DEMOGRAPHIC SURVEILLANCE SYSTEM — MATLAB

VOLUME TWENTY THREE

REGISTRATION OF DEMOGRAPHIC EVENTS- 1992

SCIENTIFIC REPORT NO. 75
March 1995

INTERNATIONAL CENTRE FOR DIARRHOEAL DISEASE RESEARCH, BANGLADESH

CENTRE
FOR HEALTH AND
POPULATION RESEARCH

DEMOGRAPHIC SURVEILLANCE SYSTEM - MATLAB

Volume Twenty Three

Registration of Demographic Events - 1992

With a Special Supplement

Trends in Infant and Child Mortality in Matlab by Sex and by Cause of Death, 1981-1992

ICDDR,B
CENTRE
FOR HEALTH AND
POPULATION RESEARCH

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ISBN 984-551-034-5

Cover design: Asem Ansari

March 1995

Scientific Report No. 75

Published by

International Centre for Diarrhoeal Disease Research, Bangladesh
GPO Box 128, Dhaka 1000, Bangladesh
Telephone: 600171-8 (8 lines), 600271-2 (2 lines); Cable: CHOLERA DHAKA;
Telex: 675612 ICDD BJ; Fax: 880-2-883116 and 880-2-886050

Printed by Sheba Printing Press, Dhaka

PREFACE

The International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) is an autonomous, international, philanthropic, non-profit centre for research, education, training, and clinical service. The Centre is derived from the Cholera Research Laboratory (CRL). Its aims and objectives are to undertake and promote study, research, and dissemination of knowledge in diarrhoeal diseases and the directly related subjects of nutrition and fertility, with a view to developing improved health care methods and to prevent and control diarrhoeal diseases and improve public health programmes, especially in developing countries.

The ICDDR,B issues an annual report, working papers, scientific reports, special publications, monographs, theses, dissertations, an international journal on diarrhoeal diseases, and a bi-monthly newsletter which demonstrates the type of research activities currently in progress. The views expressed in these publications are those of the authors, and do not necessarily represent the views of the ICDDR,B.

ACKNOWLEDGEMENTS

From 1984 through 1989 the Demographic Surveillance System (DSS) of the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) was supported by the Canadian International Development Agency (CIDA). It was supported in 1990 by the Government of the Netherlands and CIDA, and in 1991-92 by the Netherlands, UNDP, and UNFPA. The ICDDR,B is supported by countries and agencies which share its concern for the health problems of developing countries. Current donors include: the aid agencies of the Governments of Australia, Bangladesh, Belgium, Canada, China, Germany, Japan, the Netherlands, Norway, Republic of Korea, Saudi Arabia, Sweden, Switzerland, the United Kingdom, and the United States; international organizations, including the Arab Gulf Fund, Asian Development Bank, International Atomic Energy Centre, the United Nations Children's Fund (UNICEF), the United Nations Development Programme (UNDP), the United Nations Population Fund (UNFPA), and the World Health Organization (WHO); private foundations including Child Health Foundation, Ford Foundation, Population Council, Rockefeller Foundation and the Sasakawa Foundation; and private organizations including American Express Bank, Bayer A.G., CARE, Family Health International, Helen Keller International, the Johns Hopkins University, Procter Gamble, RAND, SANDOZ, Swiss Red Cross, and the University of California Davis and others.

Publication of this Report was made possible by grant number 514 "Updating the Demographic Surveillance System", by the Overseas Development Administration of the United Kingdom. The ICDDR,B is grateful for this generous grant which funded the completion of this report, including the provision of the services of Dr. John Blacker, who improved the content and accuracy of this report and ensured its rapid completion. Mr. Golam Mostafa and Mr. Sentu B. Gomes prepared the initial drafts and Dr. Karen Allen provided editorial assistance.

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SUMMARY

This report presents the vital registration data for events taking place in 1992 in Matlab, Bangladesh. These data were collected by the Demographic Surveillance System of the International Centre for Diarrhoeal Disease Research, Bangladesh. The surveillance area is divided into a Maternal and Child Health and Family Planning (MCH-FP) intervention area and a Comparison area receiving government services.

In 1992 fertility remained roughly constant in the MCH-FP area and continued to decline in the Comparison area. The crude birth rate was 25.4 per thousand in the MCH-FP area and 31.1 in the Comparison area, while the total fertility rates were 3.0 and 4.0 respectively. These were the lowest figures recorded since 1978, the first full year of reporting of the two areas.

Infant mortality showed little change on the previous year in the MCH-FP area, where a rate of 80.5 per thousand was recorded in 1992; in the Comparison area, after the sharp upsurge in 1991, it fell back to 90.2, which was only slightly higher than the lowest-ever figure recorded in 1990. The crude death rates were 8.3 and 9.8 in the two areas respectively. Thus the rates of natural increase in both areas were the lowest recorded since the project began, except for 1984, a year of exceptionally high mortality.

Rates of both in- and out-migration for the surveillance area as a whole rose in 1992, with in-migration at 33.6 per thousand and out-migration at 48.5 per thousand, leaving a net out-migration of 14.9 per thousand, thus offsetting the rate of natural increase, and reducing the overall rate of population growth to 0.4 percent per annum.

This report also presents a Special Supplement describing trends in infant and child mortality by sex and cause of death, from 1981-1982. Between 1981 and 1992 under-five mortality fell by 40 percent in the MCH-FP area and 36 percent in the Comparison area. There was no consistent sex differential in infant mortality during the first part of the period, but from 1987 in the MCH-FP area and from 1989 in the Comparison area, the male infant mortality rates have been consistently higher than the female. For children aged one to five, the relative decline in mortality for females has been more rapid than for males, so that by 1991 the differential had all but disappeared.

The most important element in the overall decline of infant mortality was the virtual eradication of tetanus. The major component of the fall in mortality in the one to four age group was the reduction in diarrhoeal disease mortality. Measles mortality also underwent a large relative fall, and its reduction by immunisations probably contributed to the fall in diarrhoeal deaths. Changing sex differentials in under-five mortality were apparently associated with the changing composition of the mortality rates by cause of death.

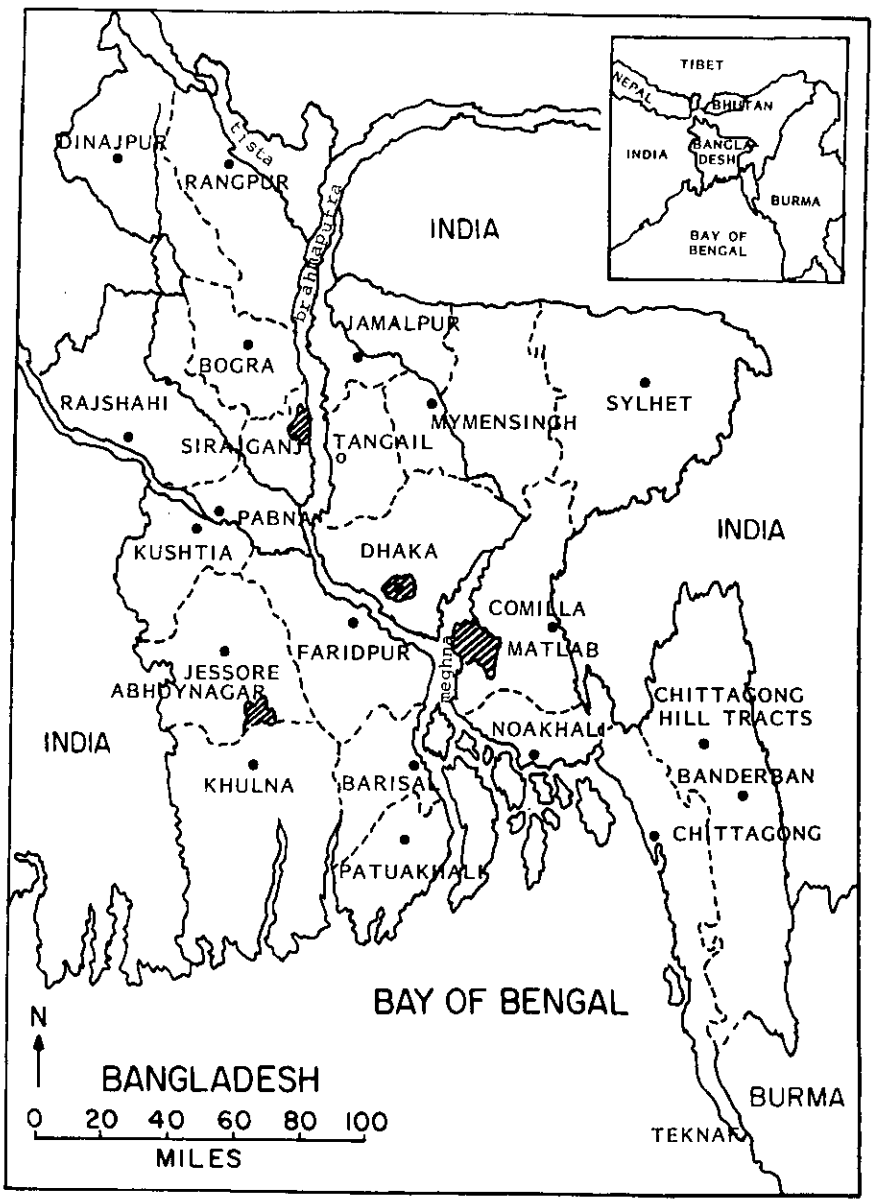
CHAPTER 1

INTRODUCTION

Since 1963 the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B), formerly the Cholera Research Laboratory, has been conducting a health related research programme near the town of Matlab, in rural Bangladesh. Matlab is located about 55 kilometers southeast of the country's capital, Dhaka (Figure 1.1). The Demographic Surveillance System (DSS) is one of the components of this field programme. Since 1966 the DSS has maintained the registration of births, deaths, and migrations, in addition to carrying out occasional censuses. In 1975 the system was augmented to include marriages and divorces. This information is gathered by Health Assistants who visit each household in their assigned areas regularly and fill out the event registration forms. A detailed description of the DSS and its operation appears in CRL Scientific Report No. 9 (March 1978). In October 1977 the surveillance area was reduced from 233 to 149 villages and a Maternal Child Health and Family Planning (MCH-FP) Programme was begun in 70 villages. The remaining 79 villages were treated as a comparison area (Figure 1.2). These changes are described in detail in the ICDDR,B Scientific Report No. 47 (May 1981).

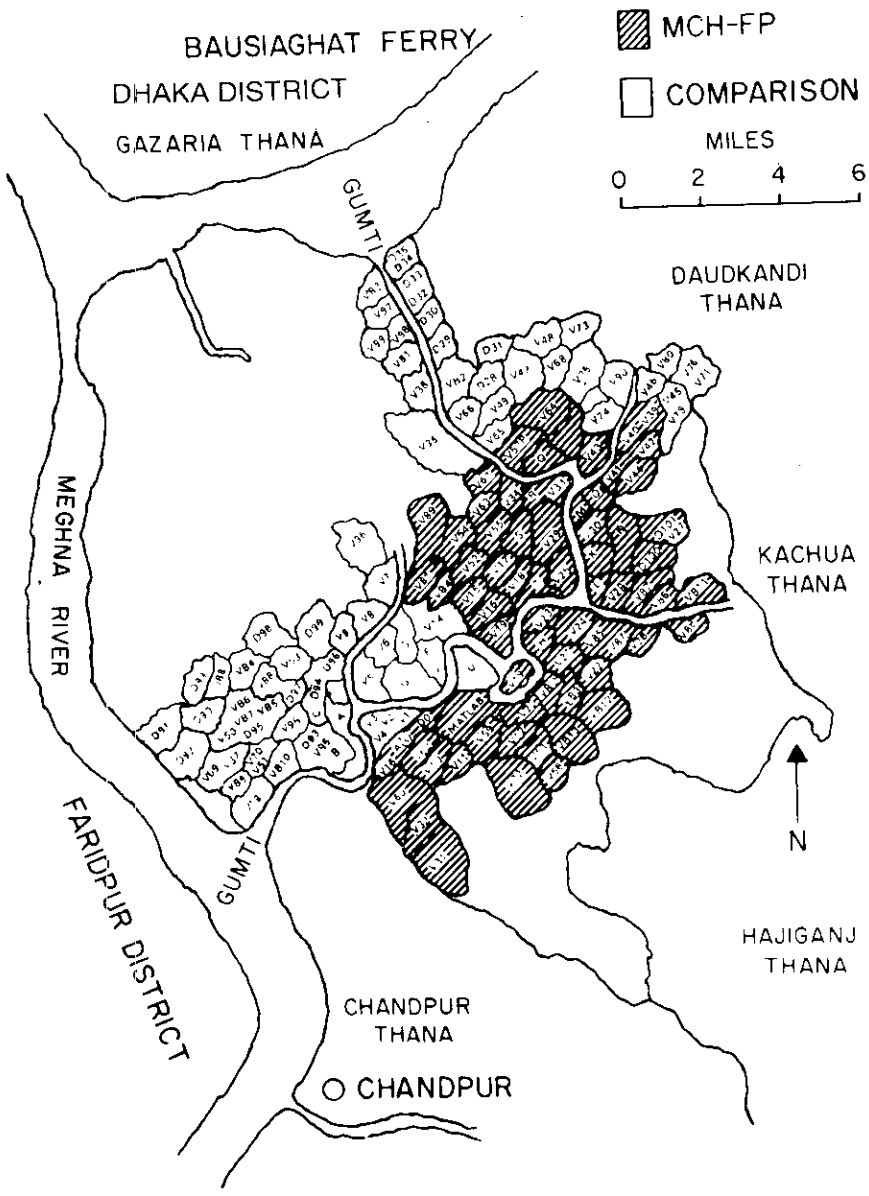
This is the twenty-third volume of a series of scientific reports of the Demographic Surveillance System produced by the ICDDR,B. Presented here are results obtained from the Matlab DSS in 1992, along with brief notes and explanations of the tables. This volume also includes, for the first time, a special supplement describing trends in infant and child mortality in Matlab by sex and cause of death from 1981 through 1992.

