John Hobcraft

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I N D E X

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INTRODUCTION

This report is mainly concerned with the basic demographic parameters for Haiti, especially fertility, mortality and international migration levels, and to a lesser extent the age-structure. The main sources of demographic data for Haiti are the two Population Censuses of 1950 and 1971. The 1950 census gives information on the age-sex structure of the population, and birthplace data which give an indication of the historical impact of surviving, staying immigrants. The 1971 Census, in addition to age-sex structure, gives information on deaths and births in the year preceding the Census. As yet these are the only data publicly available from the Census, being contained in Resultats Complementaires du Recensement Général de la Population du Logement et de L'agriculture published by the Haitian Statistical Office in April 1975, which gives the age-sex structure, and in the unpublished report Informe de la Misión Conjunta CEPAL/CELADE a Haití del 3 al 12 de marzo de 1976, by R. Mellon, L. Torres and J. Chackiel, which gives births and deaths reported as occurring in the year preceding the Census.

Additionally, and quite importantly, preliminary information has been published from the Multi-round Demographic Survey. The Census of September 1971 formed the First Round, and information is available from the Second and Third Round, which took place in February/March 1973 and October/November 1973 respectively. (Resultats Preliminaires de l'Enquete Démographique á Passages Répetés. Haitian Statistical Office, April 1975. Vol. I also containing the preliminary Census results, and Vol. II). Information is available on births in the previous year and numbers of children ever born by age of mother by broad urban/rural groupings. Information is available on international migration by destination/origin. Information is also available on deaths by age, sex and broad urban/rural groupings although it is not used here due to the problems of substantial sampling variations for rare events

such as death. Unfortunately the information on proportions of children surviving by age at mother has not been made available yet.

Finally fragments of information are used from other sources, notably from Censuses of countries receiving Haitian migrants. Some information is also used from the Haitian Immigration/Emigration service.

In summary, the level of information on basic demographic parameters for Haiti is quite poor by Caribbean or Latin American standards, but not unusually bad by Tropical African standards. More information is needed, especially on mortality. The Haitian round of the World Fertility Survey will undoubtedly give further valuable information on levels of fertility and will also give fragmentary information on mortality. It is unfortunate that more specialized mortality questions were not included in the household schedule of this Survey. The Demographic Survey has provided valuable information. In the meantime this report attempts to make good use of the available data.

FERTILITY

Current and retrospective fertility

Information on current fertility in Haiti, that is retrospective reports of fertility in a short period preceeding the enquiry, is available from three sources, namely the 1971 Census and the second and third rounds of the Demographic Survey. In addition the Survey tabulates this information for sub-groups of the population, with an urban/rural distinction being of particular interest. The information on current fertility is shown at Table F. 1, with the reports for the two rounds of the Demographic Survey having been scaled from the original 18 months and 8 months retrospective periods to annual rates (the original rates are not available in published form, only these scaled rates). The most striking discrepancy is that between the Census results and the figures from the Demographic Survey, although the patterns of the various sets of rates are quite variable as well.

Information on retrospective fertility or average parity levels is only available from the Demographic Survey. Table F. 2 presents the most readily available summary statistics on average parity for each round of the survey. However, it is clear that these values were computed treating the non-respondents as having the same parity distribution as these who responded. It is commonly the case that such non-respondents include large proportions with zero parity. Some information is available for the Second Round only giving the actual distributions of responses to the parity questions, including levels of non-response. Table F. 3 presents the results for the average parity computed from these raw data on the two extreme assumptions, namely non-respondents all have zero parity and non-respondents have same parity distribution as respondents. An immediate problem is apparent, the implicit weighting of urban/rural for the overall figures is clearly unacceptable,

implying between 29 per cent and 46 per cent of the population living in rural areas. This presumably arises from differential sampling fractions. There is an almost perfect correspondence between the average parities for urban and rural areas with non-respondents omitted and those presented in Table F.2 for the second round (with the exception of age-group 45-49 for the urban areas). In addition the relative weightings of urban/rural segments implied by the All Haiti figures in Table F.2 are much more reasonable, ranging from 69 to 81 per cent implied as living in rural areas. Although this still implies a substantial variability in proportions in rural areas, it was decided to use these proportions as weights to derive a suitable set of minimum plausible values for average parity, which is presented as the adjusted set of rates for all Haiti. Although such an adjustment cannot accurately be carried out for the third round, we shall use the third round average parities, adjusted by the ratio of the set of parities derived by treating the non-respondents as zero to the set of parities derived by omitting the non-respondents from the second round. This will at least give an indication of the possible impact of non-response on the third round as well. (It should be noted that the implied proportions in rural areas from the average parity figures for the third round presented in Table F.2 are higher than for the second round, ranging from 80 to 88 per cent. The sets of current fertility rates presented in Table F.1 also imply quite variable but moderately acceptable proportions in rural areas -74 to 84 per cent for second round, 71 to 83 per cent for third round- with the curious exception of age-group 40-44 for the third round, where the implied proportion rural is a mere 35 per cent -this presumably arises from a mistake in one (or more) of the values- comparison with the second round suggests that the figure for the rural areas may be too high -a value of 0.081 would give an 80 per cent rural component- alternatively the overall figure could be as high as 0.109, taking the same 80 per cent rural component and treating urban and rural figures as correct).

Table F.4 shows the results of applying the well-known technique due to Brass for comparing current and retrospective fertility data. There are several minor points to note -in the third round we have preferred to use an

overall fertility rate for the 40-44 age-group of 0.081 instead of 0.125 (see above), although results are presented for both figures; as the reports for the Second Round are based on a nominal reference period of 18 months, and the reports for the Third Round on a nominal reference period of 8 months it was necessary to derive special sets of multipliers -this was done using simple linear interpolation and extrapolation on the two commonly available sets of multipliers for reference periods of zero months and twelve months- linear approximation is probably adequate; it should be noted also that these unusual length reference periods had to be allowed for in the calculations of the mean ages of the fertility distributions.

It is clear from these analysis that the retrospective and current fertility information are not entirely mutually compatible. Brass' technique is predicated upon an assumption of constant fertility, violations of which would tend to give increasing P/F ratios with age for a fertility decline -there is some slight evidence of such a phenomenon for urban areas in the Second Round, but not for the Third Round. There is no such evidence for rural areas or for the country as a whole (which is predominantly rural). The P/F ratios for the Third Round, and to a lesser extent for urban areas in the Second Round, are far too high for the 15-19 age-group, and to a lesser extent and partially as a consequence are also too high for the 20-24 age-group. The Brass technique is well-known to be sensitive to the exact pattern of fertility in the early ages. These peculiarities may also arise through the effects of age misstatement -a shift of women with higher current fertility from the 15-19 to the 20-24 age-group causes a change in the values of f_1/f_2 in particular-. The analysis of the age-distribution shows strong evidence of substantial overstatement of age by females. Despite these reservations there is quite strong evidence of current fertility being consistently too low. Table F. 5 shows the results of two sets of adjustments, the first being a set of minimal estimates and showing an overall total fertility of 5.75 to 5.90; the second being a plausible set of estimates, giving an overall total fertility of 6.15 to 6.25. The individual total fertility estimates derived for the urban and rural areas are reassuringly consistent with the overall levels estimated.

Table F.1

CURRENT FERTILITY OF WOMEN BASED ON RETROSPECTIVE REPORTS

Age	All Haiti		
	1971 Census	Second Round	Third Round
15-19	0.037	0.063	0.041
20-24	0.198	0.205	0.213
25-29	0.272	0.248	0.244
30-34	0.258	0.215	0.235
35-39	0.201	0.170	0.175
40-44	0.116	0.080	0.074
45-49	0.059	0.045	0.050
Implied Total Fertility:	5.705	5.130	5.160

Age	Urban Areas		Rural Areas	
	Second Round	Third Round	Second Round	Third Round
15-19	0.037	0.036	0.072	0.043
20-24	0.155	0.156	0.221	0.231
25-29	0.178	0.196	0.267	0.258
30-34	0.155	0.166	0.230	0.253
35-39	0.111	0.086	0.181	0.195
40-44	0.039	0.046	0.089	0.125
45-49	0.018	0.016	0.052	0.057
Implied Total Fertility:	3.465	3.510	5.560	5.810

Sources: Census figures from p.58 of Informe de la Misión Conjunta CEPAL/CELADE a Haití del 3 al 12 de marzo de 1976 by R. Hellon, L. Torres and J. Chackiel.

Demographic Survey figures from pp. 177-8 of Resultats Preliminaires de L'Enquete Démographique á Passages Répetés, Vol. I. Institut Haitien de Statistique, Port-au-Prince, Haiti, April 1975.

Table F.2

AVERAGE PARTIES FROM THE DEMOGRAPHIC SURVEY

Age	Second Round		
	Urban	Rural	All Haiti
15-19	0.16	0.22	0.20
20-24	0.91	1.40	1.25
25-29	1.93	2.69	2.50
30-34	3.05	3.85	3.69
35-39	3.86	5.30	5.02
40-44	4.34	5.54	5.30
45-49	3.69	5.90	5.41

Age	Third Round		
	Urban	Rural	All Haiti
15-19	0.18	0.24	0.23
20-24	1.04	1.28	1.24
25-29	1.83	2.46	2.36
30-34	2.97	3.69	3.55
35-39	3.45	5.02	4.71
40-44	3.52	5.35	5.13
45-49	3.61	5.62	5.27

Source: Pages 162/3 of Resultats Preliminaires de L'Enquete Démographique á Passages Répetés, Vol. I, Institut Haitien de Statistique, Port-au-Prince, Haiti, April 1975.

