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A Review of the DOF and ABAG Population Projections to 2040

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Introduction

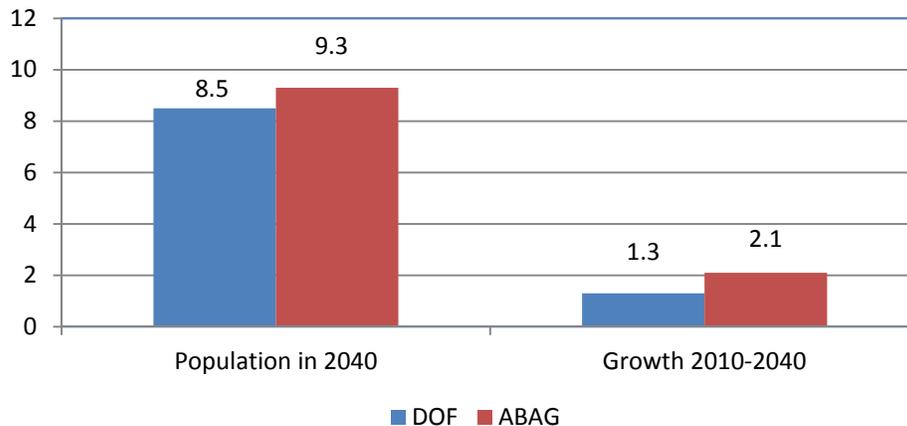
In January 2013 the California Department of Finance (DOF) released new long-term population projections for California and each county. These update the projections published in 2007. Population growth in the nine-county Bay Area in these new DOF projections is substantially lower than projected by the Association of Bay Area Governments (ABAG) in their draft regional growth projections released in March 2012 and also by DOF in their 2007 projections.

ABAG asked the Center for Continuing Study of the California Economy (CCSCE) to examine the differences between the two sets of regional population projections in terms of methodology and specific assumptions. CCSCE had assisted ABAG in developing the draft regional job, population and household projections in 2011 and 2012.

Comparison of ABAG and DOF Population Projections

The Bay Area population is projected to reach 8,453,134 in 2040 in the new DOF projections, which is approximately 850,000 below the 9,299,000 residents projected in the ABAG regional growth forecast. Regional population is projected to increase by 2.1 million between 2010 and 2040 in the ABAG projections compared to the 1.3 million population increase projected by DOF.

Bay Area Population Growth Comparison (Millions)



As a result, the ABAG projections are higher by 10% in 2040 compared to the ABAG projections, which means that the projected 2010-2040 growth is higher by 66%. This is based on population growth of 2,134,398 in the ABAG growth forecast compared to 1,288,532 growth projected by DOF with both based on a 2010 Census population of 7,164,602.

Methodology

The ABAG population projections are based on the amount of job growth projected for the region and on the fertility and mortality (birth and death) assumptions developed by DOF for their 2007 population projections. The DOF projections are based on assumptions about fertility and mortality and on the amount of net migration (foreign and domestic) for each county in the region., which in the DOF methodology is not directly tied to job growth.

The new DOF projections incorporate lower fertility assumptions compared to the 2007 DOF projections. The implications of this change are discussed later in this report.

Job growth is the main determinant of population growth in all major regional forecast modeling in California and around the nation. Population growth is tied to job growth in the regional projections produced by the Southern California Association of Governments (SCAG), the San Diego Association of Governments (SANDAG), the Sacramento Association of Governments (SACOG), the Monterey Bay Area Association of Governments (AMBAG) and the Santa Barbara County Association of Governments (SBCAG).

In addition job growth is the primary determinant of regional population growth in the three major national forecasting firms--IHS Global Insight, Regional Economic Models, Inc. (REMI) and Economy.com, a division of Moody's.

The connection of population growth to job growth is through migration. The theory and practice of the models listed in the previous paragraph is people will move to regions where job growth exceeds the number of workers supplied by the local economy and vice versa. For the Bay Area, the best example is the large number of people who migrated to the region from other parts of the state, nation and world during the dot.com boom and the exodus out of the region in the years when job losses occurred after 2000 when the boom ended. See Appendix A.