Figure 1.1: Map of Bangladesh Showing the Study Area



Key: Study areas

Figure 1.2: Matlab Area Showing Villages of Demographic Surveillance System, 1992



CHAPTER 2

POPULATION CHANGES

Table 2.1 summarizes the principal vital statistics of the MCH-FP and Comparison areas from 1981 through 1992, and the basic 1992 figures, by sex, are shown in Table 2.2. The 1992 fertility rates remained constant on those of the preceding year in the MCH-FP area, with a total fertility rate of 3.0 and a crude birth rate of 25.4 per thousand in both years. In the Comparison area the TFR fell from 4.3 to 4.0 and the crude birth rate from 32.7 to 31.1 per thousand. The trends in the total fertility rate in both areas are illustrated in Figure 2.1(a).

Infant mortality also showed little change in the MCH-FP area, increasing by half a point from 80.0 to 80.5 from 1991 to 1992. This stability was the net result of a small increase in the neonatal mortality rate and a compensating decrease in the post-neonatal rate. In the Comparison area infant mortality fell to 90.2 per thousand after the sharp upsurge in 1991, when it had reached 114.9. The fall occurred in both the neonatal and post-neonatal rates. Mortality of children aged 1-4 fell in the MCH-FP area, but rose slightly in the Comparison area for the first time since 1984. The trends in under-five mortality are illustrated in Figure 2.1(b).

Migration figures, both in and out, of the surveillance area as a whole increased on 1991, so that the net loss of out-migrants remained much the same. This loss of migrants thus offsets the rate of natural increase, which amounted to 19.1 per thousand in 1992, so that the overall rate of population growth was reduced to 0.4 percent per annum.

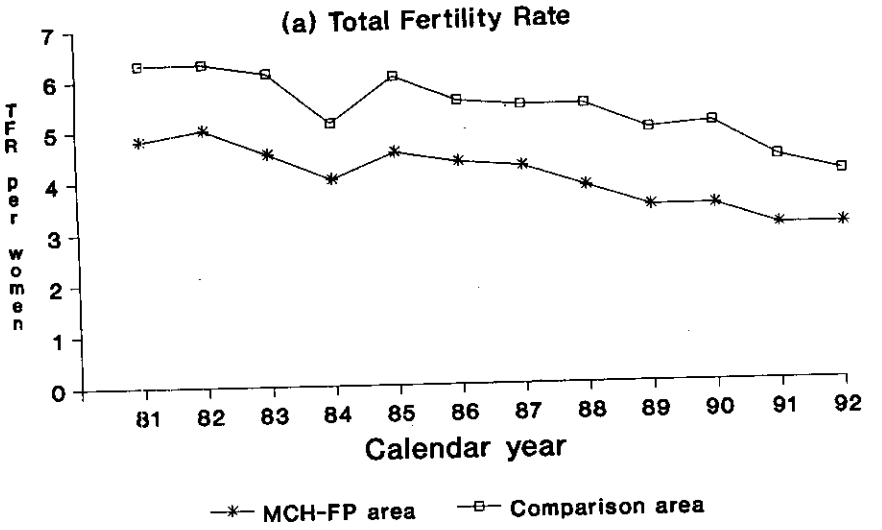
Tables 2.3, 2.4, and 2.5 show the age and sex distributions for the whole study area, the MCH-FP and Comparison areas, and for the four blocks of the MCH-FP area. The age-sex distribution for the study area is illustrated by the population pyramid shown in Figure 2.2. The decline of fertility in the MCH-FP area has caused a small but significant change in the age structure of the population. Children under 15 years of age constituted 43.4 percent of the population at the beginning of the MCH-FP project in 1978; by 1992 this proportion had fallen to 37.8 percent. In the Comparison area, on the other hand, the proportion under 15 showed only minimal change, from 43.3 percent in 1978 to 42.1 percent in 1992.

Table 2.1: Vital Statistics of the Matlab MCH-FP and Comparison Areas, 1981-1992

Vital rates (per 1000)	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Crude birth rate												
MCH-FP area	35.3	36.9	34.2	30.7	34.6	33.6	33.6	30.9	28.4	28.3	25.4	25.4
Comparison area	43.8	44.7	42.6	37.3	42.6	39.6	39.2	40.4	36.6	37.8	32.7	31.1
Both areas	39.5	40.7	38.3	34.0	38.5	36.5	36.4	35.5	32.4	32.9	29.0	28.2
Total fertility rate*												
MCH-FP area	4.8	5.0	4.5	4.0	4.5	4.3	4.2	3.8	3.4	3.4	3.0	3.0
Comparison area	6.3	6.3	6.1	5.1	6.0	5.5	5.4	5.4	4.9	5.0	4.3	4.0
Both areas	5.5	5.6	5.3	4.5	5.2	4.9	4.8	4.5	4.1	4.1	3.6	3.5
Crude death rate												
MCH-FP area	11.9	12.5	11.9	13.4	10.2	9.9	9.3	8.7	8.0	7.6	8.1	8.3
Comparison area	14.4	15.9	16.7	17.3	14.2	12.2	11.2	11.0	9.5	9.4	10.2	9.8
Both areas	13.1	14.2	14.3	15.3	12.2	11.0	10.2	9.9	8.7	8.5	9.1	9.0
Neonatal mortality**												
MCH-FP area	66.4	58.1	56.4	57.9	52.5	45.4	43.8	42.8	46.0	47.8	47.7	49.6
Comparison area	69.5	68.1	70.3	71.4	69.4	53.0	54.9	57.7	52.7	53.3	63.2	53.3
Both areas	68.1	63.5	64.0	65.3	61.7	49.4	49.7	51.1	49.7	50.9	56.3	51.6
Post-neonatal mortality**												
MCH-FP area	36.1	47.5	41.8	56.9	33.8	36.4	34.6	38.0	28.3	27.4	32.3	30.8
Comparison area	45.0	50.2	42.2	55.7	49.1	39.7	39.5	39.0	38.0	34.1	51.7	37.0
Both areas	41.0	49.0	42.0	56.2	42.1	38.2	37.2	38.6	33.6	31.2	43.0	34.1
Infant mortality**												
MCH-FP area	102.6	105.6	98.2	114.8	86.4	81.8	78.4	80.8	74.3	75.2	80.0	80.5
Comparison area	114.5	118.3	112.5	127.1	118.4	92.7	94.4	96.6	90.7	87.5	114.9	90.2
Both areas	109.1	112.5	106.0	121.5	103.8	87.6	86.9	89.6	83.3	82.1	99.2	85.7
Child mortality (1-4 yrs)												
MCH-FP area	19.1	18.8	21.9	23.1	16.4	13.4	9.9	7.6	6.4	5.3	7.0	5.9
Comparison area	24.8	27.4	35.3	39.2	24.6	20.7	15.0	14.4	11.5	9.3	9.1	10.4
Both areas	22.0	23.3	29.1	31.6	20.7	17.2	12.6	11.1	9.0	7.4	8.1	8.3
Under five mortality**												
MCH-FP area	169.6	169.4	172.3	192.0	143.9	129.8	113.1	107.4	97.5	94.8	105.7	102.0
Comparison area	197.5	207.2	227.0	252.7	200.1	164.0	145.2	146.1	131.1	120.4	146.2	127.1
Both areas	184.8	189.7	202.1	224.8	174.4	148.0	130.2	128.3	115.7	108.7	128.1	115.7
Rate of natural increase												
MCH-FP area	23.4	24.3	22.3	17.3	24.4	23.7	24.3	22.1	20.4	20.7	17.3	17.1
Comparison area	29.4	28.8	25.8	20.0	28.4	27.4	28.0	29.4	27.1	28.4	22.5	21.2
Both areas	26.4	26.5	24.1	18.6	26.3	25.5	26.1	25.7	23.6	24.4	19.9	19.1
In-migration	27.3	24.5	24.6	24.2	23.9	28.3	33.6	26.5	29.3	26.0	26.9	33.6
Out-migration	35.0	26.5	35.8	42.7	42.1	41.7	44.3	41.5	43.9	42.4	41.9	48.5
Growth (%)	1.9	2.5	1.3	0.0	0.8	1.2	1.5	1.1	0.9	0.8	0.5	0.4

*Per woman.
**Per 1000 live births.
Note: Numbers have been rounded.

Figure 2.1 Trends in Fertility and Under Five Mortality by Area, 1981-1992



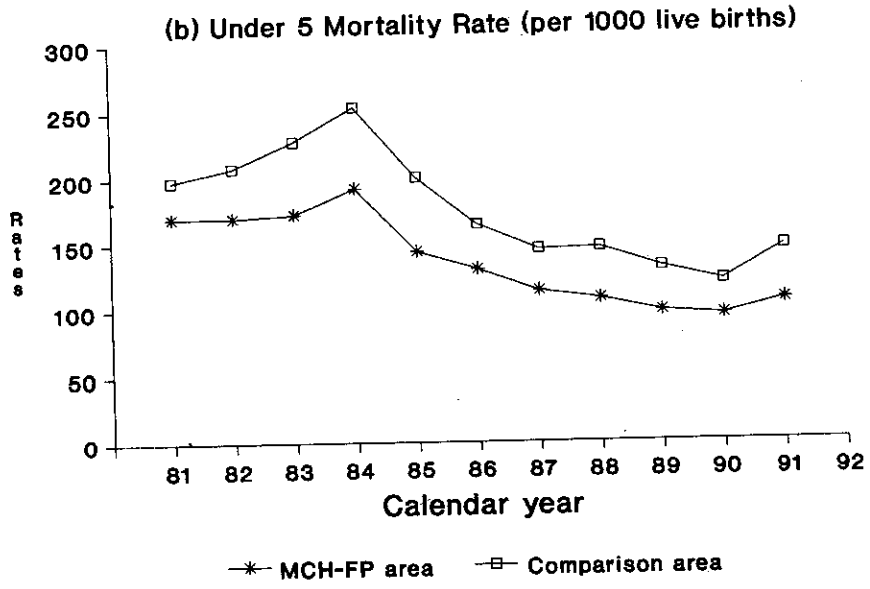


Table 2.2: Mid-year Population, Events Registered, and Population Changes in 1992

	Number			Rate per 1000		
	Total	Males	Females	Total	Males	Females
Total population as of 30 June 1992:						
MCH-FP area	104804	52311	52493	-	-	-
Comparison area	100966	50462	50504	-	-	-
Both area	205770	102773	102997	-	-	-
Events registered (Jan - Dec 1992)						
Births						
MCH-FP area	2660	1339	1321	25.4	-	-
Comparison area	3136	1614	1522	31.1	-	-
Both areas	5796	2953	2843	28.2	-	-
Deaths						
-Infant*						
MCH-FP area	214	118	96	80.5	88.1	72.7
Comparison area	283	149	134	90.2	92.3	88.0
Both areas	497	267	230	85.7	90.4	80.9
-All Deaths						
MCH-FP area	869	477	392	8.3	9.1	7.5
Comparison area	991	496	495	9.8	9.8	9.8
Both areas	1860	973	887	9.0	9.5	8.6
In-migration	6909	3125	3784	33.6	30.4	36.7
Out-migration	9978	5035	4943	48.5	49.0	48.0
Marriage	2998	-	-	14.6	-	-
Divorce**	439	-	-	146.4	-	-
Population change (Jan - Dec 1992)						
Net Migration	-3069	-1910	-1159	-14.9	-18.6	-11.3
Natural increase						
MCH-FP area	1791	862	929	17.1	16.5	17.7
Comparison area	2145	1118	1027	21.2	22.2	20.3
Both areas	3936	1980	1956	19.1	19.3	19.0
Net increase	867	70	797	4.2	0.7	7.7

*Rate per 1000 live births.
**Rate per 1000 marriages.

