

Projecting the Foreign-Born Population in the United States: 2012 to 2060

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ABSTRACT

In this paper, we present projections of the foreign-born population developed as part of research to produce estimates of foreign-born emigration for the 2012 National Projections. These projections are an important step toward the development of national-level population projections by nativity later this decade. This paper presents the methodology used to project the foreign-born population and discusses the results based on these projections. These projections illustrate how the foreign-born population might be expected to change in the coming decades.

INTRODUCTION

The U.S. Census Bureau currently produces long-term national projections for the population by age, sex, race, and Hispanic origin. The projections are not currently produced by nativity. Projecting the population by nativity requires the development of separate assumptions about the mortality and fertility experience of the native and foreign-born populations, which could lead to improvements in the accuracy of the national population projections. For example, developing assumptions about mortality and fertility rates of native and foreign-born populations separately makes it possible to project different rates of change in fertility for each group. Projections of the foreign born are also of interest to researchers and policy makers because they provide a context from which to assess future education, language, and other resource needs for this population.

Projections of the foreign-born population were developed as a byproduct of projecting foreign-born emigration for the U.S. Census Bureau's 2012 National Projections. This represents an important step toward producing national population projections by nativity later this decade. In this paper, we present the methodology used to project the foreign-born population and discuss the results based on the projections. These projections illustrate how the foreign-born population might be expected to grow in the coming decades.

DATA AND METHODS

Our approach to projecting the foreign-born population requires four pieces of information: (1) a foreign-born base population, (2) projections of foreign-born immigration, (3) projections of foreign-born emigration, and (4) projected rates of mortality.

Foreign-Born Base Population

Data from the 2010 American Community Survey (ACS) are used to estimate the foreign-born population in 2010 (U.S. Census Bureau, 2010).¹ The foreign-born population is identified using information on country of birth and citizenship status.² The foreign-born base population is grouped by age, sex, race, and Hispanic origin.³

Foreign-Born Immigration

The projections of foreign-born immigration into the United States were based on rates of emigration from sending countries. This approach shifts the perspective to the source countries by incorporating information on population trends in sending countries. Rates of emigration were calculated from annual estimates of foreign-born immigration and population estimates for the sending countries, and then projected into the future by assuming that the current rates will move toward an ultimate rate that can be thought of simplistically as a weighted average of the observed rates. Projected immigrants to the United States were calculated for each year by multiplying the projected rate of emigration from the sending countries by the projected population in the sending countries within each region. Age, sex, race, and Hispanic origin are assigned to immigrants based on distributions from the 2010 ACS. Once the foreign-born immigrants were distributed by age, sex, race, and Hispanic origin, the projected total number of immigrants for 2011 was controlled to Census Bureau's estimates of the level of foreign-born immigration for 2011. Linear interpolation was used to re-project the foreign-born immigrants from the controlled 2011 value to the original level projected for 2030. Further information is provided in the 2012 National Projections methodology statement (U.S. Census Bureau, 2012).

¹ Data from the ACS are used to estimate the foreign-born population in 2010 because the 2010 Census did not collect data on the foreign born. The ACS data are based on a sample and are subject to sampling variability. For information on confidentiality protection, sampling error, nonsampling error, and definitions see <http://www.census.gov/acs>.

² Citizenship status is used to exclude persons born in U.S. territories (e.g., Puerto Rico) and Americans born abroad to U.S. citizen parents.

³ Responses of "Some Other Race" from the ACS are modified using the same methods used to modify 2010 Census data. For more information, see <http://www.census.gov/popest/data/historical/files/MRSE-01-US1.pdf>.

Foreign-Born Emigration

Emigration of the foreign-born population from the United States was projected by first estimating a set of emigration rates and then applying those rates to the foreign-born population. Foreign-born emigration rates were estimated using a residual methodology (Ahmed and Robinson, 1994; U.S. Census Bureau, 2012). These rates were held constant for all projected years. The rates were produced and applied by period of arrival, age, sex, and Hispanic origin. Rates were produced for three arrival cohorts: (1) immigrants who arrived in the past 0-9 years, (2) immigrants who arrived in the past 10-19 years, and (3) immigrants who arrived 20 or more years ago.

The residual rates were estimated using Census 2000 as the base population and the 2010 ACS as the target population. A residual estimate was calculated by adding half of the annual immigrants to the initial population, surviving that population forward to the next year, and then adding the other half of the immigrants and half of the immigrants for the next period. This process was reiterated until the target population of July 1, 2010 was reached. The result was the expected population, from which the target population provided by the 2010 ACS is subtracted to provide a residual estimate of emigration. This estimate of foreign-born emigration was converted into a rate by dividing the annual estimate by the number of person years lived during the period. The rates were smoothed using penalized least squares. Foreign-born emigration was projected by applying the emigration rates to the foreign-born population. The same set of rates, by arrival cohort, age, sex, and Hispanic origin, were used for all projected years. The total number of foreign-born emigrants projected for 2011 were controlled to the Census Bureau's estimates of foreign-born emigration in 2011. Linear interpolation was used to re-project the foreign-born emigrants from the controlled 2011 value to the original level projected for 2030.

