FOREIGN-BORN EMIGRATION FROM THE UNITED STATES: 1960 TO 1970

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Abstract—This paper presents estimates of emigration of foreign-born persons by age and sex for 1960 to 1970, based on 1960 and 1970 census counts of the foreign-born population, adjusted life table survival rates, and annual statistics on alien immigration published by the Immigration and Naturalization Service. The effects of nativity bias are discussed. It is estimated that approximately 1,140,000 foreign-born persons emigrated between 1960 and 1970, of which 663,000, or 58 percent, were women and 477,000 were men. Almost one-quarter of the foreign-born emigrants were women 25–44 years of age in 1970. About 175,000 foreign-born persons 65 years and over in 1970 emigrated during the decade. The most significant finding, that more than one million foreign-born persons left the United States between 1960 and 1970, has important implications for U.S. immigration policy and for net immigration data used to estimate the population of the United States.

INTRODUCTION

Nearly 50 million persons have moved to the United States throughout our history. The majority of the immigrants stayed in the United States, yet millions have chosen not to remain permanently in this country. Between 1908 and 1957, 15.7 million immigrants were admitted for permanent residence and 4.8 million aliens emigrated (U.S. Bureau of the Census, 1960). The recorded numbers of immigrants and alien emigrants for ten-year periods between 1908 and 1957 are shown in Table 1.

In 1957, the Immigration and Naturalization Service (INS) discontinued its efforts to count emigrants because the figures were small and because the quality of the statistics was questionable. The present system of collecting international migration data for the United States ignores emigration and therefore new methods are needed to produce reasonable estimates of net immigration (U.S.

Commission on Population Growth and the American Future, 1972).

The estimates of foreign-born emigration presented here were made using a combination of census data and INS statistics on aliens admitted for permanent residence. The most significant finding of this study, that more than one million foreign-born persons emigrated from the United States between 1960 and 1970, has major implications for the estimates of underenumeration in the 1970 census, for the accuracy of current estimates and projections of the population of the United States, and for the formulation of immigration policy and law.

METHODS AND SOURCES OF DATA

General Methods

Foreign-born emigration is estimated by "surviving" the 1960 census count of the foreign-born population to 1970 and adding the number of immigrants admit-

Table 1.—Immigrants Admitted to the United States and Aliens Departed, for Ten-Year Periods: 1908 to 1957

Period	Immigrants admitted	Alien emigrants	Ratio of alien emigrants to immigrants admitted
1948–1957	2,344,204	254,036	.11
1938–1947	648,614	156,662	.24
1928–1937	1,135,415	583,737	.51
1918–1927	3,960,327	1,354,177	.34
1908–1917	7,630,286	2,463,883	.32
Total 1908–1957	15,718,846	4,812,495	.31

Source: U.S. Bureau of the Census, 1960.

ted during the period. The difference between this "expected" population and the 1970 census count should represent emigration of foreign-born persons between 1960 and 1970. Algebraically:

$$E = P_{60} - D + I - P_{70} \qquad (1)$$

where P_{60} and P_{70} represent the foreign-born population in 1960 and 1970, respectively; D, deaths to the foreign born; I, the number of immigrants; and E, the number of foreign-born emigrants. The 1960 and 1970 census counts of the foreign-born population were adjusted for net census undercount (see Appendix). Estimates of emigration were computed for five-year age groups, separately by sex, and summed to estimate total emigration.

For example, the steps used to compute the initial estimates of net emigration of foreign-born females 30–34 years of age in 1970 are:

1. 1960 census count of foreign-born females, ages 20–24.............. 170,000

    multiplied by:

2. Survival rates for the age group 20–24 in 1960 and 30–34 in 1970.. .9912

    equals:

3. Survivors of 1960 census count

during the period. The difference be-

(3 = 1 × 2)............................. 168,000

    plus

4. Female immigrants admitted 1960–1970, survived to age 30–34 in 1970 277,000

    equals:

5. Estimate of foreign-born females 30–34 in 1970, assuming no emigration during the decade (5 = 3 + 4)............................ 445,000

    minus

6. 1970 census count of foreign-born females, age 30–34 357,000

    equals:

7. Estimate of net emigration, during 1960–1970, of females 30–34 in 1970 (7 = 5 – 6)............................. 88,000

The figure 88,000 shown in step 7 (assumed to be net emigration) actually represents emigration and the sum of all errors introduced in the previous steps.

