## GO WEST, YOUNG WOMAN
### 2017 population estimates confirm drift and shift of power

December 20, 2017
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**Executive Summary.** Once again, as even political stakeholders celebrate the holidays around the end of the year, and prep for new sessions of legislative bodies, their eyes are still focused on the apportionment sweepstakes. Based upon the release of the July 1, 2017 estimates the general trends of the past few decades of population shifting away from the Northeast and Midwest regions to the South and West are once again confirmed.

By using the latest estimates the most recent growth trends can be extended out to April 1, 2020 to project what seat shifts are likely to occur once the data from the full count is released at the end of that year. The apportionment that will be made after the 24th federal census will determine the number of members of the U.S. House for the 118th Congress to be elected in 2022 and the number of electoral votes for the 2024 and 2028 presidential elections.

These projections are subject to some margin of error for several reasons but if the growth patterns over the previous year, i.e., based simply on the rates from July 2016 to July 2017, continue, 16 states would likely experience actual shifts in the number of members in their delegations. Nine states would lose one seat each; five states would gain one seat each; and two states (FL and TX) would gain two seats. Seven of the nine states losing a seat are in the Northeast or Midwest (RI, NY, PA, OH, MI, IL, and MN). All seven of the states gaining at least a seat are in the South and West (NC, FL, TX, CO, AZ, MT, and OR).

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**Growth Trends.** Nationally, the one-year growth was a net 2.3 million persons, a rate of 0.7%, which is 325.7 million persons for the 50 states and DC. If this rate continues through to the 2020 Census date there would be 332.2 million persons in the nation; a growth rate of 7.6% for the decade. In comparison the national growth rate for the 2000-2010 period was 9.7% and the rate for the 1990-2000 period was 13.1%.

States that experienced a growth rate similar to the nation included Minnesota, South Dakota, Nebraska, and California. The five states with the highest rates over the past year include Idaho, Nevada, Utah, Washington, and Florida. Eleven states experienced zero net growth or actually lost population: Wyoming (-1.0%), West Virginia, Illinois, Alaska, Hawaii, Mississippi, Louisiana, North Dakota, Connecticut, and Vermont (0.0%). In many states, what growth there was evinced a slight decrease.

At this rate there would be eight states that would see an increase of more than 15% by 2020: District of Columbia (19.9%), Utah, Nevada, Texas, Florida, Idaho, Colorado, and Washington. California will remain the most populous state for some time because at 39.5 million persons it would be far ahead of second-place Texas at 28.3 million. Third place would continue to be Florida at 21.0 million which has now outdistanced the former holder of that spot, New York with 19.8 million. The states in spots six to ten are more evenly sized, from sixth-place Pennsylvania at 12.805M; Illinois at 12.802M; Ohio at 11.7M; Georgia at 10.4M; North Carolina at 10.3M; and Michigan at 10.0M. These ten would account for 54% of the nation's population.

There would be seven states and DC below 1,000,000 by 2020. The two smallest states would be Wyoming at 579,000 and Vermont at 624,000. DC would be next in line at 694,000; then Alaska at 740,000; North Dakota at 755,000; South Dakota at 870,000; and Delaware at 962,000.

Regionally, the Northeast and Midwest would gain about 3% over the decade while the South and West would gain about 11% over the decade. More on these numbers can be discerned by reviewing the growth charts which illustrate the components of change which include the rates for births, deaths, foreign migration, and domestic migration. In the Northeast and Midwest the two migration factors are close to a balance but with the domestic out-migration outpacing the in-migration. In the South and the West the domestic migration is clearly an in-migration on balance. In the South the net domestic in-migration exceeds the foreign migration by about 17% but in the West the foreign migration exceeds the domestic migration by over 100%.

As can be gleaned from the above discussion, numerous states have seen a negative net domestic migration each year through the decade so far. For example, New York has seen a net gain of 73k from births over deaths, a net gain of 130k from foreign migration, but a net loss of 190k from domestic migration. The three states with the highest net foreign migration rate are FL, MA, and NY. The three states with the highest net domestic in-migration are ID, NV, and SC. The three with the highest net domestic out-migration are WY, AK, and NY.