Figure 1 presents projections of foreign-born immigration and emigration for 2012 to 2060. Foreign-born immigration is projected to increase from just over one million per year in 2012 to

almost 2 million per year in 2060. Emigration of the foreign-born is projected to increase from around 300 thousand per year to just over 750 thousand per year in 2060. The net international migration of the foreign-born, shown by the black line in Figure 1, is produced by subtracting the projected number of emigrants from the projected number of immigrants. Net international migration is projected to increase from 746 thousand in 2012 to 1.2 million in 2060.

Mortality

This work uses the projected mortality rates from the 2012 National Projections (U.S. Census Bureau, 2012). Mortality rates were developed by age, sex, race, and Hispanic origin. The mortality schedules have not yet been produced by nativity, so the same series of rates are applied to the foreign-born as applied to the total U.S. population in our population projections. Future research will address the feasibility of estimating and projecting mortality rates for the foreign born.

Projecting the Foreign-Born Population

The foreign-born population is projected forward one year at a time by first projecting emigration for that year by applying the emigration rates to the foreign-born population. The foreign-born population for the next year is then calculated by aging the foreign-born population forward one year, subtracting out deaths and emigrants, and adding the projected number of immigrants for that year. This process is repeated each year until 2060. For example, to project the foreign born in 2011, the emigration rates were applied to the foreign-born population in 2010 to calculate the projected number of emigrants for that year. The foreign-born population is then projected for 2011 by aging the foreign-born population in 2010 forward one year, subtracting out deaths and emigrants, and adding the projected number of immigrants for the year. The emigration rates are then applied to the projected foreign-born population for 2011. This process is repeated each year until 2060.

RESULTS⁴

The foreign-born population is projected to increase from almost 40 million in 2010 to just over 68 million in 2060 (see Figure 2). This is an increase of about 70 percent for the 50-year period. Figure 3 shows the percent change in the size of the foreign-born population by decade. The columns in this figure represent estimates (shown in light blue line) and projections (shown in dark blue) of percent change for each 10-year period from 1960 to 2060.⁵ The foreign-born population decreased between 1960 and 1970, reaching a low point of 9.6 million in 1970. Between 1970 and 2000, there were considerable increases in the size of the foreign-born population driven by increases in foreign-born immigration during that period. The foreign-born population increased by 46.4 percent between 1970 and 1980, by another 40.4 percent from 1980 to 1990, and by 57.4 percent between 1990 and 2000. After 2001, the net migration of the foreign-born began to decline and the growth of the foreign-born population slowed substantially. Between 2000 and 2010, the foreign-born population increased by 28.4 percent.

The foreign-born population is projected to continue to increase in the coming decades, albeit at a smaller rate of increase than observed in recent decades. Between 2010 and 2020, these projections suggest that the foreign-born population will increase by 13.1 percent and then by 14.5 percent between 2020 and 2030. As time progresses, the percent change in the size of the foreign-born population is projected to slow because of the leveling off in the foreign-born immigration projections in the later years of the series. From 2030 to 2040, the foreign-born population is projected to increase by 12.5 percent. This falls to 9.4 percent between 2040 and 2050 and then 6.9 percent between 2050 and 2060.

Figure 4 shows the projected age structure of the foreign-born population in 2012 and 2060. In contrast to the characteristics of the native-born population, which are driven by births as

⁴ The appendix table at the end of this document provides annual results from the projections of the foreign-born population by race, Hispanic origin, and age.

⁵ Estimates of the foreign-born population for 1960 to 2010 were obtained from Population Division Working Paper No. 96 (Grieco et al., 2012).

well as migration and deaths, the characteristics of the foreign-born population are driven by migration. In 2012, 49 percent of the foreign-born population are projected to be between the ages of 18 and 44 years. An additional 31 percent are between the ages of 45 and 64 years. All together 80 percent of the foreign-born population are projected to be in the working adult ages of 18 to 64 years in 2012. A much smaller percentage of the foreign-born population in 2012 is in the youngest and oldest age groups – 13 percent are over the age of 65 and 6.3 percent are under the age of 18.

The age structure of the foreign-born population is projected to shift as levels of migration in these projections stabilize in future years and the cohorts arriving in recent decades grow older (see Figure 4). The percentages of the foreign born less than 18 years and 18 to 44 years are projected to decrease. The foreign-born population under 18 years is projected to decrease to 4.5 percent and the population 18 to 44 years is projected to decrease to 34 percent. The percentage of the foreign-born population between the ages of 45 and 65 is projected to decrease slightly to 30 percent. The percentage of the foreign-born population that is projected to be 65 years and older is projected to increase to about 31 percent in 2060. These projections suggest that population aging is projected to be a demographic issue for both the foreign and native-born segments of the U.S. population in the coming years.

