software technologies that employ Geographic Information Systems (GIS) to map populations. Today, the constitutional standard of population equality is interpreted for most states[2] to mean that a state's congressional districts should not deviate in their apportionment population by more than a single person.[3]

(Table 2 here)

Table 2 documents the increasing precision with which "one-person, one-vote" has been applied. In 1972, the first reapportionment and redistricting after *Wesberry*, 82.4% of congressional House districts deviated from their state's ideal district population by less than 0.25% and the average deviation for all House districts was 0.81%. Yet, in 1972, there were still 4.5% of districts that deviated by 1% or more from this standard and a maximum deviation of 7.34%. As the Courted continued to press for greater and greater equality, the rates and size of deviation dropped precipitously. After the 2002 reapportionment, 99.3% of all House districts were within 0.25% of their state's ideal populations. In fact, the average deviation for all House districts was just 0.05%; the maximum deviation was just 0.66%.

By many measures the "one-person, one-vote" revolution has been a tremendous success. It eliminated the democratically corrupting practice of "silent gerrymandering" that allowed for increasingly rotten districts to proliferate as well as the partisan advantages that they engendered. It avoided the "political thicket," of which Justice Frankfurter was so fearful in *Colegrove v. Green* (1946), by reengaging the political practice of redistricting. And, it

[2] Iowa is a notable exception. Iowa passed a state constitutional amendment requiring their House districts to contain whole counties as long as the population deviations are not greater than 1%. The maximum deviation in Iowa's post-2000 districts was 137 individuals.

[3] This deviation is allowed when a state's apportioned population is not perfectly divisible by the number of House districts apportioned to the state.

reduced the deviation in apportionment populations in states' House districts to nearly zero. Chief Justice Earl Warren, in fact, wrote in his *Memoirs* that the seminal *Baker* decision was the most important decision in his entire tenure on the Court—more so than, for instance, *Brown v. Board of Education* (1954), *Gideon v. Wainwright* (1963), or *Miranda v. Arizona* (1966). In summing these accomplishments, Ansolabehere and Snyder (2008) conclude that American democracy is entering an "age of fairness" and the end of inequality.

Table 2 clearly demonstrates that inequality is nearly vanquished—at least as measured by the number of individuals in the congressional districts for each state. But, this measure does not equate to the constitutional standard of "one person, one vote." As Levinson (2002, 1270) argues, this standard "most certainly does not hold true either as a description of the electorate or even as a normative guide to deciding which persons should be awarded the franchise and what weight their votes should actually have in the electoral process." In other words and in the most basic interpretation, the numerical count for the standard—the apportionment population—includes many "persons" who cannot vote, for instance, individuals below the age of 18, individuals who are not U.S. citizens, and many felons. This is considerably more than a semantic concern—in other words, perhaps "one person, one vote" was just a poor choice of words. The constitutional and normative underpinnings of the standard are central to the efficacy of a democracy: equality and the right to vote. Levinson concludes by arguing that the constitutional standard of "one person, one vote" is a democratic mantra in need of a meaning.

(Table 3 here)

Table 3 provides the most straightforward data that taps into this concern that is available for congressional districts: voting age population (VAP). Table 3 provides a similar breakdown of states' districts as Table 2, but now with the VAP as the unit of analysis. In

1972, just 57.86% of House districts were within 0.25% of their state's ideal VAP.[4] Furthermore, 32.38% of the districts had VAPs that deviated by 1.0% or more from their state's ideal VAP, of which 5.95% deviated by 5% or more. The greatest deviation in 1972 was 18.19%.

The deviations in Table 2 are greatest in 1972, but the apportionment population deviations were still considerably smaller than these corresponding VAP deviations displayed in Table 3. In addition, the apportionment population deviations were minimized over time, but these VAP deviations have not been systematically reduced. In 2002, the percent of districts within the 0.25% threshold actually decreased to 57.51%—compared to 99.3% for the comparable statistic in Table 2, and 26.29% of the districts were above the 1% threshold. The maximum deviation in 2002 was 13.06%.

These VAP deviations are considerable and stand in sharp contrast with the results from Table 2. Specifically, instead of witnessing the diminishing deviations in apportionment populations over time, variations in states' district VAPs show little change over time as well as a wide variation in districts' VAP. Together, these Tables imply that the constitutional standard of "one person, one vote" is currently far from being met. Despite the strict overall population equality of districts within states, these figures show that some districts are "packed" with more minors who cannot vote and some with fewer minors—up to almost 10% difference between districts within a state. In districts that are packed with relatively more minors, there are fewer remaining potential voters as compared to districts with relatively fewer minors. This results in the over-representation of the former voters and the under-representation of the latter voters.

[4] Each state is currently required to apportion to the state's ideal population, which is calculated by dividing the state's apportionment population by the number of districts the state will have. The ideal VAP is calculated similarly, the state's total voting age population divided the number of districts that the state will have.

The presence of demonstrable and predictable variation in the VAP among various societal groups—including those protected by the VRA—produces, be it random or systematic, malapportioned districts and vote dilution, which *Baker* and subsequent decisions declared unconstitutional. Basing redistricting on the VAP would not eliminate all of the intrastate malapportionment for potential voters, but it certainly would bring states' districts in closer compliance with the words and meaning of "one person, one vote."

Interstate Deviations

The above section documents the presence of consistent and considerable intrastate malapportionment at levels far greater than those declared unconstitutional. Intrastate malapportionment, though, is but one form of malapportionment. However, it is the form that is almost exclusively considered by the Court, politicians, and scholars. Interstate malapportionment is the population deviation among the states. For example, after the 2000 reapportionment and the equalization of apportionment populations within states (as demonstrated in Table 2), the maximum deviation in the ideal population sizes of state districts was 410,012 individuals, which is 63.38% of the national ideal size. This deviation is about 9600% larger than the deviation declared unconstitutional in *Karcher* and over 41 million% larger than the typical intrastate deviation allowed today (Ladewig and Jasinski 2008; Ladewig 2011).

The current levels of interstate malapportionment persist and grow despite the Court's efforts in minimizing the intrastate malapportionment of the apportionment population. As Table 3 displays, though, there is further variation among the states' VAPs. Given the distribution of House seats after the 2000 reapportionment, interstate malapportionment as measured with the VAP of each state actually increases above the

figures in the preceding paragraph (See Appendix 1 through 3 for details). The maximum deviation in states' ideal VAPs increases to 64.04% of the national ideal district size.

As mentioned, the VAP is still not an entirely accurate enumeration of potential voters—though certainly better than apportionment population—but it includes noncitizens, felons, etc. The measure Voting Eligible Population (VEP) is much closer to the constitutional standard of "one person, one vote." And, the 2000 interstate malapportionment figures increase again if VEP is used for each state. In this case, the maximum deviation in states' ideal VEP jumps to 71.91% of the national ideal district size. Given the state variations in population, eligibility, and the number of House districts, the 2000 apportionment provides each eligible voter in Nevada with exactly twice the voting power of each eligible voter in Montana. It is difficult to reconcile the current implementation of "one person, one vote" when these variations create foreseeable results in which "one Nevadan, two votes" vis-à-vis a Montanan.

Focusing on potential voters, either with the VAP or the VEP, in order to better approximate "one person, one vote" would have deep implications for interstate reapportionment. Tables 4 through 7 provide the number of House seats that each state would receive in each reapportionment from 1970 to 2000[5] as well as the number of seat changes among the three population measures: Apportionment Population (AP)—which is currently used, VAP, and VEP.[6] (See Appendix 4 through 7b for details.) Specifically, in 1970 if the U.S. House had been apportioned with VAP instead of AP, 10 House seats would have been changed: five states (CT, NJ, NY, OR, and PA) would have gained seats and five states (LA, MI, SC, SD, and TX) would have lost one seat. In 1980, there is a 6-seat difference

[5] The Hill Method of Equal Proportions was used to apportion the 435-seat House. See U.S. Code 2 Section 2a.

[6] The AP and VAP data are from the U.S. Census. The VEP data are from the Public Mapping Project (see www.publicmapping.org). Unfortunately, the Public Mapping Project does not have VEP for 1970.

between AP and VAP, a 10-seat difference between AP and VEP, and a 10-seat difference between VAP and VEP. Overall, the apportionment of 11 states is affected by the method used.

(Tables 4 through 7 here)

The question of which population to use, becomes more consequential for the 1990 and 2000 reapportionments. For the 1990 reapportionment, there would have been 10 seat changes if VAP would had been used instead of AP, 18 seat changes if VEP would had been used instead of AP, and 18 seat changes if VEP would have been used instead of VAP. Overall, the population used affects the apportionment of 17 states. And, for the 2000 reapportionment, there would have been 6 seat changes if VAP would had been used instead of AP, 40 seat changes if VEP would had been used instead of AP, and 36 seat changes if VEP would have been used instead of VAP. Overall, the population used affects the apportionment of nearly half of the country (23 states). For example, California has a high of 53 seats (AP) and a low of 45 seats (VEP).

Changing the population used for the apportionment from, say, AP to VAP or VEP would bring the practice of apportionment closer in line with the normative meaning of "one person, one vote." It would also bring it numerically closer. In 2000, if the VEP was used as the apportionment population (resulting in the district distribution found in Table 7), the interstate malapportionment measurement of the maximum deviation in states' ideal VEP would drop to 52.19% of the national ideal district size (See Appendix 8 and 9 for details). Any change would also have many effects in the U.S. Congress and state politics. But, one of the most direct effects would be on the President through the Electoral College.

Table 8 displays the Electoral College vote as it was with the Apportionment Population from 1972 through 2008 as well as recalculates the vote if the House had been

reapportioned with VAP or VEP. If VAP had been used, the vote would have changed in half of the ten Presidential elections. Even though four of the five instances in which a vote change occurred the same President would have been elected, the 2000 Presidential election would have ended in a 268 to 269 split.[7] This split gives neither George W. Bush nor Al Gore an absolute majority of 270 Electoral College votes to win the Presidency. In this case, the 2000 presidential would have been sent to the U.S. House of Representatives to decide. If the VEP had been the population measure, then four of the seven presidential elections for which we have data would have witnessed a change in the Electoral College vote, but none of the outcomes—including the 2000 election—would have changed. Nonetheless, the U.S. House of Representatives and the Electoral College would have better reflected the democratic principle enshrined in the constitutional standard of "one person, one vote."