**Projections.** The most basic of projections uses the one-year growth rate and extends it out, in a year-by-year compounding manner, to the last year of the decade; this is the A-series. The only generic adjustment is thus applying 75% of the last year's growth to account for the fact that as the record date for the census is April 1 and thus the last 'year' is only nine months long.

Other means of projection can easily be employed and the two used here for comparative purposes to the A-series are the B-series in which a simple average of the two-year rates is used as the compounding factor or the C-series in which a weighted average (using the most recent rate at twice the value of the previous rate) is used as the projection factor. In most situations the differences between the three series, if any, are no more than one or possibly two seats.

**Overseas Persons.** Additional considerations for projections include some adjustment for the overseas population. This may include those serving in the military; non-military federal government personnel; and others. The difficulty here is that there is no estimate of these persons throughout the decade and they are only available, or have been so far, at the end of the decade from a review of administrative records.

There has been some consideration by the Bureau of the Census that could affect the state to which these overseas persons were assigned. There were 1.04M overseas persons added to the 2010 Apportionment numbers with TX, FL, and CA accounting for about 1/3 of them. There is some inconsistency in this information and these persons were not included for the 1980 Apportionment. Nevertheless, because the apportionment formula is sensitive to small differences in persons, the additional of overseas personnel can shift a seat.

An additional complication is that while these persons may be included in the apportionment population, they are not included in the redistricting population base when lines are drawn in each state. This is basically due to the mission of the Census Bureau to count every person, count them only once, and in the right place, i.e., the census block that contains their place of usual residence. Overseas persons are not resident in the state for purposes of districting and do not have their 'own' member of the U.S. House, although their 'residence' in the state may well affect representation for the state in the House.

**Apportionment Formula.** The operative concept for the apportionment formula, the method of equal proportions, is relativity. States which experience a population growth or loss much higher or lower than the nation are most likely to be affected by the shift in seats but the purpose of the apportionment formula is to minimize the relative difference in population per member as between any pair of states.

However, regardless of the relative differences, there are absolute standards which come into play by the application of the formula. Even though a state may experience a growth rate larger than the nation that does not mean it will get an additional seat. Absolute growth, in terms of actual persons, is a limiting factor. Likewise, as California, still the nation's largest state, gains many millions of persons, it must be remembered that millions of persons would be needed just to keep pace with the nation's growth rate.

**State Summary.** As mentioned above, sixteen states are likely to see a shift in seats based upon the most-recent growth rates. Obviously, there is no guarantee these shifts will occur though the odds are in favor of most as they are already occurring with these estimates. The unforeseen shifts that can upset the 'expected' shifts can be caused by several factors: a) a change in the direction or quantity of the most-recent growth rate of a state; b) the addition of the overseas personnel; c) states for which the current last seat rank is near the 435 cutoff; and d) simply due to the lack of precision on the estimates or the projections. In fact, the rate of growth has seen a slowing in the 2017 estimates in comparison to those of the previous, pre-election rates.

For example, based upon the most-recent trends of the A-series, MT is the 434th seat, going to 2 seats by only about 2,500 persons. But under alternative series it just loses to be seat 436 by similar numbers. As another example, in the A-series, RI is the 440st seat, short about 18,000 persons. The trend in RI has been consistently downward and based upon the current trends it would become an at-large single member state with the 2018 estimates. In fact, based upon the 2017 numbers alone it would be seat 435 with an overage of 150 persons.

The nation's most populous state, CA, the recipient of seven new seats as recently as the 1990 Apportionment, and which, for the first time in over a century gained no seats in the 2010 Apportionment, stands close to a repeat performance, albeit hard to call. As a populous state with 53 seats it shows up in the rankings frequently and based upon the A-series it would be at rank 435 to stay at 53 and 441 to gain a seat to 54; thus occupying one the ten near-the-cutoff ranks and one just outside of this group.