Little change is projected for the distribution of the foreign-born population by race and Hispanic origin (see Figure 5). Between 2012 and 2060, these projections suggest that the percentage of the foreign-born population that is White alone will decrease slightly from about 63 to 58 percent. A similar pattern is projected for the Hispanic population, which is projected to decrease from 47 percent in 2012 to 44 percent in 2060. The Black alone foreign-born population is projected to increase from 9.3 percent in 2012 to about 14 percent in 2060. The Asian alone foreign-born population is projected to be stable at about 25 percent over the projection period. These changes are primarily driven by the assumptions about the racial and ethnic characteristics of future immigrants that were used to produce these projections.

The median age of the foreign-born population for 1960 to 2060 is shown in Figure 6.⁶ The decrease in median age of the foreign-born population from 57 years in 1960 to a low of 37 in 1990 was driven by increases in immigration during that period. After 2000, when levels of immigration began to decline, the median age of the foreign-born population began to increase. By 2010, the median age of the foreign-born population was 41 and is projected to increase to 52 by 2060 in our projections.

Figure 7 presents projections of the median age of the foreign-born population by race and Hispanic origin group. The median age of the total foreign-born population is projected to increase from 42 to 52 years between 2012 and 2060. This underscores the results presented in Figure 4, which shows projected increases in the percent of the foreign-born population 65 years and over and projected decreases in the percent of the foreign-born population under 45 years. The median age of each race and Hispanic origin group presented in Figure 7 is also projected to increase over the coming decades. Shifts in age structure are projected for all groups. The median age of all groups projected to exceed 50 years by 2060, with the exception of the Black alone foreign-born population. Interestingly, the median age of the projected foreign-born population is older than that of the total U.S. population, which is projected to be 37 years in 2012 and increase to 41 years in 2060 (Ortman, 2012). This is because growth of the foreign-born population is primarily due to immigration instead of births and our approach assumes that migrants will continue to be primarily in the adult ages. As a result, the population under 18 years is the smallest for the foreign-born population, whereas the total U.S. population has a larger percentage under 18 years due to births driving growth at the youngest ages.

⁶ The median age divides the population into two groups, with the first half being older than and the second half being younger than the median age.

CONCLUSIONS

In this paper, we present projections of the foreign-born population developed as part of research to produce estimates of foreign-born emigration for the 2012 National Projections. These projections are an important step toward the development of national-level population projections by nativity later this decade.

These projections of the foreign-born population are based on assumptions about future levels of foreign-born immigration and emigration, and future rates of mortality. Projected changes in the foreign-born population are largely driven by our assumptions about the future levels and composition of immigration to the United States and to a lesser extent on the projected number of emigrants. The projected trends in future immigration are based on projected changes in the size of the population in sending countries, while future emigration is based on the future size and characteristics of the foreign-born population in the United States.

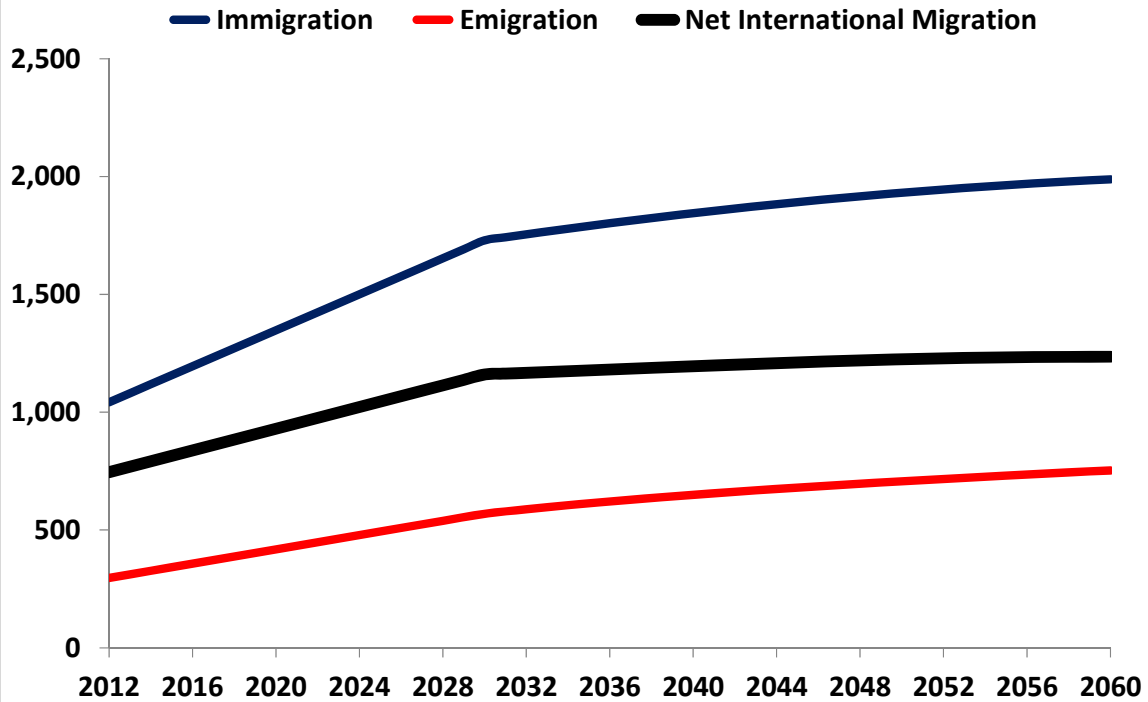
Looking to the future, these projections suggest that the foreign-born population will continue to grow, but at a slower pace in the coming years than what was observed over the past three decades. The foreign-born population is projected to grow older, as the size of population 65 years and over grows and the number under 45 years becomes smaller. Few changes are projected for the racial and ethnic distribution of the foreign-born population and all race and ethnic groups are projected to grow older over the next several decades.

