

**IMMIGRATION POLICY AND
IMMIGRANTS' AGES**

*W. Brian Arthur
Thomas J. Espenshade*

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by

W. Brian Arthur* and Thomas J. Espenshade**

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***Morrison Professor of Population Studies and Economics,
Food Research Institute, Stanford**

****Associate Director, Population Studies and Training Center,
and Professor of Sociology, Brown University; and
Senior Fellow, The Urban Institute, Washington, D.C.**

ABSTRACT

It is now well-known that if fertility were to persist at some level below replacement, a constant flow of permanent immigrants would generate a stationary population, proportional in size to the *numbers* of immigrants admitted each year. In this paper we ask whether the *ages* at which immigrants are admitted make a significant difference to the ultimate population size. We find analytically that age at admission can indeed make a difference. Admitting immigrants all at ages 50-54 rather than at 10-14 in the U.S., as an extreme example, would make an ultimate population size difference of almost 23 to 1. A more realistic 5-year shift in the median age of U.S. immigrants makes a smaller difference: about 25 million people by the year 2100. We derive analytical expressions and discuss the implications for immigration policy.

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In industrial nations where fertility is below replacement, immigration can provide a substantial guarantee against the prospect of long-run population loss. In Austria in 1985, for example, net immigration of 7,300 persons was sufficient to offset a slight natural decrease and produce a small gain in total population. Deaths outnumbered births by 118,000 in the Federal Republic of Germany in 1985, but the 83,000 net immigrants were almost enough to prevent population from declining. And the United Kingdom's 50,000 net immigrants accounted for nearly 40 percent of its total population growth in 1985.¹

In studying how fertility and immigration produce changes in population size and composition, typically we hold constant the age composition of immigrants and examine changes in the annual volume of immigration.² As demographers, we have given little regard to how sensitive population might be to variation in immigrants' ages.³ Nor have policymakers paid much attention

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1. Data on the contribution of immigration to annual population change were calculated from information supplied by Carl Haub at the Population Reference Bureau.
 2. For studies of the demographic implications of immigration, see Coale (1987), Espenshade and Bouvier (1982), Espenshade (1983), and Tabah and Cataldi (1963).
 3. Keyfitz (1971) explored the advantages of age selection in emigration. Two problems occupied his attention. First, what is the effect of a one-time removal of part of the initial population at age x on long-run stable population size? Second, what proportion of successive cohorts reaching age x would need to emigrate to reduce the intrinsic growth rate to a specified level? Keyfitz found that emigration was an inferior substitute for birth control. Using 1966 data from Mauritius, for example, he concluded, "The poor returns on emigration as a means of population control are suggested by the fact that if 30 to 40 percent of each cohort were to leave this would only hold the population down to 2 percent annual increase, or a doubling every 35 years" (p. 70). By contrast, with fertility below replacement, the return on immigration to maintain population stationarity is very high because, without immigration, population size would decline indefinitely.