Table F.3

Second Round

ASSESSMENT OF THE IMPACT OF NON-RESPONSE ON REPORTED AVERAGE PARITIES

Age	Non-respondents assigned to zero parity			
	Urban	Rural	All Haiti	All Haiti adjusted a/
15-19	0.1546	0.1829	0.1637	0.18
20-24	0.8910	1.2825	1.0057	1.16
25-29	1.8752	2.5871	2.1392	2.41
30-34	2.9948	3.7526	3.2963	3.58
35-39	3.7989	5.2139	4.4479	4.95
40-44	4.2790	5.4091	4.7809	5.18
45-49	3.3504	5.7663	4.4966	5.28

Age	Non-respondents omitted			
	Urban	Rural	All Haiti	All Haiti adjusted a/
15-19	0.1566	0.2162	0.1738	0.20
20-24	0.9148	1.4000	1.0695	1.25
25-29	1.9261	2.6909	2.2075	2.50
30-34	3.0478	3.8541	3.3668	3.67
35-39	3.8611	5.2969	4.5198	5.02
40-44	4.3421	5.5386	4.8707	5.30
45-49	3.4236	5.8981	4.5967	5.41

Source: Table A-IV-8 of Resultats Preliminaires de L'Enquete Démographique á Passages Répetés, Vol. II.

a/ Adjustment to give same urban/rural weighting for first panel as is implicit in the overall figures of Table F.2, presented as adjusted figures for second panel.

Table F.4

COMPARISON OF CURRENT AND RETROSPECTIVE FERTILITY USING BRASS' METHOD

a. Urban Areas

Age	Current f_i	Weights w_i	Cumulated F_i	Parities P_{HI}	Parities P_{LO}	Ratios (P/F) HI	Ratios (P/F) LO
			Second Round				
15-19	0.037	1.979	0.073	0.16	0.15	2.19	2.05
20-24	0.155	3.050	0.658	0.91	0.87	1.38	1.32
25-29	0.178	3.241	1.537	1.93	1.87	1.26	1.22
30-34	0.155	3.347	2.369	3.05	3.00	1.29	1.27
35-39	0.111	3.465	3.010	3.86	3.80	1.28	1.26
40-44	0.039	3.692	3.324	4.34	4.28	1.31	1.29
45-49	0.018	4.402	3.454	3.42	3.35	0.99	0.97
	$\bar{m}$ = 29.18; f_1/f_2 = 0.239						
			Third Round				
15-19	0.036	1.473	0.053	0.18	0.18	3.40	3.40
20-24	0.156	2.618	0.588	1.04	0.99	1.77	1.68
25-29	0.196	2.822	1.513	1.83	1.78	1.21	1.18
30-34	0.166	2.943	2.429	2.97	2.92	1.22	1.20
35-39	0.086	3.067	3.034	3.45	3.39	1.14	1.12
40-44	0.046	3.313	3.352	3.52	3.47	1.05	1.04
45-49	0.016	4.127	3.496	3.61	3.53	1.03	1.01
	$\bar{m}$ = 29.39; f_1/f_2 = 0.231						

(continued)

Table F.4 (Continued)

COMPARISON OF CURRENT AND RETROSPECTIVE FERTILITY USING BRASS' METHOD

b. Rural Areas

Age	Current f_i	Weights w_i	Cumulated F_i	Parities P_{HI}	Parities P_{LO}	Ratios (P/F) HI	Ratios (P/F) LO
			Second Round				
15-19	0.072	2.219	0.160	0.22	0.18	1.38	1.13
20-24	0.221	3.093	1.044	1.40	1.28	1.34	1.23
25-29	0.267	3.259	2.335	2.69	2.59	1.15	1.11
30-34	0.230	3.332	3.566	3.85	3.75	1.08	1.05
35-39	0.181	3.457	4.576	5.30	5.21	1.16	1.14
40-44	0.089	3.646	5.179	5.54	5.41	1.07	1.04
45-49	0.052	4.250	5.521	5.90	5.77	1.07	1.04
	$\bar{m}$ = 29.91; f_1/f_2 = 0.326						
			Third Round				
15-19	0.043	1.334	0.057	0.24	0.20	4.21	3.51
20-24	0.231	2.583	0.812	1.28	1.17	1.58	1.44
25-29	0.258	2.811	2.095	2.46	2.36	1.17	1.13
30-34	0.253	2.928 (2.918)	3.401 (3.398)	3.69	3.59	1.08 (1.09)	1.06 (1.06)
35-39	0.195	3.049 (3.037)	4.520 (4.517)	5.02	4.94	1.11 (1.11)	1.09 (1.09)
40-44	0.081 (0.125)	3.267 (3.239	5.165 (5.305)	5.35	5.22	1.04 (1.01)	1.01 (0.98)
45-49	0.057	3.966 (3.846)	5.531 (5.744)	5.62	5.49	1.02 (0.98)	0.99 (0.96)
	$\bar{m}$ = 30.03; f_1/f_2 = 0.186						

(continued)

Table F.4 (Concluded)

COMPARISON OF CURRENT AND RETROSPECTIVE FERTILITY USING BRASS' METHOD

c. All Haiti

Age	Current f_i	Weights w_i	Cumulated F_i	Parities P_{HI}	Parities P_{LO}	Ratios (P/F) HI	Ratios (P/F) LO
			Second Round				
15-19	0.063	2.167	0.137	0.20	0.18	1.46	1.31
20-24	0.205	3.084	0.947	1.25	1.16	1.32	1.22
25-29	0.248	3.255	2.147	2.50	2.41	1.16	1.12
30-34	0.215	3.333	3.297	3.67	3.58	1.11	1.09
35-39	0.170	3.447	4.241	5.02	4.95	1.18	1.17
40-44	0.060	3.647	4.797	5.30	5.18	1.10	1.08
45-49	0.045	4.255	5.096	5.41	5.28	1.06	1.04
	$\bar{m}$ = 29.89; f_1/f_2 = 0.307						
			Third Round				
15-19	0.041	1.353	0.055	0.23	0.20	4.18	3.64
20-24	0.213	2.589	0.756	1.24	1.15	1.64	1.52
25-29	0.244	2.813	1.956	2.36	2.27	1.21	1.16
30-34	0.235	2.916 (2.907)	3.175 (3.173)	3.55	3.46	1.12	1.09
35-39	0.175	3.034 (3.024)	4.196 (4.194)	4.71	4.64	1.12	1.11
40-44	0.074 (0.109)	3.231 (3.209)	4.779 (4.890)	4.13	5.02	1.07 (1.05)	1.05 (1.03)
45-49	0.050	3.813 (3.715)	5.100 (5.271)	5.27	5.15	1.03 (1.00)	1.01 (0.98)
	$\bar{m}$ = 30.62 (31.00); f_1/f_2 = 0.192						

Table F.5

VARIOUS ESTIMATES OF TOTAL FERTILITY

	Raw sum of current fertility rates	Minimum sensible adjustment from Brass' technique	Resulting estimates of total fertility	Plausible adjustment from Brass' technique	Resulting estimates of total fertility
Urban					
Second	3.465	1.25	4.33	1.30	4.50
Third	3.510	1.20	4.21	1.25	4.39
Rural					
Second	5.560	1.11	6.17	1.18	6.56
Third	5.59 (5.81)	1.13	6.32 (6.57)	1.20	6.71 (6.97)
All Haiti					
Second	5.13	1.12	5.75	1.20	6.16
Third	5.16 (5.34)	1.15	5.93 (6.14)	1.20	6.19 (6.41)
Weighted sums of Urban and Rural					
Second	5.14	-	5.80	-	6.15
Third	5.17 (5.35)	-	5.90 (6.10)	-	6.25 (6.45)

Own-children analysis

CELADE has carried out tabulations of own-children for a 5 per cent sample of the 1971 Census of Haiti. As will be seen from Table F.6 the assignment of own-children was not as complete as is usually the case, with between 61 and 78 per cent of children being assigned to mothers. Some of these problems arise from the quality of the data on relationships to head of household, and further difficulties may have been due to substantial childbearing outside stable unions, as is common in Caribbean societies. The level of non-assignment removes some of the simplicity inherent in a straightforward own-children analysis, as both the children and the mothers require reverse survival, with an adjustment for the levels of non-assignment. The estimates were derived using a program developed by CELADE staff, which automatically groups the ages of children into three-year groups. One analysis, which was done by hand, is available by single years of age of the children. Several sets of estimates have been tried, not all of which are presented here, all of which gave quite similar results, thus allowing approximations to be made to single year estimates. The levels of fertility estimated by the technique depend most critically on the estimates of child mortality used -it should be remembered that these estimates are especially weak. The results presented here utilise the life-tables presented in the section of mortality, which are based on retrospective reports of deaths in the previous year and adjusted using Brass' death registration technique. The implied infant mortality is 135 per thousand, which is almost certainly an underestimate. Raising this to 180 per thousand would increase the total fertility estimates by around 0.3 of a child. Thus the estimates presented are undoubtedly conservative. The results of the analysis are presented at Table F.7. These results strongly indicate a total fertility of at least 6.0, and quite possible as high as 6.3. No inference can be made about fertility trends.

In addition to estimating total fertility, the own-children technique can be quite useful in giving indications of the age pattern of fertility. Sometimes changes in the pattern over time give useful indications of recent

trends in fertility which are not available from the total fertility estimates due to their sensitivity to age-misstatement of children. Table F.8 presents the age-patterns of fertility standardized to a total fertility of 5.0 for the own-children analysis (these measures of pattern are quite insensitive to changes in mortality, depending only on the pattern of mortality from age 15 to age 60 assumed for the mothers). For comparative purposes Table F.8 also presents the age-patterns of fertility derived from retrospective reports of mothers. The most noteworthy features of the patterns over time from the own-children analysis is the consistent change in the proportion in the 15-20 group and the reverse effect for the 30-40 groups. As there is no obvious well-founded explanation for these apparent changes, such as a rising age at marriage, it is perhaps better to attribute the changes to the assignation procedures for the own-children. It has been suggested that very young children of young mothers were incorrectly assigned to grandparents -this would produce such an effect-. All that can be safely asserted is that the implied age-patterns of fertility are plausible and broadly consistent with the other available information.