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Figure 1. Foreign-Born International Migration: 2012 to 2060

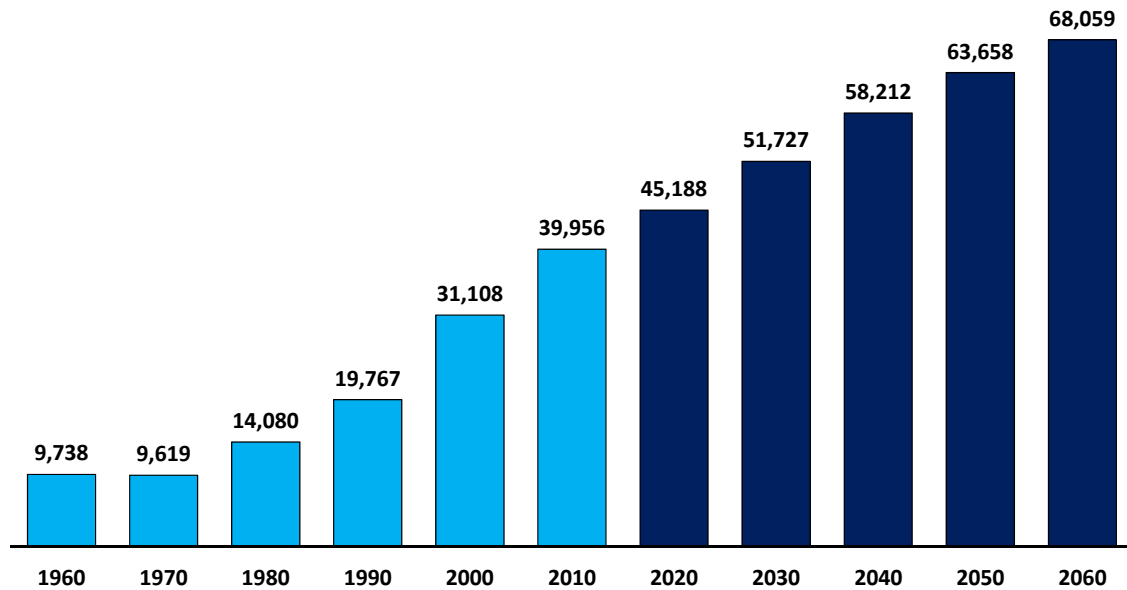
(Numbers in thousands)