(Table 8 here)

Conclusion

In this study we have taken empirical inventory of the one person, one vote principle in congressional reapportionments. The established legal precedent relies on minimizing deviations away from a measure of total population. To be sure, in states with multiple districts, they now exhibit hardly any deviation from the equal population standard. But we have shown that strict reliance on meeting the equal population standard is misguided, because it has not led to attendant reductions in the variance of voting age populations (VAPs). This is an important finding because the VAP is a better measure for getting closer to complying with the one person, one vote principle.

[7] Gore's count includes the faithless elector from Washington D.C. that abstained from the actual 2000 Electoral College vote. However, given the VAP results, she probably would have cast her ballot—thereby giving Gore 269 Electoral Votes. Either way, absolute majority of 270 votes would not have been met by either presidential candidate.

In addition to finding that intrastate deviations in the VAP have not been systematically reduced in subsequent congressional reapportionments, we also demonstrate that better measures of state populations indicate that decennial reapportionments would be considerably altered. For instance, if we were to reallocate U.S. House seats on the basis of the VAP or the VEP (voting eligible population), two measures that afford individuals a more "equally weighted" vote, then there would be substantial changes in the redistribution of congressional districts. Further, the differences in seat allocations based on the VAP and VEP have grown in more recent cycles because many of the high population growth states contain social groups with lower citizenship rates and lower VAPs (i.e., Hispanic growth in Arizona and Texas). This means that certain slow growth northern states (like New Jersey and Pennsylvania) with higher VAPs and VEPs are shortchanged congressional representation.

We have also shown that in several presidential elections the two-party Electoral Vote totals would be somewhat altered if we reallocated House seats according to VAP or VEP. And since the high growth states are generally located in the Sun Belt where the GOP is stronger but the resident populations are disproportionately younger[8], the redistribution of congressional districts according to the VAP and VEP advantages the Democratic Party since it is electorally stronger in low growth northern states. In fact, if the 2000 presidential election results were based on a congressional reapportionment tied to state voting age population, then neither party would have won an Electoral College majority - meaning the next president would have been determined by the U.S. House of Representatives.

Our findings in this study make it abundantly clear that the current reliance on total population, whether at the district- or state-level is fundamentally misguided. The Census

[8] California is the exception to this rule, a "blue" state with a significantly lower VEP population.

provides us with data that allow us to come closer to fulfilling the Court's one person, one vote principle. To be sure, even these more accurate measures that we assess in this paper leave us well short of meeting such a lofty and perhaps impractical standard, but resting the one person, one vote principle on a patently inferior count (total population) not only ensures an unnecessary amount of representational bias in congressional reapportionment but it also allows line drawers considerable leeway to manipulate maps for partisan gain (Winburn 2008).

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Tables and Graphs

Table 1. Majority Black and Majority Hispanic U.S. House Districts, 1972 to 2002

Statistics	1972	1982	1992	2002
Majority Black Districts				
Average BVAP	66%	66%	59%	57%
Median BVAP	62	66	58	57
Maximum BVAP	86	90	72	63
Minimum BVAP	58	51	50	51
Range	28	39	22	12
Standard Deviation	10	11	6	3
N	8	12	27	21
Majority Hispanic				
Average HVAP	60%	57%	61%	64%
Median HVAP	60	56	58	64
Maximum HVAP	69	66	79	75
Minimum HVAP	52	50	53	52
Range	17	16	26	23
Standard Deviation	12	5	7	7
N	2	6	16	21

NOTE: Data calculated by the authors from the U.S. Census Bureau.

Table 2. Increasing Precision of the Equal Population Requirement, 1972-2002

Percent Deviation from State Average District Population	1972 (93rd Congress)	1982 (98th Congress)	1992 (103rd Congress)	2002 (108th Congress)
Districts with Deviations of…				
Less than 0.25 percent	82.4%	87.5%	98.8%	99.3%
0.25 to 0.5 percent	8.6	7.5	1.2	0.5
0.5 to 1 percent	4.5	3.5	--	0.2
1 percent and over	4.5	1.4	--	--
Average percent deviation	0.81	0.34	0.09	0.05
Maximum deviation below ideal population	-4.81	-1.47	-0.46	-0.34
Maximum deviation above ideal population	+7.34	+1.65	+0.47	+0.66
N	420	425	426	426

NOTE: Data include all districts except those that were either at-large or in states that did not redistrict for the relevant election: 1972: at-large states were AK, DE, NV, ND, VT, and WY; HI (N=2), ME (N=2), NE (N=3), and NM (N=2) did not redistrict for the 1972 elections. 1982: at-large states were AK, DE, ND, SD, VT, and WY; ME (N=2) and MT (N=2) did not redistrict for the 1982 elections. 1992 and 2002: at-large states were AK, DE, MT, ND, SD, VT, and WY; ME (N=2) did not redistrict for the 1992 and 2002 elections.

Table 3. Increasing Precision of the Equal Population Requirement, 1972-2002

Percent Deviation from State Average VAP	1972 (93rd Congress)	1982 (98th Congress)	1992 (103rd Congress)	2002 (108th Congress)
Districts with Deviations of…				
Less than 0.25 percent	57.86%	60.00%	57.28%	57.51%
0.25 to 0.5 percent	2.86	2.59	4.46	6.81
0.5 to 1 percent	6.90	8.71	8.22	9.39
1.0 to 5 percent	26.43	24.94	26.76	23.47
5 percent and over	5.95	3.76	3.29	2.82
Average percent deviation	-0.22	-0.18	-0.17	-0.03
Minimum state VAP percent	59.76	63.03	63.69	67.82
Average state VAP percent	65.74	71.82	74.11	74.41
Maximum state VAP percent	68.8	75.79	77.85	77.75
Maximum deviation below ideal VAP	-10.41	-9.93	-9.95	-9.83
Maximum deviation above ideal VAP	18.19	12.75	12.92	13.06
N	420	425	426	426

NOTE: Data include all districts except those that were either at-large or in states that did not redistrict for the relevant election: 1972: at-large states were AK, DE, NV, ND, VT, and WY; HI (N=2), ME (N=2), NE (N=3), and NM (N=2) did not redistrict for the 1972 elections. 1982: at-large states were AK, DE, ND, SD, VT, and WY; ME (N=2) and MT (N=2) did not redistrict for the 1982 elections. 1992 and 2002: at-large states were AK, DE, MT, ND, SD, VT, and WY; ME (N=2) did not redistrict for the 1992 and 2002 elections. For state VAP percents, all 50 states were included.

Table 4. Apportionment in 1970 by Different Population Measures

State	AP Districts	VAP Districts	Change #1	|Change #1|
Alabama	7	7	0	0
Alaska	1	1	0	0
Arizona	4	4	0	0
Arkansas	4	4	0	0
California	43	43	0	0
Colorado	5	5	0	0
Connecticut	6	7	1	1
Delaware	1	1	0	0
Florida	15	15	0	0
Georgia	10	10	0	0
Hawaii	2	2	0	0
Idaho	2	2	0	0
Illinois	24	24	0	0
Indiana	11	11	0	0
Iowa	6	6	0	0
Kansas	5	5	0	0
Kentucky	7	7	0	0
Louisiana	8	7	-1	1
Maine	2	2	0	0
Maryland	8	8	0	0
Massachusetts	12	12	0	0
Michigan	19	18	-1	1
Minnesota	8	8	0	0
Mississippi	5	5	0	0
Missouri	10	10	0	0
Montana	2	2	0	0
Nebraska	3	3	0	0
Nevada	1	1	0	0
New Hampshire	2	2	0	0
New Jersey	15	16	1	1
New Mexico	2	2	0	0
New York	39	40	1	1
North Carolina	11	11	0	0
North Dakota	1	1	0	0
Ohio	23	23	0	0
Oklahoma	6	6	0	0
Oregon	4	5	1	1
Pennsylvania	25	26	1	1
Rhode Island	2	2	0	0
South Carolina	6	5	-1	1
South Dakota	2	1	-1	1
Tennessee	8	8	0	0
Texas	24	23	-1	1
Utah	2	2	0	0
Vermont	1	1	0	0
Virginia	10	10	0	0
Washington	7	7	0	0
West Virginia	4	4	0	0
Wisconsin	9	9	0	0
Wyoming	1	1	0	0
Total	435	435	0	10

Notes: Shaded states experience a change in one of the three change measures. CAP: Apportionment Population; VAP: Voting Age Population; VEP: Voting Elilgle Population. 1. Change of VAP - AP; 2. Change of VEP - AP; 3. Change of VAP - VEP.

