Estimates of the Total Populations of Counties and Places in Texas for July 1, 2018 and January 1, 2019

Produced by:

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at
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Introduction

The estimates of the total population for counties and places in Texas for July 1, 2018 and January 1, 2019 are completed by personnel from the Texas Demographic Center at The University of Texas at San Antonio. In this brief report, the methodology used to prepare the estimates is described. Because of space limitations, only a summary of the methodology is presented. Those wishing to obtain a more complete description of the estimation procedures and of the historical and sensitivity analyses used to select the methods employed in these estimates should contact program personnel in the Texas Demographic Center at The University of Texas at San Antonio.

Methodology for County Estimates

Population estimates for counties are completed using three methods: ratio-correlation, component-method II, and housing-unit method. These methods and the types of data used for each are discussed below.

Ratio-correlation procedures utilize multiple regression techniques with the ratio of variable values for adjacent time periods rather than simply using the variable values themselves as independent and dependent variables. After an extensive evaluation of the relative accuracy of alternative procedures (including difference-rate, ratio-correlation, and rate-correlation methods) and an analysis of alternative variables, a simple ratio-correlation model was employed to complete the final estimates. This model used the variables of births, deaths, elementary school enrollment, vehicle registration, and voter registration.

The component-method II procedure employed utilizes data on births, deaths, and elementary school enrollment to estimate population. In this method, migration of the school-age population is assumed to be indicative of migration in the total population (with adjustments being made for the historical differences between the school-age migration rate and the total population's rate of migration). Data on public school enrollment from the Texas Education Agency and data from the Texas Demographic Center's survey of private schools in Texas are used to estimate change in the school-age population. Data on institutional populations were obtained from applicable institutions, while data on other special populations, such as the elderly population, utilize Medicare enrollment acquired from the Centers for Medicare and Medicaid Services in the U.S. Department of Health and Human Services.

The housing-unit method used is of the standard form with change in the number of housing units in the housing stock of an area, from the base date (in this case, the 2010 Census) to the estimate date (in this case, July 1, 2018), being used to estimate population change. New housing additions and demolitions are taken from the U.S. Census Bureau survey of building permits and demolitions and the Texas Demographic Center’s survey of counties and cities issuing permits for residential buildings

and demolitions. Both the U.S. Census Bureau's building permit survey and the Texas Demographic Center's survey can only collect data from permit issuing county and city jurisdictions (methods for dealing with non-permit issuing places are discussed later). Assumptions about vacancy rates and average household size are then used in conjunction with data on the number of housing units in an estimate area (including those in the area at the base date and the net number of units added to, or subtracted from, the base housing stock for the time period between the base date and the estimate date). Separate estimates are completed by type of structure with the types used being single-family structures, 2 to 4 unit structures, structures with 5 or more units, and manufactured U.S. Department of Housing and Urban Development (HUD) inspected/mobile homes. For purposes of the 2018 estimates, vacancy rates and average household sizes for each of the housing structure types from the U.S. Census Bureau's American Community Survey (ACS) 2017 5-year Summary File were used. For 2018, the estimates of the number of new manufactured HUD inspected/mobile homes added to an area's housing stock were obtained from the Texas Demographic Center's survey of building permits and demolitions. The sum of manufactured HUD inspected/mobile homes from the survey was subtracted from the U.S. Census Bureau's estimate of the total number of manufactured HUD inspected/mobile homes shipped to Texas. The difference was allocated to jurisdictions on the basis of the change in units in jurisdictions for other housing types from 2000 through 2010, to estimate the distribution for July 1, 2018.

Prior to the release of these estimates, county estimates are evaluated for consistency and reasonableness by the Texas Demographic Center and external reviewers from other Sate and local agencies. While generally the housing-unit population estimate is used as the population estimate for July 1, 2018, when estimates appeared to be inconsistent with other indicators of population and population change, an estimate produced using another method (i.e., component-method II, ratio-correlation method, or an average of methods) could be selected as the estimate for July 1, 2018. The total of all county estimates are then controlled to the July 1, 2018 estimate for the State obtained from the U.S. Census Bureau.