Source: U.S. Census Bureau, 2012

Figure 2. Foreign-Born Population: 1960 to 2060

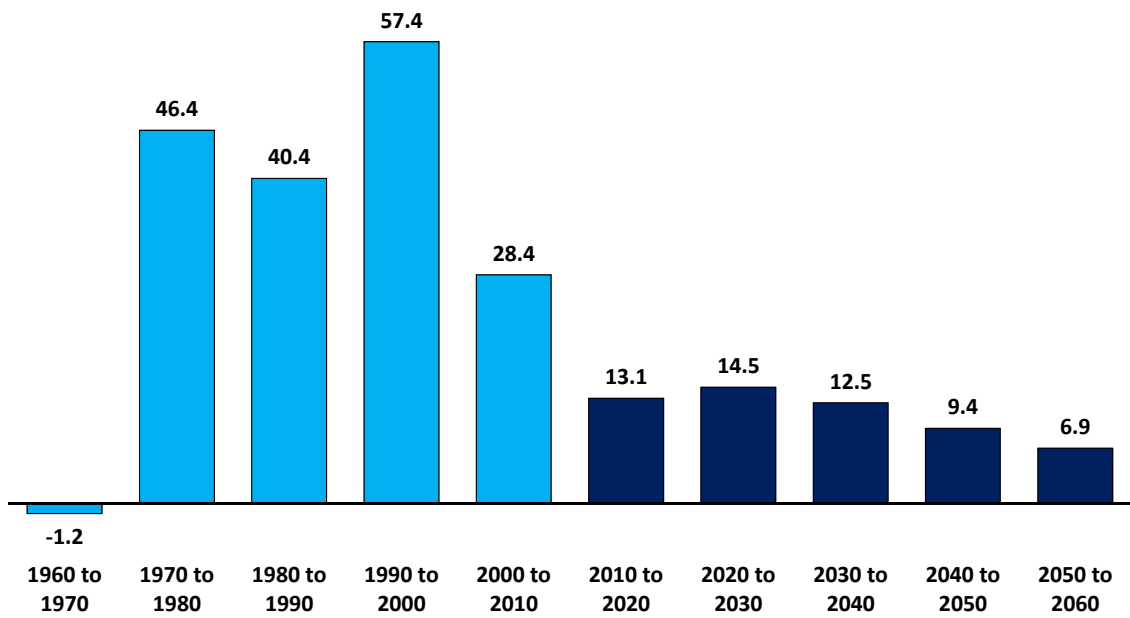
(Numbers in thousands)



Estimates of the foreign-born population are shown in light blue, projections of the foreign-born population are shown in dark blue.

Source: U.S. Census Bureau, 2012

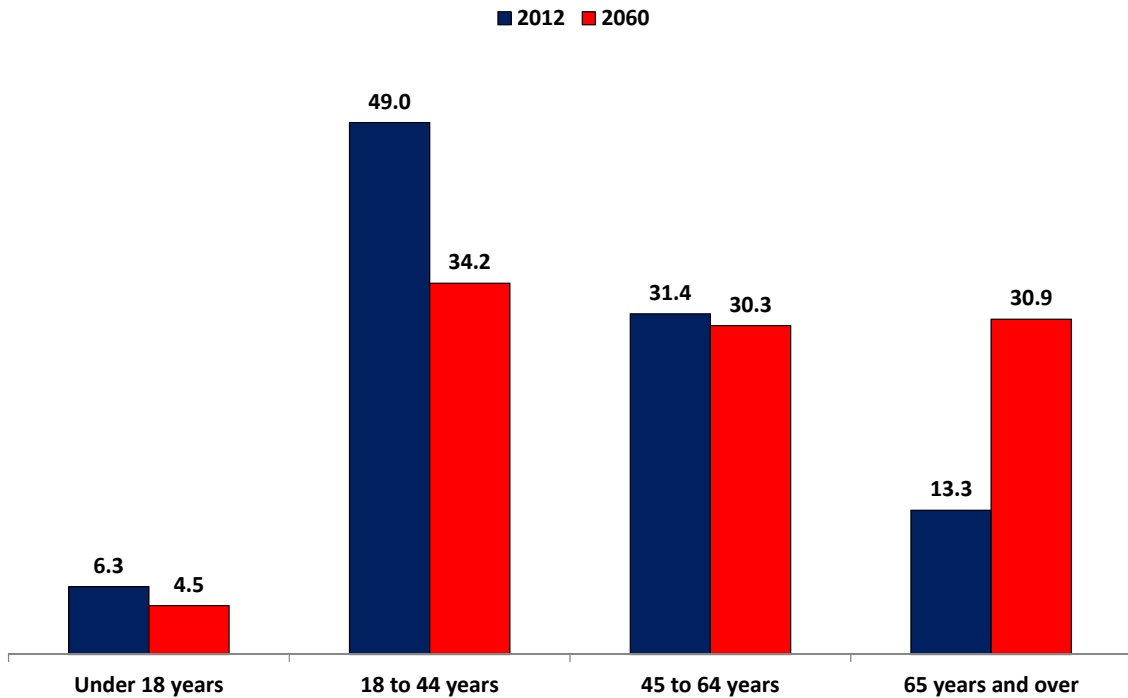
Figure 3. Percent Change in Foreign-Born Population by Decade: 1960 to 2060



Estimates of the foreign-born population are shown in light blue, projections of the foreign-born population are shown in dark blue.

