University of Virginia | Weldon Cooper Center for Public Service
Demographics Research Group

Examples of Census Data Distortion in Virginia

On October 29, 2019, the Census Bureau released "differential privacy" demonstration data which applied the proposed 2020 Census "differential privacy" algorithms to the 2010 Census results. This enabled data users across the country to compare the demonstration data to the actual 2010 results, producing a clear picture of the level of data distortion that can be expected from current Census Bureau "differential privacy" plans for 2020 data distortion.

Our analysis for Virginia shows distortions on so many levels and to such a degree that the data become unusable. Significant errors are evident in communities big and small, and across all demographic characteristics. Five examples are provided below as illustrations.

1. **Total Population**. While populations for counties and cities in Virginia are distorted by no more than 3.1%, they are distorted significantly for towns. Twenty-two towns have errors of more than 20%, including Port Royal where the population artificially increased by 87% and Stony Creek where the population artificially decreased by 43%.

2. **Age**. Age is the most widely-used information in understanding population. Unfortunately, the Census Bureau's approach distorts age data significantly across all age groups. For example, for the 5-9-year-old age group, 15 localities have errors of more than 20%, and for the 85 plus age group, 52 localities have errors of more than 20%.

3. **Race/Hispanic Origin**. Across Virginia's counties and cities, the average error for each race/ethnicity group is:

0.2%	for Whites	21%	for Asians
8%	for Blacks	23%	for American Indians or Alaska Natives
16%	for Hispanics	39%	for multiracial

   It can be expected that high error rates may occur where minority populations are small, but having accurate counts of small populations matters. For example, the population that identified as American Indian is reduced by 12% in Amherst, home to the Monacan Indian nation, and by 23% in King and Queen, where the Rappahannock tribe is based.

4. **Vacant Housing**. As the proposed algorithms shift population away from larger localities to smaller ones, housing vacancy data is obviously inaccurate.

   - The differential privacy algorithms artificially increased the number of vacant units in Fairfax County by 42%, from the actual 16,371 to the distorted 23,201.
   - Surry County is shown as having no vacant units, compared to 18% in the 2010 Census. In Chesapeake, the number of vacant homes is shown as being 54% higher than it actually was in 2010.

5. **Single-mother households**. The number of single-mother households is off by over 25% in 37 counties and cities. In Harrisonburg the number of single mothers is artificially decreased by 23%, while in Goochland County the number is artificially increased by 65%.