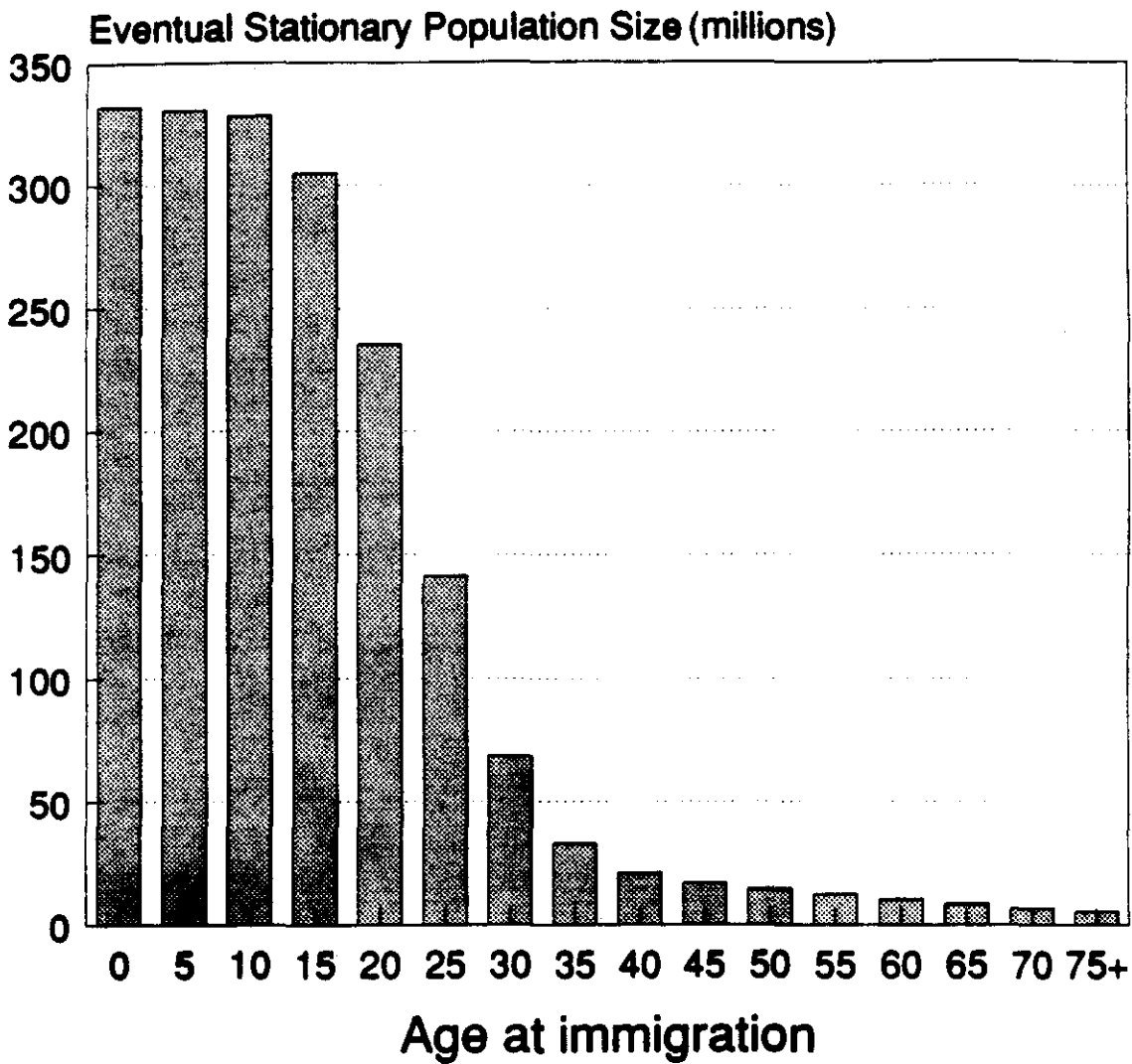
to the demographic implications of influencing the ages at which immigrants are admitted. It is generally assumed that the distribution of immigrants' ages does not matter much demographically, so that immigrant numbers and not immigrant ages are the proper focus of policy. Now that industrialized countries are beginning to experience the possibility of population decline due to low birth rates, and countries like the United States, Australia, and Canada have adopted or are considering procedures to allocate a portion of immigrant visas in part according to age, it is appropriate to examine the demographic impacts of age-targeted immigration policies.

Do the ages at which immigrants are admitted make much of a difference? One way to find out is to recognize that, if fertility persists at some level below replacement, a constant flow of permanent immigrants will generate a stationary population—perhaps even quite a sizeable one (Espenshade, Bouvier, and Arthur, 1982)—and then to examine the size of the ultimate stationary population that would be produced in the United States under present demographic rates (which have below-replacement fertility) if all immigrants were concentrated in a single age group (0-4, or 5-9, or 10-14, ..., or 75 years old and over).⁴ The results are in Figure 1. If all immigrants were admitted at ages 10-14, a stationary population of 328.3 million would be generated. If immigrants were admitted at ages 50-54, however, the resulting stationary population would be only 14.4 million. Thus age at admission does make a difference demographically and potentially a very large one. Admitting immigrants all at ages 10-14 rather than at 50-54 would make an ultimate population size difference of almost 23 to 1.

4. We use in these projections the 1980 U.S. total fertility rate of 1.835 and life expectancies at birth of 77.5 years for women and 70.0 years for men. We use 1983 legal immigration figures: 559,800 lawful permanent residents (Footnote 4 Continued on Next Page

Figure 1

U.S. stationary population size if immigrants are admitted at a single age



Why should this be so? Why should the stationary population be so sensitive to age at admission? Intuitively, the answer must have something to do with the fact that 50-year-old migrants are beyond the childbearing ages and do not contribute descendants born in their new country. Teenage migrants, on the other hand, contribute not only themselves but also descendants, and their descendants will in turn further reproduce. Intuitively then, the number of reproductive years that immigrants have in front of them must be a central part of the explanation.

We can confirm and clarify these intuitive notions by changing the order of integration and rewriting the expression for total (female) stationary population size (N) in Espenshade et al. as

$$N = [e_0 / (1 - NRR)] \int_0^{\omega} I(x) v(x) dx + \int_0^{\omega} I(x) e(x) dx, \quad (1)$$

where e_0 is life expectancy at birth, NRR stands for the net reproduction rate (assumed here to be less than 1), $I(x)$ is the annual number of immigrants admitted at age x , $v(x)$ is the average number of daughters remaining to be born per woman at age x in a cohort of women subject to given fertility and mortality schedules, $e(x)$ is remaining life expectancy at age x , and ω represents the oldest age attained by any individual. The effects of age at admission of immigrants are now explicit. The eventual stationary population that results from the immigrant flow consists of two parts: (1) foreign-born immigrants who are still alive (second term on the right) and (2) the future population of native-born descendants of immigrants (first term on the right).