Estimating Procedure—Total Foreign-born Emigration

Adjustments were necessary to (1) reduce the original estimates of foreign-born deaths by the number of deaths

which occurred after emigration, and (2) take into account changes in the foreign-born student population enumerated in the censuses but not reported in the INS data.

1. *Adjustment for persons who died after emigrating.* In the example above, mortality of the foreign-born population was computed initially by multiplying each age-sex group by the appropriate survival rates to estimate the number of foreign-born persons who would have survived to 1970. The resulting estimate of deaths represents all deaths occurring during the intercensal period to the foreign-born population without regard to their country of residence. In the majority of cases the deaths occurred to foreign-born persons who remained in the United States. However, in each case where a foreign-born person moved out of the United States and subsequently died abroad (both events occurring in the 1960–1970 period) the event should be recorded as emigration in the estimating procedure rather than mortality. That is, D in the equation should represent only those deaths which occurred in the United States. The adjustment for each age-sex group involved the following steps:

(a) An initial estimate of emigration was calculated using equation (1).

(b) The resulting number of emigrants was "revived" to 1960 by dividing the initial estimate by the appropriate survival rates. This hypothetical cohort was considered to be the foreign-born population "at risk" of dying after emigrating. The number of deaths occurring to this cohort would be the difference between the "revived" emigrants from this step and the initial estimate from step (a).

(c) It was assumed that half of the deaths to the cohort described in step (b) occurred after emigration.

The adjustment raised the initial estimates of emigration by 8,000 for the population under 55 in 1970. For the population over 55 in 1970 the adjustment increased the estimate of total emigration by about 50,000.

2. *Foreign student adjustment.* A final adjustment to the emigration estimates was necessary to account for the net migration of foreign-born students, by age and sex, between 1960 and 1970. Foreign-born students are included in decennial census data but are excluded from INS data on immigrants admitted for permanent residence. The net migration of foreign-born students during the decade was estimated by calculating the change in the number of nonimmigrant foreign students enrolled in college between 1960 and 1970 (Table A-1). Taking account of the net migration of nonimmigrant students between 1960 and 1970 raised the estimate of total foreign-born emigration during the decade by 67,000. Including nonimmigrant students enrolled in 1970 as immigrants during the 1970s increased the estimate of emigration of 1960–1970 immigrants by 118,000.

Distinguishing Emigration of 1960–1970 Immigrants and 1960 Foreign-born Population

Census data by year of immigration were used to determine how many immigrants who were admitted between 1960 and 1970 also emigrated during the same period. The procedure can be expressed algebraically as follows:

$$I/E_{60-70} = I_{60-70} - D_{60-70} - P_{70} \qquad (2)$$

where I/E_{60-70} represents the number of immigrants admitted between 1960 and 1970 who also emigrated during the period; I_{60-70}, the number of immigrants admitted between 1960 and 1970; D_{60-70}, the number of deaths to immigrants admitted during the period; and P_{70}, the census count of foreign-born persons who reported that they entered the United States between 1960 and 1970. The estimates of emigration of 1960–1970 immigrants, by

age and sex, were subtracted from the estimates of total emigration to calculate the number and percent of the 1960 foreign-born population who emigrated during the 1960s.

EVALUATION OF CENSUS DATA ON NATIVITY

In the estimating procedure, the difference between the expected 1970 foreign-born population, assuming no emigration, and the 1970 census count of foreign-born is assumed to be emigration. If the 1970 census counted a relatively larger number of foreign-born persons as native than the 1960 census, part of the estimated emigration would be due to nativity bias.

An examination of the allocation techniques followed in 1960 and 1970 indicated that differences in editing procedures probably were not a source of bias in the estimates of emigration (U.S. Bureau of the Census, 1964a, 1973a). Although the rate of nonresponse to the question on nativity increased from 2.5 percent of the total population in 1960 to 4.8 percent in 1970, relatively more non-responses were allocated to foreign-born in the 1970 census than in the 1960 census. Also, the 1970 editing procedure used more checks on such items as mother tongue and citizenship and used the responses of other related persons to allocate nonresponses to native or foreign born. In 1960, 99.6 percent of non-responses were allocated to native and 0.4 percent to foreign-born. In 1970, 96.0 percent were allocated to native and 4.0 percent to foreign-born. Thus, 390,000 persons were allocated to foreign-born in 1970 compared to just 18,000 in 1960. If changes in the editing procedure between 1960 and 1970 had resulted in a less complete count of the foreign-born population in 1970 than in 1960, then the estimates of emigration presented here would be overstated. Based on the figures above, this does not appear to have happened.

