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Life Expectancy Among U.S.-born and Foreign-born Older Adults in the United States: Estimates From Linked Social Security and Medicare Data

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Abstract

In recent decades, the geographic origins of America's foreign-born population have become increasingly diverse. The sending countries of the U.S. foreign-born vary substantially in levels of health and economic development, and immigrants have arrived with distinct distributions of socioeconomic status, visa type, year of immigration, and age at immigration. We use high-quality linked Social Security and Medicare records to estimate life tables for the older U.S. population over the full range of birth regions. In 2000–2009, the foreign-born had a 2.4-year advantage in life expectancy at age 65 relative to the U.S.-born, with Asian-born subgroups displaying exceptionally high longevity. Foreign-born individuals who migrated more recently had lower mortality compared with those who migrated earlier. Nonetheless, we also find remarkable similarities in life expectancy among many foreign-born subgroups that were born in very different geographic and socioeconomic contexts (e.g., Central America, western/eastern Europe, and Africa).

Keywords

Immigration; Life expectancy; Mortality; Medicare; Social Security

Introduction

Immigration is transforming America's demographic profile. Although the United States has long been an immigrant destination, the proportion of foreign-born individuals in the U.S. population has fluctuated over time. In 1960, the foreign-born accounted for approximately

5 % of U.S. residents (U.S. Census Bureau 2010); by 2010, this figure had risen to 13 %, a level similar to that observed in the early 1900s (Grieco et al. 2012). The composition of the foreign-born has likewise varied dramatically over time. A century ago, more than 80 % of the foreign-born were from Europe, but in 2010, only about 12 % were of European origin (Gibson and Jung 2006; Grieco et al. 2012). This compositional change is the result of an increase in the number of immigrants from previously low-immigration countries in Central/South America, the Caribbean, Asia, and Africa. In 2010, those born in Latin America and the Caribbean composed 53 % of the U.S. foreign-born population, and those born in Asia composed another 28 % (Grieco et al. 2012).

From the 1920s until 1965, U.S. immigration—except from Latin America—was largely quota-based. Immigration policy favored immigration from northern and western Europe and severely restricted immigration from Asia and Africa. During the period 1931–1970, 46 % of immigrants were born in Europe; 44 %, in the Americas; 9 %, in Asia; and 2 %, in other regions (Massey 1995). Amendments to U.S. immigration policy passed in 1965 largely replaced the quota-based system with a system favoring familial reunification and immigrants' skills; it also opened the door to immigrants from many countries outside Europe (Massey and Pren 2012). The subsequent introduction of diversity visas in the 1990s further widened the distribution of origins among the foreign-born by supporting increased immigration from countries that had historically sent relatively few immigrants to the United States (Logan and Thomas 2012).

Several studies have noted the significant mortality advantages of the U.S. foreign-born population relative to native-born Americans (Dupre et al. 2012; Elo et al. 2004; Palloni and Arias 2004; Preston and Elo 2014; Singh and Hiatt 2006; Turra and Elo 2008). Much of the literature, however, has focused on certain segments of the foreign-born population—most notably, on Hispanics (Elo et al. 2004; Lariscy et al. 2015; Palloni and Arias 2004; Turra and Elo 2008) and, to a lesser extent, on Asians (Elo 1997; Lauderdale and Kestenbaum 2002) and blacks (Dupre et al. 2012).

Despite the growing heterogeneity among the foreign-born, there are no mortality estimates of the foreign-born population according to detailed country or region of birth. There are, however, several reasons to expect mortality to vary by country or region of birth. The distributions of educational attainment and other socioeconomic characteristics, timing of U.S. entry, and visa type—all factors that have been shown to correlate with health for immigrants—vary considerably by place of birth (Akresh and Frank 2008; Argeseanu Cunningham et al. 2008). Immigrants born in different world regions will also have experienced vastly differing levels of health and economic development in their countries of birth prior to immigration, which may leave lasting imprints on their health. In addition, the magnitude of selectivity by education (Feliciano 2005) and health (Akresh and Frank 2008) relative to immigrants' sending populations has been shown to differ by region of birth.

In this article, we use linked Social Security and Medicare administrative files to provide the first estimates of life expectancy at age 65 for foreign-born Americans, considering the full range of birth regions. We calculate death probabilities for the 2000–2009 period and produce life tables for the foreign-born according to region of birth and for the U.S.-born.

We compare life expectancy at age 65 among these populations. For the foreign-born, we also compare their life expectancy at age 65 with estimates in their birth region using published data from the United Nations for 2005–2009 (United Nations Population Division 2013).

Sources of Data for U.S. Mortality Estimates

Vital statistics and census records are the primary sources of data for U.S. mortality estimates and life tables. There are, however, several potential sources of error in these data. For example, death and population counts used to estimate death rates come from different sources, leading to numerator/denominator inconsistencies (for a more complete discussion, see, e.g., Elo et al. 2004). In addition, the data suffer from age misreporting, which is particularly notable at older ages and appears to be more significant in the Hispanic and black populations than among non-Hispanic whites (Arias et al. 2010; Hill et al. 2000; Preston et al. 1996). Because of the concern about age misreporting, the National Center for Health Statistics now estimates U.S. life tables by supplementing vital statistics and census records with Medicare data to improve mortality estimates at older ages (Arias et al. 2010). Age information in Medicare records is presumed to be of high quality because beneficiaries must provide proof of their date of birth to qualify for benefits (Arias et al. 2010).

An alternative common source of mortality estimates for native- and foreign-born Americans is nationally representative survey data linked to the National Death Index, such as the National Health Interview Survey Linked Mortality Files (e.g., Lariscy et al. 2015). However, estimates from these data sources may be especially biased downward for the foreign-born: individuals who emigrated before death or for whom death records cannot be found appear to be alive at the end of the mortality follow-up period (Elo et al. 2004; Palloni and Arias 2004). Another concern is that the sample size may be insufficient to support estimates for population subgroups, such as immigrants from a particular part of the world.

Linked Social Security and Medicare files represent another source of data (Dupre et al. 2012; Elo et al. 2004; Kestenbaum 1997; Kestenbaum and Ferguson 2002; Lauderdale and Kestenbaum 2002; Turra and Elo 2008). Key strengths of these linked files include (1) their nearly full national coverage of those ages 65+, permitting an analysis of smaller subpopulations, and (2) the fact that information on both deaths and person-years of exposure come from the same data source, thereby allowing more accurate estimation of death rates.

The Older U.S. Foreign-born Population

Growth in the U.S. foreign-born population has not been limited to younger and middle ages. Between 1990 and 2010, the older (ages 65+) foreign-born population grew by nearly 2 million people, and in 2010, 12 % of U.S. adults ages 65+ were born outside the United States (Scommegna 2013). The increase in the number of older foreign-born is due both to the aging of individuals who arrived at younger ages and to the later-life immigration of individuals ages 65+, the latter often for purposes of family reunification (Leach 2008; Tienda 2015). Since at least 1990, the number of immigrants over age 60 entering the United

States has increased each year (Wilmoth 2012). In 2008–2010, approximately 9 % of the foreign-born population ages 65+ had arrived in the United States at those ages (authors' tabulations from the 2008–2010 American Community Surveys (ACS)).