The January 1, 2019 estimates are obtained by adding births to and subtracting deaths from July 1, 2018 through December 31, 2018, to the July 1, 2018 estimates and assuming that July 1, 2017 to July 1, 2018 rates of migration continue from July 1, 2018 to January 1, 2019. The State and county estimates are obtained using the same method with the sum of the county estimates controlled to the

Methodology for Place Estimates

For places, population estimates were made using the same three methods as used for county estimates. To complete the component-method II estimates for places for 2018, standard component procedures were applied to 2010 Census population counts. The 2010 Census population used as a base for the place estimates includes population adjustments that were accepted by the Census Bureau as a result of the Count Question Resolution (CQR) process. County level birth and death data from the Texas Department of State Health Services and data from the Texas Education Agency

on public school enrollment and from the Texas Demographic Center's survey of enrollment in private schools were used in this procedure. In addition, data on Medicare enrollment is acquired from the Centers for Medicare and Medicaid Services and data on the net movement of persons from the military to the civilian population were obtained for counties from the U.S. Census Bureau. Values for each of these items were allocated from counties to places prior to the completion of the place estimates. Such allocation procedures were necessary because data items that were available for places (such as birth and death data) showed year-to-year fluctuations and reporting errors that made the direct use of place-level data problematic. The general allocation procedures used for these items involved population subgroups closely associated with the item being allocated (i.e., women of childbearing age for fertility, school-age population for school enrollment, the total population for deaths, persons 65+ years of age for Medicare enrollment, and the population 14-17 years of age for net movement). The number in the appropriate subgroups for each place and the remainder of the county in each county in 2010 were survived to July 1, 2018, and the sum of the survived groups in each place and the remainder of the county were controlled to the county total for the item as reported from the appropriate agency to obtain the value for each place. Place estimates were completed for July 1, 2018 and adjusted to account for population changes due to annexations or other boundary changes as obtained from the annual Texas Demographic Center boundary and annexation survey.

The housing unit estimates for places were completed using the same general procedures delineated above (for counties) except that it was necessary to use procedures to allocate new housing units and demolitions to places that were not reporting jurisdictions. This was done by taking the difference between the county totals for new building permits and demolitions and the sum of values for places for which data were reported for a county and proportionally allocating the difference to the non-reporting places. For the 2018 estimates, the allocation was done on the basis of the non-reporting places' proportions of county housing stocks as reported in the 2010 Census.

The third method used is the ratio-correlation method. Ratio correlation estimates were made to allocate county populations to places (and non-place areas) using births, deaths, and housing units for places as estimation items.

Prior to the release of these estimates, place estimates were evaluated for consistency and reasonableness by the Texas Demographic Center and external reviewers from other Sate and local agencies. While generally the housing-unit population estimate is used as the population estimate for July 1, 2018, when estimates appeared to be inconsistent with other indicators of population and population change, an estimate produced using another method (component-method II, ratio-correlation method ,or an average of methods) could be selected as the estimate for July 1, 2018. The sum of the estimated populations for places in each county (and for that part of each county's population not living in places) were controlled to county totals to ensure consistency with the county estimates.

The January 1, 2019 place estimates are prepared using the same extrapolative procedures as described above for the State and county. Place estimates for each county for January 1, 2019 are controlled to the county estimate for January 1, 2019.

Comparisons to U.S. Census Bureau Estimates

The estimates presented here differ from those from other sources, such as those periodically produced by the U.S. Census Bureau, for several reasons. These estimates have been produced using techniques that are different than those used by the Census Bureau. The Census Bureau uses only the distributive housing unit method to estimate place populations and the administrative records method to estimate county populations. Because the administrative records method uses income tax data that are not available to analysts outside the Census Bureau, this technique cannot be used by other agencies. In addition, the estimates reported in the following pages utilize more recent data than those used by the U.S. Census Bureau. The Census Bureau's county estimates utilize 2017 birth and death data, whereas 2018 values were employed in the Texas Demographic Center estimates reported here. Also, the Census Bureau utilizes birth and death data only in their county level estimates, while the Texas Demographic Center includes current births and deaths in both county and place level estimates. Finally, the Census Bureau estimates include legal boundary updates reported before January 1, 2018 but do not include more recent information for places, whereas information on annexation and boundary changes through the 2018 calendar year were included in the estimates completed by the Texas program. Because of these differences, the population estimates presented here and those from the U.S. Census Bureau are not directly comparable.

If you have any questions concerning these estimates, please contact:

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