Updated Population Projections Series Overview

April 2018

Ohio

I. Introduction

This report contains updated population projections, by age and sex, for the State of Ohio and its 88 counties, for five-year intervals through the year 2050.[1] This projection series replaces *Population Projections: Ohio and Counties by Sex – 2015 to 2040* (April 2013), and is intended to align the projections with the most recent population estimates issued by the U.S. Census Bureau and with the demographic changes that occurred between 2010 and 2015.[2]

These projections utilize the cohort component method for target years 2015 through 2040, and the constant-share method for target years 2045 and 2050. In the cohort component method, for each five-year interval, mortality and migration rates are applied to the age-sex cohorts, and new cohorts are added (i.e., babies are born) according to observed age-specific fertility rates.[3] Additionally, this method accounts for individuals in group quarters housing, including but not limited to college dormitories and correctional facilities. In the constant-share method, each county age cohort is held in proportion to the projected age cohort totals for the State of Ohio. The base population used for this projection series is the 2010 census.

II. Changes to the 2018 series from the 2013 series

There are two fundamental changes that have been made to this series from the previous series published by the ODSA Office of Research.

First, the current series is intended to update the projections to reflect the most recent population estimates. As such, it is a "revised series," meaning that the projections have been updated only for those counties that have diverged from the estimates (see below).

Secondly, as a response to requests concerning the planning needs of various state and local agencies, the projection horizon has been extended to 40 years from the base year. The final target year is now 2050 rather than 2040. Therefore,

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[1] All projections were generated on a Microsoft Excel spreadsheet using models developed by the Office of Research of the Ohio Development Services Agency (ODSA). Total controls were maintained using the Rural Urban Projection (RUP) Software developed by the United States Census Bureau. Additional technical documentation can be found in *Population Projection Methodology* (March 2013), a document located on the ODSA Office of Research website. For an explanation of the terminology used in this overview, see the glossary in Smith et al. (2001).
[2] All references to population estimates in this overview refer to the Vintage 2016 estimates produced by the United States Census Bureau. At the time of writing, these estimates were the most recent. For more information on the estimates program, see: https://factfinder.census.gov/faces/nav/jsf/pages/programs. xhtml?program=pep.
[3] Mortality and fertility rates are derived from the Ohio Department of Health (ODH) Data Warehouse. The ODH specifically disclaims responsibility for any analyses, interpretations or conclusions drawn from the data.

after revisions were made to those counties that diverged from the estimates, the projections for all 88 counties and for the State of Ohio were extended by 10 years.

The detailed steps involved in the evaluation of the 2013 series, and the subsequent revision and extension of the projections are as follows:

1. The 2013 series projections for 2015 for the state and all 88 counties were compared with the population estimates for 2015. The projections for those counties beyond +/-2% of the estimates were identified for revision. There were 23 such counties.[4] The projection for the State of Ohio was within one-half of one percent (-0.48%) of the estimate. Therefore, the state projection through 2040 has not been revised.

Table 1. 2013 Projection Series Evaluation Summary

Projection / Estimate Difference	Counties
Within +/- 1%	44
+/- 1% to 2%	21
Beyond +/- 2%	23

2. To ensure that the revisions would not alter the state projection, the sum of the 2013 series projections for the 23 counties was recorded and used as a control total for each target year through 2040 (see step 5, below).

3. The observed components of population change for each county were compared with the 2013 projection series inputs. Appropriate adjustments were made to align the projections for 2015 with the estimates.

4. In the case of inconsistencies between the age-sex distributions of the revised projections and the age-sex distributions of the estimates, migration proportions were updated according to the method outlined by Kennedy et al. (1986). Specifically, age-sex cohort populations were compared over a ten-year period, from 2005 to 2015, to approximate age-sex cohort migration.

5. Following these adjustments, the sex ratios for each county age cohort was recorded. The age cohorts were then aligned with the control totals (see step 2) and re-distributed back into the appropriate sex categories. This procedure was repeated for target years 2020 through 2040.

6. Using the cohort component method, the State of Ohio projections were extended to target years 2045 and 2050. The projected county age cohorts

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[4] The counties whose projections have been revised in this series are: Ashtabula, Athens, Brown, Carroll, Champaign, Fairfield, Franklin, Gallia, Highland, Hocking, Jackson, Knox, Lawrence, Marion, Morrow, Noble, Perry, Preble, Ross, Scioto, Union, Vinton and Wood.

for target year 2040 were then aligned with the projected age cohorts at the state level for 2045 and 2050 to produce top-down county projections for those years.

III.   Future projection series timeframe

A full projection series for the State of Ohio and all 88 counties will be published following the 2020 census. It will incorporate updated demographic data, vital statistics and administrative records; the target date for its publication is spring 2023.

IV.   Data sources and citations

Kennedy, J.M., De Jong, G.F., & Lichter, D.T. (1986). Updating Local Area Population Projections with Current Migration Estimates. *Journal of Economic and Social Measurement*, 14, pp. 107-120.

Internal Revenue Service, Statistics of Income Division, Migration Data, https://www.irs.gov/statistics/soi-tax-stats-migration-data.

Ohio Department of Health Public Data Warehouse, http://publicapps.odh.ohio.gov/EDW/DataCatalog.

Smith, S.K., Tayman, J., & Swanson, D.A. (2001). *State and Local Population Projections: Methodology and Analysis*. New York: Kluwer Academic / Plenum Publishers.

United States Census Bureau, County Population Totals and Components of Change: 2010-2016, https://www.census.gov/data/tables/2016/demo/popest/counties-total.html.