Table F.6

QUALITY OF OWN-CHILDREN DATA FOR HAITI, 1971 CENSUS

Age of child	Total children in CELADE sample	Total own-children assigned	Own-children assigned to mothers not 14 to 50 at the birth	Percentage of children assigned to mothers 14 to 50
0	8 051	6 337	29	78.35
1	2 751	2 064	17	74.41
2	6 813	5 240	41	76.31
3	6 240	4 802	47	76.20
4	6 391	4 890	46	75.79
5	5 653	4 245	49	74.23
6	6 378	4 748	34	73.91
7	6 341	4 533	70	70.38
8	6 598	4 762	65	71.19
9	4 730	3 281	56	68.18
10	7 055	4 729	73	66.00
11	4 254	2 889	55	66.57
12	6 790	4 287	100	61.66
13	5 430	3 390	83	60.90

Table F.7

LEVELS OF TOTAL FERTILITY ESTIMATED FROM OWN-CHILDREN ANALYSIS

Based on children aged x at time census of	Based on life-tables presented in mortality section		Based on life-table with $_1q_0$=180°/oo (3 year averages)
	Three-year average	Estimates[a/] for each year	
0		6.19	
1	{4.82	2.28	{5.03
2		6.00	
3		5.71	
4	{5.74	6.02	{6.06
5		5.49	
6		6.20	
7	{6.49	6.45	{6.86
8		6.81	
9		5.11	
10	{5.91	7.86	{6.23
11		4.75	
12	{7.18	7.95	{7.54
13		6.41	
Average all 14		5.95	6.26
Average 3-11		6.05	6.38
Average 3-13		6.25	6.59
Median		6.19	-

a/ Note that these single year estimates are not derived directly (see text), and should be regarded as close approximations to the true figures.

Table F.8

ESTIMATES OF THE AGE-PATTERN OF FERTILITY. HAITI

Age group of mother	Based on own-children analysis for children aged				
	0-2	3-5	6-8	9-11	12-13
15-20	0.0246	0.0377	0.0586	0.0670	0.0811
20-25	0.1516	0.1605	0.1746	0.1626	0.1578
25-30	0.2290	0.2359	0.2187	0.2161	0.2283
30-35	0.2404	0.2264	0.2204	0.2170	0.2031
35-40	0.1896	0.1764	0.1744	0.1672	0.1702
40-45	0.1105	0.1056	0.1046	0.1145	0.0967
45-50	0.0544	0.0574	0.0487	0.0556	0.0627

Age of mother	From retrospective reports				
	1970 Census	Age	Second Round	Age	Third Round
14.5-19.5	0.032	14.25-19.25	0.061	14.67-19.67	0.040
19.5-24.5	0.174	19.25-24.25	0.200	19.67-24.67	0.206
24.5-29.5	0.238	24.25-29.25	0.242	24.67-29.67	0.236
29.5-34.5	0.226	29.25-34.25	0.210	29.67-34.67	0.228
34.5-39.5	0.176	34.25-39.25	0.166	34.67-39.67	0.170
39.5-44.5	0.102	39.25-44.25	0.078	39.67-44.67	0.072
44.5-49.5	0.052	44.25-49.25	0.044	44.67-49.67	0.048

MORTALITY

Virtually the only worthwhile source of information on mortality in Haiti is the information on deaths in the year preceding the 1971 Census. Despite being the best information available, even a cursory analysis of the implied death rates indicates a substantial deficit in the reported deaths, (see Table D.1). It was decided to utilize Brass' technique for dealing with defective death registration, which is based on the stable population relationship $N(y)/N(y+) = r + f \cdot D(y+)/N(y+)$ (where $D(y+)$ and $N(y+)$ are the numbers of deaths and population at risk above age y, $N(y)$ is the annual density of persons at age y, r the rate of natural increase, and f the ratio of true to reported deaths). Although this technique is based on a stable population relationship, it is relatively robust to departures from stability, and has the advantage of showing such departures as substantial deviations from a straight line. Tables D.2 and D.4 and Graphs D.3 and D.5 show the results of applying the technique for males and females respectively. Attempts were made to analyse each sex by urban/rural status as well, although these are not reported on in detail here -slight difficulties arose with the urban populations, perhaps partly because internal migration had significantly altered the age structure, but especially for females, where the reported deaths are substantially more deficient than for other sectors. The plotted values are gratifyingly close to straight lines and indicate inflation factors of approximately 1.70 and 2.00 for males and females respectively (correction factors derived for the rural sectors were very similar). These factors produce much more consistent results by sex with the crude death rates becoming 16.44 for males and 16.60 per thousand for females and infant mortality rates of 140 and 134 per thousand respectively. As the adjustments were derived independently this is reassuring, although very little weight should be attached to the childhood mortality estimates thus derived as they do not form part of the input to the technique, which is essentially

for estimating adult mortality. Using these raw adjusted rates life-tables were derived for each sex and are presented at Table D.6. These adjusted rates still contain unacceptable fluctuations with the values for females, being apparently worse than those for males. In order to examine the consistency of the various rates with known patterns of mortality the logits ($1/2\ \ell n[(1-\ell x)/\ell x]$) of the life-table ℓx values were calculated and the differences of these logits from both Brass' African and General Standard logits calculated and graphed against the standard logit values (see Graph D.7 and Table D.8). This indicates that the death rates at high ages are still substantially too low, especially for females. It is more difficult to decide whether the inflated childhood mortality rates are substantially out of line, the choice of standard table being quite important. For males especially the childhood mortality rates implied by the inflation factor of 1.70 are quite acceptable if the African standard is used, but too low if the General Standard is used. As Haiti's population is largely of African descent and conditions and social customs may be similar to tropical Africa it was decided, at risk of understating early childhood mortality, to use the African standard. For females there is an apparent excess deficiency in early childhood, as was also the case for the high ages, even when the African standard is used. In general then, the estimates derived for males are more consistent than are those for females, and involved less drastic correction originally. The problems with the female data must partly arise though the incredibly low rates recorded in the urban sector. Despite these reservations the values of α and β implied by the lines fitted to each sex (Graph D.7) were used to generate life-tables. The ℓx values for these life-tables (and the values of α, β and the expectation of life at birth) are given at Table D.6. These life-tables imply values of infant mortality which are not entirely consistent, namely 124 per thousand for males and 148 per thousand for females. However it should be noted that these values would be substantially higher if the General Standard were used, namely 167 per thousand for males and 200 per thousand for females. This uncertainty arises through the lack of information on childhood mortality, which will hopefully be rectified soon by tabulation of the survey results on proportions of children surviving by age of mother. Until such information becomes available estimates of child mortality

must remain speculative, but infant mortality is probably at least 135 per thousand, and quite likely to be as high as 180 per thousand. Although life-tables are presented separately by sex in Table D.6 these minor discrepancies may make it safer to use a combined life-table for both sexes for many purposes. Table D.9 shows the life-table so derived, using the average of the male and female α and β values -the opposite curvatures of the logit deviations by sex, in the middle age-range makes this a plausible and tempting option. As an indication of the uncertainty about childhood mortality, values are also shown for the life-table based on the General Standard- it should be noted that the two Standards should be identical above age ten and that all rates above age ten should be identical. (Minor differences occur above age 70 due to the smoothing procedure used for the African Standard). Both life-tables imply an expectation of life at birth of about 47.5 years.

The history of mortality in Haiti is extremely difficult to estimate. There is an indication in the changes of age-structure for each sex between the 1950 and 1971 censuses of either a decline in early childhood mortality or a rise in fertility, the former suggestion being more plausible. A decline in childhood mortality is quite likely as a result of very substantial reductions in the incidence of malaria in Haiti since the 1950's. As only information on the age-structure is available for 1950 it is virtually impossible to estimate mortality, although a plausible guess may be an expectation of life at birth of the order of 35 years (based partially on 1971 estimates of fertility and an assumption of constancy; also the estimate suggested on the basis of very weak information by Surin in Indices Démographiques et Perspectives de la Population d'Haiti de 1950 à 1980, and used for most subsequent analysis). Acceptance of such an estimate would suggest an average expectation of life at birth for the intercensal period of around 41 years, but this is a tentative suggestion.

Table D.1

HAITI - 1971 CENSUS

UNCORRECTED AGE-SPECIFIC DEATH RATES FROM RETROSPECTIVE REPORTS

Age	Males			Females		
	Census Population	Reported Deaths	Death Rates °/oo	Census Population	Reported Deaths	Death Rates °/oo
0	73 134	6 002	82.07	76 480	5 111	66.83
1- 4	230 360	3 477	14.96	225 854	3 447	15.26
5- 9	292 117	1 026	3.51	296 704	1 093	3.68
10-14	300 150	552	1.84	294 099	640	2.18
15-19	229 500	430	1.87	250 250	606	2.42
20-24	152 479	530	3.48	181 402	525	2.89
25-29	131 346	500	3.81	167 102	597	3.57
30-34	103 082	426	4.13	126 317	623	4.93
35-39	121 190	577	4.76	147 710	533	3.61
40-44	105 066	659	6.27	109 330	591	5.41
45-49	94 448	736	7.79	90 020	482	5.35
50-54	70 571	673	9.54	66 004	405	6.14
55-59	45 433	607	13.36	43 786	383	8.75
60-64	46 614	774	16.60	48 295	647	13.40
65-69	33 373	622	18.64	37 096	548	14.77
70-74	22 456	894	39.81	28 203	584	20.71
75-79	13 663	581	42.52	18 287	376	20.56
80-84	8 494	514	60.51	12 699	650	51.19
85 and more	7 294	598	81.99	14 220	696	48.95
Total	2 080 770	20 178 a/	9.67	2 233 858	18 537 a/	8.30

Sources: Census Population figures from Resultats Complementaires du Recensement Général de la Population Vol. I, Page 46.