The 1970 Content Reinterview Survey used a detailed battery of questions which were designed to provide a more accurate response than was obtained in the census. The study found "no evidence of bias in the 'native' and 'foreign' classification using the country-of-birth and citizenship questions on the . . . questionnaire to define nativity. . . . The responses to the country-of-birth and citizenship questions are highly consistent with those obtained in the reinterview" (U.S. Bureau of the Census, 1974a, p. 24).

As part of the Census Bureau's evaluation program, demographic analysis has been used to determine consistency between 1960 and 1970 in reporting of native birth. The methodology was similar to that described in this paper but the native population was survived and compared to the 1970 census count of the native population. It was concluded that inconsistencies between the 1970 expected and actual native populations were not due to inconsistency in reporting nativity but to deficient emigration estimates used in the evaluation (Robinson, 1978). (The estimates of emigration shown here were not used in the evaluation.)

These three examinations of the reliability of the nativity questions in 1960 and 1970 indicate that there has been no significant deterioration in the quality of census data on nativity. Therefore, nativity bias was not likely to have had much effect on the emigration estimates presented here.

ESTIMATES

Total Foreign-born Emigration, 1960–1970

An estimated 1,140,000 foreign-born persons emigrated from the United States between 1960 and 1970 (Table 2). About 663,000, or about 60 percent of the emigrants were women, and 477,000 were men. Higher emigration of females in the 25 to 34 and 60 and over age groups (age in 1970) accounted for most of the difference.

Nearly 25 percent of all foreign-born emigrants during the decade were women 25–44 years of age in 1970. This raises the possibility that large numbers of children

Table 2.—Estimates of Foreign-Born Emigration, by Age and Sex: 1960 to 1970 (in Thousands)

Age 1960	Age 1970	Both Sexes Total	Both Sexes 1960 foreign born	Both Sexes Admitted 1960 to 1970	Male Total	Male 1960 foreign born	Male Admitted 1960 to 1970	Female Total	Female 1960 foreign born	Female Admitted 1960 to 1970
All ages	All ages	1,140	521	619	477	222	255	663	299	364
---	Under 5	-15	---	-15	-7	---	-7	-8	---	-8
---	5 - 9	9	---	9	4	---	4	5	---	5
Under 5	10 - 14	105	62	43	55	33	22	50	29	21
5 - 9	15 - 19	91	54	37	48	25	23	43	29	14
10 - 14	20 - 24	112	53	59	55	29	26	57	24	33
15 - 19	25 - 29	92	9	83	21	4	17	71	5	66
20 - 24	30 - 34	140	25	115	54	11	43	86	14	72
25 - 29	35 - 39	121	35	86	59	20	39	62	15	47
30 - 34	40 - 44	81	20	61	39	11	28	42	9	33
35 - 39	45 - 49	74	33	41	39	21	18	35	12	23
40 - 44	50 - 54	54	22	32	25	12	13	29	10	19
45 - 49	55 - 59	52	30	22	22	13	9	30	17	13
50 - 54	60 - 64	49	28	21	16	8	8	33	20	13
55 - 59	65 - 69	43	28	15	22	16	6	21	12	9
60 - 64	70 - 74	48	37	11	17	12	5	31	25	6
65+	75+	84	85	-1	8	7	1	76	78	-2

Note: Negative results in the Under 5 and 75+ age groups (in 1970) are illogical. They are shown here to assist other investigators in evaluating the results and to present a complete table of estimates.

who were born in the United States (and are therefore native-born) could have emigrated with their parents. Assuming foreign-born women have the same fertility rates as the total population and that about half of the estimated births to female emigrants occurred in the United States before emigration, then roughly 185,000 native children of foreign-born parents would have emigrated during the decade. This figure is not included in the estimates presented here.