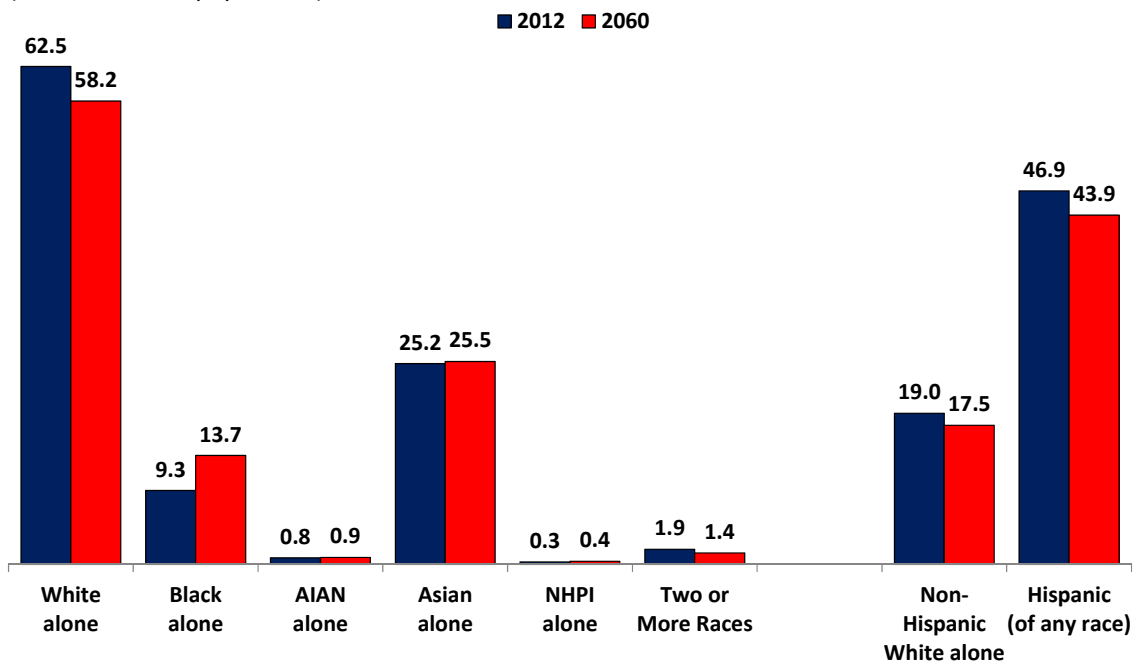
Source: U.S. Census Bureau, 2012

Figure 4. Foreign-Born Population by Age: 2012 and 2060
(Percent of total population)



Source: U.S. Census Bureau, 2012

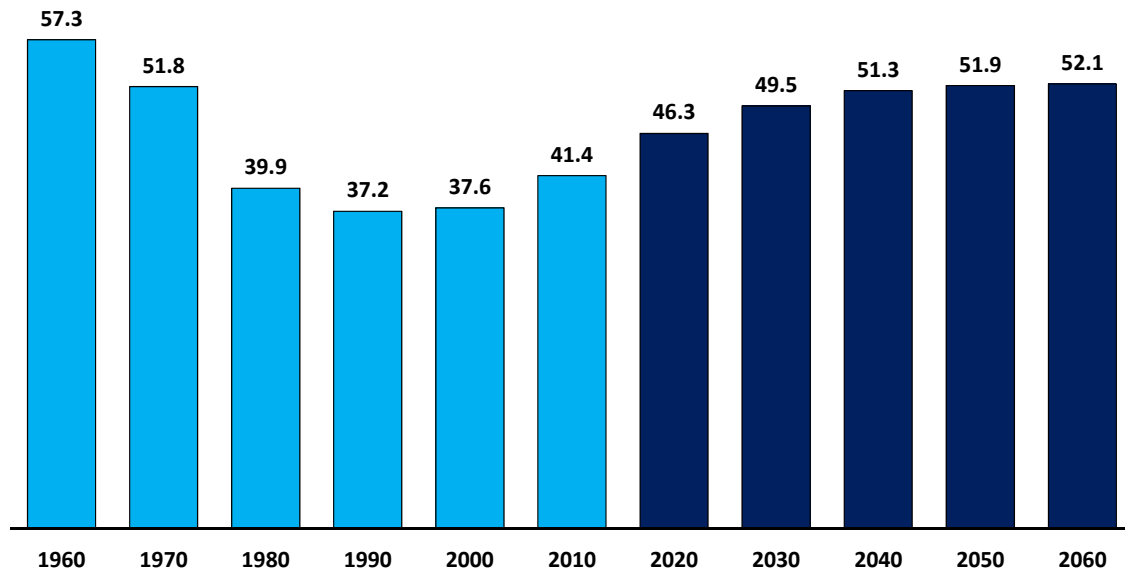
Figure 5. Foreign-Born Population by Race and Hispanic Origin: 2012 and 2060
(Percent of total population)



AIAN = American Indian or Alaska Native; NHPI = Native Hawaiian or Other Pacific Islander