Table 2.3: Mid-year Population by Age and Sex, 1992

Age (years)	Number			Percent		
	Both sexes	Males	Females	Both sexes	Males	Females
All ages	205770	102773	102997	100.0	100.0	100.0
Under 1	5113	2572	2541	2.5	2.5	2.5
1 - 4	23671	11852	11819	11.5	11.5	11.5
1	5885	2967	2918	2.9	2.9	2.8
2	5798	2903	2895	2.8	2.8	2.8
3	6121	3006	3115	3.0	2.9	3.0
4	5867	2976	2891	2.9	2.9	2.8
5 - 9	28270	14561	13709	13.7	14.2	13.3
10-14	25123	13235	11888	12.2	12.9	11.5
15-19	21790	11565	10225	10.6	11.3	9.9
20-24	18507	8913	9594	9.0	8.7	9.3
25-29	16221	7224	8997	7.9	7.0	8.7
30-34	14375	7269	7106	7.0	7.1	6.9
35-39	9925	4902	5023	4.8	4.8	4.9
40-44	7968	3819	4149	3.9	3.7	4.0
45-49	7924	3420	4504	3.9	3.3	4.4
50-54	7268	3353	3915	3.5	3.3	3.8
55-59	6559	3244	3315	3.2	3.2	3.2
60-64	4954	2518	2436	2.4	2.5	2.4
65-69	3464	1836	1628	1.7	1.8	1.6
70-74	2271	1196	1075	1.1	1.2	1.0
75-79	1338	722	616	0.7	0.7	0.6
80-84	639	347	292	0.3	0.3	0.3
85+	390	225	165	0.2	0.2	0.2

Table 2.4: Mid-year Population by Area, Age, and Sex, 1992

Age (years)	MCH-FP area			Comparison area		
	Both sexes	Males	Females	Both sexes	Males	Females
All ages	104804	52311	52493	100966	50462	50504
Under 1	2329	1167	1162	2784	1405	1379
1 - 4	10920	5522	5398	12751	6330	6421
1	2678	1372	1306	3207	1595	1612
2	2649	1329	1320	3149	1574	1575
3	2811	1416	1395	3310	1590	1720
4	2782	1405	1377	3085	1571	1514
5 - 9	13809	7050	6759	14461	7511	6950
10-14	12567	6613	5954	12556	6622	5934
15-19	11597	6204	5393	10193	5361	4832
20-24	9835	4727	5108	8672	4186	4486
25-29	8646	3799	4847	7575	3425	4150
30-34	7465	3763	3702	6910	3506	3404
35-39	5241	2605	2636	4684	2297	2387
40-44	4175	1973	2202	3793	1846	1947
45-49	4219	1845	2374	3705	1575	2130
50-54	3822	1740	2082	3446	1613	1833
55-59	3337	1687	1650	3222	1557	1665
60-64	2578	1341	1237	2376	1177	1199
65-69	1840	959	881	1624	877	747
70-74	1129	599	530	1142	597	545
75-79	738	406	332	600	316	284
80-84	321	175	146	318	172	146
85+	236	136	100	154	89	65

Table 2.5: Mid-year Population in MCH-FP Area by Age, Sex, and Block, 1992

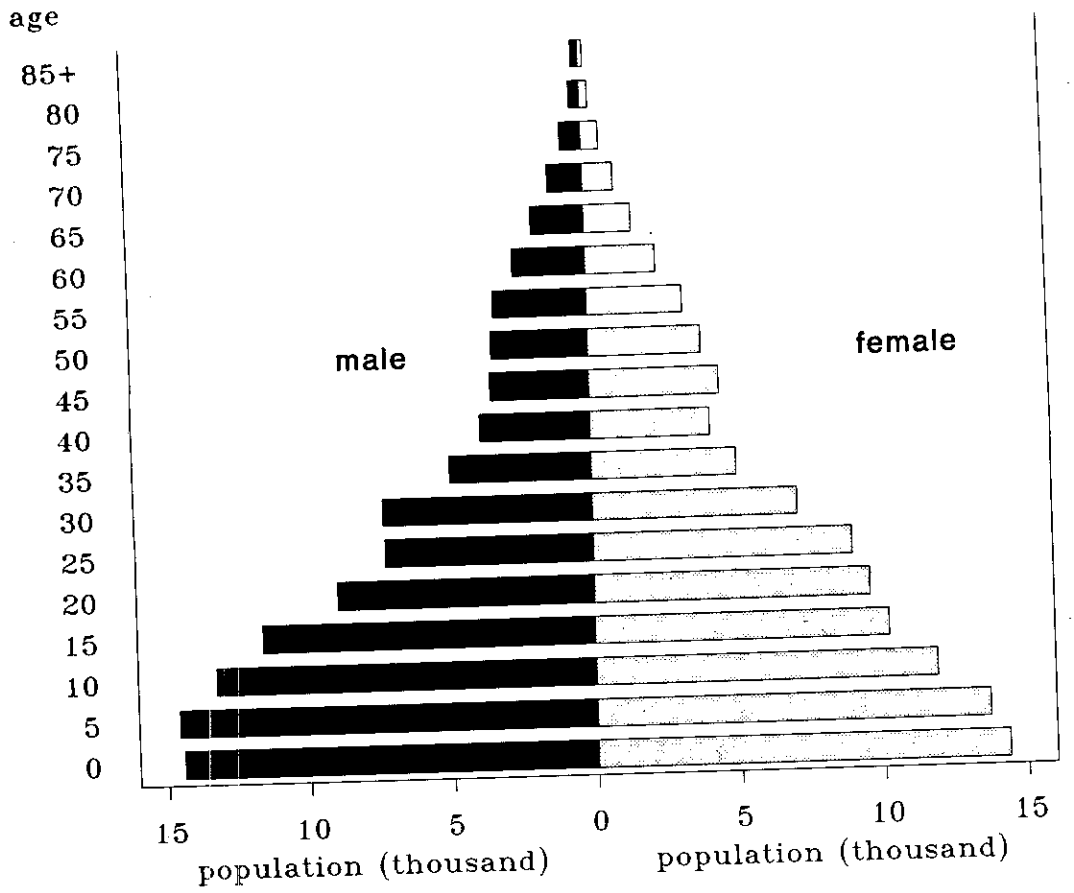
Age (years)	Block A			Block B		
	Both sexes	Males	Females	Both sexes	Males	Females
All ages	28764	14330	14434	26323	13018	13305
Under 1	675	328	347	596	316	280
1 - 4	3069	1526	1543	2860	1470	1390
1	738	379	359	699	341	358
2	763	349	414	711	375	336
3	798	401	397	720	375	345
4	770	397	373	730	379	351
5 - 9	3818	1942	1876	3657	1880	1777
10-14	3466	1852	1614	3212	1657	1555
15-19	3199	1678	1521	2828	1498	1330
20-24	2653	1278	1375	2413	1142	1271
25-29	2498	1082	1416	2085	862	1223
30-34	2039	1017	1022	1768	887	881
35-39	1480	731	749	1230	576	654
40-44	1127	538	589	1048	478	570
45-49	1193	521	672	1019	421	598
50-54	955	478	477	929	404	525
55-59	833	441	392	860	419	441
60-64	640	336	304	685	352	333
65-69	469	246	223	502	269	233
70-74	275	141	134	279	169	110
75-79	205	103	102	197	129	68
80-84	95	51	44	86	48	38
85+	75	41	34	69	41	28

(continued)

Table 2.5 (cont.): Mid-year Population in MCH-FP Area by Age, Sex, and Block, 1992

Age (years)	Block C			Block D		
	Both sexes	Males	Females	Both sexes	Males	Females
All ages	27541	13918	13623	22176	11045	11131
Under 1	579	308	271	479	215	264
1 - 4	2714	1367	1347	2277	1159	1118
1	675	357	318	566	295	271
2	653	327	326	522	278	244
3	674	326	348	619	314	305
4	712	357	355	570	272	298
5 - 9	3522	1826	1696	2812	1402	1410
10-14	3330	1736	1594	2559	1368	1191
15-19	3158	1714	1444	2412	1314	1098
20-24	2748	1345	1403	2021	962	1059
25-29	2224	1021	1203	1839	834	1005
30-34	1993	1031	962	1665	828	837
35-39	1390	685	705	1141	613	528
40-44	1124	548	576	876	409	467
45-49	1125	515	610	882	388	494
50-54	1042	475	567	896	383	513
55-59	892	466	426	752	361	391
60-64	651	346	305	602	307	295
65-69	445	230	215	424	214	210
70-74	309	148	161	266	141	125
75-79	169	89	80	167	85	82
80-84	74	37	37	66	39	27
85+	52	31	21	40	23	17

Figure 2.2: Age Pyramid of the 1992 Mid-year Population



CHAPTER 3

MORTALITY

Tables 3.1 to 3.3 show the distribution of deaths by sex and age for the whole study area, for the MCH-FP and Comparison areas, and for the four blocks of the MCH-FP area. Tables 3.4 and 3.5 show the corresponding age-sex-specific mortality rates for the study area, and for the MCH-FP and Comparison areas. Tables 3.6 to 3.10 show the abridged life tables derived from these rates.

As noted in Chapter 2, the MCH-FP infant mortality rate of 80.5 showed little change on the previous year, as a result of compensating movements in the neonatal and post-neonatal rates. The Comparison area recorded an appreciable fall in infant mortality compared with 1991, when there had been a sudden upsurge; but the 1992 figure of 90.2 was still slightly higher than that for 1990 which had been the lowest ever recorded. Mortality of children aged 1-4 fell in the MCH-FP area but rose in the Comparison area.

The levels of adult mortality also increased slightly for the second year in succession. In the Comparison area the probability of dying between the ages of 15 and 60 ($_{45}q_{15}$) increased from 198 per thousand in 1991 to 207 in 1992, and mortality in old age also rose, so that the expectation of life at age 60 fell by one year from 16.5 in 1991 to 15.5 in 1992; the changes occurred for both sexes but were more pronounced for females than for males. In the MCH-FP area $_{45}Q_{15}$ fell marginally from 191 in 1991 to 189 in 1992, but old age mortality rose, so that life expectancy at 60 fell by almost a year for both sexes.

Table 3.11 shows the distribution of deaths by age and month of occurrence. Adult deaths tend to peak in the winter months. Neonatal deaths were also most frequent in these months, doubtless reflecting the seasonal variation in births described in Chapter 4. Post-neonatal deaths, on the other, hand generally tend to be highest in April, May and June.

Tables 3.12 to 3.15 show the distribution of deaths by age, sex, area and cause, and Table 3.16 gives the age-standardised mortality rates by cause of death, using the World Health Organization. "World Standard" age distribution (World Health Statistics Annual 1991. WHO 1992). Comparisons with the corresponding table for 1991 reveal no major changes. In the MCH-FP area the standardised rate for "other neonatal" and "cardio-vascular" causes increased for both sexes, as did those for "chronic obstructive pulmonary disease" in the Comparison area. The trends in infant and child mortality rates by sex and cause of death are examined in greater detail in the special article in this report.

Table 3.1: Deaths by Age and Sex, 1992

Age	Both sexes	Males	Females
All ages	1860	973	887
Under 1 year	497	267	230
Under 1 month	299	165	134
1-5 months	137	73	64
6-11 months	61	29	32
1 - 4 years	196	78	118
1	93	42	51
2	55	15	40
3	29	13	16
4	19	8	11
5 - 9	50	24	26
10-14	18	9	9
15-19	18	8	10
20-24	22	12	10
25-29	39	10	29
30-34	17	6	11
35-39	28	17	11
40-44	30	13	17
45-49	42	25	17
50-54	80	43	37
55-59	102	62	40
60-64	141	91	50
65-69	152	83	69
70-74	161	85	76
75-79	123	62	61
80-84	91	50	41
85+	53	28	25

Table 3.2: Deaths by Area, Age, and Sex, 1992

Age	MCH-FP area			Comparison area		
	Both sexes	Males	Females	Both sexes	Males	Females
All ages	869	477	392	991	496	495
Under 1 year	214	118	96	283	149	134
Under 1 month	132	75	57	167	90	77
1-5 months	59	32	27	78	41	37
6-11 months	23	11	12	38	18	20
1 - 4 years	64	29	35	132	49	83
1	31	15	16	62	27	35
2	15	3	12	40	12	28
3	11	7	4	18	6	12
4	7	4	3	12	4	8
5 - 9	19	12	7	31	12	19
10-14	8	4	4	10	5	5
15-19	9	4	5	9	4	5
20-24	11	6	5	11	6	5
25-29	26	7	19	13	3	10
30-34	8	2	6	9	4	5
35-39	14	9	5	14	8	6
40-44	15	6	9	15	7	8
45-49	20	9	11	22	16	6
50-54	37	21	16	43	22	21
55-59	51	35	16	51	27	24
60-64	84	61	23	57	30	27
65-69	73	37	36	79	46	33
70-74	72	42	30	89	43	46
75-79	75	38	37	48	24	24
80-84	40	20	20	51	30	21
85+	29	17	12	24	11	13

Table 3.3: Deaths in MCH-FP Area by Age, Sex, and Block, 1992

Age	Block A			Block B		
	Both sexes	Males	Females	Both sexes	Males	Females
All ages	240	135	105	245	122	123
Under 1 year	67	42	25	57	32	25
Under 1 month	38	24	14	38	20	18
1-5 months	25	16	9	14	9	5
6-11 months	4	2	2	5	3	2
1 - 4 years	12	3	9	26	6	20
1	8	1	7	10	2	8
2	2	0	2	9	2	7
3	1	1	0	4	0	4
4	1	1	0	3	2	1
5 - 9	8	5	3	6	5	1
10-14	5	3	2	1	0	1
15-19	1	0	1	4	1	3
20-24	3	3	0	4	2	2
25-29	11	3	8	7	3	4
30-34	2	0	2	4	0	4
35-39	4	2	2	3	2	1
40-44	4	1	3	5	3	2
45-49	6	3	3	5	3	2
50-54	11	6	5	8	5	3
55-59	18	12	6	10	5	5
60-64	18	12	6	22	13	9
65-69	10	5	5	29	15	14
70-74	18	11	7	19	12	7
75-79	24	11	13	17	7	10
80-84	11	7	4	8	4	4
85+	7	6	1	10	4	6

(continued)

Table 3.3 (cont.): Deaths in MCH-FP Area by Age, Sex, and Block, 1992

Age	Block C			Block D		
	Both sexes	Males	Females	Both sexes	Males	Females
All ages	213	118	95	171	102	69
Under 1 year	50	24	26	40	20	20
Under 1 month	33	18	15	23	13	10
1-5 months	9	4	5	11	3	8
6-11 months	8	2	6	6	4	2
1 - 4 years	13	9	4	13	11	2
1	7	7	0	6	5	1
2	4	1	3	0	0	0
3	1	1	0	5	5	0
4	1	0	1	2	1	1
5 - 9	5	2	3	0	0	0
10-14	1	0	1	1	1	0
15-19	1	1	0	3	2	1
20-24	4	1	3	0	0	0
25-29	6	1	5	2	0	2
30-34	0	0	0	2	2	0
35-39	4	3	1	3	2	1
40-44	5	2	3	1	0	1
45-49	4	2	2	5	1	4
50-54	10	5	5	8	5	3
55-59	14	10	4	9	8	1
60-64	21	17	4	23	19	4
65-69	17	8	9	17	9	8
70-74	24	14	10	11	5	6
75-79	14	10	4	20	10	10
80-84	13	5	8	8	4	4
85+	7	4	3	5	3	2

Table 3.4: Death Rates by Age and Sex, 1992

Age	Both sexes	Males	Females
All ages	9.0	9.5	8.6
Under 1 year*	85.7	90.4	80.9
Under 1 month*	51.6	55.9	47.1
1-5 months*	23.6	24.7	22.5
6-11 months*	10.5	9.8	11.3
1 - 4 years	8.3	6.6	10.0
1	15.8	14.2	17.5
2	9.5	5.2	13.8
3	4.7	4.3	5.1
4	3.2	2.7	3.8
5 - 9	1.8	1.6	1.9
10-14	0.7	0.7	0.8
15-19	0.8	0.7	1.0
20-24	1.2	1.3	1.0
25-29	2.4	1.4	3.2
30-34	1.2	0.8	1.5
35-39	2.8	3.5	2.2
40-44	3.8	3.4	4.1
45-49	5.3	7.3	3.8
50-54	11.0	12.8	9.5
55-59	15.6	19.1	12.1
60-64	28.5	36.1	20.5
65-69	43.9	45.2	42.4
70-74	70.9	71.1	70.7
75-79	91.9	85.9	99.0
80-84	142.4	144.1	140.4
85+	135.9	124.4	151.5

*Rate per 1000 live births.