Emigration of foreign-born persons 65 years and over in 1970 was estimated to be about 175,000, and almost 75 percent of these emigrants were women. Information on Social Security beneficiaries overseas provides additional evidence of the high level of emigration of the older population. The annual number of Social Security beneficiaries abroad increased steadily from 100,000 in 1960 to 232,000 in 1970. More than 90 percent of Social Security beneficiaries abroad are foreign-born (U.S. Social Security Administration, 1974). Since the large majority of Social Security beneficiaries are older persons subject to high levels of mortality, emigration during the decade had to be considerably higher than the net increase of 132,000 in order to replace those who died during the decade.

Foreign-born persons who moved out of the country during the 1960 to 1970 period can be subdivided into those who were in the United States in 1960 and those who entered during the 1960s. The rate of return is much higher for recent immigrants than for persons who have lived in the United States for extended periods. More than 1 out of every 6 immigrants admitted during the 1960s emigrated by the end of the decade. The amount and rate of return migration is especially high—close to 25 percent—for persons 30 years and older (Table 3).

Table 4 shows the number and percent of the 1960 foreign-born population who emigrated between 1960 and 1970. More than 30 percent of the 1960 foreign-born population under 15 years of age emigrated between 1960 and 1970. These persons were recent immigrants in 1960 and therefore their emigration rates were more similar to those for 1960–70 immigrants than for the over-15 population in 1960.

Other Evidence of Emigration, 1960–1970

Data from another source supports the estimates of total foreign-born emigration presented here. Annual alien registration data and other statistics published by the INS were used to compute an independent estimate of total alien emigration for 1962 to 1970. The registered resident alien population in January 1962 was 2,854,000. Between January 1962 and January 1970, about 2,721,000 immigrants were admitted to the United States, 869,000 aliens became naturalized citizens, and an estimated 308,000* aliens died. If *no* aliens had emigrated between 1962 and 1970, then the alien population in January 1970, based on the 1962 population and components of change listed above, would have been 4,398,000. The actual registered alien population in January 1970 was 3,720,000, indicating that possibly 678,000 aliens emigrated during the eight-year period, or roughly 850,000 during the decade. This figure is consistent with the estimate of total foreign-born emigration during the decade and suggests that most of the foreign-born emigrants were aliens and not naturalized citizens. Many of the older foreign-born emigrants may be naturalized citizens who returned to their native country upon retirement.

The Impact of Undocumented Immigration

The computation of foreign-born emigration was done without regard to the number of undocumented aliens residing

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* Estimated using an annual crude death rate of 12 deaths per 1,000 aliens. Statistics on annual alien registration, immigrants admitted, and aliens naturalized are published in the annual reports of the Immigration and Naturalization Service, Department of Justice.

Table 3.—Estimates of Emigration of 1960–1970 Immigrants, by Age and Sex: 1960 to 1970 (Numbers in Thousands, Percents Based on Unrounded Numbers)

Age 1960	Age 1970	Both Sexes Admitted 1960-1970 (1)	Both Sexes Emigrated 1960-1970 (2)	Both Sexes Percent emigrated (3)=(2)÷(1) x 100	Male Admitted 1960-1970 (4)	Male Emigrated 1960-1970 (5)	Male Percent emigrated (6)=(5)÷(4) x 100	Female Admitted 1960-1970 (7)	Female Emigrated 1960-1970 (8)	Female Percent emigrated (9)=(8)÷(7) x 100
All ages	All ages	3,438	619	18.0	1,543	255	16.5	1,895	364	19.2
---	Under 5	82	-15	---	42	-7	---	40	-8	---
---	5 – 9	243	9	3.7	123	4	3.3	119	5	4.2
Under 5	10 – 14	288	43	15.0	146	22	15.0	142	21	15.0
5 – 9	15 – 19	258	37	14.3	126	23	18.3	131	14	10.7
10 – 14	20 – 24	331	59	17.8	127	26	20.5	203	33	16.3
15 – 19	25 – 29	488	83	17.0	181	17	9.4	308	66	21.4
20 – 24	30 – 34	495	115	23.2	218	43	19.7	277	72	26.0
25 – 29	35 – 39	365	86	23.4	178	39	21.9	187	47	24.9
30 – 34	40 – 44	262	61	23.2	126	28	22.4	136	33	24.0
35 – 39	45 – 49	188	41	21.6	90	18	20.0	99	23	23.2
40 – 44	50 – 54	130	32	25.2	60	13	22.3	70	19	27.6
45 – 49	55 – 59	108	22	20.3	47	9	18.3	61	13	21.9
50 – 54	60 – 64	82	21	25.3	34	8	24.2	48	13	26.1
55 – 59	65 – 69	55	15	26.1	22	6	26.4	33	9	25.9
60 – 64	70 – 74	33	11	32.9	13	5	37.3	21	6	30.1
65+	75+	29	-1	---	10	1	10.0	18	-2	---