(Footnote 4 Continued from Previous Page)
 admitted—276,200 females and 283,600 males, with median ages at admission of 26.4 and 26.0 years, respectively.

To show the impact on N of a change in the age of migrants, suppose we simplify the analysis and assume that all immigrants enter at one age, x_0 . Then the integrals disappear and N is

$$N = [e_0/(1-NRR)] I(x_0) v(x_0) + I(x_0) e(x_0) . \quad (2)$$

Because $I(x_0)$ is just a scale factor, we may consider the effect of one immigrant arriving at age x_0 . Then, on a per immigrant basis, N becomes

$$N_I = N/I(x_0) = [e_0/(1-NRR)] v(x_0) + e(x_0) . \quad (3)$$

It is now clear that how N_I varies with respect to changes in x_0 depends on the shapes of the curves $e(x)$ and $v(x)$. The term $e(x)$ represents the average length of life remaining to a new immigrant who enters at age x , and the relation is generally downward sloping as shown in Figure 2. Under conditions of 1980 U.S. mortality, women who reached age 65 had an average of 18.3 years of life left. The remaining span was 54 years for 25-year-old women. Viewed differently, $e(x)$ is the size of a stationary population of foreign-born persons over the age of x that is generated by an annual flow of one migrant of age x . Therefore, a steady stream of one 65-year-old immigrant per year would, under 1980 conditions, produce a stationary population of 18.3 foreign-born persons. If immigrant females arrived instead at age 25, the resulting foreign-born population would contain an average of 54 women.

The second important function in equation (3) is $v(x)$, the average number of daughters remaining to be born for a female immigrant admitted at age x . Figure 3 illustrates that this curve also declines with age, at least after the beginning of childbearing. It is more instructive to think of $v(x)$ as the annual number of first-generation native-born daughters produced by an annual