Because the linked Social Security mortality files that we rely on do not contain information on socioeconomic attributes, we tabulated the 2008–2010 ACS for information on the educational attainment, citizenship status, and year of arrival in the United States of the age 65+ foreign-born population by country or region of birth (Table 1). All three characteristics are known to be associated with health or mortality. The positive association between educational attainment and health among both native and foreign-born Americans is well documented (e.g., Kimbro et al. 2008; Turra and Goldman 2007). Citizenship status provides a measure of an immigrant's close ties to the United States (Lopez-Gonzalez et al. 2005). In addition, a longer time since immigration has been commonly associated with less favorable health outcomes (Antecol and Bedard 2006; Jasso et al. 2004; Mutchler et al. 2007).

Approximately 19% of the older (65+) foreign-born population reported that they had come to live in the United States since 1990 (Table 1). The percentage who reported that they had come to live in the United States earlier than 1990 was highest for the European born, at nearly 90 %. Those born in the former Soviet Union were an exception: only about one-half reported coming before 1990. The African- and Asian-origin populations had the largest percentage of recent immigrants, with close to 30 % reporting an arrival in 1990 or later.

The European-born were the most likely to hold U.S. citizenship (more than 80 %), while those born in Central America were the least likely (about 55 %) (Table 1). Although approximately 43 % of the men and 32 % of the women among the foreign-born reported some college education, there was marked variation by place of birth. Those born in Central America reported the lowest frequencies (about 13 %), while African (68 %) and South Central Asian (69 %) men had the highest frequencies.

Health and Mortality Among Older Foreign-born Americans

Advantages in health and mortality for the foreign-born, compared with their U.S.-born racial/ethnic counterparts or to U.S.-born non-Hispanic whites, is well-documented in the literature (for a review, see, e.g., Argeseanu Cunningham et al. 2008). With respect to mortality, recent estimates for 2008–2010 indicate that life expectancy at birth for the U.S. foreign-born was 81.2 years for men and 85.1 years for women—both approximately 5 years higher than for the U.S.-born (Preston and Elo 2014). Lariscy et al. (2015), using the 1989–2006 National Health Interview Survey Linked Mortality Files, estimated that life expectancy at age 65 was 19.7 years for foreign-born Hispanic men and 23.3 years for foreign-born Hispanic women. The respective figures were 17.6 and 20.0 for U.S.-born Hispanic men and women. Dupre et al. (2012), using Social Security Administration data, estimated life expectancy in 1995 by nativity for whites and blacks in the United States. For whites, the foreign-born life expectancy advantage at age 65 was 2.8 years for men and 1.6 years for women. For blacks, the foreign-born advantage was greater, at 5.2 years for men and 4.7 years for women.

Many studies have found that the foreign-born health advantage is not explained by sociodemographic characteristics, such as education or income (Elo et al. 2011). In particular, because Hispanics generally have lower incomes and levels of educational attainment than non-Hispanic whites, much research focused on resolving the apparent paradox of lower mortality among Hispanics (Markides and Coreil 1986; Palloni and Arias 2004; Riosmena et al. 2012).

Some researchers have pointed to the roles of selective in-migration and selective out-migration. Immigrants are not a random sample of their origin population; rather, they are selected on health, behavioral, and socioeconomic characteristics (Crimmins et al. 2005; Jasso et al. 2004). Several studies comparing the health of the foreign-born with the health of the population in their sending countries typically have found that immigrants (particularly more recent ones) are healthier than persons in the sending population (Bostean 2012; Crimmins et al. 2005; Martinez et al. 2015; Mehta and Elo 2012; Riosmena et al. 2012). The results, however, are sensitive to the measure of health being investigated. For example, Riosmena et al. (2012) found that although immigrants ages 50+ who had migrated to the United States from Mexico within the last 15 years were more likely to report a favorable overall health status and were taller than persons in Mexico who had never migrated, the migrants and nonmigrants had very similar prevalence of diabetes, obesity, and smoking. Fenelon (2013) also found a similar prevalence of smoking among young immigrants from Mexico ages 18–35 and residents of Mexico of the same age, for 2002–2005.

Selective out-migration from the receiving country is sometimes referred to as “salmon bias” (Pablos-Méndez 1994). According to the salmon bias explanation, immigrants who experience unemployment or illness return to their country of origin more frequently than other immigrants, leaving behind a healthier or otherwise more advantaged population. Again, it is the Hispanic foreign-born who are the most studied for evidence for this bias (Abraído-Lanza et al. 2005; Arenas et al. 2015; Bostean 2012; Palloni and Arias 2004; Riosmena et al. 2012; Turra and Elo 2008). Turra and Elo (2008), using information in Social Security Administration records on mortality among those ages 65+, found evidence for the existence of some salmon bias but not enough to fully explain the foreign-born advantage.

Some studies have emphasized the role of cultural buffering: because the foreign-born sometimes belong to cultures characterized by strong familial and social networks and norms, they are less likely to engage in risky behaviors (Cho et al. 2004; Elo et al. 2011). The foreign-born health advantage appears to decrease as the length of U.S. residence increases (Antecol and Bedard 2006; Argeseanu Cunningham et al. 2008; Oza-Frank et al. 2009). Among the mechanisms suggested to explain this decline are acculturative processes (including behavioral changes) (Abraído-Lanza et al. 2005; Antecol and Bedard 2006); stresses associated with adapting to new surroundings and seeking permanent residence status (Angel et al. 2001; Goldman et al. 2014; Kasl and Berkman 1983); and the experience of protracted socioeconomic disadvantage for some foreign-born subgroups (Creighton et al. 2012; Hummer and Hayward 2015; Zambrana and Carter-Pokras 2010).

Data and Methods

Social Security Administrative Files

Our mortality estimates for the United States were based on data extracted from two master files of the Social Security Administration: the Master Beneficiary Record (MBR) and the Numerical Identification System (Numident). The MBR file comprises records for all individuals who are entitled to Social Security benefits or who are enrolled in Medicare. The MBR provides information on sex, dates of birth and death, place of residence, and whether the individual is enrolled in Medicare. The Numident file is a record of all applications and re-applications for a Social Security number and card, and provides information on country of birth and dates of Social Security card applications. The Medicare data linked to Social Security records have been used in several studies to estimate mortality at older ages in the United States (Dupre et al. 2012; Elo et al. 2004; Kestenbaum and Ferguson 2002; Lauderdale and Kestenbaum 2002; Preston et al. 1996; Turra and Elo 2008).