Table 3.5: Death Rates by Area, Age, and Sex, 1992
(per 1000 population)

Age	MCH-FP area			Comparison area		
	Both sexes	Males	Females	Both sexes	Males	Females
All ages	8.3	9.1	7.5	9.8	9.8	9.8
Under 1 year*	80.5	88.1	72.7	90.2	92.3	88.0
Under 1 month*	49.6	56.0	43.1	53.3	55.8	50.6
1-5 months*	22.2	23.9	20.4	24.9	25.4	24.3
6-11 months*	8.6	8.2	9.1	12.1	11.2	13.1
1 - 4 years	5.9	5.3	6.5	10.4	7.7	12.9
1	11.6	10.9	12.3	19.3	16.9	21.7
2	5.7	2.3	9.1	12.7	7.6	17.8
3	3.9	4.9	2.9	5.4	3.8	7.0
4	2.5	2.8	2.2	3.9	2.5	5.3
5 - 9	1.4	1.7	1.0	2.1	1.6	2.7
10-14	0.6	0.6	0.7	0.8	0.8	0.8
15-19	0.8	0.6	0.9	0.9	0.7	1.0
20-24	1.1	1.3	1.0	1.3	1.4	1.1
25-29	3.0	1.8	3.9	1.7	0.9	2.4
30-34	1.1	0.5	1.6	1.3	1.1	1.5
35-39	2.7	3.5	1.9	3.0	3.5	2.5
40-44	3.6	3.0	4.1	4.0	3.8	4.1
45-49	4.7	4.9	4.6	5.9	10.2	2.8
50-54	9.7	12.1	7.7	12.5	13.6	11.5
55-59	15.3	20.7	9.7	15.8	17.3	14.4
60-64	32.6	45.5	18.6	24.0	25.5	22.5
65-69	39.7	38.6	40.9	48.6	52.5	44.2
70-74	63.8	70.1	56.6	77.9	72.0	84.4
75-79	101.6	93.6	111.4	80.0	75.9	84.5
80-84	124.6	114.3	137.0	160.4	174.4	143.8
85+	122.9	125.0	120.0	155.8	123.6	200.0

*Rate per 1000 live births.

Figure 3.1: Probability of Survival from Birth to Age (x) by Sex, 1992

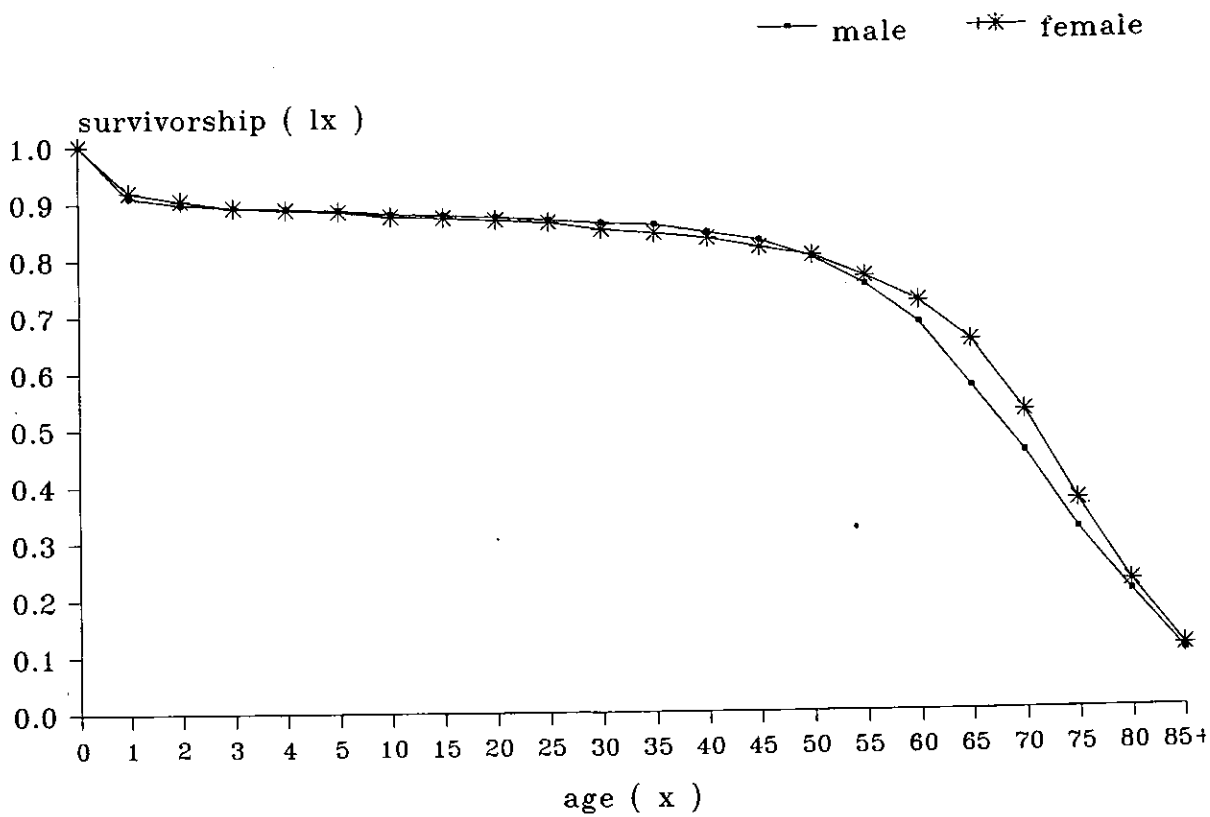


Table 3.6: Abridged Life Table, 1992

Age (years)	${}_nq_x$	l_x	L_x	e^0
0	85.7	100000	93792	61.5
1	15.7	91425	90579	66.3
2	9.4	89992	89567	66.3
3	4.7	89142	88931	66.0
4	3.2	88720	88577	65.3
5	8.8	88434	440372	64.5
10	3.6	87655	437552	60.0
15	4.1	87341	435877	55.2
20	5.9	86981	433718	50.5
25	12.0	86466	429943	45.7
30	5.9	85432	425999	41.3
35	14.0	84928	421894	36.5
40	18.7	83738	415079	32.0
45	26.2	82175	405899	27.5
50	53.7	80024	390134	23.2
55	75.0	75729	365382	19.4
60	133.3	70047	328180	15.7
65	198.5	60707	274684	12.7
70	302.0	48654	207270	10.2
75	373.9	33959	138132	8.6
80	519.7	21261	77590	7.2
85+	1000.0	10211	75141	7.4

Table 3.7: Abridged Life Tables by Sex, 1992

Age (years)	Males				Females			
	$_nq_x$	l_x	L_x	e^0	$_nq_x$	l_x	L_x	e^0
0	90.4	100000	93454	61.0	80.9	100000	94143	62.0
1	14.1	90958	90204	66.1	17.3	91910	90970	66.5
2	5.2	89680	89449	66.0	13.7	90317	89698	66.6
3	4.3	89217	89025	65.4	5.1	89078	88850	66.6
4	2.7	88832	88713	64.6	3.8	88621	88453	65.9
5	8.2	88594	441293	63.8	9.4	88285	439502	65.2
10	3.4	87867	438646	59.3	3.8	87451	436496	60.7
15	3.5	87568	437145	54.5	4.9	87121	434625	56.0
20	6.7	87266	434980	49.7	5.2	86696	432441	51.2
25	6.9	86680	432023	45.0	16.0	86245	428040	46.5
30	4.1	86082	429595	40.3	7.7	84865	422818	42.2
35	17.2	85728	425233	35.5	10.9	84211	418938	37.5
40	16.9	84253	417979	31.0	20.3	83293	412561	32.9
45	35.9	82830	407252	26.5	18.7	81603	404488	28.5
50	62.3	79853	387688	22.4	46.2	80076	391785	24.0
55	91.5	74881	358367	18.7	58.7	76374	371438	20.0
60	166.4	68032	313247	15.3	97.9	71892	342953	16.1
65	203.9	56711	255843	12.9	192.4	64852	294433	12.6
70	302.6	45146	192251	10.5	301.3	52373	223214	10.0
75	354.0	31482	129765	8.9	396.6	36593	146559	8.1
80	524.0	20339	73962	7.5	514.6	22080	80918	6.9
85+	1000.0	9682	77799	8.0	1000.0	10718	70737	6.6

Table 3.8: Abridged Life Tables by Area, 1992

Age (years)	MCH-FP area				Comparison area			
	$_nq_x$	l_x	L_x	e^0	$_nq_x$	l_x	L_x	e^0
0	80.5	100000	94175	62.9	90.2	100000	93466	60.3
1	11.5	91955	91330	67.4	19.1	90976	89948	65.3
2	5.6	90896	90640	67.2	12.6	89234	88670	65.6
3	3.9	90383	90207	66.6	5.4	88107	87868	65.4
4	2.5	90030	89917	65.8	3.9	87629	87459	64.8
5	6.9	89804	447600	65.0	10.7	87289	434298	64.0
10	3.2	89188	445288	60.4	4.0	86358	431000	59.7
15	3.9	88905	443730	55.6	4.4	86015	429201	54.9
20	5.6	88560	441663	50.8	6.3	85636	426931	50.1
25	14.9	88066	437296	46.1	8.5	85094	423795	45.4
30	5.3	86751	432688	41.7	6.5	84367	420573	40.8
35	13.3	86288	428795	37.0	14.8	83819	416225	36.0
40	17.8	85142	422207	32.4	19.6	82575	409138	31.5
45	23.4	83625	413593	28.0	29.3	80957	399298	27.1
50	47.3	81665	399345	23.6	60.6	78586	381838	22.9
55	73.8	77799	375596	19.6	76.3	73822	355951	19.2
60	151.2	72058	334464	16.0	113.5	68187	322726	15.5
65	181.2	61160	279370	13.3	217.8	60445	270589	12.2
70	276.0	50077	216729	10.7	326.9	47282	198321	9.8
75	404.7	36255	144389	8.8	334.0	31826	132887	8.4
80	472.3	21581	81797	8.1	563.6	21195	74486	6.3
85+	1000.0	11389	92681	8.1	1000.0	9250	59352	6.4

Table 3.9: Abridged Life Tables for MCH-FP Area by Sex, 1992

Age (years)	Males				Females			
	$_nq_x$	l_x	L_x	e^0	$_nq_x$	l_x	L_x	e^0
0	88.1	100000	93620	61.6	72.7	100000	94739	64.4
1	10.9	91187	90602	66.6	12.2	92733	92067	68.4
2	2.3	90196	90094	66.3	9.1	91604	91189	68.2
3	4.9	89992	89771	65.5	2.9	90774	90645	67.9
4	2.8	89549	89421	64.8	2.2	90515	90416	67.1
5	8.5	89294	444725	64.0	5.2	90318	450513	66.2
10	3.0	88537	442070	59.5	3.4	89851	448561	61.5
15	3.2	88270	440694	54.7	4.6	89550	446794	56.7
20	6.3	87986	438645	49.8	4.9	89135	444674	52.0
25	9.2	87429	435295	45.1	19.4	88700	439520	47.2
30	2.7	86627	432604	40.5	8.1	86977	433267	43.1
35	17.1	86397	428565	35.6	9.4	86275	429496	38.4
40	15.1	84916	421621	31.2	20.2	85460	423304	33.8
45	24.1	83634	413506	26.6	22.9	83730	414214	29.4
50	58.7	81617	396936	22.2	37.8	81811	401895	25.0
55	98.9	76826	366308	18.4	47.4	78722	384943	20.9
60	205.1	69227	312104	15.2	89.1	74990	359310	16.8
65	176.7	55029	251985	13.4	186.2	68309	311188	13.2
70	299.2	45307	193347	10.7	248.9	55593	244476	10.6
75	379.3	31750	128678	9.2	434.5	41755	162795	8.3
80	442.9	19707	76364	8.3	505.7	23612	87164	7.8
85+	1000.0	10979	87835	8.0	1000.0	11672	97263	8.3