Number of Deaths from Informe de la Misión Conjunta CEPAL/CELADE a Haití del 3 al 12 de marzo de 1976, by R. Mellon, L. Torres and J. Chackiel. p. 47.

a/ Excludes 63 males and 37 females with unknown age at death.

Table D.2

APPLICATION OF BRASS' DEATH REGISTRATION TECHNIQUE

Males

Age x	D(x+)	N(x+)	N(x)	$\frac{N(x)}{N(x+)}$	$\frac{D(x+)}{N(x+)}$
5	10 699	1 777 276	59561.1	0.0335	0.0060
10	9 673	1 485 159	59226.7	0.0399	0.0065
15	9 121	1 185 009	52965.0	0.0447	0.0077
20	8 691	955 509	38197.9	0.0400	0.0091
25	8 161	803 030	28382.5	0.0353	0.0102
30	7 661	671 684	23442.8	0.0349	0.0114
35	7 235	568 602	22427.2	0.0394	0.0127
40	6 658	447 412	22625.6	0.0506	0.0149
45	5 999	342 346	19951.4	0.0583	0.0175
50	5 283	247 893	16501.9	0.0666	0.0213
55	4 590	177 327	11600.4	0.0654	0.0259
60	3 983	131 894	9204.7	0.0698	0.0302
65	3 209	85 280	7998.7	0.0938	0.0376
70	2 587	51 907	5582.9	0.1076	0.0498
75	1 693	29 451	3611.9	0.1226	0.0575
80	1 112	15 788	2215.7	0.1403	0.0704

GRAPH D.3

BRASS DEATH DISTRIBUTION TECHNIQUE. ALL MALES - HAITI 1971 CENSUS

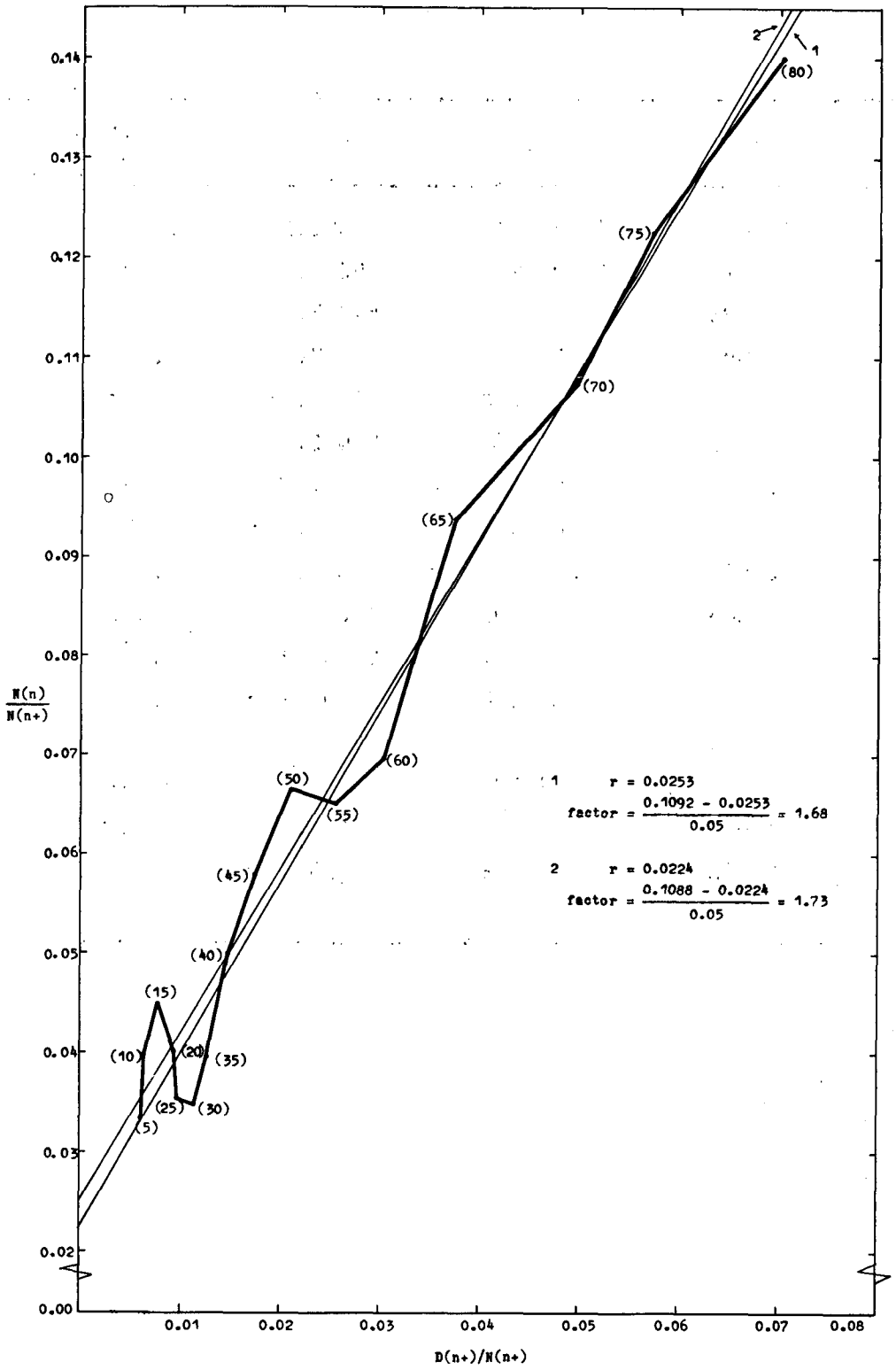

Table D.4

APPLICATION OF BRASS' DEATH REGISTRATION TECHNIQUE

Females

Age x	D(x+)	N(x+)	N(x)	$\frac{N(x)}{N(x+)}$	$\frac{D(x+)}{N(x+)}$
5	9 979	1 931 524	59903.8	0.0310	0.0052
10	8 886	1 634 820	59030.3	0.0361	0.0054
15	8 246	1 340 721	54434.9	0.0406	0.0062
20	7 640	1 090 471	43165.2	0.0396	0.0070
25	7 115	909 069	34850.4	0.0383	0.0076
30	6 518	741 967	29341.9	0.0395	0.0088
35	5 895	615 650	27402.7	0.0445	0.0096
40	5 362	467 940	25704.0	0.0549	0.0115
45	4 771	358 610	19938.0	0.0556	0.0133
50	4 289	268 590	15602.4	0.0581	0.0160
55	3 884	202 586	10979.0	0.0542	0.0192
60	3 501	158 800	9208.1	0.0580	0.0220
65	2 854	110 505	8539.1	0.0773	0.0258
70	2 306	73 409	6529.9	0.0890	0.0314
75	1 727	45 206	4649.0	0.1028	0.0381
80	1 346	26 919	3098.6	0.1151	0.0500