These records are not generally available outside the Social Security Administration; the individual-level data from the MBR and the Numident databases were extracted and merged by the coauthor with access to these records. Using each person's Social Security number, the following information from the Numident files was linked to the records extracted from the MBR: (1) the country of birth, which is collected on the application form, and (2) the date of the first Numident record in the file (original application). The latter is used to approximate the date of arrival into the United States. Although the date of the original application for a Social Security card is occasionally many years after arrival into the United States, more often the date will be close to the date of arrival, given that a Social Security number is needed to obtain gainful employment and in many other contexts. The proximity of the two dates is guaranteed for immigrants who participate in the Social Security Administration's Enumeration at Entry program (established in 2002), in which application for a Social Security card is a part of the visa application, and the card is mailed as soon as the immigrant enters the country.

Study Population

We study the mortality of persons aged 65 and over who are enrolled in Medicare Part B (medical insurance). A nontrivial number of records that indicate enrollment in Medicare Part A (hospital insurance) but not in Part B—especially at the oldest ages—belong to individuals who are in fact deceased but whose death was either not reported to the Social Security Administration or not recorded in its files. Unlike Part A, which is generally free of charge, Part B coverage is purchased with monthly premium payments; the nonpayment of premiums results in the termination of the Part B enrollment, the date of which is recorded in the MBR. This information reduces substantially the possibility that an individual who is deceased is included in our study.

Researchers generally agree that mortality estimates at older ages in the United States are most reliable when based on Medicare Part B enrollees (Dupre et al. 2012; Parnell and Owens 1999). In addition to the fact that the nonpayment of Medicare Part B premiums results in the termination of enrollment in the program, the age reporting in these Medicare

records is thought to be superior to age reporting in vital statistics and census data, given that proof of age is required to qualify for Social Security and Medicare benefits.

Our objective is to study the mortality experience of Medicare enrollees while they reside in the United States. We selected persons from the MBR as of November 2012 who were enrolled in Medicare Part B at some time during the 10-year period 2000–2009 and whose current or last address (if deceased) was in one of the 50 states or the District of Columbia (DC). We therefore correctly exclude persons who left the United States prior to the study period. However, we also exclude persons who left the United States during the study period, resulting in a slight underestimate of exposure and a corresponding slight overestimate of the probability of dying (Kestenbaum 1992; Elo et al. 2004). We follow the experience of U.S. residents beginning with either January 1, 2000, or their enrollment date—whichever is later. Our observation runs through December 31, 2009, or their date of death or termination of Medicare Part B enrollment—whichever is earlier.

Coverage

The Medicare Part B population does not cover the entire age 65+ population of U.S. residents, but it does come close. Persons are eligible for Part B if they are Social Security beneficiaries (workers, spouses of workers, or children of workers) or if they either (1) are U.S. citizens or (2) have resided in the United States for at least 5 years and are noncitizens admitted for permanent residence. Because the federal government subsidizes Part B and because state governments typically pay the premiums for poorer individuals, relatively few eligible persons elect not to enroll. We estimate that on July 1, 2005—close to the midpoint of our 2000–2009 study period—about 92 % of the U.S. elderly (ages 65+) in 2005 were enrolled in Medicare Part B. This estimate is based on a published count of 33.8 million enrollees as of that date from administrative records (Centers for Medicare and Medicaid Services 2007) and the Census Bureau's population estimate for the same date of 36.8 million (Centers for Medicare and Medicaid Services 2007; U.S. Census Bureau 2011). From the same publication, 35.4 million persons were then enrolled in Part A and 35.8 million in Part A or Part B (Centers for Medicare and Medicaid Services 2007).

With coverage rates this high, the effect of coverage bias on our mortality estimates is likely to be small. The one aspect of coverage bias of which we are aware is employment bias: that is, persons still employed beyond age 65 may be participating in an employer-sponsored health plan and do not need Medicare Part B. The still-employed are likely a mix of healthy individuals who choose to work and others who need to remain employed, perhaps because of socioeconomic disadvantage.

Published estimates of the proportion of foreign-born residents enrolled in Part B are not available, and coverage levels are likely smaller for the foreign-born than for the U.S.-born. Among noncitizen permanent residents, some may not have satisfied the five-year residency requirement. Those who do not have legal permanent residency are also ineligible for enrollment. However, the Census Bureau estimated that in 2000, only 2.5 % of foreign-born residents who were unauthorized, in a quasi-legal status, or who were not otherwise included in the bureau's estimates of legal migrants, were 65 years or older (Costanzo et al. 2002). For 2012, the U.S. Department of Homeland Security estimated that 4 % of unauthorized

individuals in the United States were aged 55 or older (Baker and Rytina 2013), and an even smaller percentage would have been aged 65 or older.

An estimate of participation of the foreign-born ages 65+ in the Medicare program—but not specifically in Part B—can be obtained from the ACS. According to the 2008–2010 ACS, about 90 % of the age 65+ foreign-born population participated in Medicare (authors' tabulations). Participation ranged from 95 % for immigrants from Europe to 82 % for immigrants from Africa. This difference partly reflects differences in the timing of immigration by region of birth. Participation was nearly universal for persons arriving before 1960 (98 %) and much less for persons arriving since 1990 (73 %). Participation was very high for citizens (96 %) and lower for noncitizens (75 %).

Methods

We produced life tables beginning at age 65 for the 2000–2009 period from single year of age death probabilities using standard methodology (Preston et al. 2001). We present life expectancy estimates for the total population and for the total U.S.-born and foreign-born populations. We also present estimates by place of birth and by time of first Social Security number application for the foreign-born. We focus mostly on life expectancy at age 65 because it is a summary measure of the entire mortality experience in the Medicare records. In some cases, we also present life expectancy at ages greater than 65. The complete life tables are available from the authors on request.

The place of birth is categorized as follows. We split the U.S.-born into those born in the 50 states or DC and those born in the U.S. territories because those born in the territories who moved to the 50 states or DC have distinctive health patterns (Cho et al. 2004; Elo et al. 2011). Our categorization for the foreign-born follows the categorization of geographic areas used by the United Nations Statistics Division (2013). Our first level of classification is roughly by continent (Americas, Europe, Africa, Asia, and Oceania), and the second level is by region or country. We separate Canada from the rest of the Americas because the characteristics and immigration experience of the Canadian-born are different than the characteristics and immigration experience of those coming from the rest of the Americas. Similarly, we separate the former Soviet Union from the rest of Eastern Europe because of the distinct social and political contexts of immigration from the former Soviet republics (Mehta and Elo 2012). Appendix 1 shows a list of the countries in each category.

Not all the categories for place of birth are as homogeneous as we would like. For example, because of the small number of total African immigrants ages 65+, all persons born in Africa are in one group despite pronounced diversity among Africans with respect to race/ethnicity and time of arrival (Elo et al. 2015). Similarly, the Caribbean-born group is an aggregation of persons from different racial/ethnic backgrounds (e.g., blacks, East Indians, Hispanics, and non-Hispanics).