Table 5. Apportionment in 1980 by Different Population Measures

State	AP Districts	VAP Districts	VEP Districts	Change #1	|Change #1|	Change #2	|Change #2|	Change #3	|Change #3|
Alabama	7	7	7	0	0	0	0	0	0
Alaska	1	1	1	0	0	0	0	0	0
Arizona	5	5	5	0	0	0	0	0	0
Arkansas	4	4	4	0	0	0	0	0	0
California	45	46	43	1	1	-2	2	-3	3
Colorado	6	6	6	0	0	0	0	0	0
Connecticut	6	6	6	0	0	0	0	0	0
Delaware	1	1	1	0	0	0	0	0	0
Florida	19	20	19	1	1	0	0	-1	1
Georgia	10	10	10	0	0	0	0	0	0
Hawaii	2	2	2	0	0	0	0	0	0
Idaho	2	2	2	0	0	0	0	0	0
Illinois	22	22	22	0	0	0	0	0	0
Indiana	10	10	11	0	0	1	1	1	1
Iowa	6	6	6	0	0	0	0	0	0
Kansas	5	5	5	0	0	0	0	0	0
Kentucky	7	7	7	0	0	0	0	0	0
Louisiana	8	8	8	0	0	0	0	0	0
Maine	2	2	2	0	0	0	0	0	0
Maryland	8	8	8	0	0	0	0	0	0
Massachusetts	11	11	11	0	0	0	0	0	0
Michigan	18	17	18	-1	1	0	0	1	1
Minnesota	8	8	8	0	0	0	0	0	0
Mississippi	5	5	5	0	0	0	0	0	0
Missouri	9	10	10	1	1	1	1	0	0
Montana	2	2	2	0	0	0	0	0	0
Nebraska	3	3	3	0	0	0	0	0	0
Nevada	2	2	2	0	0	0	0	0	0
New Hampshire	2	2	2	0	0	0	0	0	0
New Jersey	14	14	14	0	0	0	0	0	0
New Mexico	3	2	2	-1	1	-1	1	0	0
New York	34	34	33	0	0	-1	1	-1	1
North Carolina	11	11	12	0	0	1	1	1	1
North Dakota	1	1	1	0	0	0	0	0	0
Ohio	21	21	21	0	0	0	0	0	0
Oklahoma	6	6	6	0	0	0	0	0	0
Oregon	5	5	5	0	0	0	0	0	0
Pennsylvania	23	23	24	0	0	1	1	1	1
Rhode Island	2	2	2	0	0	0	0	0	0
South Carolina	6	6	6	0	0	0	0	0	0
South Dakota	1	1	1	0	0	0	0	0	0
Tennessee	9	9	9	0	0	0	0	0	0
Texas	27	26	26	-1	1	-1	1	0	0
Utah	3	3	3	0	0	0	0	0	0
Vermont	1	1	1	0	0	0	0	0	0
Virginia	10	10	11	0	0	1	1	1	1
Washington	8	8	8	0	0	0	0	0	0
West Virginia	4	4	4	0	0	0	0	0	0
Wisconsin	9	9	9	0	0	0	0	0	0
Wyoming	1	1	1	0	0	0	0	0	0
Totals	435	435	435	0	6	0	10	0	10

Notes: Shaded states experience a change in one of the three change measures. CAP: Apportionment Population; VAP: Voting Age Population; VEP: Voting Elilgle Population. 1. Change of VAP - AP; 2. Change of VEP - AP; 3. Change of VEP - VAP.

Table 6. Apportionment in 1990 by Different Population Measures

State	AP Districts	VAP Districts	VEP Districts	Change #1	|Change #1|	Change #2	|Change #2|	Change #3	|Change #3|
Alabama	7	7	7	0	0	0	0	0	0
Alaska	1	1	1	0	0	0	0	0	0
Arizona	6	6	6	0	0	0	0	0	0
Arkansas	4	4	4	0	0	0	0	0	0
California	52	52	45	0	0	-7	7	-7	7
Colorado	6	6	6	0	0	0	0	0	0
Connecticut	6	6	6	0	0	0	0	0	0
Delaware	1	1	1	0	0	0	0	0	0
Florida	23	24	23	1	1	0	0	-1	1
Georgia	11	11	12	0	0	1	1	1	1
Hawaii	2	2	2	0	0	0	0	0	0
Idaho	2	2	2	0	0	0	0	0	0
Illinois	20	20	20	0	0	0	0	0	0
Indiana	10	10	10	0	0	0	0	0	0
Iowa	5	5	5	0	0	0	0	0	0
Kansas	4	4	4	0	0	0	0	0	0
Kentucky	6	6	7	0	0	1	1	1	1
Louisiana	7	7	7	0	0	0	0	0	0
Maine	2	2	2	0	0	0	0	0	0
Maryland	8	9	9	1	1	1	1	0	0
Massachusetts	10	11	11	1	1	1	1	0	0
Michigan	16	16	17	0	0	1	1	1	1
Minnesota	8	8	8	0	0	0	0	0	0
Mississippi	5	4	5	-1	1	0	0	1	1
Missouri	9	9	9	0	0	0	0	0	0
Montana	1	1	2	0	0	1	1	1	1
Nebraska	3	3	3	0	0	0	0	0	0
Nevada	2	2	2	0	0	0	0	0	0
New Hampshire	2	2	2	0	0	0	0	0	0
New Jersey	13	14	14	1	1	1	1	0	0
New Mexico	3	3	3	0	0	0	0	0	0
New York	31	32	31	1	1	0	0	-1	1
North Carolina	12	12	12	0	0	0	0	0	0
North Dakota	1	1	1	0	0	0	0	0	0
Ohio	19	19	20	0	0	1	1	1	1
Oklahoma	6	5	6	-1	1	0	0	1	1
Oregon	5	5	5	0	0	0	0	0	0
Pennsylvania	21	21	22	0	0	1	1	1	1
Rhode Island	2	2	2	0	0	0	0	0	0
South Carolina	6	6	6	0	0	0	0	0	0
South Dakota	1	1	1	0	0	0	0	0	0
Tennessee	9	9	9	0	0	0	0	0	0
Texas	30	29	28	-1	1	-2	2	-1	1
Utah	3	3	3	0	0	0	0	0	0
Vermont	1	1	1	0	0	0	0	0	0
Virginia	11	11	11	0	0	0	0	0	0
Washington	9	8	9	-1	1	0	0	1	1
West Virginia	3	3	3	0	0	0	0	0	0
Wisconsin	9	8	9	-1	1	0	0	1	1
Wyoming	1	1	1	0	0	0	0	0	0
Total	435	435	435	0	10	0	18	0	18

Notes: Shaded states experience a change in one of the three change measures. CAP: Apportionment Population; VAP: Voting Age Population; VEP: Voting Elilgle Population. 1. Change of VAP - AP; 2. Change of VEP - AP; 3. Change of VEP - VAP.

Table 7. Apportionment in 2000 by Different Population Measures

State	AP Districts	VAP Districts	VEP Districts	Change #1	|Change #1|	Change #2	|Change #2|	Change #3	|Change #3|
Alabama	7	7	7	0	0	0	0	0	0
Alaska	1	1	1	0	0	0	0	0	0
Arizona	8	8	6	0	0	-2	2	-2	2
Arkansas	4	4	4	0	0	0	0	0	0
California	53	51	45	-2	2	-8	8	-6	6
Colorado	7	7	6	0	0	-1	1	-1	1
Connecticut	5	5	6	0	0	1	1	1	1
Delaware	1	1	1	0	0	0	0	0	0
Florida	25	26	23	1	1	-2	2	-3	3
Georgia	13	13	12	0	0	-1	1	-1	1
Hawaii	2	2	2	0	0	0	0	0	0
Idaho	2	2	2	0	0	0	0	0	0
Illinois	19	19	20	0	0	1	1	1	1
Indiana	9	9	10	0	0	1	1	1	1
Iowa	5	5	5	0	0	0	0	0	0
Kansas	4	4	4	0	0	0	0	0	0
Kentucky	6	6	7	0	0	1	1	1	1
Louisiana	7	7	7	0	0	0	0	0	0
Maine	2	2	2	0	0	0	0	0	0
Maryland	8	8	9	0	0	1	1	1	1
Massachusetts	10	10	11	0	0	1	1	1	1
Michigan	15	15	17	0	0	2	2	2	2
Minnesota	8	8	8	0	0	0	0	0	0
Mississippi	4	4	5	0	0	1	1	1	1
Missouri	9	9	9	0	0	0	0	0	0
Montana	1	1	2	0	0	1	1	1	1
Nebraska	3	3	3	0	0	0	0	0	0
Nevada	3	3	2	0	0	-1	1	-1	1
New Hampshire	2	2	2	0	0	0	0	0	0
New Jersey	13	13	14	0	0	1	1	1	1
New Mexico	3	3	3	0	0	0	0	0	0
New York	29	30	31	1	1	2	2	1	1
North Carolina	13	13	12	0	0	-1	1	-1	1
North Dakota	1	1	1	0	0	0	0	0	0
Ohio	18	18	20	0	0	2	2	2	2
Oklahoma	5	5	6	0	0	1	1	1	1
Oregon	5	5	5	0	0	0	0	0	0
Pennsylvania	19	20	22	1	1	3	3	2	2
Rhode Island	2	2	2	0	0	0	0	0	0
South Carolina	6	6	6	0	0	0	0	0	0
South Dakota	1	1	1	0	0	0	0	0	0
Tennessee	9	9	9	0	0	0	0	0	0
Texas	32	31	28	-1	1	-4	4	-3	3
Utah	3	3	3	0	0	0	0	0	0
Vermont	1	1	1	0	0	0	0	0	0
Virginia	11	11	11	0	0	0	0	0	0
Washington	9	9	9	0	0	0	0	0	0
West Virginia	3	3	3	0	0	0	0	0	0
Wisconsin	8	8	9	0	0	1	1	1	1
Wyoming	1	1	1	0	0	0	0	0	0
Total	435	435	435	0	6	0	40	0	36

Notes: Shaded states experience a change in one of the three change measures. CAP: Apportionment Population; VAP: Voting Age Population; VEP: Voting Elilgle Population. 1. Change of VAP - AP; 2. Change of VEP - AP; 3. Change of VEP - VAP.

Table 8. The Electoral College Vote Based on three Different Measures of Reapportioned State Population, 1972-2008

Measure	1972	1976	1980	1984	1988	1992	1996	2000	2004	2008
Apportioned Population										
Democratic Votes	17	297	49	13	111	370	379	266	251	365
Republican Votes	520	240	489	525	426	168	159	271	286	173
Winner	R	D	R	R	R	D	D	R	R	D
Voting Age Population										
Democratic Votes	17	296	49	13	111	372	382	268	251	366
Republican Votes	520	241	489	525	426	166	156	269	286	172
Winner	R	D	R	R	R	D	D	*Neither*	R	D
Voting Eligible Population										
Democratic Votes	--	--	--	13	111	372	379	264	256	368
Republican Votes	--	--	--	525	426	166	159	273	281	170
Winner	--	--	--	R	R	D	D	R	R	D

NOTE: Data on Electoral Vote returns from 1972-2004 are from CQ's *Guide to U.S. Elections* (2005) and the 2008 returns are from Dave Leip's Atlas of U.S. Presidential Elections (uselectionatlas.org/RESULTS/). Shaded vote returns indicate a different distribution than the official returns based on the apportioned population. According to a reapportionment based on the VAP, in 2000 there would not have been an outright winner since both Bush and Gore would not have secured a 270-vote majority. Hence, the contest would have been decided in the U.S. House of Representatives.