In developing the new population projections, DOF pledged to work with local and regional agencies in developing migration assumptions. The methodology statement associated with the January 2013 projection release states:

Migration—The Department of Finance relied on the expertise of local agencies to assist in the development of local area migration assumptions. When local input was not available, the migration assumptions were made by the Department of Finance based on historical analysis of the county's migration patterns.

The goal of cooperation between DOF and local agencies in the development of migration assumptions was to incorporate the impact on migration of local and regional agency long-term job projections.

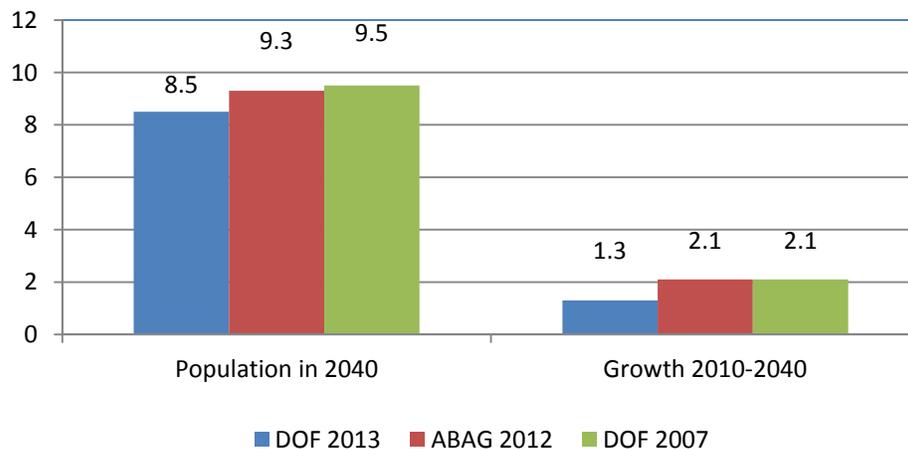
DOF did not incorporate feedback from the ABAG regional growth projections released in 2012 into their new population projections released in 2013.

Such consultation did occur between DOF and SCAG with the result that the new DOF projections were lower by 1.7% compared to the recent SCAG regional growth forecast, which is consistent with the lower expected fertility rates. This result compares to the 10.0% difference between the DOF and ABAG projections where no consultation occurred.

The Causes of the Population Projection Difference

The Bay Area projected population in 2040 is more than 1 million people lower in the 2013 DOF projections compared to the DOF 2007 projections.

Bay Area Population Growth Comparison (Millions)

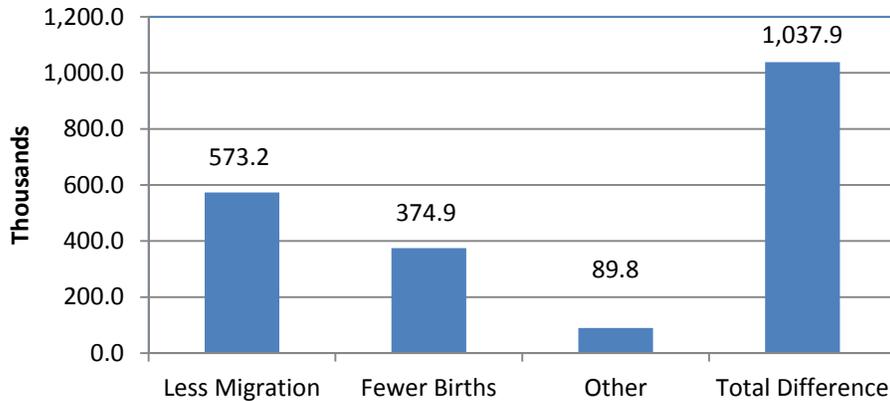


There are three components to the differences between the 2007 and 2013 DOF projections and these are helpful to understand in explaining the differences between the 2013 DOF projections and the 2012 ABAG growth forecast.