The Numident is missing data on country of birth and date of original Social Security number application for some individuals born before 1916. The Numident was converted from a paper file to an electronic file in the mid-1970s. Prior to the conversion, when a claim for retirement, survivor, or disability benefit was received at the Social Security

Administration, the Social Security number application form on file was removed and replaced by the claim form, which does not contain the date of the original application for a Social Security number. However, country of birth was missing for only about 0.1 % of the total person-years of experience in men and women, and date of original application was missing for about 3 % (men) and 5 % (women) of the total experience; this latter percentage was most pronounced at ages 90 and older (approximately 20 %). We present separate estimates for these unknown categories.

Results

The main results from our study are displayed in Tables 2–5 and Fig. 1. Of the 324 million person-years of exposure counted during the study period (for the two sexes combined), more than 10 % is by the foreign-born (Table 2). Among the foreign-born, about one-third of person-years are contributed by persons born in Europe; another one-third, by persons born in the Americas other than Canada; and about one-quarter, by persons born in Asia. Smaller contributions come from persons born in Africa (~1 %), Oceania (~1 %), and Canada (6 %).

Approximately 11 % of the total foreign-born person years come from persons who applied for a Social Security number since 1990 (Table 2). This percentage is less than the 19 % of the foreign-born ages 65+ in the 2008–2010 ACS who reported coming to live in the United States in 1990 or after, which we reported earlier. There are several reasons for the discrepancy between the two data sources. Recent immigrants are less likely to be Medicare-eligible. They are less likely to have worked long enough to become Social Security worker beneficiaries, less likely to have met the residency requirement if they are lawfully admitted noncitizens, and perhaps more likely to be unauthorized. Another reason is that a fraction of immigrants arriving 1990 or after would have arrived after 2000 and therefore would have contributed exposure to only part of the 2000–2009 study period. Also, the measure of the timing of entry in our data is based on the date of the first application for a Social Security card, whereas some respondents in the ACS may be reporting the date of their most recent entry rather than the date of first arrival (Redstone and Massey 2004).

We estimate from the Medicare experience that at age 65, men can expect to live 16.8 years, and women can expect to live 19.6 years (Table 3). These estimates are nearly identical to estimates of life expectancy at age 65 made by the National Center for Health Statistics for the total U.S. population in 2005 (Arias et al. 2010): 16.8 years for men and 19.5 years for women (Table 3).

We also find that at age 65, both foreign-born men and foreign-born women can expect to live 2.4 years longer than their U.S.-born counterparts (Table 3). The foreign-born advantage in life expectancy holds at ages 70, 75, 80, and 85, although it declines steadily to less than one year at age 85. However, in relative terms, the foreign-born advantages are similar at all these ages: about 15 % for men and 12 % for women. The foreign-born had a nontrivial impact on overall U.S. life expectancy at age 65 for both men and women, contributing about 0.2 additional years for each (result not shown in table).

Life expectancy at age 65 varies by place of birth among both the U.S.-born and foreign-born (Table 4 and Fig. 1). Although the two U.S.-born groups have a lower life expectancy than the total foreign-born population, migrants from the U.S. territories have a higher life expectancy than persons born in the 50 states or DC, by 0.5 years for men and 1.2 years for women. The group missing place of birth information had a life expectancy that was between the U.S.-born and the foreign-born, both for men and women. Appendix 2 shows life expectancies at ages 65, 70, 75, 80, and 85 for each of the place of birth categorizations.

Among foreign-born men, life expectancy at age 65 is highest, at the “continent” level, for those born in Asia (20.2 years) (Table 4). The age 65 life expectancies of immigrants born in South Central Asia (21.1 years) and in Eastern Asia (20.7 years) are about two years higher than the overall life expectancy for foreign-born men (18.9 years). South America is the region with the third-highest life expectancy (19.9 years).

For eight of the remaining 12 place-of-birth groups, male life expectancy at age 65 is within one-half year of the overall foreign-born life expectancy. These eight groups are born in different parts of the world and include Central America (18.9 years), the Caribbean Islands (18.5 years), western Europe (18.9 years), and southern Europe (18.7 years), as well as two regions with smaller numbers of immigrants—Africa (19.0 years) and the former Soviet Union (19.1 years). Were the Asian-born populations excluded from computations, the standard deviation of male life expectancy at age 65 among the place of birth groups would be reduced by one-half, from about 1.0 year to 0.5 years (result not shown in table).

Life expectancies at age 65 for foreign-born men are lowest for men born in eastern Europe (other than the former Soviet Union) (18.1 years), northern Europe (18.1 years), Oceania (17.8 years), and Canada (17.7 years). Nevertheless, even the lowest male life expectancy among the birth regions (Canada’s) is more than one year higher than that of U.S.-born men (16.5 years).

The pattern of female life expectancies at age 65 by place of birth is similar to the pattern for men (Table 4): the rankings for the two sexes have a correlation coefficient of .84 (result not shown in table). Women born in South America have the highest life expectancy, at 23.3 years, followed by women born in Eastern Asia (23.1 years), South Central Asia (23.1 years), and Southeast Asia (22.8 years). For women born in Central America (21.5 years), Africa (22.2 years), and the former Soviet Union (21.9 years), life expectancies are within one-half year of the overall life expectancy for foreign-born women (21.7 years). The lowest life expectancies for women—those born in Canada (21.2 years), Northern Europe (20.5 years), and Oceania (20.4 years)—are all at least one year higher than the life expectancy of U.S.-born women (19.3 years).

Table 4 also shows life expectancy at age 65 for populations in the regions of birth of the U.S. foreign-born published by the United Nations Population Division (2013). With the exception of Canada and Oceania, for each region, those who moved to the United States had a higher life expectancy, often by a wide margin, than those residing in the region. In general, the differences are largest for regions with lower life expectancies. For the African-born, the difference is seven years for men and nine years for women; for Asian-born men

and women, it is approximately six years. For persons born in Central America and the Caribbean, the difference is between two years and four years; for those born in the regions of Europe with higher life expectancy, the difference is less than two years.

Life expectancy at age 65 in the foreign-born population also varies by period of Social Security card application (Table 5). Men and women whose first application date is 1990 or later have about a 2.5-year advantage over men and women whose first application is prior to 1960 (21.3 vs. 18.8 years for men, and 24.2 vs. 21.7 years for women). The group with an unknown application date consists mainly of persons who applied for benefits prior to the late 1970s. Hence, the finding that their life expectancy is lower than the groups with a known application date is consistent with the overall pattern of earlier immigrants having higher mortality than those who arrived more recently.

We additionally estimated a multivariate negative binomial regression model that controlled simultaneously for place of birth and for timing of Social Security card application, as explained in Appendix 3. As shown there, the mortality patterns associated with both the region of birth and the application date are not changed appreciably when both are included in the model.