Source: U.S. Census Bureau, 2012

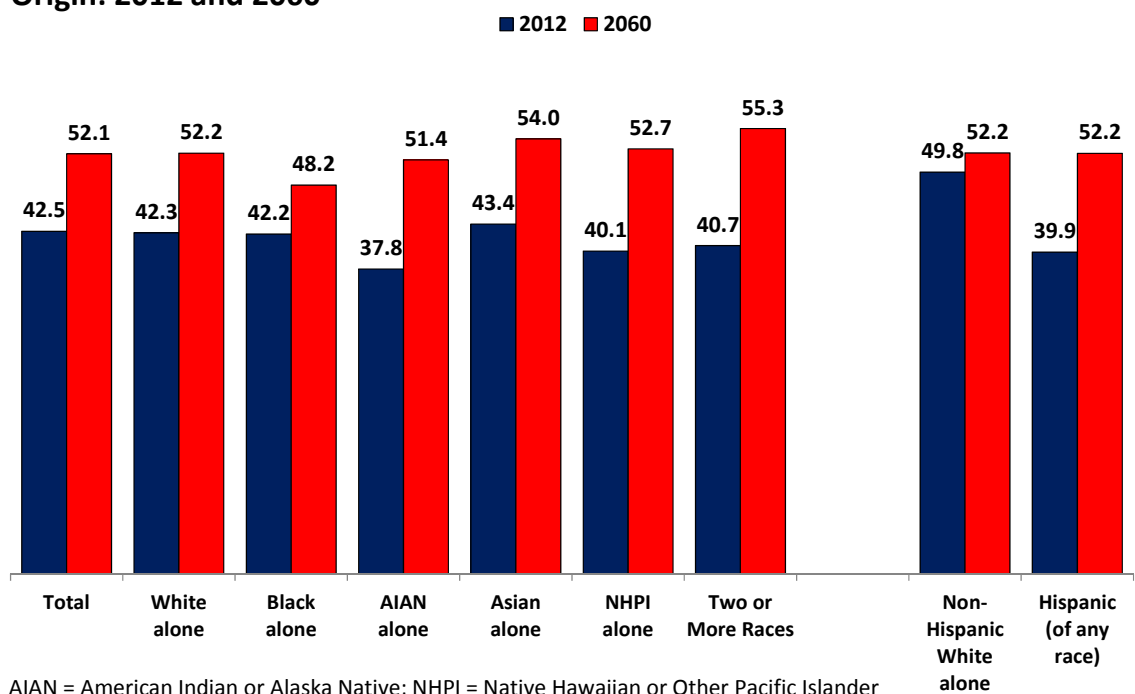
Figure 6. Median Age of the Foreign-Born Population: 1960 to 2060



Estimates of the foreign-born population are shown in light blue, projections of the foreign-born population are shown in dark blue.

Source: U.S. Census Bureau, 2012

Figure 7. Median Age of the Foreign-Born Population by Race and Hispanic Origin: 2012 and 2060



AIAN = American Indian or Alaska Native; NHPI = Native Hawaiian or Other Pacific Islander

Source: U.S. Census Bureau, 2012

Appendix 1. Foreign-Born Population Projections by Race, Hispanic Origin, and Age
(Numbers in thousands)