Note: Negative results in the Under 5 and 75+ age groups (in 1970) are illogical. They are shown here to assist other investigators in evaluating the results and to present a complete table of estimates.

Table 4.—Estimates of Emigration of 1960 Foreign-Born Population, by Age and Sex: 1960 to 1970
(Numbers in Thousands, Percents Based on Unrounded Numbers)

Age (1960)	Age (1970)	Both Sexes — 1960 Foreign-born Population Census count adjusted	Both Sexes — Emigrated 1960-1970	Both Sexes — Percent emigrated 1960-1970	Male — 1960 Foreign-born Population Census count adjusted	Male — Emigrated 1960-1970	Male — Percent emigrated 1960-1970	Female — 1960 Foreign-born Population Census count adjusted	Female — Emigrated 1960-1970	Female — Percent emigrated 1960-1970
All ages	All ages	9,959	521	5.2	4,856	222	4.6	5,103	299	5.9
Under 5	10 - 14	104	62	59.0	53	33	61.8	51	29	56.2
5 - 9	15 - 19	170	54	31.8	86	25	29.3	83	29	34.4
10 - 14	20 - 24	242	53	21.9	123	29	23.1	119	24	20.0
15 - 19	25 - 29	210	9	4.3	103	4	3.9	107	5	4.7
20 - 24	30 - 34	321	25	7.8	146	11	7.5	175	14	8.0
25 - 29	35 - 39	404	35	8.7	183	20	10.9	221	15	6.8
30 - 34	40 - 44	492	20	4.1	215	11	5.1	277	9	3.5
35 - 39	45 - 49	580	33	5.8	272	21	7.9	309	12	4.0
40 - 44	50 - 54	464	22	4.7	225	12	5.1	239	10	4.3
45 - 49	55 - 59	655	30	4.6	323	13	4.0	332	17	5.1
50 - 54	60 - 64	884	28	3.1	440	8	1.9	444	20	4.4
55 - 59	65 - 69	1,062	28	2.6	538	16	2.9	525	12	2.2
60 - 64	70 - 74	1,132	37	3.2	557	12	2.1	575	25	4.3
65+	75+	3,239	85	2.6	1,592	7	0.4	1,647	78	4.7

in the United States in 1960 or 1970 and does not incorporate estimates of the immigration or emigration of illegal aliens because of the lack of reliable information on the subject. The estimates presented here would be affected by the presence of undocumented aliens in the United States only to the extent that they were included in any of the sets of data used in the estimating procedure. There is no evidence that large numbers of illegal immigrants were in the decennial censuses, nor is there evidence that they were missed. However, if illegal aliens were covered to any significant degree in the 1970 census and if they accurately reported themselves as foreign-born, then the estimates of emigration would be understated because the 1970 foreign-born population would be overstated. If illegal aliens reported themselves as native in the 1970 census, then there would be no effect on the estimated level of emigration.

Since this methodology is sensitive to the effects of census coverage of undocumented immigrants, its utility for estimating foreign-born emigration during the 1970–1980 decade would be reduced if there was a significant difference between the number of illegal aliens reporting themselves as foreign-born in the 1970 and 1980 censuses.

DISCUSSION AND CONCLUSIONS

This paper presents evidence that large numbers of foreign-born persons emigrated from the United States between 1960 and 1970 and describes the methodology used in making the estimates. Because of the possible sources of error described above, the figures, especially the data by age, should be regarded as approximations. Nevertheless, the figures do demonstrate that there was substantial migration out of the United States by the foreign-born population during the 1960s.