Discussion

The share of the foreign-born among older Americans is at a historically high level and is projected to continue to grow (Colby and Ortman 2015). Accordingly, it is important to understand how the experiences of the foreign-born impact U.S. demography. We found that in 2000–2009, the foreign-born as a whole had a 2.4-year advantage in life expectancy at age 65 relative to the U.S.-born, for both men and women. We also found that substantial variation in mortality experience by place of birth and by timing of first application for a Social Security card among the foreign-born (whereby those who applied earlier had higher mortality compared with those who applied later).

One way to appreciate the magnitude of the foreign-born mortality advantage is as follows. Since 1960, life expectancy at age 65 in the United States has been increasing by approximately one year per decade (authors' tabulations from the Human Mortality Database, an accurate online mortality database maintained by the University of California, Berkeley, and the Max Planck Institute for Demographic Research (2015)). Thus, in a sense, the foreign-born are ahead of the U.S.-born by more than two decades. Also, within an international context, the U.S. foreign-born population had a life expectancy at age 65 in 2000–2009 that was higher than the average for member countries of the Organisation For Economic Cooperation and Development (OECD) in 2009, by 1.7 years for men and 1.2 years for women (OECD 2011).

Differences in Mortality Experience by Region of Birth

A noteworthy finding from our study is that the range of mortality experience across regions of birth among the foreign-born is substantial. The top quartile of place of birth groups (South Central Asia, Eastern Asia, Southeast Asia, and South America) had a life expectancy at age 65 that was approximately 2.5 years greater than that of the bottom

quartile (northern Europe, other eastern Europe, Canada, and Oceania). The large variation was partly driven by the mortality advantages of Asian-born populations. Our finding of a particularly large mortality advantage for the Asian-born is consistent with findings in earlier studies (Elo 1997; Singh and Siahpush 2002).

Nonetheless, life expectancy is surprisingly similar among several foreign-born populations who were born in very different parts of the world. For example, life expectancy at age 65 for male immigrants from Central America is within one-half year of life expectancy for immigrant men born in the former Soviet Union, Western Europe, and Africa, with a similar pattern holding for women. These similarities exist despite very different health conditions in the regions of origins, racial/ethnic and socioeconomic makeups, and immigration contexts.

Our study highlights the need for a better understanding of the sources of differences and similarities of mortality experience by region of birth. Our data set is not amenable to relating mortality experience to socioeconomic status, behavioral factors, or other potentially relevant correlates at the micro level. The administrative records that we use lack information on individual characteristics, such as educational attainment, health behaviors, and English language proficiency, all of which may be associated with mortality. The only socioeconomic information available is earnings history data in employment covered by the Social Security program, but a measure such as earnings at age 50 is not particularly useful in our context, partly because many immigrants arrived close to or after age 50. Thus, we can only speculate about the potential explanations for the mortality variations we document.

Difference in the socioeconomic profile by region of birth should play an important role, but our findings suggest that it is unlikely to be a complete or even dominant explanation. According to the 2010 ACS, 16 % of the foreign-born aged 65+ were living below the poverty level— double that of the 8 % U.S.-born aged 65+ (Grieco et al. 2012). The proportion poor was highest among those born in Central America (20 %), a middle-ranked group in terms of our mortality estimates. It was also high for the Asian-born (15 %), despite their high life expectancy (Grieco et al. 2012). Men born in South Central Asia have the greatest proportion with some college education among the foreign-born. On the other hand, those from Eastern Asia and Southeast Asia have a lower proportion of individuals with some college education than immigrants from Africa and some regions in Europe, yet have higher life expectancy at age 65 (Tables 1 and 4).

An additional set of explanations may lie with behavioral factors, such as cigarette smoking, diet, and physical activity. We are, however, unaware of studies that have investigated their role in understanding variations in mortality across the many origin regions that we investigate in this study. Lower levels of cigarette smoking among Hispanics and other immigrant groups relative to the U.S.-born has been shown to be a major contributor to the immigrant mortality advantage (Blue and Fenelon 2011; Fenelon 2013; Lariscy et al. 2015).

One characteristic that we were able to investigate was timing of U.S. arrival. We found that life expectancy at age 65 among the foreign-born is related to time of the first Social

Security card application, a proxy for time of arrival in the United States: more recent applicants had lower mortality than earlier applicants. A noteworthy conclusion from our study is that even long-duration immigrants (e.g., those arriving in the 1960s or earlier) have a mortality advantage relative to the U.S.-born. Thus, for at least certain segments of the immigrant population, the healthy migrant effect is evident many decades after arrival in the United States.

Our results might be interpreted as indirect evidence that the immigrant mortality advantage declines with an increased duration of time in the United States. The finding appears consistently in the literature (Antecol and Bedard 2006; Jasso et al. 2004; Mutchler et al. 2007). Our analysis and many prior studies, however, do not account for health status at the time of arrival or follow immigrant arrival cohorts as they age in the United States, a design that would be ideal to investigate the foreign-born advantage by duration in the United States. Our mortality pattern by duration is based on data from a single period and a comparison of immigrant cohorts who arrived at different times. Immigrants who arrived at different periods may differ not only in their health status at time of arrival because of temporal changes in selectivity but also by their experience in the United States (Fussell and Massey 2004; Villarreal 2014). Such differences could confound the association between mortality and duration based on data for a single period.

In addition, at each age, the timing of arrival is correlated with age at arrival. Take for example, two people age 80 on January 1, 2000—one arriving on January 1, 1990, and the other arriving on January 1, 1960; the first arrived at age 70, and the second arrived at age 40. It is reasonable to speculate that the person arriving at age 70 is less likely to assimilate into the lifestyle of the receiving country (Treas 2015) or may be more positively selected on health—given that he or she undertook a major transition at an advanced age—than the person arriving at age 40. It is also possible that individuals immigrating at advanced ages are doing so to join family already in the United States (Tienda 2015) and may not be particularly healthy (Jasso et al. 2004). In any of these cases, an apparent duration effect is actually an age at arrival effect (Mehta and Elo 2012).

We found that with the exception of Canada and Oceania, life expectancy at age 65 among the foreign-born is greater than in their regions of birth. The difference is largest for Asia and Africa, and generally not as large for the Americas and Europe. Feliciano (2005) showed that immigrant selectivity tends to be greater (in a positive sense) for sending countries that are further from the United States and have lower average educational attainment. Our findings regarding mortality selectivity are consistent with these patterns. Immigrants from more distant regions, such as Africa and Asia, generally had a greater life expectancy advantage relative to their birth region compared with immigrants from regions geographically closer to the United States. The regions of Africa and Asia also rank poorly on educational attainment and socioeconomic development.