Year	Total	Race						Non-Hispanic White Alone	Hispanic	Age Group			
		White alone	Black alone	American Indian or Alaska Native alone	Asian alone	Native Hawaiian and Other Pacific Islander alone	Two or More Races			Under 18 years	18 to 44 years	45 to 64 years	65 years and over
2012	40,888	25,564	3,793	328	10,308	126	768	7,751	19,173	2,556	20,052	12,845	5,435
2013	41,376	25,801	3,855	333	10,486	129	772	7,804	19,371	2,439	19,975	13,255	5,708
2014	41,879	26,048	3,920	338	10,665	132	776	7,860	19,577	2,321	19,957	13,647	5,954
2015	42,396	26,305	3,988	344	10,844	135	780	7,919	19,791	2,241	19,779	14,111	6,264
2016	42,926	26,571	4,059	349	11,024	138	785	7,981	20,012	2,155	19,719	14,527	6,525
2017	43,471	26,848	4,134	355	11,205	141	789	8,045	20,240	2,094	19,604	14,983	6,791
2018	44,030	27,134	4,211	360	11,386	144	794	8,113	20,476	2,049	19,509	15,385	7,087
2019	44,602	27,430	4,292	366	11,568	147	799	8,183	20,720	2,020	19,427	15,768	7,387
2020	45,188	27,736	4,376	372	11,750	151	804	8,256	20,970	2,010	19,263	16,162	7,753
2021	45,787	28,051	4,462	378	11,932	154	810	8,333	21,227	2,015	19,193	16,476	8,103
2022	46,399	28,375	4,552	385	12,115	157	815	8,412	21,491	2,036	19,158	16,757	8,447
2023	47,023	28,709	4,644	391	12,298	161	821	8,495	21,762	2,065	19,095	17,066	8,798
2024	47,660	29,051	4,740	398	12,481	164	827	8,581	22,040	2,091	19,070	17,356	9,143
2025	48,310	29,403	4,838	404	12,664	167	833	8,669	22,323	2,134	18,934	17,650	9,592
2026	48,971	29,764	4,939	411	12,847	170	839	8,761	22,613	2,180	18,949	17,879	9,964
2027	49,644	30,133	5,043	418	13,030	174	846	8,856	22,909	2,226	18,963	18,099	10,355
2028	50,327	30,510	5,150	425	13,213	177	852	8,953	23,211	2,279	18,957	18,328	10,763
2029	51,022	30,896	5,259	432	13,395	180	859	9,054	23,518	2,339	18,994	18,504	11,185
2030	51,727	31,289	5,372	439	13,578	184	866	9,157	23,830	2,400	19,013	18,652	11,663
2031	52,423	31,675	5,485	447	13,757	187	872	9,259	24,136	2,455	19,091	18,823	12,055
2032	53,108	32,054	5,599	454	13,932	190	879	9,361	24,436	2,505	19,192	18,973	12,438
2033	53,783	32,426	5,714	461	14,103	193	885	9,461	24,728	2,551	19,266	19,096	12,870
2034	54,446	32,791	5,831	467	14,270	197	891	9,560	25,014	2,593	19,363	19,235	13,255
2035	55,099	33,147	5,948	474	14,434	200	897	9,659	25,292	2,631	19,467	19,242	13,759
2036	55,742	33,496	6,066	481	14,593	203	902	9,756	25,564	2,667	19,619	19,290	14,165
2037	56,374	33,839	6,186	487	14,749	206	908	9,853	25,829	2,699	19,764	19,303	14,609
2038	56,997	34,175	6,307	493	14,901	208	913	9,948	26,088	2,729	19,943	19,300	15,025
2039	57,609	34,504	6,429	499	15,049	211	918	10,043	26,340	2,756	20,105	19,328	15,421
2040	58,212	34,825	6,552	505	15,193	214	922	10,137	26,585	2,782	20,273	19,275	15,883
2041	58,804	35,139	6,677	511	15,334	217	927	10,231	26,823	2,805	20,424	19,327	16,249
2042	59,387	35,446	6,803	517	15,470	219	931	10,324	27,054	2,826	20,600	19,384	16,576
2043	59,958	35,746	6,930	522	15,604	222	935	10,416	27,278	2,846	20,753	19,426	16,933
2044	60,519	36,037	7,058	528	15,733	225	939	10,507	27,493	2,865	20,918	19,475	17,262
2045	61,069	36,320	7,188	533	15,859	227	942	10,598	27,701	2,882	21,083	19,419	17,686
2046	61,609	36,595	7,319	538	15,981	230	945	10,689	27,901	2,898	21,249	19,491	17,970
2047	62,137	36,862	7,451	543	16,100	232	948	10,778	28,092	2,914	21,419	19,535	18,269
2048	62,655	37,121	7,585	548	16,215	234	951	10,867	28,275	2,929	21,591	19,549	18,587
2049	63,162	37,371	7,721	553	16,327	237	954	10,956	28,450	2,943	21,764	19,590	18,864
2050	63,658	37,613	7,857	557	16,436	239	956	11,044	28,617	2,958	21,931	19,600	19,170
2051	64,144	37,846	7,996	562	16,541	241	958	11,131	28,775	2,971	22,084	19,675	19,413
2052	64,619	38,072	8,135	566	16,643	243	960	11,218	28,925	2,985	22,244	19,755	19,635
2053	65,084	38,289	8,277	570	16,741	245	962	11,304	29,067	2,997	22,395	19,811	19,880
2054	65,538	38,497	8,419	574	16,837	248	963	11,390	29,201	3,010	22,537	19,894	20,097
2055	65,982	38,698	8,563	577	16,928	250	965	11,475	29,328	3,022	22,678	19,977	20,305
2056	66,415	38,891	8,709	581	17,017	251	966	11,559	29,446	3,033	22,817	20,101	20,464
2057	66,840	39,077	8,856	584	17,102	253	967	11,642	29,558	3,044	22,948	20,218	20,630
2058	67,255	39,255	9,005	587	17,184	255	968	11,724	29,662	3,055	23,073	20,368	20,759
2059	67,661	39,426	9,155	590	17,263	257	969	11,806	29,760	3,065	23,191	20,502	20,903
2060	68,059	39,591	9,307	593	17,339	259	970	11,887	29,852	3,074	23,303	20,643	21,038

Note: Hispanic origin is considered an ethnicity, not a race. Hispanics may be of any race. Responses of "Some Other Race" from the 2010 Census are modified. For more information, see <http://www.census.gov/popest/data/historical/files/MRSF-01-US1.pdf>.

Source: U.S. Census Bureau, 2012