Appendix 1. 2000 Interstate Malapportionment: AP Districts and AP Population

State	Apportionment Population	Number of MCs	Average Population of District	Deviation from Ideal	Absolute Deviation from Ideal	% Deviation form Ideal
Alabama	4,461,130	7	637,304	9,648	9,648	1.49%
Alaska	628,933	1	628,933	18,019	18,019	2.79%
Arizona	5,140,683	8	642,585	4,367	4,367	0.67%
Arkansas	2,679,733	4	669,933	-22,981	22,981	-3.55%
California	33,930,798	53	640,204	6,748	6,748	1.04%
Colorado	4,311,882	7	615,983	30,969	30,969	4.79%
Connecticut	3,409,535	5	681,907	-34,955	34,955	-5.40%
Delaware	785,068	1	785,068	-138,116	138,116	-21.35%
Florida	16,028,890	25	641,156	5,797	5,797	0.90%
Georgia	8,206,975	13	631,306	15,646	15,646	2.42%
Hawaii	1,216,642	2	608,321	38,631	38,631	5.97%
Idaho	1,297,274	2	648,637	-1,685	1,685	-0.26%
Illinois	12,439,042	19	654,686	-7,734	7,734	-1.20%
Indiana	6,090,782	9	676,754	-29,801	29,801	-4.61%
Iowa	2,931,923	5	586,385	60,568	60,568	9.36%
Kansas	2,693,824	4	673,456	-26,504	26,504	-4.10%
Kentucky	4,049,431	6	674,905	-27,953	27,953	-4.32%
Louisiana	4,480,271	7	640,039	6,913	6,913	1.07%
Maine	1,277,731	2	638,866	8,087	8,087	1.25%
Maryland	5,307,886	8	663,486	-16,534	16,534	-2.56%
Massachusetts	6,355,568	10	635,557	11,395	11,395	1.76%
Michigan	9,955,829	15	663,722	-16,770	16,770	-2.59%
Minnesota	4,925,670	8	615,709	31,243	31,243	4.83%
Mississippi	2,852,927	4	713,232	-66,280	66,280	-10.24%
Missouri	5,606,260	9	622,918	24,034	24,034	3.72%
Montana	905,316	1	905,316	-258,364	258,364	-39.94%
Nebraska	1,715,369	3	571,790	75,162	75,162	11.62%
Nevada	2,002,032	3	667,344	-20,392	20,392	-3.15%
New Hampshire	1,238,415	2	619,208	27,745	27,745	4.29%
New Jersey	8,424,354	13	648,027	-1,075	1,075	-0.17%
New Mexico	1,823,821	3	607,940	39,012	39,012	6.03%
New York	19,004,973	29	655,344	-8,392	8,392	-1.30%
North Carolina	8,067,673	13	620,590	26,362	26,362	4.07%
North Dakota	643,756	1	643,756	3,196	3,196	0.49%
Ohio	11,374,540	18	631,919	15,033	15,033	2.32%
Oklahoma	3,458,819	5	691,764	-44,812	44,812	-6.93%
Oregon	3,428,543	5	685,709	-38,756	38,756	-5.99%
Pennsylvania	12,300,670	19	647,404	-452	452	-0.07%
Rhode Island	1,049,662	2	524,831	122,121	122,121	18.88%
South Carolina	4,025,061	6	670,844	-23,891	23,891	-3.69%
South Dakota	756,874	1	756,874	-109,922	109,922	-16.99%
Tennessee	5,700,037	9	633,337	13,615	13,615	2.10%
Texas	20,903,994	32	653,250	-6,298	6,298	-0.97%
Utah	2,236,714	3	745,571	-98,619	98,619	-15.24%
Vermont	609,890	1	609,890	37,062	37,062	5.73%
Virginia	7,100,702	11	645,518	1,434	1,434	0.22%
Washington	5,908,684	9	656,520	-9,568	9,568	-1.48%
West Virginia	1,813,077	3	604,359	42,593	42,593	6.58%
Wisconsin	5,371,210	8	671,401	-24,449	24,449	-3.78%
Wyoming	495,304	1	495,304	151,648	151,648	23.44%
Totals	281,424,177	435	646,952	0	0	0.00%
Voter Equivalency Ratio			1.83			
Most Underrepresented				-258,364		-39.94%
Most Overrepresented				151,648		23.44%
Maximum Deviation				410,012		
% Max Deviation						63.38%
Mean Absolute Deviation					37,227	
% Mean Abs Deviation						5.75%

Appendix 2. 2000 Interstate Malapportionment: AP Districts and VAP Population

State	Apportionment Population	Number of MCs	Average Population of District	Deviation from Ideal	Absolute Deviation from Ideal	% Deviation form Ideal
Alabama	3,323,678	7	474,811	4,892	4,892	1.02%
Alaska	436,215	1	436,215	43,489	43,489	9.07%
Arizona	3,763,685	8	470,461	9,243	9,243	1.93%
Arkansas	1,993,031	4	498,258	-18,554	18,554	-3.87%
California	24,621,819	53	464,563	15,141	15,141	3.16%
Colorado	3,200,466	7	457,209	22,494	22,494	4.69%
Connecticut	2,563,877	5	512,775	-33,072	33,072	-6.89%
Delaware	589,013	1	589,013	-109,309	109,309	-22.79%
Florida	12,336,038	25	493,442	-13,738	13,738	-2.86%
Georgia	6,017,219	13	462,863	16,841	16,841	3.51%
Hawaii	915,770	2	457,885	21,819	21,819	4.55%
Idaho	924,923	2	462,462	17,242	17,242	3.59%
Illinois	9,173,842	19	482,834	-3,130	3,130	-0.65%
Indiana	4,506,089	9	500,677	-20,973	20,973	-4.37%
Iowa	2,192,686	5	438,537	41,166	41,166	8.58%
Kansas	1,975,425	4	493,856	-14,153	14,153	-2.95%
Kentucky	3,046,951	6	507,825	-28,122	28,122	-5.86%
Louisiana	3,249,177	7	464,168	15,535	15,535	3.24%
Maine	973,685	2	486,843	-7,139	7,139	-1.49%
Maryland	3,940,314	8	492,539	-12,836	12,836	-2.68%
Massachusetts	4,849,033	10	484,903	-5,200	5,200	-1.08%
Michigan	7,342,677	15	489,512	-9,808	9,808	-2.04%
Minnesota	3,632,585	8	454,073	25,630	25,630	5.34%
Mississippi	2,069,471	4	517,368	-37,664	37,664	-7.85%
Missouri	4,167,519	9	463,058	16,646	16,646	3.47%
Montana	672,133	1	672,133	-192,429	192,429	-40.11%
Nebraska	1,261,021	3	420,340	59,363	59,363	12.37%
Nevada	1,486,458	3	495,486	-15,782	15,782	-3.29%
New Hampshire	926,224	2	463,112	16,592	16,592	3.46%
New Jersey	6,326,792	13	486,676	-6,973	6,973	-1.45%
New Mexico	1,310,472	3	436,824	42,880	42,880	8.94%
New York	14,286,350	29	492,633	-12,929	12,929	-2.70%
North Carolina	6,085,266	13	468,097	11,606	11,606	2.42%
North Dakota	481,351	1	481,351	-1,647	1,647	-0.34%
Ohio	8,464,801	18	470,267	9,437	9,437	1.97%
Oklahoma	2,558,294	5	511,659	-31,955	31,955	-6.66%
Oregon	2,574,873	5	514,975	-35,271	35,271	-7.35%
Pennsylvania	9,358,833	19	492,570	-12,867	12,867	-2.68%
Rhode Island	800,497	2	400,249	79,455	79,455	16.56%
South Carolina	3,002,371	6	500,395	-20,692	20,692	-4.31%
South Dakota	552,195	1	552,195	-72,491	72,491	-15.11%
Tennessee	4,290,762	9	476,751	2,952	2,952	0.62%
Texas	14,965,061	32	467,658	12,045	12,045	2.51%
Utah	1,514,471	3	504,824	-25,120	25,120	-5.24%
Vermont	461,304	1	461,304	18,400	18,400	3.84%
Virginia	5,340,253	11	485,478	-5,774	5,774	-1.20%
Washington	4,380,278	9	486,698	-6,994	6,994	-1.46%
West Virginia	1,405,951	3	468,650	11,053	11,053	2.30%
Wisconsin	3,994,919	8	499,365	-19,661	19,661	-4.10%
Wyoming	364,909	1	364,909	114,795	114,795	23.93%
Totals	208,671,027	435	479,704	0	0	0.00%
Voter Equivalency Ratio			1.84			
Most Underrepresented				-192,429		-40.11%
Most Overrepresented				114,795		23.93%
Maximum Deviation				307,224		
% Max Deviation						64.04%
Mean Absolute Deviation					28,060	
% Mean Abs Deviation						5.85%