The Role of Race/Ethnicity

Our focus is on the overall mortality advantage of the foreign-born relative to the U.S.-born and the variability in life expectancy among the foreign-born across region of birth rather than on differences in mortality by nativity within racial/ethnic groups. Each of the place of

birth categories include individuals of different racial and ethnic backgrounds, and these differences may contribute to differences in mortality across the categories. In contrast to younger foreign-born age groups, the fractions Hispanic or Asian among the U.S.-born ages 65+ are very low: according to our tabulations of the 2008–2010 ACS, only 3 % of the elderly U.S.-born are Hispanic, and only 1 % is Asian. Nine percent are non-Hispanic black. Among the foreign-born, the vast majority of individuals born in Europe and the former Soviet Union would be expected to self-identify as white, whereas most immigrants from the Americas would be expected to self-identify as Hispanic and those from various Asian regions as Asian. Immigrants from Africa would be a mix of blacks from sub-Saharan Africa and whites mainly from South Africa, Zimbabwe, and northern Africa. According to the 2008–2010 ACS, 47 % of the African-born ages 65+ reported being white, and 43 % reported being black; the remainder were mostly Asian.

Identification of Hispanic and Asian status in the Social Security records would be a major undertaking. For a long time, Hispanic status was not collected on the Social Security card application, and the race categories on the application were white, black, and other. Prior studies of mortality for racial/ethnic groups based on Medicare experience resorted to elaborate strategies built on name lists to identify Hispanic and Asian status. Two studies are particularly noteworthy. Elo et al. (2004) found lower mortality at ages 65+ during the period 1980–1989 among Hispanics born in Cuba, Mexico, and selected other foreign countries than among U.S.-born Hispanics. Lauderdale and Kestenbaum (2002) found lower mortality in the 1990s among six Asian subgroups (Chinese, Indian, Japanese, Korean, Filipino, Vietnamese) than among non-Hispanic whites.

Conclusion

We calculated that the higher life expectancy at age 65 of the foreign-born raised overall U.S. life expectancy at age 65 by 0.2 years for both men and women. Although this figure is relatively modest, in subnational areas with large immigrant populations (such as California and New York City), the impacts can be more substantial. In fact, Preston and Elo (2014) showed that the two-year advantage in life expectancy at birth in New York City in 2010, relative to the rest of the country, is entirely attributable to the city's large percentage (40 %) of foreign-born residents. As the foreign-born are expected to become an ever larger share of America's older population in the coming decades, they will have an increasing impact on old-age mortality patterns at a national level. Continued research into the factors that contribute to the favorable health profile of the older U.S. foreign-born is well warranted.

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Appendix 1. Classification of U.S.- and foreign-born for purposes of analysis

United States of America

50 States and District of Columbia

U.S. Territories (Guam, Northern Marianas, United States Virgin Islands, American Samoa, Puerto Rico)

Canada

Other Americas

Central America: Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama

Caribbean Islands: Anguilla, Antigua and Barbuda, Aruba, Bahamas, Barbados, Bermuda, Bonaire, Saint Eustatius and Saba, British Virgin Islands, Cayman Islands, Cuba, Curaçao, Dominica, Dominican Republic, Grenada, Guadeloupe, Haiti, Jamaica, Martinique, Montserrat, Saint-Barthélemy, Saint Kitts and Nevis, Saint Lucia, Saint Martin (French part), St. Pierre and Miquelon, Saint Vincent and the Grenadines, Saint Maarten (Dutch part), Trinidad and Tobago, Turks and Caicos Islands

South America: Argentina, Bolivia (Plurinational State of), Brazil, Chile, Colombia, Ecuador, Falkland Islands (Malvinas), French Guiana, Guyana, Paraguay, Peru, Suriname, Uruguay, Venezuela (Bolivarian Republic of)

Europe

Northern Europe: Åland Islands, Channel Islands, Denmark, Faeroe Islands, Finland, Greenland, Guernsey, Iceland, Ireland, Isle of Man, Jersey, Norway, Sark, Svalbard and Jan Mayen Islands, Sweden, United Kingdom of Great Britain and Northern Ireland

Western Europe: Austria, Belgium, France, Germany, Liechtenstein, Luxembourg, Monaco, Netherlands, Switzerland

Southern Europe: Albania, Andorra, Bosnia and Herzegovina, Croatia, Gibraltar, Greece, Holy See, Italy, Malta, Montenegro, Portugal, San Marino, Serbia, Slovenia, Spain, The former Yugoslav Republic of Macedonia

Former Soviet Union: Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Lithuania, Republic of Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine, Uzbekistan, Latvia

Other Eastern Europe: Bulgaria, Czech Republic, Hungary, Poland, Romania, Slovakia

Africa

Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Comoros, Congo, Cote d'Ivoire, Democratic Republic of the Congo, Djibouti, Egypt, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mayotte, Morocco, Mozambique, Namibia, Niger, Réunion, Rwanda, Sao Tome and Principe, Seychelles, Somalia, South Africa, South Sudan, Sudan, Swaziland, Tunisia, Uganda, United Republic of Tanzania, Western Sahara, Zambia, Zimbabwe

Asia

Eastern Asia: China; China, Hong Kong Special Administrative Region; China, Macao Special Administrative Region; Democratic People's Republic of Korea, Japan, Mongolia, Republic of Korea

South Central Asia: Afghanistan, Bangladesh, Bhutan, India, Iran (Islamic Republic of), Maldives, Nepal, Pakistan, Sri Lanka

Southeast Asia: Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Singapore, Thailand, Timor-Leste, Viet Nam

Western Asia: Bahrain, Cyprus, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, State of Palestine, Syrian Arab Republic, Turkey, United Arab Emirates, Yemen

Oceania

Australia, Cook Islands, Fiji, French Polynesia, Kiribati, Marshall Islands, Micronesia (Federated States of), Nauru, New Caledonia, New Zealand, Niue, Norfolk Island, Palau, Papua New Guinea, Pitcairn, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, Wallis and Futuna Islands

Appendix 2

Table 6

Life expectancy in years at various ages (e_x) among the U.S.-born and foreign-born: 2000–2009 Social Security Administration administrative files^a