GRAPH D.5

BRASS DEATH DISTRIBUTION TECHNIQUE
ALL FEMALES - HAITI 1971 CENSUS

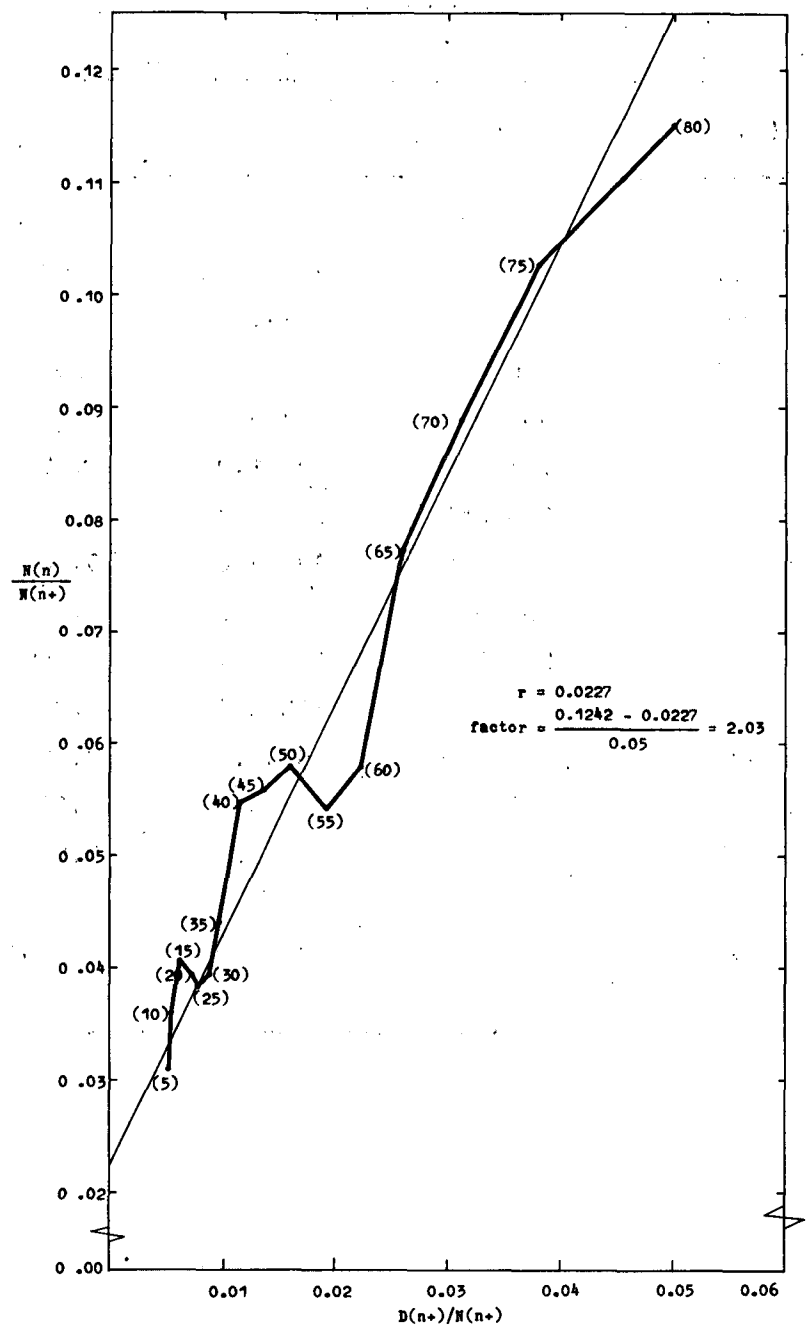

Table D.6

LIFE-TABLES DERIVED FROM ADJUSTED AGE-SPECIFIC DEATH RATES

	Males			Females		
Age x	Adjusted Death Rates (x1.7)	ℓx based on these rates	ℓx in logit model life-table African Standard α=-0.144 β=0.837	Adjusted Death Rates (x2.0)	ℓx based on these rates	ℓx in logit model life-tables African Standard α=-0.108 β=0.769
0	0.13952	100 000	100 000	0.13366	100 000	100 000
1	{0.02543	87 278	87 624	{0.03052	87 782	85 191
2		-	83 700		-	81 070
5	0.00597	78 891	79 874	0.00736	77 769	77 169
10	0.00313	76 570	77 001	0.00436	74 958	74 299
15	0.00318	75 381	75 898	0.00484	73 342	73 210
20	0.00592	74 192	74 071	0.00578	71 588	71 418
25	0.00648	72 028	71 687	0.00714	69 549	69 102
30	0.00702	69 731	69 324	0.00986	67 110	66 829
35	0.00809	67 326	66 952	0.00722	63 881	64 567
40	0.01066	64 657	64 382	0.01082	61 616	62 135
45	0.01324	61 300	61 486	0.01070	58 370	59 416
50	0.01622	57 372	58 017	0.01228	55 328	56 183
55	0.02271	52 900	53 711	0.01750	52 032	52 200
60	0.02822	47 216	48 412	0.02680	47 671	47 328
65	0.03169	40 993	41 603	0.02954	41 684	41 093
70	0.06768	34 974	33 494	0.04142	35 951	33 653
75	0.07228	24 852	23 985	0.04112	29 204	24 817
80	0.10287	17 245	14 267	0.10318	23 759	15 496
85+	0.13938	10 189	6 336	0.09790	14 015	7 425
$\mathring{e}_0$		48.53	48.34		48.14	47.11

GRAPH D.7

LOGIT DEVIATIONS OF LIFE-TABLES DERIVED FROM ADJUSTMENT OF REPORTED DEATHS COMPARED WITH BRASS' GENERAL AND AFRICAN STANDARDS

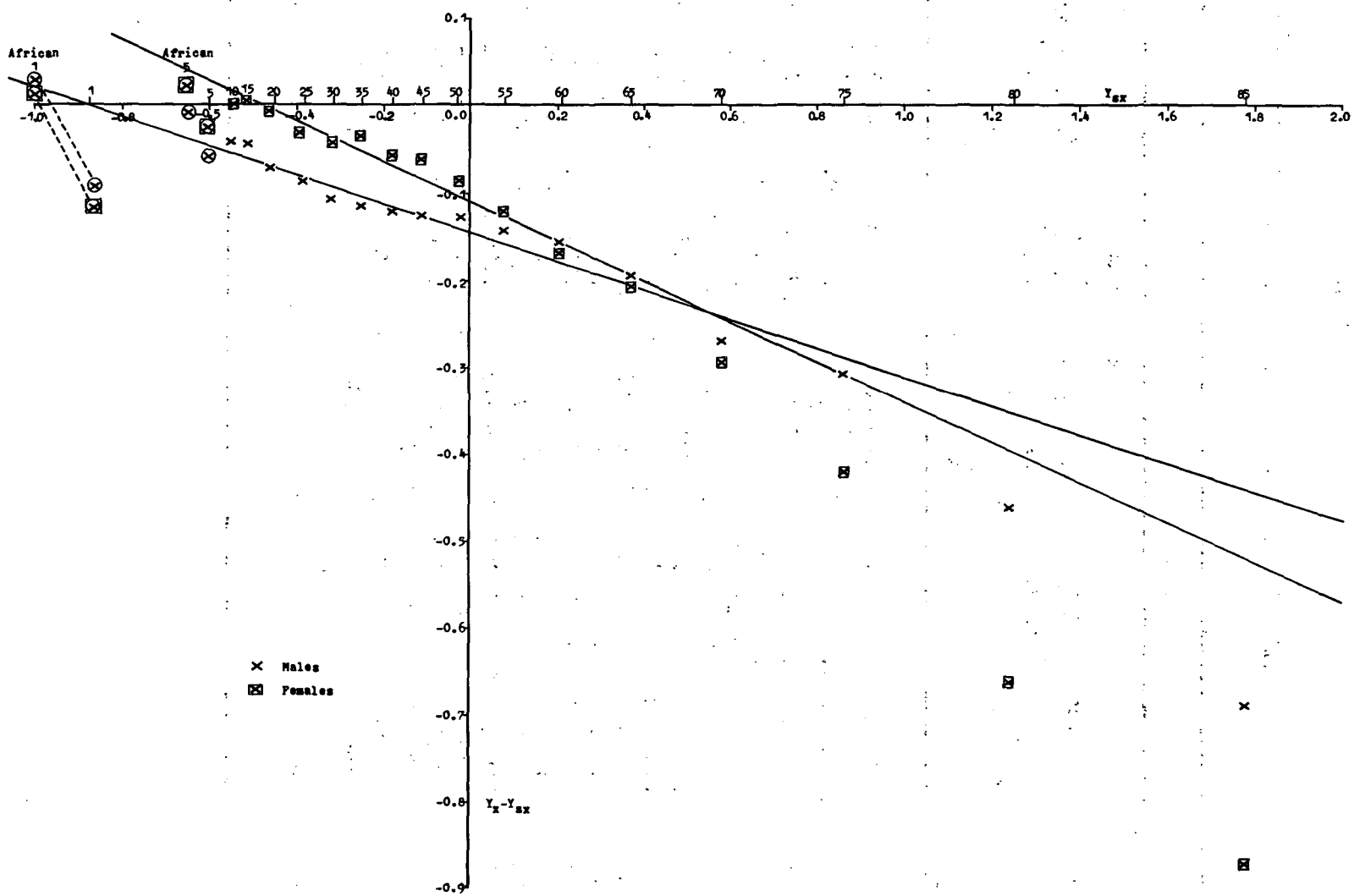

Table D.8

HAITI: LOGITS AND LOGIT DEVIATIONS OF FIRST ADJUSTMENT LIFE-TABLES

Age	African Standard Logits (General Standard where different) Y_{sx}	Males		Females	
		Life-table logits Y^m_x	Logit differences $Y^m_x - Y_{sx}$	Life-table logits Y^f_x	Logit differences $Y^f_x - Y_{sx}$
1	{-0.9972 (-0.8670)	-0.9629	{0.0343 (-0.0959)	-0.9860	{0.0112 (-0.1190)
5	{-0.6514 (-0.6015)	-0.6592	{-0.0078 (-0.0577)	-0.6261	{0.0253 (-0.0246)
10	-0.5498	-0.5921	-0.0423	-0.5482	0.0016
15	-0.5132	-0.5595	-0.0463	-0.5060	0.0072
20	-0.4550	-0.5280	-0.0730	-0.4621	-0.0071
25	-0.3829	-0.4729	-0.0900	-0.4130	-0.0301
30	-0.3150	-0.4173	-0.1023	-0.3566	-0.0416
35	-0.2497	-0.3615	-0.1118	-0.2851	-0.0354
40	-0.1816	-0.3020	-0.1204	-0.2366	-0.0550
45	-0.1074	-0.2300	-0.1226	-0.1690	-0.0616
50	-0.0212	-0.1485	-0.1273	-0.1070	-0.0858
55	0.0832	-0.0581	-0.1413	-0.0407	-0.1239
60	0.2100	0.0557	-0.1543	0.0466	-0.1634
65	0.3746	0.1821	-0.1925	0.1679	-0.2067
70	0.5818	0.3101	-0.2717	0.2888	-0.2931
75	0.8611	0.5533	-0.3078	0.4428	-0.4184
80	1.2433	0.7842	0.4591	0.5830	-0.6603
85+	1.7810	1.0882	-0.6928	0.9070	-0.8740