Figure 2

Life expectancy at age x for U.S. females: 1980

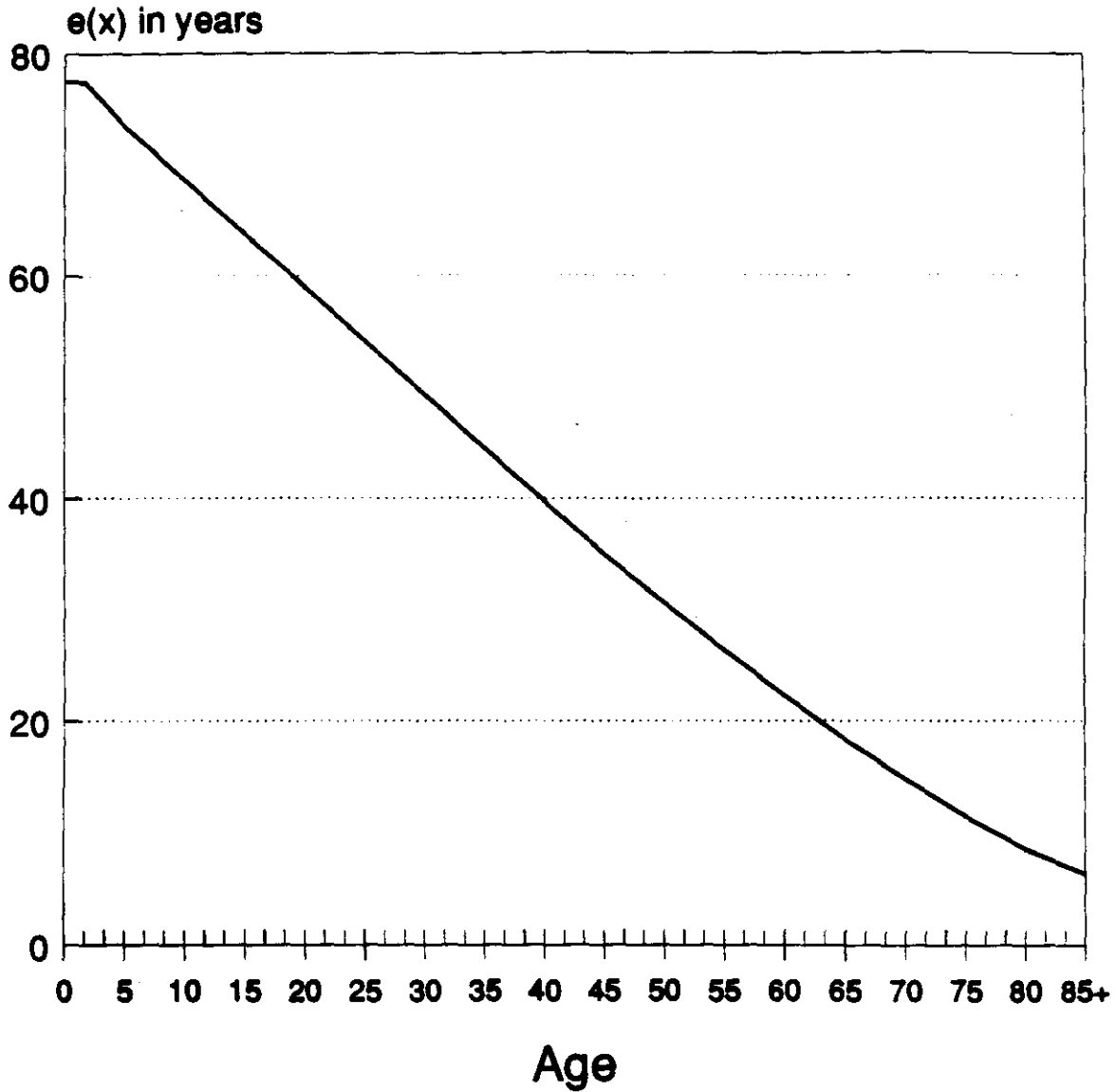
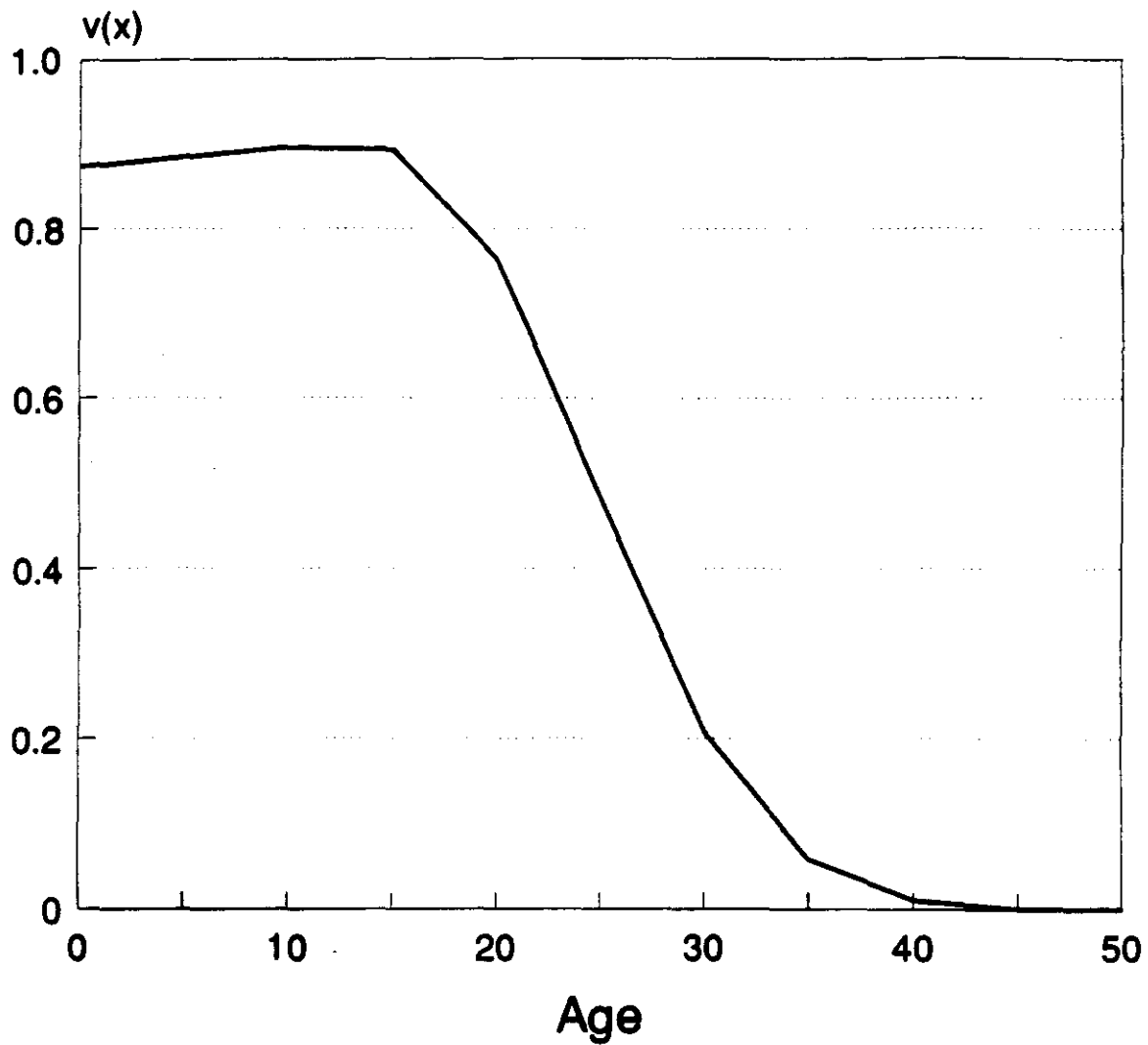