Table 3.10: Abridged Life Tables for Comparison Area by Sex, 1992

Age (years)	Males				Females			
	$_nq_x$	l_x	L_x	e^0	$_nq_x$	l_x	L_x	e^0
0	92.3	100000	93316	60.5	88.0	100000	93626	60.1
1	16.8	90768	89869	65.7	21.5	91196	90040	64.8
2	7.6	89244	88906	65.8	17.6	89237	88450	65.3
3	3.8	88567	88400	65.3	7.0	87664	87359	65.4
4	2.5	88233	88121	64.5	5.3	87055	86825	64.9
5	8.0	88009	438429	63.7	13.6	86596	430264	64.2
10	3.8	87308	435783	59.2	4.2	85420	426270	60.1
15	3.7	86979	434150	54.4	5.2	85060	424290	55.3
20	7.1	86655	431849	49.6	5.6	84621	422023	50.6
25	4.4	86036	429315	44.9	12.0	84151	418429	45.8
30	5.7	85660	427178	40.1	7.3	83143	414311	41.4
35	17.3	85173	422466	35.3	12.5	82534	410291	36.6
40	18.8	83701	414873	30.9	20.4	81503	403681	32.1
45	49.6	82128	401173	26.4	14.0	79844	396642	27.7
50	66.1	78053	378242	22.7	55.8	78727	383417	23.0
55	83.3	72894	350268	19.1	69.7	74334	359583	19.2
60	120.2	66820	315180	15.6	106.9	69151	328384	15.5
65	232.8	58787	260930	12.4	199.8	61756	279246	12.0
70	306.1	45100	191652	10.3	349.0	49420	204359	9.4
75	320.0	31296	131845	8.8	349.4	32171	133003	8.1
80	595.3	21283	72642	6.7	523.3	20932	76158	6.0
85+	1000.0	8613	69684	8.1	1000.0	9977	49887	5.0

Table 3.11: Deaths by Age and Month, 1992

Month	All ages	Age at death			
		Under 1 month	1-11 months	1-4 years	5 years and over
January	168	38	26	12	92
February	168	25	18	14	111
March	140	17	13	15	95
April	130	11	23	12	84
May	161	12	24	20	105
June	140	14	25	15	86
July	159	24	12	20	103
August	137	22	10	14	91
September	136	30	6	23	77
October	175	33	15	27	100
November	149	28	10	11	100
December	197	45	16	13	123
Total	1860	299	198	196	1167

Table 3.12: Male Deaths by Cause and Age, 1992

Cause	All ages	Age at death (years)																		
		<1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+
DIARRHOEAL																				
Diarrhoea	110	44	24	3	3	0	0	0	2	2	0	1	0	2	2	6	9	6	4	2
Dysentery	20	4	3	1	0	0	0	1	0	0	0	0	1	0	2	1	3	2	1	1
INFECTIOUS																				
Tuberculosis	27	0	1	0	0	0	0	1	0	2	1	2	5	3	9	1	1	1	0	0
Tetanus (non-neonatal)	3	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Other infectious	18	5	3	1	1	0	0	1	1	0	0	0	2	1	2	0	0	1	0	0
MALIGNANT NEOPLASMS	25	0	0	0	2	2	0	0	1	1	1	2	1	2	3	7	2	1	0	0
NUTRITIONAL	23	11	8	1	0	0	0	0	0	1	1	0	0	0	1	0	0	0	0	0
CARDIO-VASCULAR	70	0	0	0	0	0	0	0	0	1	1	1	9	11	14	11	7	5	8	2
RESPIRATORY																				
ARI, pneum, influenza	63	50	5	1	0	0	0	0	0	0	0	1	1	0	1	0	2	0	2	0
COPD*	77	0	0	0	0	0	0	0	0	2	0	4	8	9	12	14	9	12	5	2
GASTRO-INTESTINAL	59	0	0	1	2	0	1	3	0	0	3	7	4	11	10	5	9	2	1	0
DIRECT OBSTETRIC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NEONATAL																				
Tetanus (neonatal)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other neonatal	143	143	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ACCIDENTS, INJURIES																				
Suicide	2	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Homicide	2	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
Drowning	22	1	20	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other accidents, etc.	17	1	0	2	0	2	5	1	0	1	0	0	1	0	2	1	1	0	0	0
OTHER AND UNSPECIFIED																				
Senility	103	0	0	0	0	0	0	0	0	0	0	0	0	1	10	14	21	19	23	15
Other causes n.e.c.**	98	1	5	7	1	1	2	0	1	4	2	4	4	7	9	12	16	11	5	6
Unknown	91	7	8	4	0	2	3	3	0	2	4	3	7	14	14	11	5	2	1	1
TOTAL	973	267	78	24	9	8	12	10	6	17	13	25	43	62	91	83	85	62	50	28

*Chronic obstructive pulmonary disease.
**Not elsewhere classified.

Table 3.13: Female Deaths by Cause and Age, 1992

Cause	All ages	Age at death (years)																		
		<1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+
DIARRHOEAL																				
Diarrhoea	107	24	41	9	0	0	0	0	0	0	0	0	1	8	5	4	5	4	2	4
Dysentery	21	3	6	1	0	0	0	0	0	0	0	0	1	0	0	4	2	3	1	0
INFECTIOUS																				
Tuberculosis	13	0	0	2	0	0	2	2	1	1	0	1	2	0	1	1	0	0	0	0
Tetanus (non-neonatal)	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Other infectious	20	4	8	3	0	0	1	1	1	0	0	0	0	0	1	0	1	0	0	0
MALIGNANT NEOPLASMS	23	0	1	1	0	1	0	3	2	0	0	2	3	5	3	1	1	0	0	0
NUTRITIONAL	31	15	15	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
CARDIO-VASCULAR	51	0	0	0	0	0	0	1	0	2	1	2	9	5	6	9	6	6	3	1
RESPIRATORY																				
ARI, pneum, influenza	54	38	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COPD*	49	0	3	1	1	0	0	1	1	1	1	4	1	3	4	12	10	5	1	0
GASTRO-INTESTINAL	22	1	0	0	0	1	0	2	0	1	0	2	2	6	2	1	2	2	0	0
DIRECT OBSTETRIC	12	0	0	0	0	2	2	3	2	1	2	0	0	0	0	0	0	0	0	0
NEONATAL																				
Tetanus (neonatal)	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other neonatal	120	120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ACCIDENTS, INJURIES																				
Suicide	6	0	0	0	0	1	0	3	0	0	0	1	1	0	0	0	0	0	0	0
Homicide	3	0	0	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0
Drowning	19	2	11	2	0	1	0	0	0	0	0	1	1	0	0	0	1	0	0	0
Other accidents, etc.	10	1	0	0	2	1	0	0	0	1	2	0	1	0	0	0	1	1	0	0
OTHER AND UNSPECIFIED																				
Senility	107	0	0	0	0	0	0	0	0	0	0	0	0	0	12	16	27	20	19	13
Other causes n.e.c.**	127	3	5	5	4	2	1	2	0	0	3	2	11	0	11	17	20	19	15	7
Unknown	89	17	12	2	2	1	3	9	4	4	8	1	3	13	5	4	0	1	0	0
TOTAL	887	230	118	26	9	10	10	29	11	11	17	17	37	40	50	69	76	61	41	25

*Chronic obstructive pulmonary disease.
**Not elsewhere classified.

Table 3.14: Male Deaths by Cause, Age, and Area, 1992

Cause	All ages		Age at death (years)													
			<1		1-4		5-14		15-44		45-64		65-84		85+	
	M	C	M	C	M	C	M	C	M	C	M	C	M	C	M	C
DIARRHOEAL																
Diarrhoea	40	70	17	27	6	18	2	4	3	1	1	4	9	16	2	0
Dysentery	12	8	1	3	1	2	1	0	1	0	2	1	5	2	1	0
INFECTIOUS																
Tuberculosis	18	9	0	0	0	1	0	0	3	1	12	7	3	0	0	0
Tetanus (non-neonatal)	0	3	0	0	0	0	0	2	0	0	0	1	0	0	0	0
Other infectious	8	10	1	4	1	2	1	1	0	2	4	1	1	0	0	0
MALIGNANT NEOPLASMS	14	11	0	0	0	0	1	1	1	4	6	2	6	4	0	0
NUTRITIONAL	10	13	7	4	2	6	0	1	0	2	1	0	0	0	0	0
CARDIO-VASCULAR	43	27	0	0	0	0	0	0	2	0	25	10	16	15	0	2
RESPIRATORY																
ARI, pneum, influenza	24	39	20	30	2	3	0	1	0	0	1	2	1	3	0	0
COPD*	37	40	0	0	0	0	0	0	1	1	17	16	17	23	2	0
GASTRO-INTESTINAL	36	23	0	0	0	0	3	0	4	3	20	12	9	8	0	0
DIRECT OBSTETRIC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NEONATAL																
Tetanus (neonatal)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other neonatal	66	77	66	77	0	0	0	0	0	0	0	0	0	0	0	0
ACCIDENTS, INJURIES																
Suicide	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0
Homicide	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0
Drowning	11	11	1	0	10	10	0	1	0	0	0	0	0	0	0	0
Other accidents, etc.	14	3	1	0	0	0	1	1	7	2	3	0	2	0	0	0
OTHER AND UNSPECIFIED																
Senility	58	45	0	0	0	1	0	0	0	0	6	5	42	35	10	4
Other causes n.e.c.**	41	57	0	1	1	4	4	4	5	5	11	13	19	25	1	5
Unknown	45	46	4	3	6	2	3	1	7	7	17	21	7	12	1	0
TOTAL	477	496	118	149	29	49	16	17	34	32	126	95	137	143	17	11

*Chronic obstructive pulmonary disease.
**Not elsewhere classified.

Table 3.15: Female Deaths by Cause, Age, and Area, 1992

Cause	All ages		Age at death (years)													
			<1		1-4		5-14		15-44		45-64		65-84		85+	
	M	C	M	C	M	C	M	C	M	C	M	C	M	C	M	C
DIARRHOEAL	30	77	6	18	12	29	1	8	0	0	3	11	5	10	3	1
Diarrhoea	6	15	1	2	0	6	1	0	0	0	0	1	4	6	0	0
Dysentery																
INFECTIOUS	7	6	0	0	0	0	1	1	3	3	3	1	0	1	0	0
Tuberculosis	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Tetanus (non-neonatal)	6	14	1	3	2	6	1	2	1	2	0	1	1	0	0	0
Other infectious																
MALIGNANT NEOPLASMS	17	6	0	0	1	0	0	1	6	0	9	4	1	1	0	0
NUTRITIONAL	17	14	11	4	5	10	0	0	0	0	1	0	0	0	0	0
CARDIO-VASCULAR	32	19	0	0	0	0	0	0	3	1	11	11	17	7	1	0
NEONATAL	11	43	8	30	3	13	0	0	0	0	0	0	0	0	0	0
ARI, pneum, influenza	23	26	0	0	2	1	1	1	4	0	5	7	11	17	0	0
COPD*																
GASTRO-INTESTINAL	11	11	0	1	0	0	0	0	3	1	5	7	3	2	0	0
DIRECT-OBSTETRIC	4	8	0	0	0	0	0	0	4	8	0	0	0	0	0	0
NEONATAL	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0
Tetanus (neonatal)	57	63	57	63	0	0	0	0	0	0	0	0	0	0	0	0
Other neonatal																
ACCIDENTS, INJURIES	2	4	0	0	0	0	0	0	2	2	0	2	0	0	0	0
Suicide	0	3	0	0	0	0	0	0	0	2	0	1	0	0	0	0
Homicide	8	11	1	1	4	7	0	2	1	0	1	1	1	0	0	0
Drowning	4	6	1	0	0	0	0	2	0	4	1	0	2	0	0	0
Other accidents, etc.																
OTHER AND UNSPECIFIED	53	54	0	0	0	0	0	0	0	0	6	6	42	40	5	8
Senility	60	67	2	1	3	2	4	5	6	2	10	14	32	39	3	4
Other causes n.e.c.**	43	46	8	9	3	9	2	2	15	14	11	11	4	1	0	0
Unknown																
TOTAL	392	495	96	134	35	83	11	24	49	39	66	78	123	124	12	13

*Chronic obstructive pulmonary disease.
**Not elsewhere classified

Table 3.16: Age-standardized Mortality Rates by Cause of Death, 1992

Cause of death	Males		Females	
	MCH-FP area	Comparison area	MCH-FP area	Comparison area
Diarrhoea	84.02	135.42	75.65	161.35
Dysentery	25.91	15.80	20.66	36.52
Tuberculosis	40.55	22.02	13.17	13.99
Tetanus (non-neonatal)	-	5.12	1.69	-
Other infectious	16.61	18.77	12.25	23.81
Malignant neoplasms	30.93	25.24	34.76	13.89
Nutritional	20.96	23.49	33.89	21.54
Cardio-vascular	96.79	67.96	98.81	57.24
ARI, pneumonia, influenza	51.96	73.17	22.14	72.45
C.O.P.D.*	83.37	101.90	63.03	81.60
Gastro-intestinal	78.37	57.65	27.98	26.85
Direct obstetric	-	-	6.02	17.55
Neonatal tetanus	-	-	-	3.58
Other neonatal	144.67	140.19	121.21	112.89
Suicide	-	4.13	3.48	8.20
Homicide	-	-	-	6.05
Drowning	19.42	16.47	16.04	17.08
Other accidents	28.99	5.97	11.78	13.34
Senility	130.56	112.47	210.10	248.08
Other n.e.c.**	90.02	138.91	194.50	247.34
Unknown	94.42	108.00	95.10	92.39
All causes	1037.53	1077.65	1062.28	1275.76

*Chronic obstructive pulmonary disease.
**Not elsewhere classified.