Table D.9

HAITI: LIFE TABLES FOR BOTH SEXES

Age	Based on African Standard α=-0.126; β=0.803		Based on General Standard α=-0.126; β=0.803	
	ℓ_x	$_nm_x$	ℓ_x	$_nm_x$
0	100 000	0.14965	100 000	0.18255
1	86 454	0.02436	83 813	0.02097
2	82 424		80 228	
5	78 552	0.00746	77 171	0.00391
10	75 676	0.00292	75 676	0.00293
15	74 577	0.00492	74 574	0.00490
20	72 765	0.00658	72 768	0.00659
25	70 411	0.00670	70 411	0.00670
30	68 090	0.00693	68 090	0.00695
35	65 769	0.00776	65 765	0.00774
40	63 266	0.00909	63 270	0.00911
45	60 456	0.01141	60 452	0.01140
50	57 103	0.01507	57 103	0.01507
55	52 956	0.02018	52 956	0.02018
60	47 870	0.02924	47 870	0.02924
65	41 348	0.04151	41 348	0.04151
70	33 573	0.06330	33 573	0.06477
75	24 399	0.09705	24 216	0.09710
80	14 871	0.14744	14 756	0.13945
85	6 861	0.21570	7 127	0.20159
$\mathring{e}_o$	47.73		47.62	

International migration

Traditionally Haiti is a country of net emigration. It is very difficult to obtain reliable estimates of the volume of migration, especially across the land border with the Dominican Republic which is officially closed. Some statistics do exist. Within Haiti annual statistics are produced showing the number of immigrants and the number of 'exit visas' issued. The figures for the period 1951 to 1973 are reproduced at Table I.1. The figures for immigrants exhibit a very strange apparent time pattern -the figures for the period 1959-1964 being substantially higher than for most of the rest of the period-. The figures for 'exit visas' make broad sense, and show similar patterns over time to the figures from the U.S. Immigration Service which are also shown in Table I.1, as are recent Canadian immigration figures. Thus there are grounds for accepting at least a broad time-pattern for emigration overseas from Haiti, with numbers of emigrants doubling from 1968 on compared with the earlier periods. The U.S. issues substantially more visas in total than the Haitian government issues 'exit visas'. Many Haitians may visit the U.S. quite frequently and may be issued U.S. visas several times. It is difficult to know what status the 'exit visas' have -whether they are required for leaving the country, in which case they are either deficiently recorded or valid for multiple exits, or whether they are only issued to known emigrants-.

Another major source of information on emigration from Haiti is the figures on Haitian born people enumerated in other countries. Table I.2 shows the available information from several censuses of several countries in summary form. Some further Haitians are known to be resident in Puerto Rico, Barbados, Bahamas and Curacao, but no information is available on numbers. There are problems with the birthplace data for the 1970 Census of the Dominican Republic -presumably as a result of coding procedures the numbers of foreign-born young children present were too high- these young children were excluded from the figures here presented. In addition information on the age-structure of the Haitian born population is available for the three countries with the largest numbers namely U.S., Cuba and the Dominican

Republic. The information for the U.S. also includes year of entry by five-year periods. These data are presented at Tables I.3 and I.4.

The final source of information on international migration for Haiti is the Demographic Survey. Table I.5 shows the estimates of migration from both the second and third rounds of the Survey for the three main current countries of destination (U.S., Canada and Dominican Republic -migration to Cuba was large many years ago but is probably negligible now-), and for all other countries combined. Finally Table I.6 shows the estimates of the age-sex structure of net emigration from the survey, which is for both rounds combined -this is unfortunate as the Second Round was held in February 1973 and picked up the large annual seasonal migration to the sugar plantations in the Dominican Republic, which distorts the sex structure substantially.

We are now confronted with the problem of utilizing these data to make inferences about the level of emigration from Haiti. It is perhaps easiest to consider the major countries of destination separately, and then to consider totals. Taking first the United States currently some 7 000 immigrant visas are issued annually, the Demographic Survey indicates a net annual emigration (taking the figures to be scaled to annual values and to population estimates as seems to be the case) of five to seven thousands. It seems quite likely that some of the people reported as going to 'all other countries' in the Survey did not have a known destination and many have gone to the U.S. Thus a minimum sensible current estimate seems to be the 7 000 U.S. emigrants. An unknown population of the twenty to thirty thousands temporary visa holders may also be migrating temporarily at least. As many temporary visa holders do return to Haiti (businessmen, government officials, etc.) perhaps this could add at most a further ten thousand emigrants a year, many of whom would only stay for short periods. Considering now the intercensal period 1950-1971 some 50 000 immigrant visas were issued, about 34 500 of which were issued between 1960 and 1970. During the period 1960-1970 there was an increase of just over 25 000 in the number of Haitian born recorded in the U.S. As some of the immigrants would have died these figures are broadly in agreement with the numbers of immigrant visas issued. Thus a figure of around 50 000 net immigrant to the U.S. during the intercensal period

constitutes a plausible estimate. An alternative view would be that there is substantially more migration, most of it clandestine; there is little direct evidence for this, and illegal immigration to the U.S. by sea or air is not at all easy.

Turning now to Canada, the Demographic Survey indicates a net migration of some two to three thousands per annum in the period 1971-1973, whereas Canadian immigration statistics indicate just over one thousand per annum in 1971. The two sources are obviously incompatible -some of the reported emigration to Canada for the Survey may have been to the U.S.- it should be remembered that the migrants themselves are not reporting their destinations. Emigration to Canada is a recent phenomenon with very little occurring before the mid-1960's. Again the Canadian immigration statistics coincide quite closely with the Haitian born population at the 1971 Canadian Census. Perhaps 5 000 is an adequate figure for net emigration to Canada during the intercensal period.

Our final major host country is the Dominican Republic. Here the only annual figures are those from the Demographic Survey. The figures for the Second Round are highly distorted by the interviewing being held in February 1973, which precisely corresponds with the known period of seasonal migration to the Dominican Republic for the sugar harvest. According to the Survey this appears to occur almost entirely from the West region. Also somewhat peculiarly the Third Round only shows a relatively small number returning. Census figures for the Dominican Republic show a net increase of some ten thousand Haitian born between 1950 and 1960 and a net decrease of about nine thousand between 1960 and 1970. The 1950 Census of Haiti showed 13 352 Dominican Republic born, so that migration between the two countries is not solely in one direction. The fact that the land borders are officialy closed may induce misstatement of country of birth. It is unfortunate that figures on Dominican Republic born are not available for Haiti around 1960 and 1970. Net migration between the two countries could be virtually zero or could be substantial in either direction, with the balance of opinion being perhaps in favour of net emigration from Haiti.

If we consider other possible destinations and exclude Cuba which has substantial numbers of Haitian born almost all of whom migrated many years ago, it is difficult to find hard information or substantial numbers of Haitian born people living elsewhere (see Table I.2). Yet the Demographic Survey suggests quite large numbers (two to four thousand annually) of net emigrants to other countries. As mentioned before many of these migrants may be of unknown destination and in fact are going to one of the major host countries.

Overall the Demographic Survey Third Round indicates a net emigration of around 14 000 per annum. Canadian and U.S. immigrant statistics indicates at least 8 000 or 9 000 per annum. These give indications of the current levels, but should not be used for earlier periods, as emigration to Canada is a recent phenomenon, and emigration to the U.S. seems to have doubled between 1967 and 1968. Perhaps for the years before 1968 a net emigration of between 4 000 and 7 000 or 8 000 may be acceptable as an estimate. This would suggest a net total emigration of between one and two hundred thousand as being a plausible range of estimates for the intercensal period.

Table I.1

INTERNATIONAL MIGRATION OVER TIME

Year	Haitian figures		U.S. visas issued		Canadian Immigrants
	Immigrants	Exit visas	Immigrats	Temporary	
1951	1 295	1 834			
1952	651	4 212			
1953	410	4 059			
1954	748	4 499			
1955	508	4 705			
1956	469	5 479	620	3 175	
1957	196	4 590	405	2 834	
1958	380	4 801	766	3 195	
1959	1 552	6 063	543	3 948	
1960	1 626	5 851	931	4 107	
1961	2 057	4 819	1 025	3 832	
1962	1 627	2 647	1 322	4 694	
1963	1 533	2 559	1 851	4 650	
1964	1 058	4 636	2 082	6 341	
1965	284	3 395	3 609	8 090	98
1966	196	7 368	3 801	9 271	126
1967	116	6 055	3 567	10 990	378
1968	161	14 597	6 806	17 259	599
1969	282	17 898	6 542	19 209	708
1970	677	18 972	6 932	24 535	987
1971			7 444	25 299	1 113
1972}	755}	129 039}	5 809	28 351	
1973					

Sources: Columns 1 and 2, Informe de la Misión Conjunta CEPAL/CELADE a Haití del 3 al 12 de marzo de 1976, by R. Mellon, L. Torres and J. Chackiel, p.60.

Columns 3 and 4, Archives, Immigration and Naturalization Service, New York, U.S.A.

Column 5, Canadian Immigration Services.

Table I.2

HAITIAN-BORN POPULATION RECORDED AT VARIOUS CENSUSES

Country	Year	Males	Females	Total
Dominican Republic	1950	13 543	5 650	19 193
	1960	23 330	6 170	29 500
	1970	14 152	4 913	19 065
United States of America	1960	2 239	2 577	4 816
	1970	14 021	15 147	29 168
Cuba	1953	23 945	3 958	27 543
	1970	19 977	2 602	22 579
Canada	1971	-	-	4 260
Venezuela	1971	-	-	353
West Germany	1970	-	-	335
Sweden	1970	-	-	183
Switzerland	1970	-	-	157
Chile	1970	-	-	52
Argentina	1960	-	-	30
Brazil	1950	-	-	24
Costa Rica	1973	-	-	15
Guatemala	1973	-	-	15
Bolivia	1950	-	-	1
El Salvador	1971	-	-	1

Sources: Census Reports for the various countries and CELADE Data Bank and CELADE, Boletín Demográfico, Año X, N° 20, July, 1977.