Figure 3

Average number of daughters remaining to be born per woman at age x



flow of one migrant of age x . So at least back to age 10 or 15, the younger a female immigrant is the greater her contribution to first-generation native births will be. These births in turn each produce NRR additional births in the next (i.e., second) generation, NRR^2 births in the generation after that, NRR^3 in the one after that, and so on. Summing this series for all future generations of native-born descendants of immigrant women is equivalent to multiplying the number of first-generation births by $1/(1-NRR)$. Finally, if one person is born each year in a stationary population, the stationary population ultimately builds up to e_0 in size. So e_0 is a factor that converts births into total population size. Multiplying total native-born descendants of immigrant women by e_0 in equation (3) yields the stationary population of immigrants' descendants.

To summarize, migrants contribute to the size of the ultimate stationary population in two ways: first, through their presence in the population and, second, through the offspring they produce, which sets in motion a chain of descendants from one generation to the next. And it is now clear that the age distribution of immigrants is crucial for later population size. Because $e(x)$ and $v(x)$ slope downward over much of the relevant age range, increasing immigrants' ages at admission will typically reduce the ultimate stationary population size. Older immigrants have fewer years left to live in their new country, and a larger part of their childbearing period is already behind them. Figure 1 also suggests that the effect is highly nonlinear; variation in immigrants' ages has the greatest impact on population size when immigration is concentrated in the childbearing ages.

It may take several hundred years for the full stationary populations we have described to materialize, depending on the initial population's age

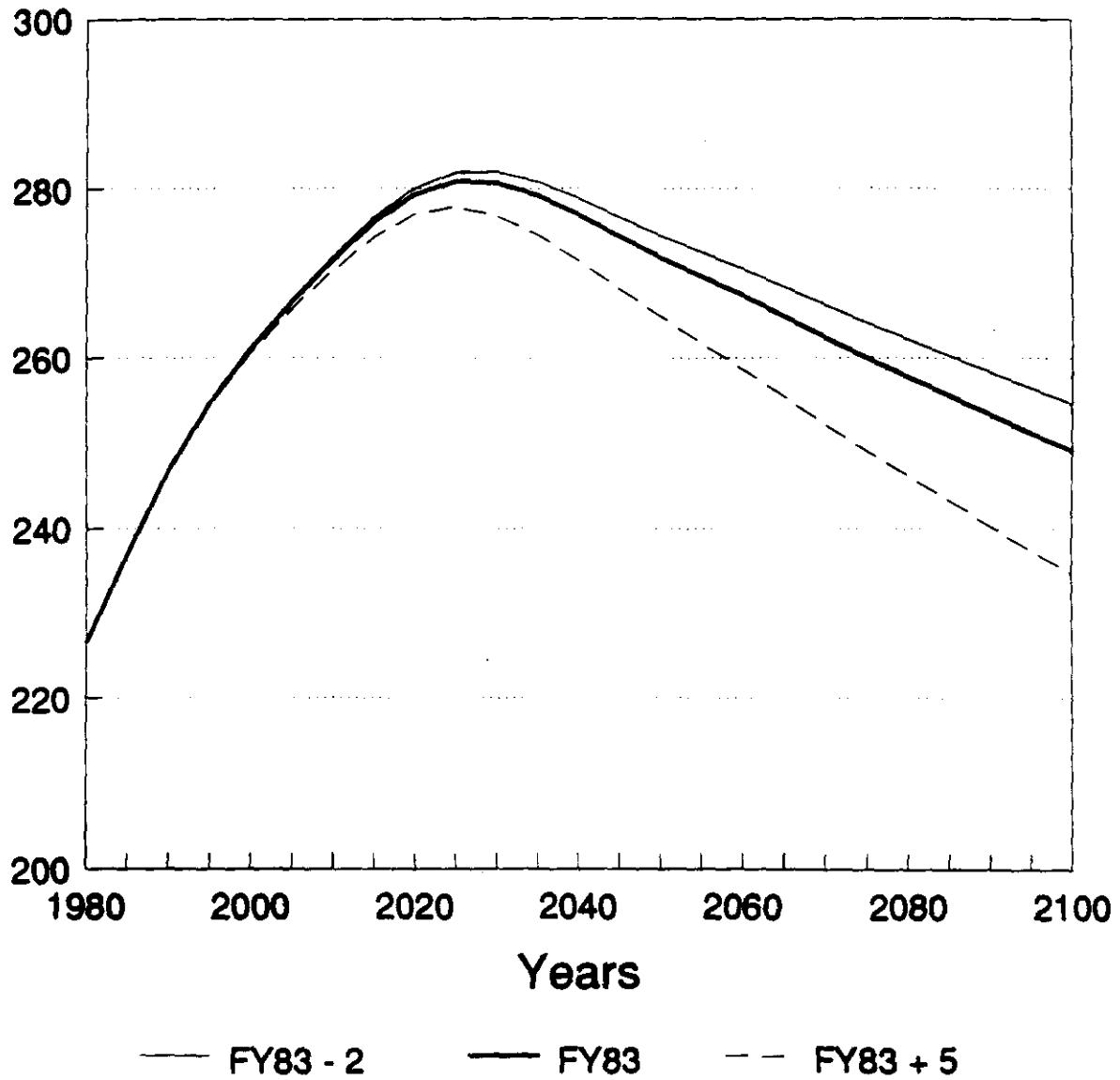
composition. Furthermore, in practice immigrants tend to be admitted at many ages so that, even if immigration policy could influence the age pattern of immigration, results as dramatic as those in Figure 1 should not be expected. Therefore, it is useful for policy purposes to reconsider these results over a shorter time frame using a more realistic range of migrant age compositions. Projections of the 1980 U.S. population of 226.5 million persons to the year 2100 using three alternative immigrant age compositions are illustrated in Figure 4. The middle series is based on the actual age-sex distribution of legal immigrants to the United States during fiscal year 1983 and on the fertility and mortality assumptions used for Figure 1. The projections labeled FY83-2 and FY83+5 have migrant age compositions with median ages two years less and five years more than the middle series, respectively.⁵