CHAPTER 4

FERTILITY

Table 4.1 shows the number of pregnancies and their outcomes in 1992. Compared with 1991, the number of live births fell by 159, or 2.7 percent. This small decline occurred almost entirely in the Comparison area; in the MCH-FP area the number of live births was only 4 less than in 1991. In the study area as a whole, 86.8 percent of pregnancies resulted in a live birth; a proportion which remains remarkably constant from year to year.

Table 4.2 shows the distribution of pregnancies by outcome, and live births by sex and month of occurrence. The data show the usual marked seasonal variation, peaking in October-December. The sex ratio of the live births was 103.9 males per 100 females.

Table 4.3 shows the age-specific fertility rates for the study area, together with the total fertility rate, crude birth rate, general fertility rate, and gross and net reproduction rates; Table 4.4 shows the corresponding rates for the MCH-FP and Comparison areas, which are also illustrated in Figure 4.2; Table 4.5 shows the rates for the four blocks of the MCH-FP area. Although the total fertility rate in the MCH-FP area remained virtually unchanged from 1991, the shape of the age-specific fertility distribution changed. More births were concentrated in the 20-24 age group, with correspondingly fewer at older ages. In the Comparison area the age-specific rates fell for all groups.

Table 4.6 shows the distribution of births by mother's age and live birth order, and Table 4.7 the age-order-specific fertility rates derived from these figures. These tables are new to the DSS reports, and their production has been made possible by the up-dating of the pregnancy history files, completed in late 1993. The breakdown by birth order facilitates a more detailed and sensitive analysis of fertility trends and differentials. Thus the totals of the order-specific rates represent the components by birth order of the total fertility rates. In the same way as the TFR represents the average number of children which would be borne by a woman who went through life having children at the current rates, so the total for birth order N represents the proportion of women who would have at least N children.

Thus the tables highlight the differences between the MCH-FP and Comparison areas. There is comparatively little difference between the two areas for birth orders 1 to 4, but thereafter they widen dramatically: for birth orders 6 and 7, the Comparison area rates are twice as high as those of the MCH-FP area, and for birth order 8 and more, they are more than three times as great.

It is hoped that a future DSS report will contain a special study of fertility trends by birth order.

Table 4.1: Number and Rates of Pregnancy Outcomes by Type and Area, 1992

Type of pregnancy outcome	Both areas		MCH-FP area		Comparison area	
	No.	Rate	No.	Rate	No.	Rate
Total pregnancies*	6602	133.1	2966	112.9	3636	155.8
Live birth pregnancies**	5733	868.4	2629	886.4	3104	853.7
Fetal wastage	869	131.6	337	113.6	532	146.3
Early (miscarriage)	664	100.6	257	86.6	407	111.9
Late (stillbirths)	205	31.1	77	26.0	128	35.2
Multiple birth pregnancies	74		40		34	
Live birth pregnancies	69		37		32	
Three live births	1		0		1	
Two live births	62		32		30	
One live birth	6		5		1	
Stillbirth pregnancies	2		0		2	
Miscarriage pregnancies	0		0		0	

*Rates per 1000 women of age 15-49 years.
**Ratio per 1000 total pregnancies.

Table 4.2: Pregnancy Outcomes by Month, 1992

Months	Pregnancy outcome					No.of live born children			
		Miscarriage		Still birth	Live* birth	Both sexes	Males	Females	Ratio
	All	Induced	Spon.						
All months	6602	238	426	205	5733	5796	2953	2843	1.0386
January	634	13	26	16	579	582	288	294	0.9795
February	497	21	37	14	425	427	213	214	0.9953
March	554	25	43	15	471	476	245	231	1.0606
April	380	27	32	14	307	311	157	154	1.0194
May	359	22	30	10	297	301	148	153	0.9673
June	374	29	53	10	282	285	142	143	0.9930
July	415	25	39	19	332	341	172	169	1.0177
August	523	23	44	16	440	450	243	207	1.1739
September	584	7	38	21	518	521	288	233	1.2360
October	810	20	32	21	737	740	372	368	1.0108
November	746	17	30	26	673	680	342	338	1.0118
December	726	9	22	23	672	682	343	339	1.0117

*For any multiple pregnancy, the outcome is recorded as live birth if at least one of the issues is live born.

Figure 4.1: Number of Births and Deaths by Month, 1992

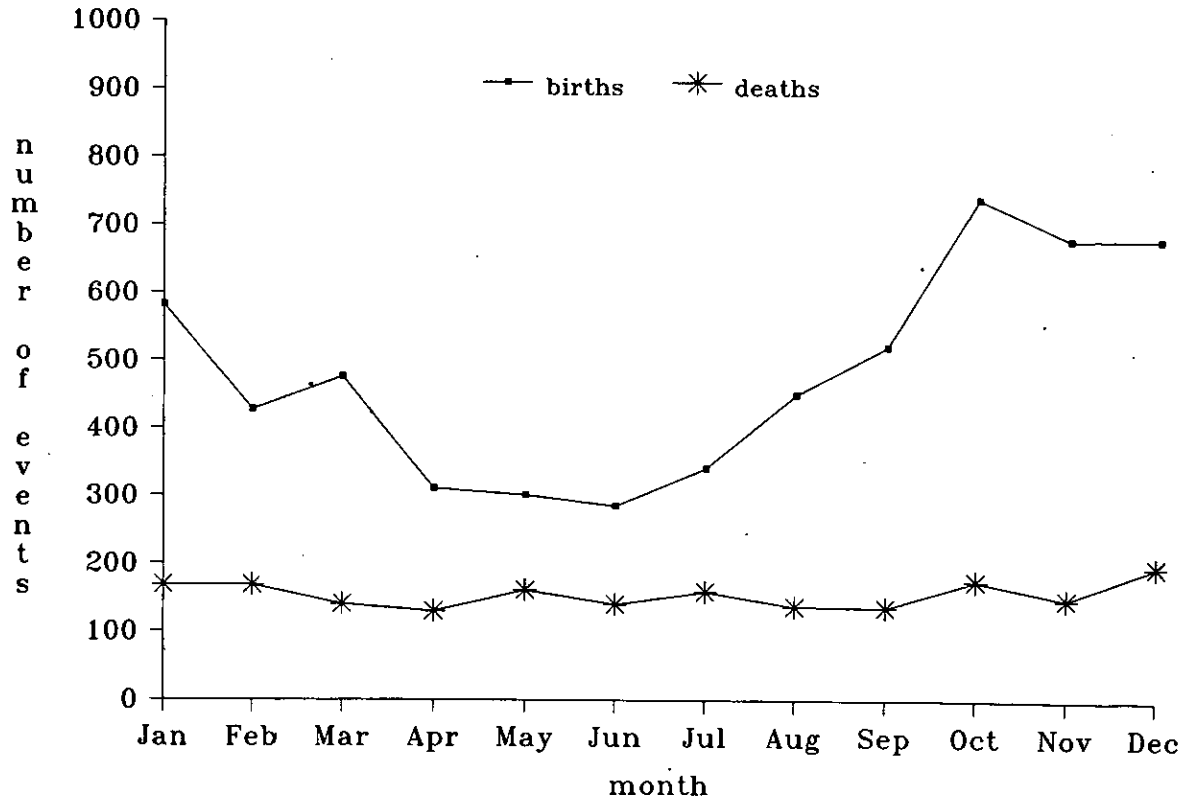


Table 4.3: Age-specific Fertility Rates and Indices, 1992

Age (years)	Number of live births	Number of women	ASFR (per 1000)
All ages	5796	49598	116.9
15-19*	650	10225	63.6
20-24	2040	9594	212.6
25-29	1769	8997	196.6
30-34	880	7106	123.8
35-39	337	5023	67.1
40-44	105	4149	25.3
45-49**	15	4504	3.3

Total Fertility Rate (TFR)	=	3462
General Fertility Rate (GFR)	=	117
Gross Reproduction Rate (GRR)	=	1698
Net Reproduction Rate (NRR)	=	1452

*Births to mothers under age 15 were included in this group.
**Births to mothers age 50 and above were included in this group.

Table 4.4: Age-specific Fertility Rates and Indices by Area, 1992

Age (years)	MCH-FP area			Comparison area		
	Births	Women	Rate	Births	Women	Rate
All ages	2660	26262	101.3	3136	23336	134.4
15-19*	289	5393	53.6	361	4832	74.7
20-24	993	5108	194.4	1047	4486	233.4
25-29	821	4847	169.4	948	4150	228.4
30-34	375	3702	101.3	505	3404	148.4
35-39	132	2636	50.1	205	2387	85.9
40-44	42	2202	19.1	63	1947	32.4
45-49**	8	2374	3.4	7	2130	3.3

TFR	=	2956	TFR	=	4032
GFR	=	101	GFR	=	134
GRR	=	1468	GRR	=	1957
NRR	=	1290	NRR	=	1635

*Births to mothers under age 15 were included in this group.
**Births to mothers age 50 and above were included in this group.

Figure 4.2: Age-specific Fertility Rates by Area, 1992

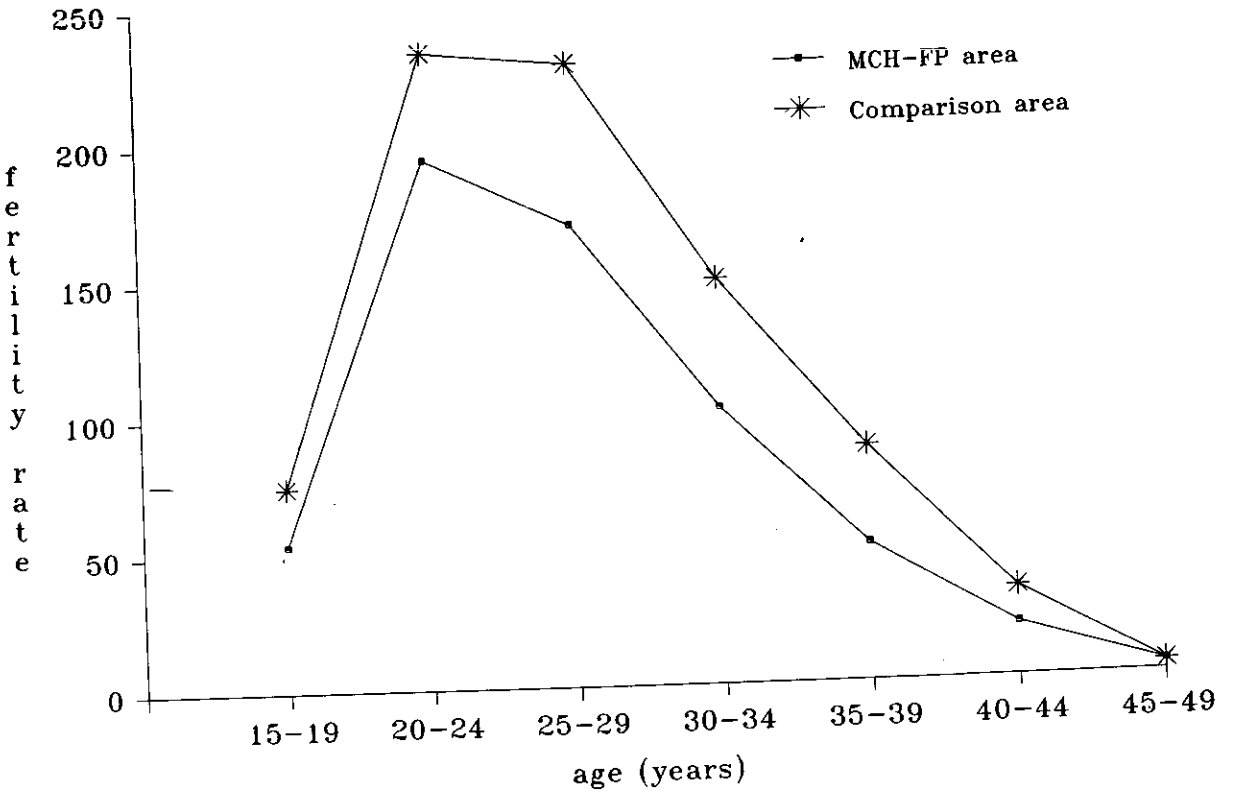


Table 4.5: Age-specific Fertility Rates and Indices for MCH-FP Area by Block, 1992

Age (years)	Block A			Block B		
	Births	Women	Rate	Births	Women	Rate
All ages	770	7344	104.8	676	6527	103.6
15-19*	75	1521	49.3	79	1330	59.4
20-24	285	1375	207.3	239	1271	188.0
25-29	250	1416	176.6	211	1223	172.5
30-34	105	1022	102.7	87	881	98.8
35-39	46	749	61.4	39	654	59.6
40-44	6	589	10.2	17	570	29.8
45-49**	3	672	4.5	4	598	6.7
	TFR =	3060		TFR =	3074	
	GFR =	105		GFR =	104	
	GRR =	1518		GRR =	1524	

(continued)

Table 4.5 (cont.): Age-specific Fertility Rates and Indices for MCH-FP Area by Block, 1992

Age (years)	Block C			Block D		
	Births	Women	Rate	Births	Women	Rate
All ages	667	6903	96.6	547	5488	99.7
15-19*	78	1444	54.0	57	1098	51.9
20-24	269	1403	191.7	200	1059	188.9
25-29	189	1203	157.1	171	1005	170.1
30-34	97	962	100.8	86	837	102.7
35-39	22	705	31.2	25	528	47.3
40-44	12	576	20.8	7	467	15.0
45-49**	0	610	0.0	1	494	2.0
	TFR = 2779			TFR = 2890		
	GFR = 97			GFR = 100		
	GRR = 1371			GRR = 1453		

*Births to mothers under age 15 were included in this group.
**Births to mothers age 50 and above were included in this group.