Place of Birth	Men					Women				
	e_{65}	e_{70}	e_{75}	e_{80}	e_{85}	e_{65}	e_{70}	e_{75}	e_{80}	e_{85}
Total	16.74	13.43	10.42	7.80	5.65	19.57	15.84	12.41	9.35	6.75
United States	16.53	13.25	10.28	7.69	5.55	19.34	15.65	12.27	9.25	6.68
50 states and DC	16.53	13.24	10.27	7.68	5.55	19.33	15.64	12.26	9.24	6.67
Territories	17.05	13.88	11.02	8.46	6.36	20.51	16.71	13.24	10.14	7.53
All Foreign-born	18.91	15.23	11.83	8.86	6.45	21.71	17.59	13.76	10.32	7.42
Canada	17.66	14.04	10.79	8.03	5.76	20.47	16.49	12.87	9.62	6.90
Other Americas	18.83	15.25	11.96	9.05	6.70	21.99	17.94	14.15	10.76	7.87
Central America	18.87	15.29	12.01	9.11	6.71	21.52	17.53	13.84	10.54	7.69
Caribbean Islands	18.48	14.98	11.72	8.88	6.59	22.10	18.04	14.21	10.78	7.91
South America	19.91	16.19	12.75	9.61	7.14	23.29	19.04	15.06	11.46	8.39
Europe	18.56	14.85	11.45	8.49	6.09	21.29	17.16	13.34	9.94	7.06
Northern Europe	18.10	14.40	11.02	8.12	5.81	20.47	16.49	12.82	9.56	6.80
Western Europe	18.93	15.15	11.71	8.70	6.20	21.20	17.11	13.40	10.08	7.19
Southern Europe	18.68	14.89	11.44	8.42	5.99	22.07	17.79	13.74	10.16	7.17
Former Soviet Union	19.10	15.36	11.89	8.87	6.37	21.85	17.61	13.65	10.10	7.15
Other Eastern Europe	18.06	14.54	11.29	8.46	6.11	21.28	17.13	13.26	9.83	6.99
Africa	19.01	15.35	11.95	8.85	6.39	22.19	18.07	14.19	10.70	7.74
Asia	20.18	16.37	12.83	9.76	7.22	22.88	18.69	14.78	11.21	8.20
Eastern Asia	20.71	16.79	13.16	9.99	7.40	23.13	18.93	15.01	11.42	8.34
South Central Asia	21.07	17.19	13.49	10.21	7.45	23.07	18.78	14.76	11.12	8.08
Southeast Asia	19.49	15.79	12.39	9.42	6.98	22.81	18.66	14.79	11.30	8.35
Western Asia	19.12	15.41	12.00	9.19	6.89	21.73	17.54	13.68	10.13	7.22
Oceania	17.80	14.39	11.28	8.34	5.91	20.39	16.58	12.99	9.84	7.12
Unknown	18.19	14.70	11.58	8.80	6.32	21.37	17.32	13.50	10.09	7.30

^aMedicare Part B enrollees in the Master Beneficiary Record (MBR) linked to Numident application data in the Social Security Administration administrative Files. Estimates are restricted to experience in the 50 U.S. states and the District of Columbia.

Appendix 3

Multivariate Negative Binomial Regression Models Predicting Death Rates Among the U.S. Foreign-born

Multivariate regression models were estimated to examine whether the mortality patterns associated with date of social security application and place of birth confound each other (Table 7). All models in Table 7 control for age. Models 1 and 2 include, respectively, date of social security application and place of birth without controlling for the other characteristic. Model 1 confirms that applicants who applied more recently have lower

mortality compared with those who applied earlier in time. Model 2 confirms the relative ordering of the foreign-born subgroups with respect to mortality shown in Table 4. These patterns remain largely intact when the two variables are entered in the same model, suggesting that the associations do not confound each other (Model 3).

Table 7

Relative risks of death estimated from negative binomial regression models, ages 65+: 2000–2009 Social Security Administration administrative files^a

Characteristic	Men			Women		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Date of Social Security Application						
Pre-1960	Reference		Reference	Reference		Reference
1960s	0.96		0.96	0.96		0.97
1970s	0.96		0.98	0.98		0.99
1980s	0.93		0.95	0.91		0.93
1990+	0.80		0.82	0.77		0.79
Unknown	1.08		1.08	1.04		1.04
Place of Birth						
Canada		Reference	Reference		Reference	Reference
Other Americas						
Central America		0.86	0.88		0.89	0.91
Caribbean Islands		0.90	0.93		0.82	0.84
South America		0.79	0.81		0.73	0.75
Europe						
Northern Europe		0.98	0.98		1.01	1.02
Western Europe		0.90	0.89		0.94	0.94
Southern Europe		0.94	0.94		0.86	0.87
Former Soviet Union		0.91	0.94		0.92	0.95
Other Eastern Europe		0.98	0.99		0.93	0.94
Africa		0.87	0.89		0.83	0.85
Asia						
Eastern Asia		0.72	0.74		0.74	0.76
South Central Asia		0.69	0.72		0.75	0.79
Southeast Asia		0.83	0.85		0.80	0.82
Western Asia		0.86	0.88		0.86	0.89
Oceania		1.02	1.03		1.02	1.02

Note: All models controlled for age in years (65–69, 70–74, 75–79, 80–84, 85–89, 90–94, 95–999, 100+).

^aMedicare Part B Enrollees in the Master Beneficiary Record (MBR) linked to NUMIDENT application data. Estimates are restricted to experience in the 50 U.S. states and the District of Columbia.

Fig. 1.

Life expectancy in years at age 65 by place of birth and sex among the U.S. foreign-born: 2000–2009 Social Security Administration administrative files. Medicare Part B enrollees in the Master Beneficiary Record (MBR) linked to Numident application data. Estimates restricted to experience in the 50 U.S. states and District of Columbia.

Table 1
Sociodemographic characteristics of the U.S. foreign-born, ages 65+: American Community Surveys, 2008–2010

Place of Birth	Men			Women				
	N	Percentage Arriving Since 1990	Percentage U.S. Citizen	Percentage With Some College Education	N	Percentage Arriving Since 1990	Percentage U.S. Citizen	Percentage With Some College Education
All Foreign-born	61,895	18.7	74.6	43.2	88,700	19.0	73.4	32.4
Canada	3,247	15.5	66.2	54.8	5,249	9.7	70.1	44.5
Other Americas	23,870	16.5	64.7	26.7	34,525	21.0	65.9	22.9
Central America	10,247	15.8	54.7	12.9	13,986	20.6	56.1	12.2
Caribbean Islands	7,306	16.0	75.0	29.6	10,489	19.6	75.6	25.0
South America	3,070	20.3	73.9	43.3	4,801	25.2	69.3	31.0
Europe	18,724	11.3	83.0	48.2	29,529	10.2	82.1	38.1
Northern Europe	3,588	9.0	73.5	62.4	6,895	4.2	76.9	44.3
Western Europe	4,156	4.2	81.6	61.2	9,075	2.7	84.1	43.6
Southern Europe	4,919	2.6	85.3	22.8	5,462	3.5	83.5	15.7
Former Soviet Union	2,412	48.0	87.5	62.8	3,669	48.6	82.8	56.8
Other Eastern Europe	3,649	9.4	86.5	46.9	4,428	11.5	82.9	31.1
Africa	1,181	27.3	75.6	67.7	1,369	37.7	62.1	37.5
Asia	17,866	28.8	79.1	56.3	22,872	28.8	74.1	37.4
Eastern Asia	6,404	25.7	77.2	54.8	9,356	23.1	74.9	33.8
South Central Asia	3,823	31.2	76.8	68.5	3,376	40.7	65.4	36.3
Southeast Asia	6,448	31.8	81.3	51.9	8,961	31.4	76.1	42.6
Western Asia	1,191	19.8	85.0	48.2	1,179	21.5	78.5	29.6
Oceania	254	17.3	63.8	57.6	405	11.9	66.0	43.3

Note: Estimates are weighted using sample weights provided in the American Community Survey.