**States Groups by Likely Outcomes:** Based upon the estimates (as they were originally released) several states have already 'won' or 'lost' a seat based upon the estimates alone or the current projections. These can be classified into several groups:

1) Gainers:
   a. Already gained: CO to 8 in 2017; FL to 28 in 2015; NC to 14 in 2011; OR to 6 in 2015; TX to 37 in 2014.
   b. Soon to gain: AZ to 10 by 2019; FL to 29 by 2019; TX to 39 by 2020.
   c. Likely to change soon after 2020: ID+1 to 3; UT+1 to 5; WA+1 to 11.
2) Losers:
   a. Already lost: IL to 17 in 2015, MI to 13 in 2015; MN to 7 in 2011; NY to 26 in 2017; PA to 17 in 2014.
   b. Soon to lose: AL to 6 by 2018 or 2019; OH to 15 by 2019; RI to 1 by 2018; WV to 2 by 2017.
   c. Likely to change soon after 2020: CT-1 to 4; IL-1 to 16; NJ-1 to 11; WI-1 to 7.
3) Too close to call:
   a. Cliffhangers at this point:  CA to stay at 53; MN to stay at 8; MT to 2; RI to 1.
4) Others, trends have changed:
   a. MO was trending up to 9 through 2011 but has begun to move downward: no change soon.
   b. SC was trending down to 6 through 2012 but has begun to move upward: no change soon.
   c. VA was trending up to 12 through 2012 but has stabilized: no change soon.


**Other Apportionment Bases.** While the discussion contained herein has focused exclusively on the use of total population, which is the current base for the apportionment process, several other bases are used to illustrate the role of two other variables: age and citizenship status and how the different mix of demographics in states affect the political landscape. This is not an endorsement of using the factors for the apportionment process but a means by which the demographic mix does affect apportionment and may also affect redistricting.

For example, districts are generally created using the total resident population (i.e., excluding Americans overseas) so that each district has approximately the same number of census persons. For congressional districts there is an almost zero tolerance for any deviation but stakeholders disagree over the range of tolerance for other districts from state legislatures to local city councils. The point here is that equality on the basis of persons affords equality in representation to the residents of the districts, regardless of age or citizenship, but it does not necessarily afford equality of electoral weight as not all census persons are entitled to register to vote.

If *voting age population* (VAP) was the basis for apportionment the trends would closely align with the trends under the total population base. Five states would lose seats if the apportionment were made now on the basis of voting age population. PA, MI, IL, MN, and CA would lose a seat each and NC, MT, and OR would gain a seat while FL would gain two seats.

Alternatively, if citizens of all ages, *citizen population*, (CPOP) were the basis for apportionment the shift of seats would be somewhat different than using total population. Based solely upon the most recent estimates of the citizen population (from the 2016 1-year ACS release) CA would lose four seats and both NY and IL would lose one seat each if the apportionment were done now with these numbers. On the other side six states would gain a seat based upon citizen population: MO, NC, LA, CO, MT, and OR.

If the basis was *citizens of voting age* (CVAP) only, there would be a few more states affected if the apportionment were made now using CVAP. CA would lose five seats and TX would lose two seats, while NY and IL would lose one each. Nine seats would gain one seat each: OH, MO, VA, NC, FL, LA, CO, MT, and OR.

**Electoral College:** Of course, seat shifts in an apportionment are likely to have some effect on the presidential elections as well but not much due to the offset of states. The apportionment following the 2020 Census will be used for the 2024 and 2028 elections. Based up these projections the shift in the 2016 election, leaving aside faithless electors, would have shifted a net of 2 votes to the Republicans. Six of the 21 states

won by Hillary Clinton would be a +2 and -4 and nine of the 30 states won by Donald Trump would be a +7 and -5. This represents the same as the projections based upon the 2016 estimates.

**Summary:** Even though the above observations are discussed in the context of likelihood as if demographic trends do not change they should be reviewed with caution. While it is true that current trends are unlikely to shift too much and thus most of the observations will become fact, there are other factors that come into play. Yet, as the growth rates and the apportionment formula stress relativity, the degree to which projections will not play out generally is limited. Hopefully the discussion of possible scenarios will assist stakeholders in the several states to prepare for the upcoming redistricting phase of the constitutionally mandated apportionment process.

See more about the study at http://www.polidata.org/census/est017dl.htm .

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