

# Documentation for the Revised 2010 Demographic Analysis Middle Series Estimates

## Overview

This document provides a description of updates and methodological improvements used in the production of the revised 2010 Demographic Analysis (DA) middle series estimates.

The revised estimates provided in this release incorporate more recent data and improvements from ongoing research. The original 2010 DA middle series estimates were updated to include revised estimates of births, deaths, net international migration, and the Armed Forces overseas population. In addition, the methodology used to estimate the population aged 65 to 74 years is now based on the components of population change (births, deaths, and net international migration) instead of Medicare enrollment data. Finally, this release includes estimates for the population aged 0 to 29 years that is Black alone or in combination.

Table A compares the revised DA middle series estimates to the original middle series estimates released on December 6, 2010.<sup>1</sup> Overall, there was a small decrease in the estimate of the total resident population of 129,000, which is the result of a decrease of 74,000 for the Black population and 55,000 for the non-Black population. The Black male population decreased by 32,000 while the Black female population decreased by 43,000. The net decrease of 55,000 for the non-Black population is the result of a decrease of 284,000 in the estimate of the non-Black male population and an increase of 228,000 in the non-Black female population.

## Availability of DA Estimates by Race

DA estimates are provided for the population by two race groups – Black and non-Black. Separate estimates of the Black alone and Black alone or in combination populations are provided only for those aged 0 to 29 years. DA estimates for the population aged 0 to 29 years should be compared to the corresponding race group data available from the 2010 Census. Estimates of the population aged 30 years and over are classified as Black and non-Black, with no further distinction as to whether Black refers to Black alone or Black alone or in combination with other races. The 2010 Census counts of the Black alone and Black alone-or-in-combination populations provide a range to which the DA estimates for the population aged 30 years and over should be compared.

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<sup>1</sup> Documentation, papers, and data from the December 6, 2010 release of the 2010 Demographic Analysis estimates are available at: <<http://www.census.gov/popest/research/demo-analysis.html>>.

## Vital Statistics

The revised DA middle series estimates have been updated to include the most recent birth and death data and include revisions to the methods used to project births and deaths for the year when final data were not available. The method used to assign race to births and deaths was also revised.

### Births

The estimates of births included in the revised DA middle series have been updated to include final data for the years 2008 and 2009. In addition, births for 2010 are now projected by distributing the total number of births by month in 2010, as published by the National Center for Health Statistics, by the characteristics of births in 2009.<sup>2</sup>

In addition, the methodology used to assign race to births that occurred between April 1, 1980 and March 31, 2010 was revised. First, the distribution of parents' race in the birth data was converted from a single-race to a multiple-race distribution. Race was then assigned to each birth using this multiple-race distribution for parents of children age 0 in the 2000 and 2010 censuses.<sup>3</sup> The data were then grouped into three race categories used to produce the DA estimates for the population aged 0 to 29 years: Black alone, Black in combination, and not Black alone or in combination. These revisions increased the number of births classified as Black in combination while the number of births classified as Black alone decreased slightly. Overall, there was a modest increase in the number of births classified as Black alone or in combination.<sup>4</sup>

Births prior to 1980 continue to be classified based on the race of the father. These birth estimates fall between the number of births classified as Black alone and Black alone or in combination. The number of births classified as Black based on the race of the father tends to be higher than the Black alone estimates but lower than the Black alone or in combination estimates.

### Deaths

The estimates of deaths in the revised DA middle series have been updated to include final data for the years 2008 and 2009. In addition, deaths for 2010 are now projected by distributing the total number of deaths by month in 2010, as published by the National Center for Health Statistics, by the characteristics of deaths in 2009.<sup>5</sup>

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<sup>2</sup> National Center for Health Statistics. 2011. *Provisional monthly and 12-month ending number of live births, deaths, and infant deaths and rates: United States, January 2010-June 2011*. Internet table available from: <[http://www.cdc.gov/nchs/data/dvs/provisional\\_tables/Provisional\\_Table01\\_2011Dec.pdf](http://www.cdc.gov/nchs/data/dvs/provisional_tables/Provisional_Table01_2011Dec.pdf)>.

<sup>3</sup> Race was assigned to births using the distribution of race reporting for children aged 0 to 17 years from Census 2000 in the Demographic Analysis estimates released on December 6, 2010.

<sup>4</sup> Further documentation and discussion of assigning race to birth data is available at: Ortman, Jennifer M., Frederick W. Hollman, and Christine E. Guarneri. 2012. "Measuring Multiple-Race Births in the United States." Presented at the Annual Meeting of the Population Association of America, San Francisco, CA: May 3-5, 2012.