A noticeable but not large difference in population size attributable to variation in immigrants' ages has emerged by 2025. The range runs from 235 to 255 million by the year 2100. Continuing these projections until a stationary population is reached results in 185 million persons when younger migrants are selected compared with 131 million if immigrants are roughly seven years older. These outcomes confirm the principle that the age of migrants is negatively related to population size. But they also show that, when differences in the age composition of immigrants that would be admitted under a plausible range of immigration policies are considered, the effect is much less than the multiple of 23:1 cited in connection with Figure 1.

5. This seven-year range is suggested by the median ages of lawful permanent residents admitted by preference category in 1986 (see Table 1). The median age of all numerically limited immigrants was 26.0 years. Immigrants admitted in the third and fourth preference categories had median ages of 30.7 and 23.7 years, respectively. Data from 1985 show a similar span in immigrants' ages.

Figure 4

Population size (in millions) with three immigrant age compositions



The distribution of total population by age and by generational status may also be sensitive to differences in the age composition of migrants. If sub-replacement fertility persists, however, the U.S. population will continue to age quickly, and this effect is likely to overshadow those stemming from choosing younger or older immigrant age profiles. Under any of the projections in Figure 4, the median age of the U.S. population is expected to increase from 31.3 years in 1980 to more than 42 years by 2100. Most of this rise occurs during the first 50 years and is little affected by the age of migrants. In the year 2100, for example, the U.S. population's projected median age is confined between 42.5 years for younger migrants and 43.7 years for older migrants.

Finally, the responsiveness of the native/immigrant mix in the receiving country to differences in migrants' ages may be examined by disaggregating total U.S. population into two groups: (1) 1980 U.S. residents and their descendants and (2) post-1980 immigrants and their descendants. Native-born persons in the second category may be further divided according to whether they are the first-generation or later-generation descendants of migrants. When the younger mix of migrants in Figure 4 is chosen, 11.0 percent of the total population in the year 2100 are post-1980 immigrants. Direct descendants of the initial population comprise 68.1 percent of the total, and 20.9 percent are either first- (7.8 percent) or later-generation (13.1 percent) descendants of recent immigrants. If migrants' ages fall at the upper end of the plausible range, then immigrants make up 10.4 percent of total population in the year 2100. Descendants of original population members comprise 73.8 percent of the whole, and 15.8 percent belong either to the first- (5.7 percent) or later-generation (10.1 percent) descendants of post-1980 immigrants.

Implications for U.S. Immigration Policy

Because population size, age composition, and native/immigrant mix display a sensitivity to immigrants' ages, it is useful to discuss some of the ways that U.S. immigration policy might be used to affect the age distribution of immigrants. In so doing we will also touch on the likely nature of the consequent policy debate in the U.S. context if immigrant ages were a proper focus of policy.