Table 4.6: Births by Mother's Age, Live-birth Order and Area, 1992

Age (years)	Total women	Total births	Live-birth order									
			1	2	3	4	5	6	7	8	9	10+
Both areas												
<15	11888	3	3	-	-	-	-	-	-	-	-	-
15-19	10225	647	563	78	6	-	-	-	-	-	-	-
20-24	9594	2040	859	769	325	75	10	2	-	-	-	-
25-29	8997	1769	128	323	544	454	222	69	19	7	2	1
30-34	7106	880	10	53	102	184	206	159	95	47	17	7
35-39	5023	337	3	4	12	23	45	57	68	48	40	37
40-44	4149	105	1	-	-	-	8	15	9	18	20	34
45-49	4504	15	3	-	1	1	-	1	1	1	1	6
MCH-FP area												
<15	5954	2	2	-	-	-	-	-	-	-	-	-
15-19	5393	287	258	27	2	-	-	-	-	-	-	-
20-24	5108	993	464	383	119	22	5	-	-	-	-	-
25-29	4847	821	62	180	278	203	80	13	4	-	1	-
30-34	3702	375	6	29	54	109	85	54	28	5	3	2
35-39	2636	132	1	2	8	15	23	25	25	12	13	8
40-44	2202	42	1	-	-	-	5	9	6	9	3	9
45-49	2374	8	2	-	1	1	-	-	1	-	-	3
Comparison area												
<15	5934	1	1	-	-	-	-	-	-	-	-	-
15-19	4832	360	305	51	4	-	-	-	-	-	-	-
20-24	4486	1047	395	386	206	53	5	2	-	-	-	-
25-29	4150	948	66	143	266	251	142	56	15	7	1	1
30-34	3404	505	4	24	48	75	121	105	67	42	14	5
35-39	2387	205	2	2	4	8	22	32	43	36	27	29
40-44	1947	63		-	-	-	3	6	3	9	17	25
45-49	2130	7	1	-	-	-	-	1	-	1	1	3

Table 4.7: Age-order-specific Fertility Rates by Area, 1992

Age (years)	Total	Live-birth order 1	2	3	4	5	6	7	8	9	10+
Both areas											
<15	0.0003	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15-19	0.0633	0.0550	0.0076	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20-24	0.2129	0.0895	0.0802	0.0339	0.0078	0.0010	0.0002	0.0000	0.0000	0.0000	0.0000
25-29	0.1966	0.0142	0.0359	0.0605	0.0505	0.0247	0.0077	0.0021	0.0008	0.0002	0.0001
30-34	0.1238	0.0014	0.0075	0.0144	0.0259	0.0290	0.0224	0.0134	0.0066	0.0024	0.0010
35-39	0.0671	0.0006	0.0008	0.0024	0.0046	0.0090	0.0113	0.0135	0.0096	0.0080	0.0074
40-44	0.0253	0.0002	0.0000	0.0000	0.0000	0.0019	0.0036	0.0022	0.0043	0.0048	0.0082
45-49	0.0033	0.0007	0.0000	0.0002	0.0002	0.0000	0.0002	0.0002	0.0002	0.0002	0.0013
Total	3.4634	0.8095	0.6602	0.5600	0.4449	0.3280	0.2272	0.1570	0.1075	0.0781	0.0911
MCH-FP area											
<15	0.0003	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15-19	0.0532	0.0478	0.0050	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20-24	0.1944	0.0908	0.0750	0.0233	0.0043	0.0010	0.0000	0.0000	0.0000	0.0002	0.0000
25-29	0.1694	0.0128	0.0371	0.0574	0.0419	0.0165	0.0027	0.0008	0.0000	0.0002	0.0000
30-34	0.1013	0.0016	0.0078	0.0146	0.0294	0.0230	0.0146	0.0076	0.0014	0.0008	0.0005
35-39	0.0501	0.0004	0.0008	0.0030	0.0057	0.0087	0.0095	0.0095	0.0046	0.0049	0.0030
40-44	0.0191	0.0005	0.0000	0.0000	0.0000	0.0023	0.0041	0.0027	0.0041	0.0014	0.0041
45-49	0.0034	0.0008	0.0000	0.0004	0.0004	0.0000	0.0000	0.0004	0.0000	0.0000	0.0013
Total	2.9569	0.7745	0.6286	0.4953	0.4087	0.2572	0.1542	0.1051	0.0500	0.0366	0.0467
Comparison area											
<15	0.0002	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15-19	0.0745	0.0631	0.0106	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20-24	0.2334	0.0881	0.0860	0.0459	0.0118	0.0011	0.0004	0.0000	0.0000	0.0000	0.0000
25-29	0.2284	0.0159	0.0345	0.0641	0.0605	0.0342	0.0135	0.0036	0.0017	0.0002	0.0002
30-34	0.1484	0.0012	0.0071	0.0141	0.0220	0.0355	0.0308	0.0197	0.0123	0.0041	0.0015
35-39	0.0859	0.0008	0.0008	0.0017	0.0034	0.0092	0.0134	0.0180	0.0151	0.0113	0.0121
40-44	0.0324	0.0000	0.0000	0.0000	0.0000	0.0015	0.0031	0.0015	0.0046	0.0087	0.0128
45-49	0.0033	0.0005	0.0000	0.0000	0.0000	0.0000	0.0005	0.0000	0.0005	0.0005	0.0014
Total	4.0343	0.8488	0.6958	0.6342	0.4884	0.4082	0.3087	0.2143	0.1710	0.1243	0.1405

CHAPTER 5

MARRIAGE AND DIVORCE

The number of marriages registered in 1992 was 2,998, giving a crude marriage rate of 14.6 per thousand. These figures show a small increase on those of 1991. In general, however, there appears to have been a long-term decline in the marriage rate in Matlab, which was over 17 per thousand in the late 1970s.

Tables 5.1 and 5.2 show the distributions of grooms and brides by age at marriage and previous marital status. The mean ages at marriage -- 27.2 and 19.4 for all grooms and brides; 25.8 and 18.6 for those marrying for the first time -- show little change on 1991. In general, however, there would appear to have been a long-term rise in age at marriage of females in Matlab: the mean age has been over 18 for every year since 1984, while prior to that date it was consistently below that age.

Divorces numbered 439 in 1992, which constituted an increase on the 1991 figure of 397. In general, the incidence of divorce in Matlab appears to have fallen: during the first four years of the present study, from 1978 to 1981, the numbers of divorces were consistently over 500; since 1981 they have been below that figure.

Table 5.6 shows the distributions of marriages and divorces by month. July often appears to be a peak month for marriages, but no regular seasonal pattern is discernible in the number of divorces.

Table 5.1: Groom's Age at Marriage by Previous Marital Status, 1992

Age (years)	All grooms		Previous marital status							
			Single		Married		Divorced		Widowed	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
All ages	2998	100.0	2434	100.0	96	100.0	333	100.0	135	100.0
10-14	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15-19	144	4.8	132	5.4	3	3.1	9	2.7	0	0.0
20-24	909	30.3	821	33.7	7	7.3	78	23.4	3	2.2
25-29	1181	39.4	1039	42.7	20	20.8	109	32.7	13	9.6
30-34	536	17.9	395	16.2	25	26.0	77	23.1	39	28.9
35-39	108	3.6	37	1.5	17	17.7	29	8.7	25	18.5
40-44	56	1.9	8	0.3	10	10.4	16	4.8	22	16.3
45-49	20	0.7	1	0.0	2	2.1	8	2.4	9	6.7
50-54	15	0.5	0	0.0	5	5.2	4	1.2	6	4.4
55-59	8	0.3	1	0.0	2	2.1	0	0.0	5	3.7
60-64	12	0.4	0	0.0	2	2.1	1	0.3	9	6.7
65+	9	0.3	0	0.0	3	3.1	2	0.6	4	3.0
Median age*	26.0		26.0		33.5		29.0		36.0	
Mean age*	27.2		25.8		35.7		29.6		39.7	
Standard dev.*	6.4		4.1		11.7		7.8		11.1	

*Mean, median, and standard deviation were calculated from ungrouped age data.

Table 5.2: Bride's Age at Marriage by Previous Marital Status, 1992

Age (years)	All brides		Previous marital status					
			Single		Divorced		Widowed	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
All ages	2998	100.0	2597	100.0	364	100.0	37	100.0
10-14	145	4.8	143	5.5	2	0.5	0	0.0
15-19	1717	57.3	1636	63.0	79	21.7	2	5.4
20-24	843	28.1	706	27.2	127	34.9	10	27.0
25-29	214	7.1	102	3.9	102	28.0	10	27.0
30-34	51	1.7	9	0.3	36	9.9	6	16.2
35-39	17	0.6	0	0.0	12	3.3	5	13.5
40-44	6	0.2	1	0.0	3	0.8	2	5.4
45+	5	0.2	0	0.0	3	0.8	2	5.4
Median age*	19.0		18.0		23.0		27.0	
Mean age*	19.4		18.6		24.1		29.1	
Standard dev.*	4.1		3.0		5.6		7.7	

*Mean, median, and standard deviation were calculated from ungrouped age data.

Table 5.3: Marriage Rates by Age and Sex, 1992

Age (years)	Males			Females		
	Marriages	Population	Rate*	Marriages	Population	Rate*
10-14	0	13235	0.0	145	11888	12.2
15-19	144	11565	12.5	1717	10225	167.9
20-24	909	8913	102.0	843	9594	87.9
25-29	1181	7224	163.5	214	8997	23.8
30-34	536	7269	73.7	51	7106	7.2
35-39	108	4902	22.0	17	5023	3.4
40-44	56	3819	14.7	6	4149	1.4
45+	64	16861	3.8	5	17946	0.3

*Rates per 1000 population irrespective of previous marital status.

Table 5.4: Number of Marriages by Groom's and Bride's Age at Marriage, 1992

Groom's age (years)	All	Bride's age (years)							
		10-14	15-19	20-24	25-29	30-34	35-39	40-44	45+
All ages	2998	145	1717	843	214	51	17	6	5
10-14	0	0	0	0	0	0	0	0	0
15-19	144	16	107	17	4	0	0	0	0
20-24	909	73	650	172	13	1	0	0	0
25-29	1181	46	723	367	44	1	0	0	0
30-34	536	9	193	228	91	14	1	0	0
35-39	108	1	31	38	26	10	2	0	0
40-44	56	0	11	11	15	13	4	2	0
45-49	20	0	0	5	6	4	5	0	0
50-54	15	0	0	4	8	2	0	1	0
55-59	8	0	1	0	0	2	2	1	2
60-64	12	0	0	1	5	3	2	1	0
65+	9	0	1	0	2	1	1	1	3

Table 5.5: Number of Divorces by Partners' Age at Divorce, 1992

Male's age (years)	All	Female's age (years)								
		10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50+
All ages	439	4	152	175	70	25	9	2	1	1
10-14	0	0	0	0	0	0	0	0	0	0
15-19	15	2	8	5	0	0	0	0	0	0
20-24	91	1	56	28	5	1	0	0	0	0
25-29	138	0	56	71	9	2	0	0	0	0
30-34	113	0	27	50	33	3	0	0	0	0
35-39	34	1	1	10	14	6	2	0	0	0
40-44	24	0	3	5	3	9	3	0	0	1
45-49	11	0	0	4	2	1	3	1	0	0
50-54	6	0	0	2	1	1	1	0	1	0
55-59	1	0	0	0	1	0	0	0	0	0
60-64	3	0	0	0	1	2	0	0	0	0
65+	3	0	1	0	1	0	0	1	0	0

Table 5.6: Marriages and Divorces by Month, 1992

Month	Marriage		Divorce	
	Number	Percent	Number	Percent
January	208	6.9	34	7.7
February	233	7.8	28	6.4
March	239	8.0	37	8.4
April	207	6.9	36	8.2
May	181	6.0	30	6.8
June	289	9.6	53	12.1
July	317	10.6	34	7.7
August	278	9.3	45	10.3
September	295	9.8	45	10.3
October	315	10.5	34	7.7
November	196	6.5	27	6.2
December	240	8.0	36	8.2
Total	2998	100.0	439	100.0