<sup>5</sup> National Center for Health Statistics. 2011. *Provisional monthly and 12-month ending number of live births, deaths, and infant deaths and rates: United States, January 2010-June 2011*. Internet table available from: <[http://www.cdc.gov/nchs/data/dvs/provisional\\_tables/Provisional\\_Table01\\_2011Dec.pdf](http://www.cdc.gov/nchs/data/dvs/provisional_tables/Provisional_Table01_2011Dec.pdf)>.

The methodology used to assign race to deaths that occurred between April 1, 1980 and March 31, 2010 was updated. Using a procedure similar to that used to process birth data, the single-race distribution of death data was converted to a multiple-race distribution. The data for the population aged 0 to 29 years were then grouped into three categories for producing DA estimates: Black alone, Black in combination, and not Black alone or in combination. Deaths prior to 1980 continued to be classified using the single-race distribution.

## **Net International Migration**

Estimates of net international migration for the period from April 1, 2000 through March 31, 2010 incorporated four updates.<sup>6</sup>

### **Foreign-born immigration and emigration from 2000 to 2010 were estimated separately for Mexican and non-Mexican migration flows**

The methodology used to estimate the immigration and emigration of the foreign born from 2000 to 2010 was refined to estimate foreign-born migration between the United States and Mexico separately from foreign-born migration between the United States and other countries. For both the original and revised series, this methodology was based on data from Census 2000, the American Community Survey (ACS), and mortality statistics from the National Center for Health Statistics. The revised series also incorporates information from the 2010 Census of Mexico.

For foreign-born immigration, separate estimates were produced for the population with a residence one year prior in (a) Mexico and (b) a country outside the United States, U.S. Island Areas, and Mexico.

To calculate annual foreign-born emigration flow estimates, rates of emigration were produced by period of entry. Next, the emigration rates were applied to the population at risk of emigrating. In the revised estimates, this method was applied separately to the foreign-born population that was born in Mexico and the foreign-born population born in another country.

Demographic characteristics (age, sex, race, and Hispanic origin) of foreign-born immigrants and emigrants were estimated separately for migration between the United States and Mexico and the migration between the United States and countries other than Mexico. For example, the demographic characteristics of foreign-born immigrants from Mexico were based on the characteristics of the Mexican-born population whose year of entry was five or fewer years before the survey year. The characteristics of immigrants from other countries were based on the characteristics of the foreign-non-Mexican-born population whose year of entry was five or fewer years before the survey year.

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<sup>6</sup> Net international migration includes the international migration of both native and foreign-born populations. Specifically, it includes: (a) the net international migration of the foreign born, (b) the net international migration of the native born, and (c) the net migration between the United States and Puerto Rico.

### **Levels of foreign-born emigration from 2000 to 2010 were updated using data from the 2010 Census of Mexico**

The revised estimates also incorporate information from Mexico's 2010 Census into the 2000 to 2010 estimates of foreign-born emigration to Mexico.

Estimates of foreign-born emigration from the United States to Mexico from 2005 to 2010 were adjusted using estimates of the Mexican-born population reported living in the United States in 2005 and in Mexico in 2010 from the 2010 Census of Mexico. In addition, the sex ratios of this population were applied to the 2000 to 2005 estimates of foreign-born emigration to Mexico.

### **Assumptions about international migration to and from group quarters were revised**

The original 2010 DA estimates of foreign-born immigration, foreign-born emigration, and net migration between the United States and Puerto Rico assumed zero net migration to and from group quarters from 2000 to 2010. The revised series incorporates group quarters data from the ACS into the estimates of foreign-born immigration, foreign-born emigration, and net migration between the United States and Puerto Rico.

Characteristics of the resident population, instead of the household population, are now used in estimating the age, sex, race, and Hispanic origin distribution of foreign-born immigration, foreign-born emigration, net migration between the United States and Puerto Rico, and net native-born migration from 2000 to 2010.

### **More recent data were incorporated into the estimation of demographic characteristics of 2000 to 2010 net international migration components**

More recent data from the ACS were incorporated into the estimation of the age, sex, race, and Hispanic origin distribution of the net international migration subcomponents. In the original 2010 DA estimates, data from Census 2000 and ACS 2005-2007 were used to distribute the annual components of the net international migration estimates for 2000 to 2010 by demographic characteristics. The distribution of the revised estimates was updated to include information from Census 2000 and ACS 2007-2009.

### **Estimates of the Population Aged 65 Years and Over**

The revised DA estimates for the population aged 65 years and over on April 1, 2010 reflect a methodological change and the use of more recent Medicare enrollment data.