Appendix 3. 2000 Interstate Malapportionment: AP Districts and VEP Population

State	Apportionment Population	Number of MCs	Average Population of District	Deviation from Ideal	Absolute Deviation from Ideal	% Deviation form Ideal
Alabama	2,956,385	7	422,341	-23,158	23,158	-5.80%
Alaska	364,419	1	364,419	34,763	34,763	8.71%
Arizona	2,523,614	8	315,452	83,731	83,731	20.98%
Arkansas	1,710,799	4	427,700	-28,517	28,517	-7.14%
California	18,156,500	53	342,575	56,607	56,607	14.18%
Colorado	2,366,650	7	338,093	61,090	61,090	15.30%
Connecticut	2,383,795	5	476,759	-77,577	77,577	-19.43%
Delaware	486,760	1	486,760	-87,577	87,577	-21.94%
Florida	9,145,312	25	365,812	33,370	33,370	8.36%
Georgia	4,588,953	13	352,996	46,186	46,186	11.57%
Hawaii	770,836	2	385,418	13,764	13,764	3.45%
Idaho	690,154	2	345,077	54,105	54,105	13.55%
Illinois	8,029,525	19	422,607	-23,424	23,424	-5.87%
Indiana	4,080,236	9	453,360	-54,177	54,177	-13.57%
Iowa	2,030,935	5	406,187	-7,005	7,005	-1.75%
Kansas	1,783,412	4	445,853	-46,671	46,671	-11.69%
Kentucky	2,722,356	6	453,726	-54,543	54,543	-13.66%
Louisiana	2,959,148	7	422,735	-23,553	23,553	-5.90%
Maine	910,982	2	455,491	-56,308	56,308	-14.11%
Maryland	3,397,126	8	424,641	-25,458	25,458	-6.38%
Massachusetts	4,384,671	10	438,467	-39,285	39,285	-9.84%
Michigan	6,693,069	15	446,205	-47,022	47,022	-11.78%
Minnesota	3,136,830	8	392,104	7,079	7,079	1.77%
Mississippi	1,824,156	4	456,039	-56,856	56,856	-14.24%
Missouri	3,740,308	9	415,590	-16,407	16,407	-4.11%
Montana	573,045	1	573,045	-173,862	173,862	-43.55%
Nebraska	1,131,746	3	377,249	21,934	21,934	5.49%
Nevada	858,018	3	286,006	113,176	113,176	28.35%
New Hampshire	814,549	2	407,275	-8,092	8,092	-2.03%
New Jersey	5,429,251	13	417,635	-18,452	18,452	-4.62%
New Mexico	1,026,902	3	342,301	56,882	56,882	14.25%
New York	12,271,903	29	423,169	-23,987	23,987	-6.01%
North Carolina	4,938,968	13	379,921	19,262	19,262	4.83%
North Dakota	461,711	1	461,711	-62,528	62,528	-15.66%
Ohio	7,975,680	18	443,093	-43,911	43,911	-11.00%
Oklahoma	2,251,719	5	450,344	-51,161	51,161	-12.82%
Oregon	2,057,833	5	411,567	-12,384	12,384	-3.10%
Pennsylvania	8,962,083	19	471,689	-72,506	72,506	-18.16%
Rhode Island	725,084	2	362,542	36,640	36,640	9.18%
South Carolina	2,537,384	6	422,897	-23,715	23,715	-5.94%
South Dakota	494,849	1	494,849	-95,667	95,667	-23.97%
Tennessee	3,624,940	9	402,771	-3,589	3,589	-0.90%
Texas	11,034,190	32	344,818	54,364	54,364	13.62%
Utah	1,086,050	3	362,017	37,166	37,166	9.31%
Vermont	415,564	1	415,564	-16,382	16,382	-4.10%
Virginia	4,512,504	11	410,228	-11,045	11,045	-2.77%
Washington	3,421,256	9	380,140	19,043	19,043	4.77%
West Virginia	1,347,723	3	449,241	-50,058	50,058	-12.54%
Wisconsin	3,541,548	8	442,694	-43,511	43,511	-10.90%
Wyoming	312,961	1	312,961	86,221	86,221	21.60%
Totals	173,644,393	435	399,183	0	0	0.00%
Voter Equivalency Ratio			2.00			
Most Underrepresented				-173,862		-43.55%
Most Overrepresented				113,176		28.35%
Maximum Deviation				287,039		
% Max Deviation						71.91%
Mean Absolute Deviation					44,275	
% Mean Abs Deviation						11.09%

Appendix 4. Apportionment in 1970 by Different Population Measures

State	Apportionment Population (AP)	VAP	VAP %	AP Districts	VAP Districts	Change (VAP - AP)	|Change|
Alabama	3,475,885	2,205,486	63.5%	7	7	0	0
Alaska	304,067	180,582	59.4%	1	1	0	0
Arizona	1,787,620	1,123,322	62.8%	4	4	0	0
Arkansas	1,942,303	1,264,709	65.1%	4	4	0	0
California	20,098,863	13,300,316	66.2%	43	43	0	0
Colorado	2,226,771	1,429,241	64.2%	5	5	0	0
Connecticut	3,050,693	2,007,601	65.8%	6	7	1	1
Delaware	551,928	350,952	63.6%	1	1	0	0
Florida	6,855,702	4,671,090	68.1%	15	15	0	0
Georgia	4,627,306	2,938,518	63.5%	10	10	0	0
Hawaii	784,901	492,986	62.8%	2	2	0	0
Idaho	719,921	447,806	62.2%	2	2	0	0
Illinois	11,184,320	7,303,995	65.3%	24	24	0	0
Indiana	5,228,156	3,346,442	64.0%	11	11	0	0
Iowa	2,846,920	1,845,655	64.8%	6	6	0	0
Kansas	2,265,846	1,498,187	66.1%	5	5	0	0
Kentucky	3,246,481	2,099,823	64.7%	7	7	0	0
Louisiana	3,672,008	2,246,435	61.2%	8	7	-1	1
Maine	1,006,320	647,166	64.3%	2	2	0	0
Maryland	3,953,698	2,536,241	64.1%	8	8	0	0
Massachusetts	5,726,676	3,802,869	66.4%	12	12	0	0
Michigan	8,937,196	5,611,114	62.8%	19	18	-1	1
Minnesota	3,833,173	2,416,752	63.0%	8	8	0	0
Mississippi	2,233,848	1,367,736	61.2%	5	5	0	0
Missouri	4,718,034	3,117,564	66.1%	10	10	0	0
Montana	701,573	440,583	62.8%	2	2	0	0
Nebraska	1,496,820	973,236	65.0%	3	3	0	0
Nevada	492,396	318,151	64.6%	1	1	0	0
New Hampshire	746,284	482,655	64.7%	2	2	0	0
New Jersey	7,208,035	4,777,221	66.3%	15	16	1	1
New Mexico	1,026,664	607,575	59.2%	2	2	0	0
New York	18,338,055	12,368,821	67.4%	39	40	1	1
North Carolina	5,125,230	3,312,968	64.6%	11	11	0	0
North Dakota	624,181	390,141	62.5%	1	1	0	0
Ohio	10,730,200	6,902,333	64.3%	23	23	0	0
Oklahoma	2,585,486	1,718,812	66.5%	6	6	0	0
Oregon	2,110,810	1,391,451	65.9%	4	5	1	1
Pennsylvania	11,884,314	7,932,551	66.7%	25	26	1	1
Rhode Island	957,798	647,196	67.6%	2	2	0	0
South Carolina	2,617,320	1,628,670	62.2%	6	5	-1	1
South Dakota	673,247	422,664	62.8%	2	1	-1	1
Tennessee	3,961,060	2,590,564	65.4%	8	8	0	0
Texas	11,298,787	7,177,011	63.5%	24	23	-1	1
Utah	1,067,810	632,973	59.3%	2	2	0	0
Vermont	448,327	286,767	64.0%	1	1	0	0
Virginia	4,690,742	3,051,904	65.1%	10	10	0	0
Washington	3,443,487	2,244,939	65.2%	7	7	0	0
West Virginia	1,763,331	1,159,497	65.8%	4	4	0	0
Wisconsin	4,447,013	2,827,453	63.6%	9	9	0	0
Wyoming	335,719	212,233	63.2%	1	1	0	0
Total	204,053,325	132,750,957		435	435	0	10
Average	469,088	305,175					

Appendix 5a. Apportionment in 1980 by Voting Age Population

State	Apportionment Population (AP)	VAP	VAP %	AP Districts	VAP Districts	Change (VAP - AP)	|Change|
Alabama	3,890,061	2,731,640	70.2%	7	7	0	0
Alaska	400,481	271,106	67.7%	1	1	0	0
Arizona	2,717,866	1,926,728	70.9%	5	5	0	0
Arkansas	2,285,513	1,615,061	70.7%	4	4	0	0
California	23,668,562	17,278,944	73.0%	45	46	1	1
Colorado	2,888,834	2,081,151	72.0%	6	6	0	0
Connecticut	3,107,576	2,284,657	73.5%	6	6	0	0
Delaware	595,225	427,743	71.9%	1	1	0	0
Florida	9,739,992	7,386,688	75.8%	19	20	1	1
Georgia	5,464,265	3,816,975	69.9%	10	10	0	0
Hawaii	965,000	689,108	71.4%	2	2	0	0
Idaho	943,935	637,270	67.5%	2	2	0	0
Illinois	11,418,461	8,183,481	71.7%	22	22	0	0
Indiana	5,490,179	3,871,906	70.5%	10	10	0	0
Iowa	2,913,387	2,087,935	71.7%	6	6	0	0
Kansas	2,363,208	1,714,644	72.6%	5	5	0	0
Kentucky	3,661,433	2,578,047	70.4%	7	7	0	0
Louisiana	4,203,972	2,875,432	68.4%	8	8	0	0
Maine	1,124,660	803,273	71.4%	2	2	0	0
Maryland	4,216,446	3,049,445	72.3%	8	8	0	0
Massachusetts	5,737,037	4,246,648	74.0%	11	11	0	0
Michigan	9,258,344	6,510,092	70.3%	18	17	-1	1
Minnesota	4,077,148	2,904,162	71.2%	8	8	0	0
Mississippi	2,520,638	1,706,441	67.7%	5	5	0	0
Missouri	4,917,444	3,554,203	72.3%	9	10	1	1
Montana	786,690	554,795	70.5%	2	2	0	0
Nebraska	1,570,006	1,122,655	71.5%	3	3	0	0
Nevada	799,184	584,694	73.2%	2	2	0	0
New Hampshire	920,610	662,528	72.0%	2	2	0	0
New Jersey	7,364,158	5,373,962	73.0%	14	14	0	0
New Mexico	1,299,968	884,987	68.1%	3	2	-1	1
New York	17,557,288	12,870,209	73.3%	34	34	0	0
North Carolina	5,874,429	4,224,031	71.9%	11	11	0	0
North Dakota	652,695	461,726	70.7%	1	1	0	0
Ohio	10,797,419	7,703,310	71.3%	21	21	0	0
Oklahoma	3,025,266	2,170,406	71.7%	6	6	0	0
Oregon	2,632,663	1,910,048	72.6%	5	5	0	0
Pennsylvania	11,866,728	8,740,599	73.7%	23	23	0	0
Rhode Island	947,154	704,303	74.4%	2	2	0	0
South Carolina	3,119,208	2,179,854	69.9%	6	6	0	0
South Dakota	690,178	485,162	70.3%	1	1	0	0
Tennessee	4,590,750	3,292,560	71.7%	9	9	0	0
Texas	14,228,383	9,923,085	69.7%	27	26	-1	1
Utah	1,461,037	920,932	63.0%	3	3	0	0
Vermont	511,456	366,138	71.6%	1	1	0	0
Virginia	5,346,279	3,872,484	72.4%	10	10	0	0
Washington	4,130,163	2,992,796	72.5%	8	8	0	0
West Virginia	1,949,644	1,390,008	71.3%	4	4	0	0
Wisconsin	4,705,335	3,347,947	71.2%	9	9	0	0
Wyoming	470,816	324,004	68.8%	1	1	0	0
Total	225,867,174	162,296,003		435	435	0	6
Average	519,235	373,094					