Table I. 3

HAITIAN-BORN POPULATION OF THE UNITED STATES BY SEX, AGE AND YEAR OF IMMIGRATION, 1970 CENSUS

	Total	1965-1970	1960-1964	1955-1959	1950-1954	1945-1949	Before 1945
Both sexes	29 168	17 028	5 724	2 238	1 334	440	915
Under 5 years old	588	377	71	-	-	-	-
5 to 9 years old	1 901	1 536	224	17	-	-	-
10 to 14 years old	2 562	1 753	561	143	-	-	-
15 to 19 years old	2 704	1 646	663	205	63	-	-
20 to 24 years old	2 706	1 990	244	134	163	-	-
25 to 29 years old	3 048	2 093	649	166	24	57	-
30 to 34 years old	3 576	2 135	917	341	14	17	-
35 to 39 years old	3 601	1 734	804	527	257	81	67
40 to 44 years old	2 720	1 315	504	380	275	95	104
45 to 49 years old	1 728	757	377	159	235	60	20
50 to 54 years old	1 167	573	255	101	90	66	80
55 to 59 years old	976	436	203	21	59	21	106
60 to 64 years old	816	385	114	44	98	23	99
65 years old and over	1 075	298	138	-	56	20	439
Male	14 021	8 538	2 615	1 080	405	218	473
Under 5 years old	417	312	51	-	-	-	-
5 to 9 years old	902	757	93	-	-	-	-
10 to 14 years old	1 405	995	318	56	-	-	-
15 to 19 years old	1 257	671	302	134	23	-	-
20 to 24 years old	1 022	773	88	42	55	-	-
25 to 29 years old	1 537	1 093	314	76	-	36	-
30 to 34 years old	1 916	1 216	449	156	14	17	-
35 to 39 years old	1 664	912	364	192	86	62	25
40 to 44 years old	1 484	734	189	283	142	40	63
45 to 49 years old	834	411	249	78	17	20	20
50 to 54 years old	573	296	151	42	-	43	41
55 to 59 years old	384	180	24	21	21	-	53
60 to 64 years old	240	90	23	-	27	-	45
65 years old and over	386	98	-	-	20	-	226
Female	15 147	8 490	3 109	1 158	929	222	442
Under 5 years old	171	65	20	-	-	-	-
5 to 9 years old	999	781	131	17	-	-	-
10 to 14 years old	1 157	758	243	87	-	-	-
15 to 19 years old	1 447	975	361	71	40	-	-
20 to 24 years old	1 684	1 217	156	92	108	-	-
25 to 29 years old	1 511	1 000	335	90	24	21	-
30 to 34 years old	1 660	919	468	185	-	-	-
35 to 39 years old	1 937	822	440	335	171	19	42
40 to 44 years old	1 236	579	315	97	133	55	41
45 to 49 years old	894	346	128	81	218	40	-
50 to 54 years old	594	279	104	59	90	23	39
55 to 59 years old	592	256	179	-	38	21	53
60 to 64 years old	576	293	91	44	71	23	54
65 years old and over	689	200	138	-	36	20	213

Source: CELADE Data Bank.

Table I.4

HAITIAN BORN POPULATION OF CUBA AND DOMINICAN REPUBLIC
BY AGE AND SEX, 1970 CENSUSES

Age	Dominican Republic		Cuba	
	Males	Females	Males	Females
0- 4	85	111	4	5
5- 9	251	270	5	1
10-14	508	374	11	7
15-19	398	424	13	13
20-24	971	494	15	17
25-29	1 964	575	32	26
30-34	1 711	398	51	19
35-39	1 623	393	86	44
40-44	1 534	341	169	85
45-49	1 049	354	219	110
50-54	866	307	306	139
55-59	498	143	905	220
60-64	1 114	289	3 272	454
65-69	557	124	8 047	827
70-74	500	146	2 814	265
75-79	175	32		
80-84	164	74	{4 028	{370
85 and more	159	59		
Unknown	25	5	-	-
Total	14 152	4 913	19 977	2 602

Sources: 1970 Census of Cuba, Dominican Republic data from CELADE Data Bank.

Table I.5

ESTIMATES OF INTERNATIONAL MIGRATION FOR HAITI FROM THE DEMOGRAPHIC SURVEY, SECOND AND THIRD ROUNDS

Country	Round	Males			Females		
		Emigrants	Immigrants	Balance	Emigrants	Immigrants	Balance
United States	2nd.	3 065	458	2 607	2 785	646	2 139
	3rd.	3 702	402	3 300	4 656	462	4 194
Canada	2nd.	1 186	203	983	1 603	258	1 345
	3rd.	1 489	342	1 147	1 821	191	1 630
Dominican Republic	2nd.	12 654	110	12 544	468	83	385
	3rd.	2 138	2 520	-382	596	189	407
Rest of the world	2nd.	2 807	915	1 892	1 041	532	509
	3rd.	3 483	899	2 584	2 479	648	1 831
All	2nd.	19 712	1 686	18 026	5 897	1 519	4 378
	3rd.	10 812	4 163	6 649	9 552	1 490	8 062

Source: Resultats Preliminaires de L'Enquete Démographique, Vol. I, Table 93, Institut Haitien de Statistique, Port-Au-Prince, Haiti.

Table I.6

AGE-SEX PATTERN OF NET INTERNATIONAL MIGRATION FROM DEMOGRAPHIC SURVEY

Age group	Males	Females	Total
0-14	- 1 982	-1 119	- 3 101
15-19	- 1 366	- 851	- 2 217
20-24	- 3 133	-1 051	- 4 184
25-29	- 1 826	-1 226	- 3 052
30-34	- 2 294	- 672	- 2 966
35-39	- 1 017	- 263	- 1 280
40-44	- 297	- 306	- 603
45-49	- 50	- 330	- 380
50-54	+ 75	- 397	- 322
55-59	- 149	- 117	- 266
60 and more	- 298	+ 112	- 186
Total	-12 337	-6 220	-18 557

Source: Resultats Preliminaires de l'Enquete Démographique, Vol. I, Table 94, Institut Haitien de Statistique, Port-au-Prince, Haiti.

Age-distributions

Table A.1 presents the basic information on age-sex distributions for Haiti at the 1950 and 1971 censuses. Table A.2 shows the proportional age-distributions at each Census by sex. The final two columns of Table A.2 highlight the changes in the recorded age-structures over time. The age-pattern of change is strikingly similar for each sex: there has been a substantial rise in the proportions recorded under age 20; the patterning of the signs for the age-range 35 to 80 suggests a reduction in digital preference for ages ending in zero (excepting age-group 35-39 which was strongly preferred in 1950- this is a quite common preference); there is a hint of increasing overstatement of age at the oldest ages. As a result of the increasing proportions under age 20, the proportions at other ages should be reduced, which they are generally. The main reductions occur in the age-range 20-40 -it may be tempting to infer that this is as a result of increasing emigration, which in turn causes the apparent rise in the under 20 group- this is almost certainly not the case. Table A.3 shows the impact on the male age-distribution of adding three times the sum of the Haitian-born population of the Dominican Republic in 1970 and the Haitian-born population of the U.S. in 1970 who gave their date of entry as between 1950 and 1970. Taking three times the sum gives a maximum estimate of the impact of migration -80,000 surviving male migrants, who would be the product of more than 100,000 male migrants during the period (see migration section). This is also an overstatement of the impact of international migration during the period for another reason, namely that these migrants have subsequently born children, who would have been Haitian if their parents had not migrated. Clearly the differences in the recorded age-structure cannot have a reason entirely through international migration. Equally they do not arise solely through improved enumeration of young children, and are not likely to be purely due to errors in the data. The two remaining possible explanations are either a rise in fertility or a substantial decline in childhood mortality, the latter being more likely. We have little information on either, but we do know of substantial reduction in the incidence of malaria -this would cause substantial reductions in child mortality particularly.

Another aspect of the age-distributions presented at table A.1 that requires some comment is the pattern of sex-ratios. Again it may be tempting to attribute this to migration. The section on migration presented the available information on international migration by sex. There was virtually no evidence for differential migration by sex on a large scale, especially since 1950. Additionally migration overseas from Haiti before 1950 was almost certainly quite low, with the exception of migration to Cuba. It should be clear from the calculations presented in Table A.3 for 1971 that 30,000 emigrants to Cuba, even with a strong sex imbalance would make no substantial impact on the shape of the age-distribution and could not have caused the sex-ratios found in Haiti. It is far more likely that the peculiar sex-ratios arise through differential patterns of age-misstatement.

The only kind of analysis which can throw light upon either fertility or mortality trends before 1950 in Haiti is one of the age-structure. The age-structure is determined by past patterns of mortality and fertility and migration (plus errors). Unless extremely strong assumptions are made about past patterns of the demographic parameters it is impossible to deduce these patterns. Stable population techniques depend upon assumptions of no international migration and previously constant mortality and fertility. By 1971 it is likely that mortality especially had changed noticeably. Time-trends of fertility are unknown. There is known to be some international migration. Despite these reservations it was felt that some insights into the patterns of age-misstatement could be gained from attempting to fit stable populations for Haiti, especially for 1950. Table A.4 presents the results of such an exercise. Stable populations were fitted based on the Coale-Demeny West Model Life-Tables and using quite arbitrarily chosen levels of mortality. There is not enough information to choose the correct levels of mortality accurately -varying the levels will vary the exact values of the b and r (birth and growth rates) but not the general pattern. The results of this exercise are quite interesting. The male age-structure for 1950 clearly corresponds well with the stable population model, except for the undercutting at the earliest ages -this may well be due to overstatement of age of young children (but could be due to selective underenumeration). This

again suggests that the male age-distribution is not badly distorted by migration. The female age-distribution for 1950 shows a remarkable pattern of increasing estimates of b and r with age right up to age 40. This is very likely to be due to overstatement of ages, especially in the fertile age-range. This pattern of overstatement of age for females corresponds quite closely with the pattern found by Van de Walle for French-speaking countries in Africa. One difference in the patterns of apparent age-misstatement between Haiti and the French speaking countries in Africa is that Haiti does not exhibit the same excess of females in the 10-14 age-group. This may well be because of differences in norms about mating: in Tropical Africa early marriage is regarded as universal and there is a tendency to attribute all unmarried teenage girls to age-groups 10-14; in Haiti the norms and expectations are probably different -in most Caribbean societies union-formation is often later than in Tropical Africa, and childbearing outside stable unions more frequent. Clearly similar patterns are carried across to the 1971 age-distribution, as is indicated by the similarities of patterns of change shown at Table A.2. The male age-distribution is clearly no longer approximately stable. If fertility has remained constant at a total fertility of around 6.0 over the entire period it should be noted that this implies that the levels used for the 1950 analysis were too high.