Person-years of exposure, number of deaths, and percent of exposure contributed by persons applying for a Social Security card since 1990, ages 65+:
2000–2009 Social Security Administration administrative files^a

Place of Birth	Men			Women			Percentage Applying for Social Security Card Since 1990
	Person-Years Exposure	Deaths	Percentage Applying for Social Security Card Since 1990	Person-Years Exposure	Deaths	Percentage Applying for Social Security Card Since 1990	
Total	134,970,604	6,768,947	n/a	189,432,576	8,040,843	n/a	n/a
U.S.-born	121,475,505	6,235,022	n/a	168,962,157	7,376,084	n/a	n/a
50 U.S. states and DC	120,607,123	6,197,800	n/a	167,667,602	7,333,219	n/a	n/a
Territories	868,382	37,222	n/a	1,294,555	42,865	n/a	n/a
All Foreign-born	13,356,819	527,873	10.5	20,268,488	657,649	11.6	11.6
Canada	689,908	38,911	1.3	1,291,256	60,630	1.0	1.0
Other Americas	4,462,487	162,211	6.6	6,341,960	182,754	11.1	11.1
Central America	2,170,311	75,779	4.7	2,868,032	82,264	11.9	11.9
Caribbean Islands	1,730,678	69,437	8.6	2,569,313	79,680	10.0	10.0
South America	561,498	16,995	9.1	904,615	20,810	12.6	12.6
Europe	4,557,362	208,274	7.8	7,524,856	286,200	7.3	7.3
Northern Europe	767,315	36,578	2.3	1,600,205	64,162	1.4	1.4
Western Europe	904,327	38,569	0.6	2,142,644	73,016	0.5	0.5
Southern Europe	1,303,201	54,522	1.1	1,564,672	57,197	1.5	1.5
Former Soviet Union	591,331	26,864	48.7	919,785	36,949	48.8	48.8
Other Eastern Europe	991,188	51,741	3.8	1,297,550	54,876	5.4	5.4
Africa	181,916	6,035	14.1	224,656	5,947	21.1	21.1
Asia	3,408,088	110,111	19.9	4,774,427	117,712	19.4	19.4
Eastern Asia	1,269,020	40,019	15.1	2,034,839	49,571	13.4	13.4
South Central Asia	629,377	16,853	22.4	635,027	13,990	28.9	28.9
Southeast Asia	1,212,067	42,537	25.9	1,774,312	44,096	23.9	23.9
Western Asia	297,624	10,702	14.4	330,249	10,055	18.8	18.8
Oceania	57,064	2,331	6.2	111,333	4,406	5.6	5.6
Unknown	138,280	6,052	9.4	201,931	7,110	11.2	11.2

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Medicare Part B enrollees in the Master Beneficiary Record (MBR) linked to Numident application data. Estimates are restricted to experience in the 50 U.S. states and the District of Columbia. n/a = not applicable

Table 3

Life expectancy in years at various ages: 2000–2009 Social Security Administration administrative files^a and 2005 U.S. life tables

Life Expectancy at Age (years):	SSA administrative files, 2000–2009 ^a			U.S. Population, 2005 ^b	
	Total	U.S.-Born	Foreign-Born	Difference ^c	U.S. Life Table
Men					
65	16.75	16.53	18.91	2.38	16.76
70	13.43	13.25	15.23	1.98	13.32
75	10.42	10.28	11.83	1.55	10.25
80	7.80	7.69	8.86	1.17	7.66
85	5.65	5.55	6.45	0.90	5.57
Women					
65	19.57	19.34	21.71	2.37	19.46
70	15.84	15.65	17.59	1.94	15.64
75	12.41	12.27	13.76	1.49	12.14
80	9.35	9.25	10.32	1.07	9.11
85	6.75	6.68	7.42	0.74	6.62

^aMedicare Part B enrollees in the Master Beneficiary Record (MBR) linked to Numident application data. Estimates are restricted to experience in the 50 U.S. states and the District of Columbia.

^bEstimates are from 2005 U.S. life tables based on revised methodology as published in Arias et al. (2010).

^cDifference in life expectancy between the foreign-born and U.S.-born (foreign-born – U.S.-born).

Table 4

Life expectancy in years at age 65 (e_{65}) among the U.S. native and foreign-born and in the sending regions of the U.S. foreign-born

Place of Birth	Men		Women		Difference
	e_{65}^a	Sending Region ^b	e_{65}^a	Sending Region ^b	
Total	16.75	—	19.57	—	—
United States	16.53	—	19.34	—	—
50 states and DC	16.53	—	19.33	—	—
Territories	17.05	—	20.51	—	—
All Foreign-born	18.91	—	21.71	—	—
Canada	17.66	18.04	20.47	21.16	-0.69
Other Americas	18.83	—	21.99	—	—
Central America	18.87	17.20	21.52	19.04	2.48
Caribbean Islands	18.48	16.14	22.10	18.53	3.57
South America	19.91	15.96	23.29	18.76	4.53
Europe	18.56	15.41	21.29	18.84	2.45
Northern Europe	18.10	17.01	20.47	20.01	0.46
Western Europe	18.93	17.40	21.20	21.05	0.15
Southern Europe	18.68	17.10	22.07	20.69	1.38
Former Soviet Union	19.10	—	21.85	—	—
Other Eastern Europe	18.06	—	21.28	—	—
Africa	19.01	12.10	22.19	13.37	8.82
Asia	20.18	14.36	22.88	16.65	6.23
Eastern Asia	20.71	15.38	23.13	18.09	5.04
South Central Asia	21.07	13.03	23.07	14.50	8.57
Southeast Asia	19.49	13.89	22.81	16.29	6.52
Western Asia	19.12	13.98	21.73	17.09	4.64
Oceania	17.80	17.83	20.39	20.76	-0.37
Unknown	18.19	—	21.37	—	—

^a Medicare Part B enrollees in the Master Beneficiary Record (MBR) linked to Numident application data in the 2000–2009 Social Security Administration administrative files. Estimates are restricted to experience in the 50 U.S. states and the District of Columbia.

Data are from the United Nations Population Division (2013) for the 2005–2009 period.

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Table 5

Life Expectancy in years at age 65 (e_{65}) by date of first social security card application among U.S. foreign-born: 2000–2009 Social Security Administration administrative files^a

Date of Social Security Application	Men		Women	
	Person-Years Exposure	Deaths	Person-Years Exposure	Deaths
Pre-1960	4,422,440	220,866	5,484,882	216,916
1960s	3,175,146	100,340	4,920,091	133,016
1970s	1,994,697	66,944	3,685,362	114,803
1980s	2,003,708	70,124	2,988,555	82,440
1990+	1,364,450	41,825	2,248,566	47,135
Unknown	396,388	27,774	941,033	63,339

Note: Life expectancy estimated from data aggregated to five-year age intervals.

^aMedicare Part B enrollees in the Master Beneficiary Record (MBR) linked to Numident application data. Estimates are restricted to experience in the 50 U.S. states and the District of Columbia.