Appendix 5b. Apportionment in 1980 by Voting Eligible Population

State	Apportionment Population (AP)	VEP	VEP %	AP Districts	VEP Districts	Change (VEP - AP)	|Change|
Alabama	3,890,061	2,726,249	70.1%	7	7	0	0
Alaska	400,481	270,122	67.4%	1	1	0	0
Arizona	2,717,866	1,890,167	69.5%	5	5	0	0
Arkansas	2,285,513	1,610,104	70.4%	4	4	0	0
California	23,668,562	15,610,966	66.0%	45	43	-2	2
Colorado	2,888,834	2,071,959	71.7%	6	6	0	0
Connecticut	3,107,576	2,201,356	70.8%	6	6	0	0
Delaware	595,225	421,344	70.8%	1	1	0	0
Florida	9,739,992	7,088,658	72.8%	19	19	0	0
Georgia	5,464,265	3,791,652	69.4%	10	10	0	0
Hawaii	965,000	646,583	67.0%	2	2	0	0
Idaho	943,935	633,624	67.1%	2	2	0	0
Illinois	11,418,461	7,868,300	68.9%	22	22	0	0
Indiana	5,490,179	3,846,321	70.1%	10	11	1	1
Iowa	2,913,387	2,070,935	71.1%	6	6	0	0
Kansas	2,363,208	1,704,420	72.1%	5	5	0	0
Kentucky	3,661,433	2,562,572	70.0%	7	7	0	0
Louisiana	4,203,972	2,868,792	68.2%	8	8	0	0
Maine	1,124,660	799,746	71.1%	2	2	0	0
Maryland	4,216,446	2,964,704	70.3%	8	8	0	0
Massachusetts	5,737,037	4,110,721	71.7%	11	11	0	0
Michigan	9,258,344	6,374,955	68.9%	18	18	0	0
Minnesota	4,077,148	2,882,406	70.7%	8	8	0	0
Mississippi	2,520,638	1,704,163	67.6%	5	5	0	0
Missouri	4,917,444	3,529,489	71.8%	9	10	1	1
Montana	786,690	554,636	70.5%	2	2	0	0
Nebraska	1,570,006	1,115,142	71.0%	3	3	0	0
Nevada	799,184	573,118	71.7%	2	2	0	0
New Hampshire	920,610	660,560	71.8%	2	2	0	0
New Jersey	7,364,158	5,123,773	69.6%	14	14	0	0
New Mexico	1,299,968	873,515	67.2%	3	2	-1	1
New York	17,557,288	12,006,100	68.4%	34	33	-1	1
North Carolina	5,874,429	4,203,817	71.6%	11	12	1	1
North Dakota	652,695	462,223	70.8%	1	1	0	0
Ohio	10,797,419	7,637,813	70.7%	21	21	0	0
Oklahoma	3,025,266	2,162,051	71.5%	6	6	0	0
Oregon	2,632,663	1,880,863	71.4%	5	5	0	0
Pennsylvania	11,866,728	8,664,166	73.0%	23	24	1	1
Rhode Island	947,154	675,067	71.3%	2	2	0	0
South Carolina	3,119,208	2,176,721	69.8%	6	6	0	0
South Dakota	690,178	484,328	70.2%	1	1	0	0
Tennessee	4,590,750	3,285,608	71.6%	9	9	0	0
Texas	14,228,383	9,572,904	67.3%	27	26	-1	1
Utah	1,461,037	915,484	62.7%	3	3	0	0
Vermont	511,456	363,143	71.0%	1	1	0	0
Virginia	5,346,279	3,830,887	71.7%	10	11	1	1
Washington	4,130,163	2,923,670	70.8%	8	8	0	0
West Virginia	1,949,644	1,387,231	71.2%	4	4	0	0
Wisconsin	4,705,335	3,322,053	70.6%	9	9	0	0
Wyoming	470,816	326,644	69.4%	1	1	0	0
Total	225,867,174	157,431,825		435	435	0	10
Average	519,235	361,912					

Appendix 6a. Apportionment in 1990 by Voting Age Population

State	Apportionment Population (AP)	VAP	VAP %	AP Districts	VAP Districts	Change (VAP - AP)	|Change|
Alabama	4,062,608	2,981,799	73.4%	7	7	0	0
Alaska	551,947	377,699	68.4%	1	1	0	0
Arizona	3,677,985	2,684,109	73.0%	6	6	0	0
Arkansas	2,362,239	1,729,594	73.2%	4	4	0	0
California	29,839,250	22,009,296	73.8%	52	52	0	0
Colorado	3,307,912	2,433,128	73.6%	6	6	0	0
Connecticut	3,295,669	2,537,535	77.0%	6	6	0	0
Delaware	668,696	502,827	75.2%	1	1	0	0
Florida	13,003,362	10,071,689	77.5%	23	24	1	1
Georgia	6,508,419	4,750,913	73.0%	11	11	0	0
Hawaii	1,115,274	828,103	74.3%	2	2	0	0
Idaho	1,011,986	698,344	69.0%	2	2	0	0
Illinois	11,466,682	8,484,236	74.0%	20	20	0	0
Indiana	5,564,228	4,088,195	73.5%	10	10	0	0
Iowa	2,787,424	2,057,875	73.8%	5	5	0	0
Kansas	2,485,600	1,815,960	73.1%	4	4	0	0
Kentucky	3,698,969	2,731,202	73.8%	6	6	0	0
Louisiana	4,238,216	2,992,704	70.6%	7	7	0	0
Maine	1,233,223	918,926	74.5%	2	2	0	0
Maryland	4,798,622	3,619,227	75.4%	8	9	1	1
Massachusetts	6,029,051	4,663,350	77.3%	10	11	1	1
Michigan	9,328,784	6,836,532	73.3%	16	16	0	0
Minnesota	4,387,029	3,208,316	73.1%	8	8	0	0
Mississippi	2,586,443	1,826,455	70.6%	5	4	-1	1
Missouri	5,137,804	3,802,247	74.0%	9	9	0	0
Montana	803,655	576,961	71.8%	1	1	0	0
Nebraska	1,584,617	1,149,373	72.5%	3	3	0	0
Nevada	1,206,152	904,885	75.0%	2	2	0	0
New Hampshire	1,113,915	830,497	74.6%	2	2	0	0
New Jersey	7,748,634	5,930,726	76.5%	13	14	1	1
New Mexico	1,521,779	1,068,328	70.2%	3	3	0	0
New York	18,044,505	13,730,906	76.1%	31	32	1	1
North Carolina	6,657,630	5,022,488	75.4%	12	12	0	0
North Dakota	641,364	463,415	72.3%	1	1	0	0
Ohio	10,887,325	8,047,371	73.9%	19	19	0	0
Oklahoma	3,157,604	2,308,578	73.1%	6	5	-1	1
Oregon	2,853,733	2,118,191	74.2%	5	5	0	0
Pennsylvania	11,924,710	9,086,833	76.2%	21	21	0	0
Rhode Island	1,005,984	777,774	77.3%	2	2	0	0
South Carolina	3,505,707	2,566,496	73.2%	6	6	0	0
South Dakota	699,999	497,542	71.1%	1	1	0	0
Tennessee	4,896,641	3,660,581	74.8%	9	9	0	0
Texas	17,059,805	12,150,671	71.2%	30	29	-1	1
Utah	1,727,784	1,095,406	63.4%	3	3	0	0
Vermont	564,964	419,675	74.3%	1	1	0	0
Virginia	6,216,568	4,682,620	75.3%	11	11	0	0
Washington	4,887,941	3,605,305	73.8%	9	8	-1	1
West Virginia	1,801,625	1,349,900	74.9%	3	3	0	0
Wisconsin	4,906,745	3,602,787	73.4%	9	8	-1	1
Wyoming	455,975	318,063	69.8%	1	1	0	0
Total	249,022,783	184,615,633		435	435	0	10
Average	572,466	424,404					