Some attempts were made to estimate levels of mortality from intercensal comparisons using varying levels of migration. They are not presented here as the level of errors in the age distributions and the level of uncertainty about migration volume makes such analysis hazardous. It may be best to try such an analysis for males only, as the age-distribution for males is probably more accurate.

Table A.1

AGE SEX-DISTRITUBIONS FROM 1950 AND 1971 CENSUSES, HAITI

Age group	1950 Census			1971 Census		
	Males	Females	Sex Ratios (Males/100 females)	Males	Females	Sex Ratios (Males/100 females)
0- 4	185 896	188 976	98.4	303 494	302 334	100.4
5- 9	199 274	201 244	99.0	292 117	296 704	98.5
10-14	203 283	194 425	104.6	300 150	294 099	102.1
15-19	154 287	153 739	100.4	229 500	250 250	91.7
20-24	121 342	146 059	83.1	152 479	181 402	84.1
25-29	125 172	152 005	82.3	131 346	167 102	78.6
30-34	85 278	103 866	82.1	103 082	126 317	81.6
35-39	107 718	121 926	88.3	121 190	147 710	82.0
40-44	80 622	77 075	104.6	105 066	109 330	96.1
45-49	68 289	65 162	104.8	94 448	90 020	104.9
50-54	50 937	48 452	105.1	70 571	66 004	106.9
55-59	27 804	29 024	95.8	45 433	43 786	103.8
60-64	34 220	36 734	93.2	46 614	48 295	96.5
65-69	18 608	21 782	85.4	33 373	37 096	90.0
70-74	18 063	21 503	84.0	22 456	28 203	79.6
75-79	7 909	10 046	78.7	13 663	18 287	74.7
80-84	5 891	8 308	70.9	8 494	12 699	66.9
85 and more	4 220	6 900	61.2	7 294	14 220	51.3

Table A.2

PERCENTAGE AGE-SEX DISTRIBUTIONS, 1950 AND 1971 CENSUSES, HAITI

Age group	Males		Females		Difference 1950-1971	
	1950	1971	1950	1971	Males	Females
0- 4	12.40	14.59	11.91	13.53	+2.19	+1.62
5- 9	13.30	14.04	12.68	13.28	+0.74	+0.60
10-14	13.56	14.42	12.25	13.17	+0.86	+0.92
15-19	10.29	11.03	9.69	11.20	+0.74	+1.51
20-24	8.10	7.33	9.20	8.12	-0.77	-1.08
25-29	8.35	6.31	9.58	7.48	-2.04	-2.10
30-34	5.69	4.95	6.54	5.65	-0.74	-0.89
35-39	7.19	5.82	7.68	6.61	-1.37	-1.07
40-44	5.38	5.05	4.86	4.89	-0.33	+0.03
45-49	4.56	4.54	4.11	4.03	-0.02	-0.08
50-54	3.40	3.39	3.05	2.95	-0.01	-0.10
55-59	1.86	2.18	1.83	1.96	+0.32	+0.13
60-64	2.28	2.24	2.31	2.16	-0.04	-0.15
65-69	1.24	1.60	1.37	1.66	+0.36	+0.29
70-74	1.21	1.08	1.35	1.26	-0.13	-0.09
75-79	0.53	0.66	0.63	0.82	+0.13	+0.19
80-84	0.39	0.41	0.52	0.57	+0.02	+0.05
85 and more	0.28	0.35	0.43	0.64	+0.07	+0.21

Table A.3

ESTIMATE OF MAXIMUM IMPACT OF MIGRATION ON MALE AGE-DISTRIBUTION

Age group	Total Haitian born enumerated in Dominican Republic and U.S. (1950-1970 entries)	Male age-distribution plus three times previous column	Resulting percentage distribution	Original percentage distribution	Original minus migration adjusted
0- 4	502	305 000	14.10	14.59	0.49
5- 9	1 153	295 576	13.67	14.04	0.37
10-14	1 913	305 889	14.14	14.42	0.28
15-19	1 655	234 465	10.84	11.03	0.19
20-24	1 993	158 458	7.33	7.33	0.00
25-29	3 465	141 741	6.55	6.31	-0.24
30-34	3 610	113 912	5.27	4.95	-0.32
35-39	3 200	130 790	6.05	5.82	-0.23
40-44	2 915	113 811	5.26	5.05	-0.21
45-49	1 843	99 977	4.62	4.54	-0.08
50-54	1 355	74 636	3.45	3.39	-0.06
55-59	829	47 920	2.22	2.18	-0.04
60-64	1 309	50 541	2.34	2.24	-0.10
65-69	637	35 284	1.63	1.60	-0.03
70-74	550	24 106	1.11	1.08	-0.03
75-79	195	14 248	0.66	0.66	-0.00
80-84	174	9 016	0.42	0.41	-0.01
85 and more	159	7 771	0.36	0.35	-0.01
Total	27 352	2 162 826	-	-	-

Table A.4

RESULTS OF FITTING COALE-DEMENY 'WEST' STABLE POPULATIONS TO CUMULATED AGE-DISTRIBUTIONS FOR HAITI, 1950 AND 1971. ESTIMATES OF CRUDE BIRTH RATE (*b*) AND RATE OF INCREASE (*r*)

Fitted to proportion aged less than	1950				1971			
	Males		Females		Males		Females	
	Level 10 ($\mathring{e}_o$=39.67)		Level 9 ($\mathring{e}_o$=40.00)		Level 14 ($\mathring{e}_o$=49.24)		Level 13 ($\mathring{e}_o$=50.00)	
	b	*r*	*b*	*r*	*b*	*r*	*b*	*r*
	(Per thousand)							
5	32.2	8.4	30.6	6.6	35.7	19.4	32.7	16.2
10	36.5	13.1	34.5	11.0	38.3	22.2	35.2	19.0
15	40.4	17.2	37.1	13.7	42.2	26.4	38.1	22.1
20	40.5	17.3	37.0	13.6	43.0	27.2	39.5	23.6
25	39.5	16.2	37.5	14.1	40.9	25.1	38.7	22.8
30	40.1	16.8	39.8	16.4	39.3	23.3	38.6	22.6
35	38.4	15.1	39.5	16.1	37.0	20.9	37.4	21.4
40	40.1	16.8	42.3	19.0	37.0	20.8	38.7	22.8
45	40.5	17.3	42.4	19.1	37.0	20.9	38.9	23.0
50	41.4	18.1	42.5	19.2	37.7	21.6	38.9	23.0
55	41.3	18.0	41.5	18.2	37.4	21.3	37.9	21.9
60	37.7	14.3	37.7	14.5	35.2	18.8	35.0	18.8
65	37.3	13.9	37.0	13.6	34.4	17.9	33.5	17.1

CONCLUSION

We have presented the results of several analyses which estimate levels of basic demographic parameters in Haiti. Both the comparison of current and retrospective fertility from the Demographic Survey and the analysis of the own-children data quite strongly suggest that total fertility in Haiti is 6.0 or slightly higher. The analysis of the retrospective reports on mortality from the 1971 Census suggests an expectation of life at birth of some 47 years, although there is still uncertainty about levels of childhood mortality. Intercensal net emigration is estimated to be between one and two hundred thousands over twenty-one years, with some concentration in the most recent periods. Analysis of the age-distributions suggests that the ages of females are quite heavily overstated up to age 40, whilst the male age-distribution is much less overstated and may be acceptable but for the relative deficit of young children, and overstatement at the high ages.

Clearly more information is needed on the demographic situation in Haiti. The information collected at the Demographic Survey on child survivorship needs to be made available: this would permit more soundly based estimates of childhood mortality. It would undoubtedly be helpful to have more information on adult mortality -some pilot work in Port-au-Prince which is due to start in September 1977 is at least a step in the righ direction. More information on fertility levels will become available from the Haitian round of the World Fertility Survey -this will be very useful. More work remains to be done on the age-distribution, including derivation of adjusted age-distributions -this is not easy, especially for females, and may be best achieved by careful smoothing of the male age distribution and derivation of an adjusted female distribution using assumed sex-ratios. More work is also needed to reconcile the various estimates with the two Censuses, or the Censuses with the estimates -any such work is bound to involve substantial margins of error. Any such work should take note of the 1971 Census having used

the 1950 Census as a sampling frame for the rural areas, and having only been a (hopefully, given the very old frame) 10 per cent sample in these rural areas. It is unlikely that the preliminary 1971 Census figures used a ratio adjustment procedure to attempt to correct for any deficiencies in the very old 1950 Census frame. Of course deficiencies in the frame and the sampling procedures may cause biasses in either direction, but the very old frame does mean that new growth areas are likely to be substantially underrepresented.

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