Differences in Migration Assumptions

The 2013 DOF projections have 573,000 fewer migrants into the region between 2010 and 2040 compared to the 2007 projections as well as 375,000 fewer births. The remaining differences are accounted for by different population growth between 2007 and 2010 and the finding from the 2010 Census that there were fewer Bay Area residents than estimated by DOF prior to the 2010 Census.

Causes of Difference in DOF Bay Area 2040 Projected Populations



The largest component of difference between the earlier and recent DOF Bay Area population projections is the assumption about migration.

The DOF migration assumptions are not consistent with the job growth projected by ABAG but also not consistent with recent job, population and migration trends in the region.

In the absence of using the new ABAG growth forecast as a basis for projecting migration, DOF used a method that relied heavily on the migration trends between 2000 and 2010. But these trends are not a good guide to the future and are already being reversed by the resurgence of job growth and related population growth since 2010.

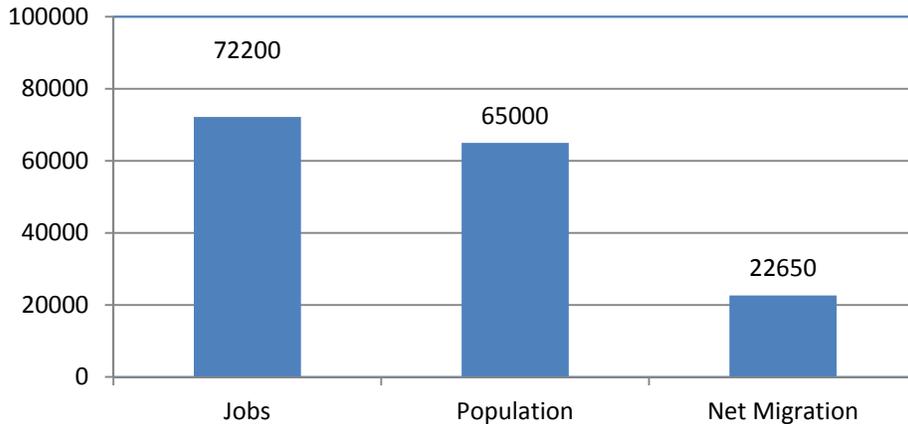
Between 2000 and 2010 the Bay Area had net outmigration of 143,389 as a result of net outmigration of 159,633 following the dot.com bust in 2000. Between 2000 and 2010 the region experienced two recessions that affected the migration pattern for the decade.

Since 2010, job growth has resumed and migration has turned positive and population growth is accelerating. Between December 2010 and December 2012, the Bay Area added 144,400 non-farm wage and salary jobs of which 91,400 were added in the most recent 12 months. The average job growth for these two years was 72,200, which is more than twice as much as the average annual job gain projected to 2040 in the 2012 ABAG growth forecast. These estimates will be updated when revised job estimates are released on March 22.

The recent job growth is beginning to be reflected in population and migration growth. Estimates are available only through June of 2012. For the two years from July 2010 through June 2012, the region added 130,000 residents (65,000

per year) and had net migration of 45,300 (22,650 per year) according to DOF estimates.

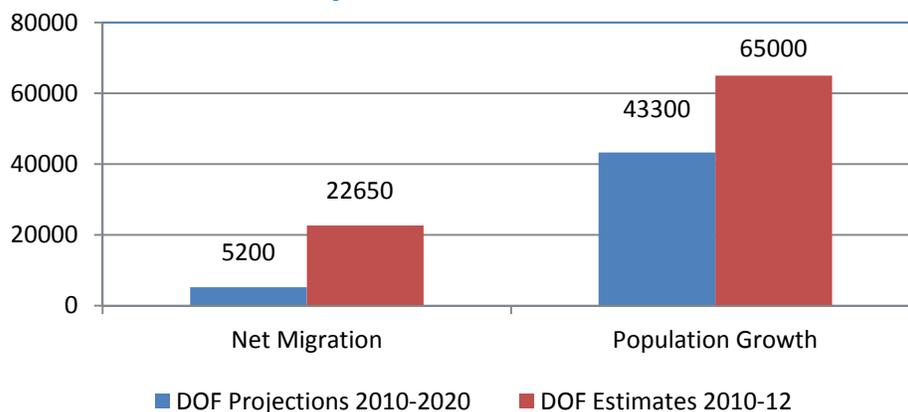
Average Annual Bay Area Growth 2010-2012