Although the methodology described here provides estimates of foreign-born emigration, its utility is limited. First, since emigration is estimated as the residual, this procedure cannot readily be used

with as large a population as the native population. Relatively small variations in the enumerated size of the native population caused, for example, by changes in allocation procedures, could result in large fluctuations in the estimated emigration of the native born. Second, the social and economic characteristics of emigrants cannot be determined using this methodology. Finally, the dependence of this procedure on decennial census data makes it impossible either to make current estimates of emigration or to make estimates for less than an entire ten-year period. The use of multiplicity or network sampling in conjunction with a continuing survey may serve as a reasonable alternative methodology not subject to the limitations described above (see Passel and Peck, 1979).

The implications of substantial foreign-born emigration for U.S. population growth are obvious. Rather than 400,000 persons being added to the U.S. population each year (the level of net immigration currently used by the Census Bureau in its population projections), the real addition is probably closer to 250,000 each year (Keely and Kraly, 1978). More detailed information about emigration is needed to improve the accuracy of the current national estimates and projections, to accurately assess the coverage of the 1980 census of population, and to provide policymakers with a more complete picture of the movement of the foreign-born population.

APPENDIX

Definitions and Sources of Data

1. *Foreign born*—Persons born outside the United States, the Commonwealth of Puerto Rico, and the outlying areas of the United States. The term foreign-born comprises aliens (foreign-born persons who have not acquired U.S. citizenship) and naturalized citizens. Persons who were born in a foreign country and who have at least one na-

tive American parent are classified as native. The figures for the foreign-born population used to compute the estimates of emigration are published in the 1960 and 1970 census volumes (U.S. Bureau of the Census, 1964a, 1973a). The 1960 and 1970 figures for the total foreign-born population are based on 25 and 15 percent sample data, respectively; the 1970 census data by year of immigration are based on 5 percent sample census data.

To adjust for possible changes in coverage by age, the assumption was made that the foreign-born population enumerated in each census had the same rates of undercount by age and sex as the estimated rates for the total population (Table A-2). If this assumption is not made and if the amount of undercount were greater for the foreign-born population 20–24 in 1970 than the population 10–14 in 1960 the estimates of emigration would be overstated. On the other hand, if the coverage of an age cohort improved between 1960 and 1970, the estimates of emigration would be too low. The adjustments for undercount, made by multiplying the ratios in Appendix Table A-2 by the census counts of the foreign-born population, reduced the estimates of total emigration by about 75,000.

2. *Emigration*—Net movement of foreign-born persons who resided in the United States in 1960 or who were admitted for permanent residence between 1960 and 1970 and who resided outside the United States in 1970.

3. *Immigration*—Permanent movement from foreign countries to the United States. The immigration figures published by the INS refer to aliens admitted for permanent residence in the United States. The census data by year of immigration (for 1960–1970) refer to persons who reported in 1970 that they entered the United States between 1960 and 1970.

4. *Survival rates*—The proportion of persons in an age group in 1960 surviving to the age group 10 years older in 1970.

For example, the proportion of white females 20–24 in 1960 surviving to 30–34 in 1970. The survival rates used to compute the expected 1970 foreign-born population (Table A-3) were based on a life table computed by Greville's method, using 1965 deaths (U.S. National Center for Health Statistics, 1966) and the July 1, 1965 population data adjusted for net census undercount (U.S. Bureau of the Census, 1974b). The statistics on mortality published by the National Center for Health Statistics are assumed to be complete, and if the adjustments for underenumeration in the population figures are reasonably accurate, the survival rates from the "corrected" life table used here should more accurately estimate mortality during the decade than survival rates from published life tables.

In computing the estimates shown in this paper, the assumption was made that the survival rates for the total U.S. population are appropriate for the foreign-born population. This assumption seems reasonable since most of the older foreign-born population have been residing in the United States for many years and can be expected to have survival rates similar to those of the total U.S. population. For example, about 90 percent of the foreign-born population 65 and over in 1970 entered the United States before 1935 (U.S. Bureau of the Census, 1973b). Immigrants who have arrived recently from countries that might have mortality rates different from the United States are mostly under 55 and therefore their survival rates are likely to be so near 1.0 that the use of different sets of survival rates has almost no effect on the estimates of emigration.

5. *Aliens admitted 1960-1970*—Estimates of the number of aliens admitted to the United States between 1960 and 1970, by age and sex, were based on data on alien immigration published by the INS (U.S. Immigration and Naturalization Service, 1970) and unpublished

data on the number of Cuban refugees admitted during the period.