Appendix 6b. Apportionment in 1990 by Voting Eligible Population

State	Apportionment Population (AP)	VEP	VEP %	AP Districts	VEP Districts	Change (VEP - AP)	|Change|
Alabama	4,062,608	2,956,385	72.8%	7	7	0	0
Alaska	551,947	364,419	66.0%	1	1	0	0
Arizona	3,677,985	2,523,614	68.6%	6	6	0	0
Arkansas	2,362,239	1,710,799	72.4%	4	4	0	0
California	29,839,250	18,156,500	60.8%	52	45	-7	7
Colorado	3,307,912	2,366,650	71.5%	6	6	0	0
Connecticut	3,295,669	2,383,795	72.3%	6	6	0	0
Delaware	668,696	486,760	72.8%	1	1	0	0
Florida	13,003,362	9,145,312	70.3%	23	23	0	0
Georgia	6,508,419	4,588,953	70.5%	11	12	1	1
Hawaii	1,115,274	770,836	69.1%	2	2	0	0
Idaho	1,011,986	690,154	68.2%	2	2	0	0
Illinois	11,466,682	8,029,525	70.0%	20	20	0	0
Indiana	5,564,228	4,080,236	73.3%	10	10	0	0
Iowa	2,787,424	2,030,935	72.9%	5	5	0	0
Kansas	2,485,600	1,783,412	71.7%	4	4	0	0
Kentucky	3,698,969	2,722,356	73.6%	6	7	1	1
Louisiana	4,238,216	2,959,148	69.8%	7	7	0	0
Maine	1,233,223	910,982	73.9%	2	2	0	0
Maryland	4,798,622	3,397,126	70.8%	8	9	1	1
Massachusetts	6,029,051	4,384,671	72.7%	10	11	1	1
Michigan	9,328,784	6,693,069	71.7%	16	17	1	1
Minnesota	4,387,029	3,136,830	71.5%	8	8	0	0
Mississippi	2,586,443	1,824,156	70.5%	5	5	0	0
Missouri	5,137,804	3,740,308	72.8%	9	9	0	0
Montana	803,655	573,045	71.3%	1	2	1	1
Nebraska	1,584,617	1,131,746	71.4%	3	3	0	0
Nevada	1,206,152	858,018	71.1%	2	2	0	0
New Hampshire	1,113,915	814,549	73.1%	2	2	0	0
New Jersey	7,748,634	5,429,251	70.1%	13	14	1	1
New Mexico	1,521,779	1,026,902	67.5%	3	3	0	0
New York	18,044,505	12,271,903	68.0%	31	31	0	0
North Carolina	6,657,630	4,938,968	74.2%	12	12	0	0
North Dakota	641,364	461,711	72.0%	1	1	0	0
Ohio	10,887,325	7,975,680	73.3%	19	20	1	1
Oklahoma	3,157,604	2,251,719	71.3%	6	6	0	0
Oregon	2,853,733	2,057,833	72.1%	5	5	0	0
Pennsylvania	11,924,710	8,962,083	75.2%	21	22	1	1
Rhode Island	1,005,984	725,084	72.1%	2	2	0	0
South Carolina	3,505,707	2,537,384	72.4%	6	6	0	0
South Dakota	699,999	494,849	70.7%	1	1	0	0
Tennessee	4,896,641	3,624,940	74.0%	9	9	0	0
Texas	17,059,805	11,034,190	64.7%	30	28	-2	2
Utah	1,727,784	1,086,050	62.9%	3	3	0	0
Vermont	564,964	415,564	73.6%	1	1	0	0
Virginia	6,216,568	4,512,504	72.6%	11	11	0	0
Washington	4,887,941	3,421,256	70.0%	9	9	0	0
West Virginia	1,801,625	1,347,723	74.8%	3	3	0	0
Wisconsin	4,906,745	3,541,548	72.2%	9	9	0	0
Wyoming	455,975	312,961	68.6%	1	1	0	0
Total	249,022,783	173,644,393		435	435	0	18
Average	572,466	399,183					

Appendix 7a. Apportionment in 2000 by Voting Age Population

State	Apportionment Population (AP)	VAP	VAP %	AP Districts	VAP Districts	Change (VAP - AP)	|Change|
Alabama	4,461,130	3,323,678	74.5%	7	7	0	0
Alaska	628,933	436,215	69.4%	1	1	0	0
Arizona	5,140,683	3,763,685	73.2%	8	8	0	0
Arkansas	2,679,733	1,993,031	74.4%	4	4	0	0
California	33,930,798	24,621,819	72.6%	53	51	-2	2
Colorado	4,311,882	3,200,466	74.2%	7	7	0	0
Connecticut	3,409,535	2,563,877	75.2%	5	5	0	0
Delaware	785,068	589,013	75.0%	1	1	0	0
Florida	16,028,890	12,336,038	77.0%	25	26	1	1
Georgia	8,206,975	6,017,219	73.3%	13	13	0	0
Hawaii	1,216,642	915,770	75.3%	2	2	0	0
Idaho	1,297,274	924,923	71.3%	2	2	0	0
Illinois	12,439,042	9,173,842	73.8%	19	19	0	0
Indiana	6,090,782	4,506,089	74.0%	9	9	0	0
Iowa	2,931,923	2,192,686	74.8%	5	5	0	0
Kansas	2,693,824	1,975,425	73.3%	4	4	0	0
Kentucky	4,049,431	3,046,951	75.2%	6	6	0	0
Louisiana	4,480,271	3,249,177	72.5%	7	7	0	0
Maine	1,277,731	973,685	76.2%	2	2	0	0
Maryland	5,307,886	3,940,314	74.2%	8	8	0	0
Massachusetts	6,355,568	4,849,033	76.3%	10	10	0	0
Michigan	9,955,829	7,342,677	73.8%	15	15	0	0
Minnesota	4,925,670	3,632,585	73.7%	8	8	0	0
Mississippi	2,852,927	2,069,471	72.5%	4	4	0	0
Missouri	5,606,260	4,167,519	74.3%	9	9	0	0
Montana	905,316	672,133	74.2%	1	1	0	0
Nebraska	1,715,369	1,261,021	73.5%	3	3	0	0
Nevada	2,002,032	1,486,458	74.2%	3	3	0	0
New Hampshire	1,238,415	926,224	74.8%	2	2	0	0
New Jersey	8,424,354	6,326,792	75.1%	13	13	0	0
New Mexico	1,823,821	1,310,472	71.9%	3	3	0	0
New York	19,004,973	14,286,350	75.2%	29	30	1	1
North Carolina	8,067,673	6,085,266	75.4%	13	13	0	0
North Dakota	643,756	481,351	74.8%	1	1	0	0
Ohio	11,374,540	8,464,801	74.4%	18	18	0	0
Oklahoma	3,458,819	2,558,294	74.0%	5	5	0	0
Oregon	3,428,543	2,574,873	75.1%	5	5	0	0
Pennsylvania	12,300,670	9,358,833	76.1%	19	20	1	1
Rhode Island	1,049,662	800,497	76.3%	2	2	0	0
South Carolina	4,025,061	3,002,371	74.6%	6	6	0	0
South Dakota	756,874	552,195	73.0%	1	1	0	0
Tennessee	5,700,037	4,290,762	75.3%	9	9	0	0
Texas	20,903,994	14,965,061	71.6%	32	31	-1	1
Utah	2,236,714	1,514,471	67.7%	3	3	0	0
Vermont	609,890	461,304	75.6%	1	1	0	0
Virginia	7,100,702	5,340,253	75.2%	11	11	0	0
Washington	5,908,684	4,380,278	74.1%	9	9	0	0
West Virginia	1,813,077	1,405,951	77.5%	3	3	0	0
Wisconsin	5,371,210	3,994,919	74.4%	8	8	0	0
Wyoming	495,304	364,909	73.7%	1	1	0	0
Total	281,424,177	208,671,027		435	435	0	6
Average	646,952	479,704					

Appendix 7b. Apportionment in 2000 by Voting Eligible Population

State	Apportionment Population (AP)	VEP	VEP %	AP Districts	VEP Districts	Change (VEP - AP)	|Change|
Alabama	4,062,608	2,956,385	72.8%	7	7	0	0
Alaska	551,947	364,419	66.0%	1	1	0	0
Arizona	3,677,985	2,523,614	68.6%	8	6	-2	2
Arkansas	2,362,239	1,710,799	72.4%	4	4	0	0
California	29,839,250	18,156,500	60.8%	53	45	-8	8
Colorado	3,307,912	2,366,650	71.5%	7	6	-1	1
Connecticut	3,295,669	2,383,795	72.3%	5	6	1	1
Delaware	668,696	486,760	72.8%	1	1	0	0
Florida	13,003,362	9,145,312	70.3%	25	23	-2	2
Georgia	6,508,419	4,588,953	70.5%	13	12	-1	1
Hawaii	1,115,274	770,836	69.1%	2	2	0	0
Idaho	1,011,986	690,154	68.2%	2	2	0	0
Illinois	11,466,682	8,029,525	70.0%	19	20	1	1
Indiana	5,564,228	4,080,236	73.3%	9	10	1	1
Iowa	2,787,424	2,030,935	72.9%	5	5	0	0
Kansas	2,485,600	1,783,412	71.7%	4	4	0	0
Kentucky	3,698,969	2,722,356	73.6%	6	7	1	1
Louisiana	4,238,216	2,959,148	69.8%	7	7	0	0
Maine	1,233,223	910,982	73.9%	2	2	0	0
Maryland	4,798,622	3,397,126	70.8%	8	9	1	1
Massachusetts	6,029,051	4,384,671	72.7%	10	11	1	1
Michigan	9,328,784	6,693,069	71.7%	15	17	2	2
Minnesota	4,387,029	3,136,830	71.5%	8	8	0	0
Mississippi	2,586,443	1,824,156	70.5%	4	5	1	1
Missouri	5,137,804	3,740,308	72.8%	9	9	0	0
Montana	803,655	573,045	71.3%	1	2	1	1
Nebraska	1,584,617	1,131,746	71.4%	3	3	0	0
Nevada	1,206,152	858,018	71.1%	3	2	-1	1
New Hampshire	1,113,915	814,549	73.1%	2	2	0	0
New Jersey	7,748,634	5,429,251	70.1%	13	14	1	1
New Mexico	1,521,779	1,026,902	67.5%	3	3	0	0
New York	18,044,505	12,271,903	68.0%	29	31	2	2
North Carolina	6,657,630	4,938,968	74.2%	13	12	-1	1
North Dakota	641,364	461,711	72.0%	1	1	0	0
Ohio	10,887,325	7,975,680	73.3%	18	20	2	2
Oklahoma	3,157,604	2,251,719	71.3%	5	6	1	1
Oregon	2,853,733	2,057,833	72.1%	5	5	0	0
Pennsylvania	11,924,710	8,962,083	75.2%	19	22	3	3
Rhode Island	1,005,984	725,084	72.1%	2	2	0	0
South Carolina	3,505,707	2,537,384	72.4%	6	6	0	0
South Dakota	699,999	494,849	70.7%	1	1	0	0
Tennessee	4,896,641	3,624,940	74.0%	9	9	0	0
Texas	17,059,805	11,034,190	64.7%	32	28	-4	4
Utah	1,727,784	1,086,050	62.9%	3	3	0	0
Vermont	564,964	415,564	73.6%	1	1	0	0
Virginia	6,216,568	4,512,504	72.6%	11	11	0	0
Washington	4,887,941	3,421,256	70.0%	9	9	0	0
West Virginia	1,801,625	1,347,723	74.8%	3	3	0	0
Wisconsin	4,906,745	3,541,548	72.2%	8	9	1	1
Wyoming	455,975	312,961	68.6%	1	1	0	0
Total	249,022,783	173,644,393		435	435	0	40
Average	572,466	399,183					