The actual migration and population growth for 2010-2012 is running far ahead of the growth projected by DOF for the region between 2010 and 2020. DOF projects annual net migration of just 5,200 for the region and annual population growth of 43,300. In addition, the actual migration and population growth for 2011 and 2012 was lower than would normally be associated with the recent job growth because some of the job growth was filled by existing residents who were unemployed.

However, going forward the current levels of job growth should bring much higher levels of migration and population growth.

Annual Bay Area Migration and Population Growth



Differences in Fertility and Births in the Region

The methodology for developing the regional population growth forecast for ABAG was to use job growth as the principal determinant of population growth but also to use the 2007 DOF assumptions about births, age and ethnic changes.

If the new DOF projections were available when the ABAG growth forecast was prepared, the new fertility and birth assumptions would have been used.

The new DOF projections have approximately 280,000 fewer residents aged 0-19 in 2040 compared to the ABAG growth forecast. However, the ABAG forecast has approximately 850,000 more total population of which approximately 195,000 would be aged 0-19.

As a result the population total consistent with the ABAG job growth projection would be approximately 85,000 lower in 2040 (280,000-195,000).

These results could differ on the basis of a full new run using the DOF ethnic group and fertility assumptions.

Additional Findings in Reviewing the DOF Migration Assumptions

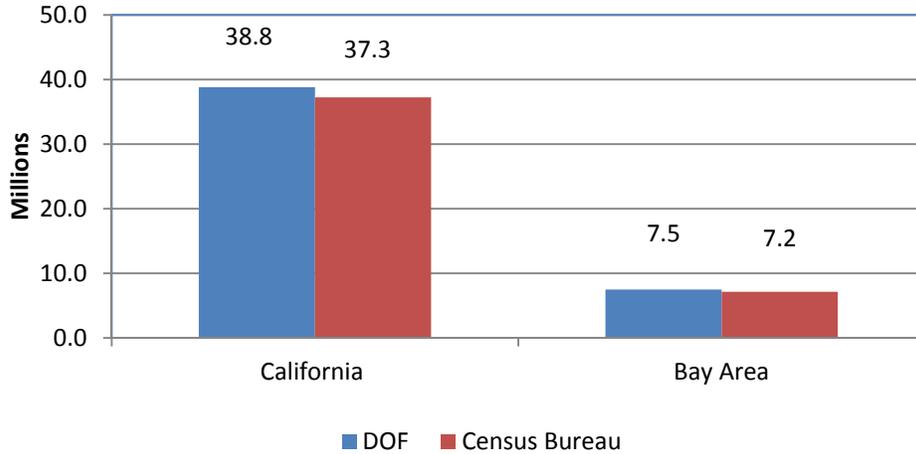
- The DOF projections show regional migration of 75,234 for the 2011-2015 period, -23,208 for 2016-2020 and 57,760 for 2021-2025. The negative migration in 2016-2020 is without explanation and inconsistent with a recovering economy even if job growth slows from current levels. All five-year projections assume annual growth far below the level experienced in 2011 and 2012.
- Migration to Santa Clara County goes from 16,240 for 2011-2015 to a minus 53,855 for the following five years. Migration for 2011 and 2012 alone totaled 12,600 and the county is in a period of exceptionally strong job growth.
- Similar unexplained declines in migration are assumed for Alameda, San Francisco and San Mateo counties while migration is assumed to increase in Solano and Contra Costa counties during this same 2016-2020 time period.