A unique feature of DA estimation in 2010 is the availability of estimates for the cohorts born between April 1, 1935 and March 31, 1945 produced from two different methodologies: (1) the cohort-component approach and (2) Medicare-based estimates.<sup>7</sup>

The Medicare-based estimates take into account that some people are not eligible for Medicare, some eligible people do not enroll, and others delay their enrollment past their age of eligibility

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<sup>7</sup> The cohort-component approach is based on estimates of births, deaths, and net international migration.

(age 65). Estimates of those not enrolled in Medicare are derived from data about age at first enrollment and from the Current Population Survey (CPS) health care coverage data. Evaluations of the estimates since the December 6, 2010 release suggest that the earlier estimates of those not enrolled were high for ages 65, 66, and 67. For this reason, the Medicare-based estimates for the population aged 65 to 74 years were replaced with cohort-component-based estimates.

In addition, the revised estimates for the population aged 75 years and over reflect an update to a more recent database. The revised estimates are based on the 2010 Medicare enrollment database. For the original 2010 DA estimates, we used the 2009 Medicare enrollment database projected to April 1, 2010.

**Table A. U.S. Resident Population and the Components of Demographic Analysis by Race and Sex: April 1, 2010**  
(In thousands)

Series and component	Total population	Black			Non-Black		
		Both sexes	Male	Female	Both sexes	Male	Female
<b>Revised Middle Series Estimates (May 2012)</b>							
Total population	308,346	41,196	20,136	21,060	267,150	132,920	134,229
Population aged 0-64 years	268,646	37,676	18,720	18,956	230,970	117,093	113,878
Births	249,847	37,659	19,084	18,576	212,188	108,914	103,274
Deaths	14,846	3,283	2,020	1,263	11,563	7,402	4,160
Net international migration	34,074	3,385	1,726	1,659	30,688	15,891	14,798
Armed forces overseas	429	86	69	17	343	309	34
Population aged 65 years and over	39,699	3,520	1,416	2,104	36,180	15,828	20,352
Population aged 65-74 years	21,405	2,072	915	1,156	19,334	9,156	10,178
Births	26,465	3,287	1,665	1,622	23,178	11,917	11,261
Deaths	8,332	1,460	861	600	6,872	4,150	2,722
Net international migration	3,272	245	112	134	3,027	1,389	1,639
Armed forces overseas	-	-	-	-	-	-	-
Population aged 75 years and over							
Medicare-based estimates	18,294	1,448	500	948	16,846	6,672	10,174
<b>Original Middle Series Estimates (December 2010)</b>							
Total population	308,475	41,270	20,168	21,103	267,205	133,204	134,001
Population aged 0-64 years	268,518	37,794	18,780	19,015	230,724	117,251	113,473
Births	249,891	37,979	19,246	18,733	211,912	108,774	103,138
Deaths	14,829	3,308	2,036	1,272	11,521	7,380	4,141
Net international migration	33,889	3,210	1,640	1,570	30,680	16,169	14,511
Armed forces overseas	433	86	69	17	347	311	36
Population aged 65 years and over							
Medicare-based estimates	39,957	3,476	1,388	2,088	36,481	15,953	20,528
<b>Differences (Revised - Original)</b>							
Total population	-129	-74	-32	-43	-55	-284	228
Population aged 0-64 years	128	-118	-60	-59	246	-158	405
Births	-44	-320	-162	-157	276	140	136
Deaths	17	-25	-16	-9	42	22	19
Net international migration	185	175	86	89	8	-278	287
Armed forces overseas	-4	-	-	-	-4	-2	-2
Population aged 65 years and over	-258	44	28	16	-301	-125	-176

- Represents zero or rounds to 0.

Notes:

Estimates may not sum to totals shown because of rounding.

In this table, Black is the sum of the Black alone population aged 0-29 years and the Black population aged 30 years and over. Estimates of the population aged 30 years and over are classified as Black and non-Black, with no further distinction as to whether Black refers to Black alone or Black alone or in combination with other races.

Births, deaths, and net international migration for the population aged 0-64 years refer to events occurring between April 1, 1945 and March 31, 2010. Births, deaths, and net international migration for the population aged 65-74 years refer to events occurring between April 1, 1935 and March 31, 1945.

Net international migration includes the international migration of both native and foreign-born populations. Specifically, it includes: (a) the net international migration of the foreign born, (b) the net international migration of the native born, and (c) the net migration between the United States and Puerto Rico.

**Source: U.S. Census Bureau, Population Division, 2010 Demographic Analysis.**

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