First, additional age-related criteria could be incorporated into the existing system for allocating immigrant visas. The rationing rules now in use are shown in Table 1. Immigrants admitted as lawful permanent residents come in under two categories: those subject to numerical limitation (not to exceed 270,000 annually) and those exempt from numerical limits. A preference system based largely on a potential immigrant's relation to a U.S. citizen or to a permanent resident alien is used to establish eligibility and priorities for entry under the numerical ceiling.

Apart from a reference to parents of U.S. citizens under the heading of numerically exempt immediate relatives, the existing visa allocation system favors reuniting families of procreation over families of orientation, and the immigrants that such a system produces therefore tend to be relatively young. Nevertheless, the median age of legal U.S. immigrants has risen by about two years since 1970 (see Table 2). This rise by itself has contributed to a slower rate of U.S. population growth. For example, when the 1980 U.S. population is projected assuming the 1983 volume and sex composition of legal U.S. immigrants and, alternatively, the 1970 and 1986 age profiles for immigrants, population size is 8 million persons less (245.4 versus 253.6 million) in the year 2100 under the 1986 distribution. The larger volume of migrants in 1986 than in 1970 has of course added to population growth rates.

Table 1

United States Immigrant Visa Allocation System

I. Numerically Limited Immigrants (270,000)

<u>Preference</u>	<u>Groups Include</u>	<u>Percentage and Number of Visas</u>
First	Unmarried sons and daughters of U.S. citizens and their children	20% or 54,000
Second	Spouses and unmarried sons and daughters of permanent resident aliens	26% or 70,200 ^a
Third	Members of the professions of exceptional ability and their spouses and children	10% or 27,000
Fourth	Married sons and daughters of U.S. citizens, their spouses and children	10% or 27,000 ^a
Fifth	Brothers and sisters of U.S. citizens (at least 21 years of age) and their spouses and children	24% or 64,800 ^a
Sixth	Workers in skilled or unskilled occupations in which laborers are in short supply in the United States, their spouses and children	10% or 27,000
Non-preference	Other qualified applicants	Any numbers not used above

II. Numerically Exempt Immigrants

A. Immediate relatives of U.S. citizens

Spouses; children; parents (of U.S. citizens at least 21 years of age)

B. Special immigrants

Certain ministers of religion
 Certain former employees of the U.S. government abroad
 Certain persons who lost U.S. citizenship
 Certain foreign medical graduates

C. Refugee and asylee adjustments

a—Numbers not used in higher preference may be used in these categories.

Source: U.S. Department of Justice, Immigration and Naturalization Service, 1983 Statistical Yearbook of the Immigration and Naturalization Service, page viii.

Table 2

**Immigrants Admitted to the United States by Sex and Median Age,
Fiscal Years 1970-1986**

Year	Number of immigrants			Median age		
	Both sexes	Males	Females	Both sexes	Males	Females
1986	601,708	300,777	300,931	27.4	27.2	27.6
1985	570,009	286,141	283,868	26.9	26.7	27.0
1984	543,903	274,896	269,007	26.5	26.3	26.8
1983	559,763 ^a	271,966	264,975	26.2	26.0	26.4
1982	594,131 ^b	287,874	284,576	25.8	25.5	26.1
1981 ^c	596,600	-	-	26.0	-	-
1980 ^c	530,639	-	-	26.3	-	-
1979	460,348	219,536	240,812	26.3	26.1	26.5
1978	601,442	286,374	315,068	26.2	26.0	26.4
1977	462,315	216,424	245,891	27.1	26.8	27.3
TQ76 ^d	103,676	48,283	55,393	25.7	25.6	25.8
1976	398,613	184,863	213,750	26.0	26.0	26.0
1975	386,194	180,741	205,453	25.4	25.4	25.5
1974	394,861	184,518	210,343	24.7	24.8	24.7
1973	400,063	186,320	213,743	25.0	25.2	24.8
1972	384,685	179,715	204,970	25.4	25.8	25.0
1971	370,478	172,528	197,950	25.3	25.8	24.9
1970	373,326	176,990	196,336	25.3	26.0	24.8

a—Includes 22,822 persons of unknown sex.

b—Includes 21,681 persons of unknown sex.

c—Data on sex were not available in fiscal years 1980 and 1981.

d—Refers to the transition quarter, July 1, 1976 to September 30, 1976.

Sources: 1986: U.S. Immigration and Naturalization Service, Statistical Yearbook of the Immigration and Naturalization Service, 1986, Table I2; 1978-1985: U.S. Department of Justice, 1985 Yearbook of the Immigration and Naturalization Service, Tables IMM 4.1 and 4.2; 1974-1977: U.S. Department of Justice, 1977 Annual Report: Immigration and Naturalization Service, Table 10A; 1970-1973: U.S. Department of Justice, 1974 Annual Report: Immigration and Naturalization Service, Table 10A. The median ages reported here for 1970-1977 differ from those tabulated in INS annual reports. The corrected data were provided by Michael Hoefler, Statistical Analysis Division, Immigration and Naturalization Service.

