

Methods for the Alaska Population Estimates (Vintage 2011)

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Research and Analysis Section

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Introduction

The Alaska Department of Labor and Workforce Development, Research and Analysis Section (AKDOL), prepares annual, July 1, post-census population estimates for all boroughs, census areas, cities and census designated places (CDP's) in the state. The estimates are used for a wide range of purposes, including research and planning, the distribution of resources by public and private agencies, and the updating of population projections.

The population estimates begin with data from the last decennial census (e.g. Census 2010 for the 2011 estimates), to which adjustments for known errors in the census and post-census changes in geography are made. For each year following the last census, administrative data that can be used as indicators of population change are brought in or revised to create the latest series, or "vintage," of post-census population estimates. Indicator data that AKDOL uses include Permanent Fund Dividend (PFD) applications, data from military and group quarters surveys and research, and a state total population estimate from the US Census Bureau. After release of data from the subsequent decennial census (e.g. Census 2010 for the 2001-2009 estimates), final adjustments are made for the intercensal years.

Estimates Process

AKDOL uses a census ratio method ([1]) with PFD applications to create estimates of the non-group quarters¹, non-military population. First, physical addresses from PFD applications are standardized and geographically coded (geocoded) by borough, census area, city, CDP and areas that make up the balance of each borough or census area. Applicants who are identified as living on a military base, in a GQ facility, or are uniform military in an off-base household, are then subtracted from the PFD counts, and ratios of the non-military, non-GQ census counts to the census-year non-military, non-GQ PFD applicants are calculated and carried forward to make initial population estimates.

Step 1:

$$\frac{[\text{2010 Census NMGQ}]_c}{[\text{2010 PFD NMGQ}]_c} * [\text{2011 PFD NMGQ}]_c = [\text{2011 Initial Estimate NMGQ}]_c$$

2010 Census NMGQ = 2010 Census population, less military and GQ population, by area of residence (c).

2010 PFD NMGQ = 2010 PFD applicants, less military and GQ applicants, by area of residence.

2011 PFD NMGQ = 2011 PFD applicants, less military and GQ applicants, by area of residence.

¹ Group quarters (GQ) are shared living areas such as prisons, dorms and barracks.

2011 Initial Estimate NMGQ = 2011 initial estimate of non-military, non-GQ population, by area of residence.

The initial non-military, non-GQ estimates are then adjusted to sum to the US Census Bureau's state non-GQ, non-military population estimate (administrative records-based) for the current year.

Step 2:

$$\frac{[\text{2011 State NMGQ}] / \text{Sum}([\text{2011 Initial Estimate NMGQ}]_c) * [\text{2011 Initial Estimate NMGQ}]_c = [\text{2011 Final Estimate NMGQ}]_c$$

2011 State NMGQ = Census Bureau's state population estimate less the AKDOL group quarters and military estimate.

Sum([\text{2011 Initial Estimate NMGQ}]_c) = Sum of the initial non-group quarters, non-military estimates for each area in the state.

2011 Final Estimate NMGQ = 2011 final estimate of non-military, non-GQ population, by area of residence.

After calculating the final non-group quarters, non-military population estimate, the military and group quarters populations are updated directly based on the last decennial census and change in annual counts from AKDOL surveys, research and the PFD. Group quarters and military population estimates by area are added to the non-group quarters, non-military population to create the final population estimates.

Step 3:

$$[\text{2011 Final Estimate NMGQ}]_c + [\text{2011 Estimate GQ}]_c + [\text{2011 Estimate Military}]_c = [\text{2011 Final Estimate}]_c$$

2011 Estimate GQ = 2011 group quarters population estimate by area.

2011 Estimate Military = 2011 on base population estimate plus off base uniform by area.

Reference

[1] Swanson, D. and Siegel, J. (2004). *The Methods and Materials of Demography, Second Edition*. Elsevier Science and Technology Books.