Appendix 8. 2000 Interstate Malapportionment: VAP Districts and VAP Population

State	VAP	Number of MCs	Average Population of District	Deviation from Ideal	Absolute Deviation from Ideal	% Deviation form Ideal
Alabama	3,323,678	7	474,811	4,892	4,892	1.02%
Alaska	436,215	1	436,215	43,489	43,489	9.07%
Arizona	3,763,685	8	470,461	9,243	9,243	1.93%
Arkansas	1,993,031	4	498,258	-18,554	18,554	-3.87%
California	24,621,819	51	482,781	-3,077	3,077	-0.64%
Colorado	3,200,466	7	457,209	22,494	22,494	4.69%
Connecticut	2,563,877	5	512,775	-33,072	33,072	-6.89%
Delaware	589,013	1	589,013	-109,309	109,309	-22.79%
Florida	12,336,038	26	474,463	5,241	5,241	1.09%
Georgia	6,017,219	13	462,863	16,841	16,841	3.51%
Hawaii	915,770	2	457,885	21,819	21,819	4.55%
Idaho	924,923	2	462,462	17,242	17,242	3.59%
Illinois	9,173,842	19	482,834	-3,130	3,130	-0.65%
Indiana	4,506,089	9	500,677	-20,973	20,973	-4.37%
Iowa	2,192,686	5	438,537	41,166	41,166	8.58%
Kansas	1,975,425	4	493,856	-14,153	14,153	-2.95%
Kentucky	3,046,951	6	507,825	-28,122	28,122	-5.86%
Louisiana	3,249,177	7	464,168	15,535	15,535	3.24%
Maine	973,685	2	486,843	-7,139	7,139	-1.49%
Maryland	3,940,314	8	492,539	-12,836	12,836	-2.68%
Massachusetts	4,849,033	10	484,903	-5,200	5,200	-1.08%
Michigan	7,342,677	15	489,512	-9,808	9,808	-2.04%
Minnesota	3,632,585	8	454,073	25,630	25,630	5.34%
Mississippi	2,069,471	4	517,368	-37,664	37,664	-7.85%
Missouri	4,167,519	9	463,058	16,646	16,646	3.47%
Montana	672,133	1	672,133	-192,429	192,429	-40.11%
Nebraska	1,261,021	3	420,340	59,363	59,363	12.37%
Nevada	1,486,458	3	495,486	-15,782	15,782	-3.29%
New Hampshire	926,224	2	463,112	16,592	16,592	3.46%
New Jersey	6,326,792	13	486,676	-6,973	6,973	-1.45%
New Mexico	1,310,472	3	436,824	42,880	42,880	8.94%
New York	14,286,350	30	476,212	3,492	3,492	0.73%
North Carolina	6,085,266	13	468,097	11,606	11,606	2.42%
North Dakota	481,351	1	481,351	-1,647	1,647	-0.34%
Ohio	8,464,801	18	470,267	9,437	9,437	1.97%
Oklahoma	2,558,294	5	511,659	-31,955	31,955	-6.66%
Oregon	2,574,873	5	514,975	-35,271	35,271	-7.35%
Pennsylvania	9,358,833	20	467,942	11,762	11,762	2.45%
Rhode Island	800,497	2	400,249	79,455	79,455	16.56%
South Carolina	3,002,371	6	500,395	-20,692	20,692	-4.31%
South Dakota	552,195	1	552,195	-72,491	72,491	-15.11%
Tennessee	4,290,762	9	476,751	2,952	2,952	0.62%
Texas	14,965,061	31	482,744	-3,040	3,040	-0.63%
Utah	1,514,471	3	504,824	-25,120	25,120	-5.24%
Vermont	461,304	1	461,304	18,400	18,400	3.84%
Virginia	5,340,253	11	485,478	-5,774	5,774	-1.20%
Washington	4,380,278	9	486,698	-6,994	6,994	-1.46%
West Virginia	1,405,951	3	468,650	11,053	11,053	2.30%
Wisconsin	3,994,919	8	499,365	-19,661	19,661	-4.10%
Wyoming	364,909	1	364,909	114,795	114,795	23.93%
Totals	208,671,027	435	479,704	0	0	0.00%
Voter Equivalency Ratio			1.84			
Most Underrepresented				-192,429		-40.11%
Most Overrepresented				114,795		23.93%
Maximum Deviation				307,224		
% Max Deviation						64.04%
Mean Absolute Deviation					27,258	
% Mean Abs Deviation						5.68%

Appendix 9. 2000 Interstate Mlapportionment: VEP Districts and VEP Population

State	VEP	Number of MCs	Average Population of District	Deviation from Ideal	Absolute Deviation from Ideal	% Deviation form Ideal
Alabama	2,956,385	7	422,341	-23,158	23,158	-5.80%
Alaska	364,419	1	364,419	34,763	34,763	8.71%
Arizona	2,523,614	6	420,602	-21,420	21,420	-5.37%
Arkansas	1,710,799	4	427,700	-28,517	28,517	-7.14%
California	18,156,500	45	403,478	-4,295	4,295	-1.08%
Colorado	2,366,650	6	394,442	4,741	4,741	1.19%
Connecticut	2,383,795	6	397,299	1,883	1,883	0.47%
Delaware	486,760	1	486,760	-87,577	87,577	-21.94%
Florida	9,145,312	23	397,622	1,560	1,560	0.39%
Georgia	4,588,953	12	382,413	16,770	16,770	4.20%
Hawaii	770,836	2	385,418	13,764	13,764	3.45%
Idaho	690,154	2	345,077	54,105	54,105	13.55%
Illinois	8,029,525	20	401,476	-2,294	2,294	-0.57%
Indiana	4,080,236	10	408,024	-8,841	8,841	-2.21%
Iowa	2,030,935	5	406,187	-7,005	7,005	-1.75%
Kansas	1,783,412	4	445,853	-46,671	46,671	-11.69%
Kentucky	2,722,356	7	388,908	10,275	10,275	2.57%
Louisiana	2,959,148	7	422,735	-23,553	23,553	-5.90%
Maine	910,982	2	455,491	-56,308	56,308	-14.11%
Maryland	3,397,126	9	377,458	21,724	21,724	5.44%
Massachusetts	4,384,671	11	398,606	576	576	0.14%
Michigan	6,693,069	17	393,710	5,473	5,473	1.37%
Minnesota	3,136,830	8	392,104	7,079	7,079	1.77%
Mississippi	1,824,156	5	364,831	34,351	34,351	8.61%
Missouri	3,740,308	9	415,590	-16,407	16,407	-4.11%
Montana	573,045	2	286,522	112,660	112,660	28.22%
Nebraska	1,131,746	3	377,249	21,934	21,934	5.49%
Nevada	858,018	2	429,009	-29,827	29,827	-7.47%
New Hampshire	814,549	2	407,275	-8,092	8,092	-2.03%
New Jersey	5,429,251	14	387,804	11,379	11,379	2.85%
New Mexico	1,026,902	3	342,301	56,882	56,882	14.25%
New York	12,271,903	31	395,868	3,315	3,315	0.83%
North Carolina	4,938,968	12	411,581	-12,398	12,398	-3.11%
North Dakota	461,711	1	461,711	-62,528	62,528	-15.66%
Ohio	7,975,680	20	398,784	399	399	0.10%
Oklahoma	2,251,719	6	375,286	23,896	23,896	5.99%
Oregon	2,057,833	5	411,567	-12,384	12,384	-3.10%
Pennsylvania	8,962,083	22	407,367	-8,185	8,185	-2.05%
Rhode Island	725,084	2	362,542	36,640	36,640	9.18%
South Carolina	2,537,384	6	422,897	-23,715	23,715	-5.94%
South Dakota	494,849	1	494,849	-95,667	95,667	-23.97%
Tennessee	3,624,940	9	402,771	-3,589	3,589	-0.90%
Texas	11,034,190	28	394,078	5,104	5,104	1.28%
Utah	1,086,050	3	362,017	37,166	37,166	9.31%
Vermont	415,564	1	415,564	-16,382	16,382	-4.10%
Virginia	4,512,504	11	410,228	-11,045	11,045	-2.77%
Washington	3,421,256	9	380,140	19,043	19,043	4.77%
West Virginia	1,347,723	3	449,241	-50,058	50,058	-12.54%
Wisconsin	3,541,548	9	393,505	5,677	5,677	1.42%
Wyoming	312,961	1	312,961	86,221	86,221	21.60%
Totals	173,644,393	435	399,183	0	0	0.00%
Voter Equivalency Ratio			1.73			
Most Underrepresented				-95,667		-23.97%
Most Overrepresented				112,660		28.22%
Maximum Deviation				208,327		
% Max Deviation						52.19%
Mean Absolute Deviation					25,746	
% Mean Abs Deviation						6.45%