Part of the explanation for rising immigrants' ages is that Asians are increasing among legal immigrants, and Asians are bringing their parents with greater frequency than other immigrant groups.⁶ In 1976 the upward trend in immigrants' ages received an extra boost when the fifth preference category was revised to require that U.S. citizens had to be at least twenty-one years of age to bring in their brothers and sisters. The presumably unintentional effect this revision had when it was implemented in January 1977 is evidenced in Table 2 by the sharp break between the 1976 transition quarter (TQ1976) and 1977 of 1.4 years in the median age of immigrants.⁷ One might expect that other age-related adjustments to the current preference system could also affect the trend in immigrants' ages.

Second, changing the numerical ceiling of 270,000 in Table 1 and the percentages assigned to each of the preference categories might also be expected to influence the age pattern of immigration, because the median age of immigrants admitted under the numerical limits differs from the median age of immigrants exempt from numerical restrictions, and because the median age of

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6. In 1986, 45,000 parents of U.S. citizens were admitted under the exempt immediate relatives provision, and about 70 percent of these were Asians. This number is up from 34,000 parents in 1980 and 23,000 in 1978. Between 1985 and 1986 parents of U.S. citizens increased from 6.8 percent of all legal immigrants to 7.5 percent. The median age of parents in both years was 62.2 years. In addition, Cuban refugees increased from 2.5 percent of all immigrants in 1985 to 5.0 percent in 1986. Cuban refugees tend to be older than other immigrants; their median age was 36.3 years in 1986.
 7. Another element that might have contributed to the discontinuity between 1976 and 1977 concerns the treatment of Cuban refugees. In 1967 and 1968 Cuban refugees to the United States were exempted from numerical limits. Beginning in 1969 they were placed under western hemisphere limitations, but such a pent-up demand developed for U.S. entry that an executive order was signed in 1977 exempting Cuban refugees from limitations and thereby easing the backlog. In 1977, 69,000 Cubans were admitted as legal immigrants, and, because Cubans have an older average age than other immigrants, this factor could have raised the overall median. After 1977, the number of Cuban refugees dropped off sharply.

immigrants varies according to the particular preference category in which they are admitted.⁸

Third, the most direct way to affect migrants' ages is to incorporate age as an explicit criterion for entry. Under a pending proposal to reform the rules governing legal immigration to the United States, a portion of new immigrant visas would be distributed under a point system. Points would be given for education, English-language ability, job skills, work experience, and age. Policy questions center on which ages should be favored, how much weight should age receive in relation to other factors likely to affect the productivity of new immigrants in the host country, and what is the appropriate balance between immigrant visas allocated according to a point system versus a preference system emphasizing family reunification. The proposed U.S. legislation would establish a comprehensive national ceiling of 590,000 annual immigrant visas divided between family migrants and a new category for "independent immigrants." Of the 120,000 visas reserved for the latter group, 55,000 would be allocated according to a point system. Ten points would be awarded to potential migrants between ages 21 and 35; five would be given to migrants between 36 and 44 years of age. Up to 20 points could be received for occupations in demand and for English-language skills. Out of a maximum point total of 95, a minimum of 50 points would be needed to qualify for admission.

8. In fiscal year 1986 the median ages of numerically limited immigrants and numerically exempt immigrants were 26.0 and 28.1 years, respectively. This difference continues a pattern from fiscal year 1985 in which numerically restricted immigrants were roughly two years younger than immigrants exempt from numerical restriction. Among immigrants subject to numerical limits, those in the first, second, and fourth preference categories are typically the youngest. In fiscal year 1986, for example, the median ages of immigrants admitted in these categories were 24.8, 24.4, and 23.7 years, respectively. Immigrants admitted in the third, fifth, and sixth preference categories had median ages of 30.7, 29.0, and 30.6 years, respectively.

Conclusions

Putting aside the specific means of implementation, this analysis shows that, in the United States and other countries where fertility rates are currently below replacement, both population size and age composition respond to variation in immigrants' ages. When immigration is concentrated in the childbearing ages, as it typically is, raising the ages at which migrants are admitted reduces population growth and adds to population aging. However, the specific quantitative effect of differences in migrant age compositions within the plausible range must be put into context. In the long run, changes in immigrants' ages make a large difference to population size. But they make a much smaller difference in the short run, especially when a realistic range of migrants' ages is assumed. It seems fair to conclude that changes in immigrants' ages exert a substantial effect, but one that takes a considerable time to make itself fully felt. To the degree that national policy wants to use immigration to build up population size or allow it to decrease, policy could take more account of immigrants' ages.

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