Comparison of Census Bureau and DOF Projections

The Census Bureau and DOF had different population estimates for 2010 and have different estimates for state population growth between 2010 and 2012. The Census Bureau estimates for 2010 were almost exactly matched by the actual Census results while the DOF estimates turned out to be 1.5 million above the

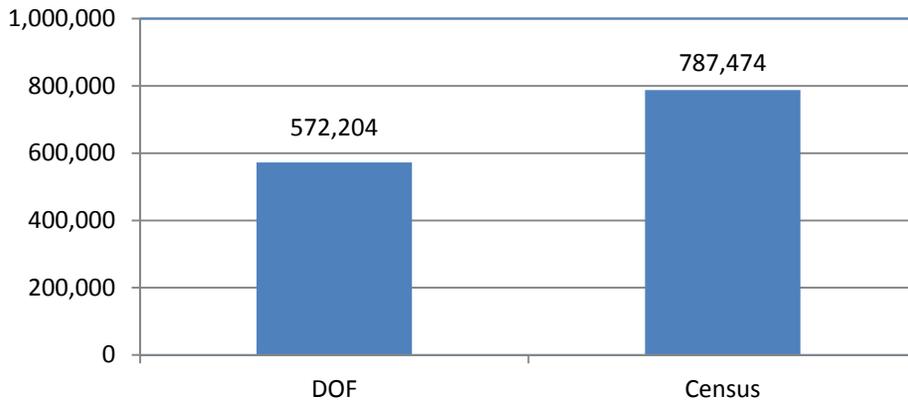
2010 Census results for the state and nearly 350,000 higher for the ABAG region.

2010 Population Estimates



Currently the Census Bureau estimates that California added more than 200,000 residents in the past two years compared to the DOF estimates. The Census Bureau county estimates will be released on March 14, 2013 and this report will be updated with the latest results. The difference between the DOF and Census Bureau estimates for the state is that DOF has the state population increasing by 1.5% during this period or below the 1.7% national growth while the Census Bureau has the state outpacing the nation with 2.1% population growth.

CA Population Growth From 2010 Census Through June 2012



Conclusions

The new DOF Bay Area population projections are inconsistent with recent trends in job and population growth and with the ABAG regional growth forecast for job and population growth to 2040.

The principal reason is that DOF did not consult with ABAG in developing their migration assumptions for Bay Area counties as set forth in their projection methodology and, as a result, used migration assumptions that are inconsistent with recent, current and projected job growth.

DOF has developed new birth rate assumptions that should be incorporated in any new ABAG projections and would lower the 2040 population consistent with current job projections by approximately 85,000 residents under the age of 20.

DOF has announced plans to update their population projections more frequently from now on. ABAG can provide the adopted growth forecast and associated methodology to DOF prior to the next round of DOF population projections. In addition, ABAG can meet with DOF and provide them with this analysis to see whether DOF is willing to publish an acknowledgement that their Bay Area projections did not take account the of ABAG regional job growth forecast.

Appendix A: Chronology of Bay Area Job and Population Growth

Long-term growth forecasts prepared by major regional planning agencies in California and national forecasting firms base long-term population growth projections on the amount of projected job growth.

Major shifts in population growth and migration follow job trends. For example, the population in Detroit, Pittsburg and Cleveland declined **after** the declines in auto and steel jobs, not before. People left because the jobs went away, not vice versa. Similarly, the large outmigration from Southern California in the 1990s occurred **after** the aerospace and construction job losses, not before.

This pattern of migration following job trends is shown below for the Bay Area between 1991 and 2009. In 1991, 1992 and 1993 migration was positive as a result of the strong job growth in the late 1980s and despite the fact that job losses were occurring. In 1995 and 1996 migration to the region was virtually zero in response to earlier job losses despite the addition of more than 150,000 jobs in these years.

Similarly migration turned negative **after** the dot.com bust in 2001, not before. And net migration remained negative in 2005 and 2006 despite the fact that job levels were increasing in both years. Migration turned positive in 2007 and 2008 in reaction to the job growth in 2005 and 2006 even though job levels fell in 2008.

Migration Follows Job Growth in the Bay Area