Since the estimates shown in this report are for cohorts at selected ages in 1960 and 1970, it was necessary to convert the original immigration figures to cohort data. This was done by (a) distributing the five-year age data to single years of age using mathematical interpolation, (b) "aging" the immigrants to the age that they would be in 1970, (c) making an allowance for the small number of deaths that would have occurred between the time of entry and 1970, and (d) combining the results into the age groups used here.

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Table A-1.—Estimated Net Migration of Nonimmigrant Foreign Students by Age and Sex: 1960 to 1970 (in Thousands)

Age		Enrolled in college		Net migration of nonimmigrant students
1960	1970	1960 (1)	1970 (2)	1960 to 1970 (3)=(2)-(1)
Both Sexes				
Total 5-34	Total 15-44	51	118	+67
5 - 9	15 - 19	-	17	+17
10 - 14	20 - 24	-	53	+53
15 - 19	25 - 29	10	32	+22
20 - 24	30 - 34	22	16	- 6
25 - 29	35 - 39	13	-	-13
30 - 34	40 - 44	7	-	- 7
Male				
Total 5-34	Total 15-44	39	83	+45
5 - 9	15 - 19	-	12	+12
10 - 14	20 - 24	-	37	+37
15 - 19	25 - 29	7	22	+15
20 - 24	30 - 34	17	12	- 5
25 - 29	35 - 39	10	-	-10
30 - 34	40 - 44	5	-	- 5
Female				
Total 5-34	Total 15-44	13	35	+22
5 - 9	15 - 19	-	5	+ 5
10 - 14	20 - 24	-	16	+16
15 - 19	25 - 29	2	9	+ 7
20 - 24	30 - 34	6	5	- 1
25 - 29	35 - 39	3	-	- 3
30 - 34	40 - 44	2	-	- 2

Source: Based on counts of foreign students compiled by the Institute of International Education (1966, 1971) and age distributions of foreign-born college students (U.S. Bureau of the Census, 1964b, 1973c).

Table A-2.—Ratio of Population Adjusted for Net Census Undercount to Census-Level Population, by Age and Sex: April 1, 1960 and April 1, 1970

Age	1960		1970	
	Male	Female	Male	Female
Under 5	1.0270	1.0181	1.0376	1.0339
5 - 9	1.0283	1.0195	1.0329	1.0295
10 - 14	1.0296	1.0188	1.0145	1.0122
15 - 19	1.0515	1.0358	1.0155	1.0079
20 - 24	1.0618	1.0354	1.0313	1.0139
25 - 29	1.0654	1.0240	1.0633	1.0342
30 - 34	1.0506	1.0119	1.0552	1.0224
35 - 39	1.0372	1.0023	1.0617	1.0135
40 - 44	1.0290	1.0030	1.0498	1.0054
45 - 49	1.0256	1.0139	1.0475	1.0103
50 - 54	1.0462	1.0531	1.0269	1.0013
55 - 59	.9951	1.0099	1.0306	1.0193
60 - 64	1.0339	1.0494	1.0285	1.0306
65 - 69	1.0164	1.0398	.9920	.9799
70 - 74	.9888	1.0272	.9983	1.0088
75+	.9897	1.0390	1.0348	1.0723

Source: Unpublished population estimates. Rounded figures published in U.S. Bureau of the Census, 1974b.

Table A-3.—Survival Rates for 1960–1970, from 1965 Life Table Based on Population Adjusted for Net Census Undercount, by Age and Sex

Age		Male	Female
1960	1970		
Under 5	10 – 14	.9934	.9950
5 – 9	15 – 19	.9932	.9964
10 – 14	20 – 24	.9881	.9950
15 – 19	25 – 29	.9838	.9932
20 – 24	30 – 34	.9821	.9912
25 – 29	35 – 39	.9789	.9874
30 – 34	40 – 44	.9703	.9812
35 – 39	45 – 49	.9543	.9718
40 – 44	50 – 54	.9273	.9580
45 – 49	55 – 59	.8868	.9395
50 – 54	60 – 64	.8297	.9124
55 – 59	65 – 69	.7523	.8688
60 – 64	70 – 74	.6581	.8041
65 – 69	75 – 79	.5466	.7087
70 – 74	80 – 84	.4140	.5689
75+	85+	.1895	.2630

See Appendix for a description of the method used to compute these survival rates.