Figure 5.1: Marriages and Divorces by Month, 1992

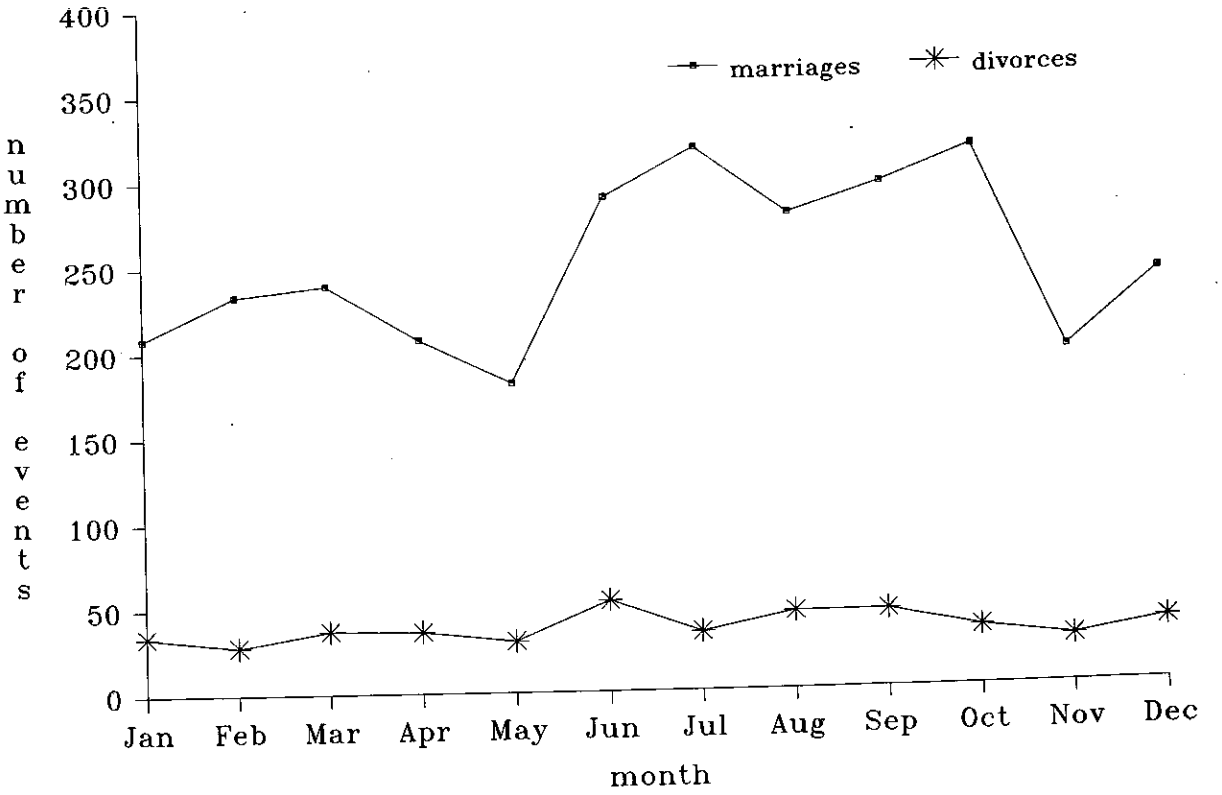


Table 5.7: Number of Divorces by Sex, Age, and Duration of Marriage, 1992

Age at divorce	All duration		Duration of marriage (months)													
			Under 6		6-11		12-23		24-35		36-47		48-59		60+	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
All ages	439	439	67	67	62	62	121	121	56	56	42	42	12	12	79	79
Under 20	15	156	2	37	3	35	7	52	3	23	0	7	0	1	0	1
20-24	91	175	18	19	17	23	26	52	14	23	10	27	1	5	5	26
25-29	138	70	17	7	28	2	47	12	19	7	10	8	4	5	13	29
30-34	113	25	15	3	9	2	26	3	15	2	16	0	5	0	27	15
35-39	34	9	4	0	3	0	6	1	2	0	2	0	2	1	15	7
40-49	35	3	7	1	2	0	7	1	2	0	3	0	0	0	14	1
50+	13	1	4	0	0	0	2	0	1	1	1	0	0	0	5	0

CHAPTER 6

MIGRATION

An "out-migrant" is defined as a person originally listed on a DSS census as a resident, or a person who became a resident after the census by birth or immigration, who subsequently moved out of the surveillance (DSS) area permanently. Likewise, an "in-migrant" is an individual not recorded in the census who has permanently moved into the surveillance area. Those who stay in the area continuously for at least six months in a year or come home at least once a month to stay overnight are treated as permanent residents. It may be noted that these definitions refer to the surveillance areas as a whole. People who move from the Comparison area into the MCH-FP area, or vice versa, do not feature in the tables which show the numbers of migrants in the two areas.

The number of in-migrants in 1992 was 6,909, giving a crude rate of in-migration of 33.6 per thousand. Out-migrants numbered 9,978 and the out-migration rate 48.5 per thousand. Both these figures constituted appreciable increases on those of 1991, but the net loss of migrants remained almost identical: 3,077 in 1992 as against 3,083 in 1991. Female in-migrants outnumbered males, but there were more male out-migrants than female.

The numbers for the MCH-FP and Comparison areas, shown in Tables 6.1 and 6.2 by age and sex, are fairly evenly distributed between the two areas.

Tables 6.3 and 6.4 show the age-specific migration rates, which are illustrated in Figure 6.1. They show the bi-modal age distributions commonly found for migrant populations, with a primary peak of young adults and a secondary peak of young children moving with their parents. For males the ages of the out-migrants tended to be rather younger than those of the in-migrants, while for females the shapes of the distributions were similar. Table 6.5 to 6.8 show the distributions of in- and out-migrants by age, sex and the cause of the movement.

Table 6.9 and Figure 6.2 show the numbers moving in and out by month. As in previous years, January is the preferred month for such moves.

Tables 6.10 and 6.11 show the number of males and females migrating in and out of the Matlab DSS area by location of origin or destination. For locations in Bangladesh the Division and whether the location is rural or urban is given. For numerically important origins or destinations the District is also shown. Roughly equal numbers of men and women move into and out of rural areas of Chandpur district, neighboring Matlab, probably due to marriage. There is a net loss of both men and women to urban Dhaka, primarily of young adults. There is also a net loss to India, but more evenly distributed across age groups. Migration to the Middle-East and Other Asian locations is heavily concentrated among out-migrating males age 15-34.

Table 6.1: In- and Out-migration by Age and Sex, 1992

Age (years)	In-migration			Out-migration		
	Both sexes	Males	Females	Both sexes	Males	Females
All ages	6909	3125	3784	9978	5035	4943
Under 5	1155	558	597	1255	606	649
0	286	142	144	258	111	147
1	245	123	122	303	153	150
2	219	95	124	250	104	146
3	224	110	114	221	120	101
4	181	88	93	223	118	105
5 - 9	686	357	329	827	435	392
10-14	517	260	257	889	418	471
15-19	1090	242	848	1861	741	1120
20-24	1090	285	805	1994	999	995
25-29	807	403	404	1272	690	582
30-34	585	386	199	718	459	259
35-39	309	216	93	376	247	129
40-44	178	127	51	221	160	61
45-49	149	96	53	135	85	50
50-54	103	73	30	118	62	56
55-59	72	49	23	96	47	49
60-64	73	37	36	82	37	45
65+	95	36	59	134	49	85

Table 6.2: In-migration by Age, Sex, and Area, 1992

Age (years)	MCH-FP area			Comparison area		
	Both sexes	Males	Females	Both sexes	Males	Females
All ages	3466	1553	1913	3443	1572	1871
Under 5	558	265	293	597	293	304
0	147	78	69	139	64	75
1	110	50	60	135	73	62
2	105	46	59	114	49	65
3	108	50	58	116	60	56
4	88	41	47	93	47	46
5 - 9	336	174	162	350	183	167
10-14	260	127	133	257	133	124
15-19	542	107	435	548	135	413
20-24	582	144	438	508	141	367
25-29	405	202	203	402	201	201
30-34	297	205	92	288	181	107
35-39	159	115	44	150	101	49
40-44	102	69	33	76	58	18
45-49	69	49	20	80	47	33
50-54	51	39	12	52	34	18
55-59	29	22	7	43	27	16
60-64	33	20	13	40	17	23
65+	43	15	28	52	21	31

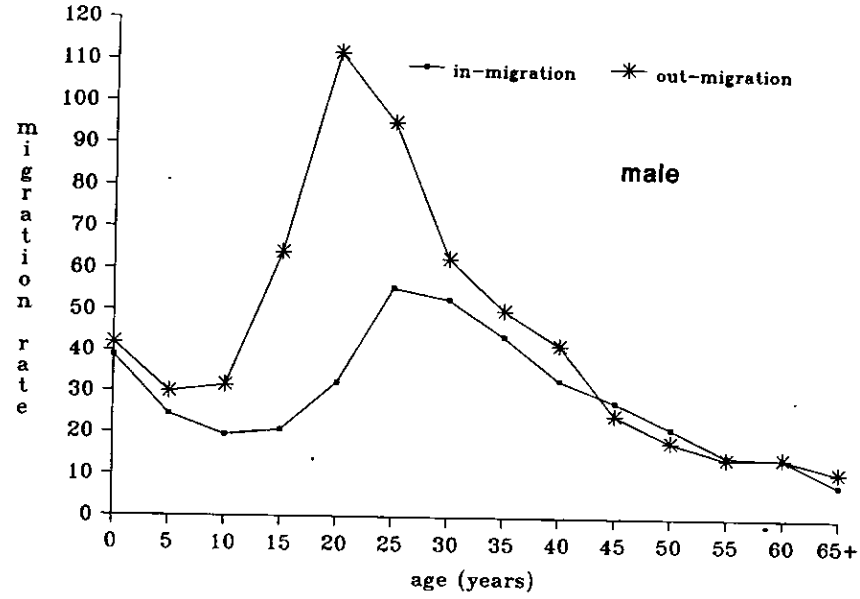
Table 6.3: Out-migration by Age, Sex, and Area, 1992

Age (years)	MCH-FP area			Comparison area		
	Both sexes	Males	Females	Both sexes	Males	Females
All ages	4890	2484	2406	5088	2551	2537
Under 5	564	286	278	691	320	371
0	114	50	64	144	61	83
1	139	70	69	164	83	81
2	122	50	72	128	54	74
3	97	63	34	124	57	67
4	92	53	39	131	65	66
5 - 9	377	192	185	450	243	207
10-14	413	191	222	476	227	249
15-19	952	385	567	909	356	553
20-24	998	519	479	996	480	516
25-29	671	361	310	601	329	272
30-34	342	211	131	376	248	128
35-39	177	111	66	199	136	63
40-44	107	85	22	114	75	39
45-49	74	47	27	61	38	23
50-54	56	30	26	62	32	30
55-59	43	20	23	53	27	26
60-64	44	20	24	38	17	21
65+	72	26	46	62	23	39

Table 6.4: Age and Sex-specific Migration Rates by Direction, 1992
(per 1000 population)

Age (years)	Both sexes		Males		Females	
	In	Out	In	Out	In	Out
All ages	33.6	48.5	30.4	49.0	36.7	48.0
Under 5	40.1	43.6	38.7	42.0	41.6	45.2
0	55.9	50.5	55.2	43.2	56.7	57.9
1	41.6	51.5	41.5	51.6	41.8	51.4
2	37.8	43.1	32.7	35.8	42.8	50.4
3	36.6	36.1	36.6	39.9	36.6	32.4
4	30.9	38.0	29.6	39.7	32.2	36.3
5 - 9	24.3	29.3	24.5	29.9	24.0	28.6
10-14	20.6	35.4	19.6	31.6	21.6	39.6
15-19	50.0	85.4	20.9	64.1	82.9	109.5
20-24	58.9	107.7	32.0	112.1	83.9	103.7
25-29	49.8	78.4	55.8	95.5	44.9	64.7
30-34	40.7	49.9	53.1	63.1	28.0	36.4
35-39	31.1	37.9	44.1	50.4	18.5	25.7
40-44	22.3	27.7	33.3	41.9	12.3	14.7
45-49	18.8	17.0	28.1	24.9	11.8	11.1
50-54	14.2	16.2	21.8	18.5	7.7	14.3
55-59	11.0	14.6	15.1	14.5	6.9	14.8
60-64	14.7	16.6	14.7	14.7	14.8	18.5
65+	11.7	16.5	8.3	11.3	15.6	22.5

Figure 6.1: Rate of In- and Out-migration by Sex and Age, 1992



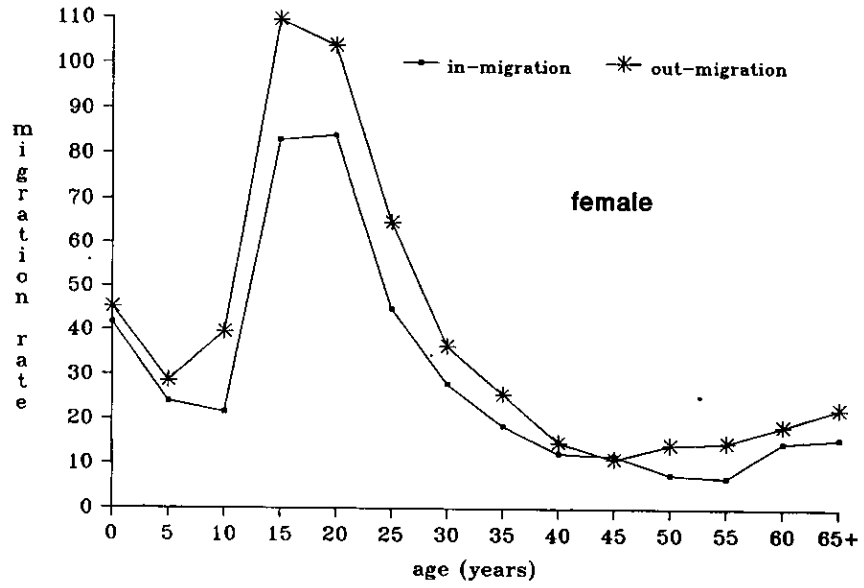


Table 6.5: Male Out-migration by Cause of Movement and Age, 1992

Cause of movement	Total	Age (years)													
		<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+
All migrants	5035	606	435	418	741	999	690	459	247	160	85	62	47	37	49
Work/Economic/Educational															
-acquired/seeking job	2707	1	4	91	464	738	563	383	196	123	63	34	28	11	8
-job completion/retirement	14	0	0	0	2	5	1	1	0	1	0	1	2	1	0
-to acquire education	423	1	14	69	128	151	53	6	0	1	0	0	0	0	0
-educ. completed/interrupt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-student lodging	4	0	0	0	1	1	1	1	0	0	0	0	0	0	0
Housing/Environmental															
-acquired/seeking new land/house	143	2	1	1	6	5	14	27	21	15	10	13	7	10	11
-river erosion	7	0	0	0	0	2	0	0	2	2	0	1	0	0	0
Marriage/Familial															
-marriage	6	0	0	0	0	4	1	1	0	0	0	0	0	0	0
-separation/divorce/widow	4	0	0	0	0	1	0	2	1	0	0	0	0	0	0
-move with or join spouse/parents	1631	598	416	254	131	77	43	31	19	7	7	8	7	12	21
-adoption	4	3	0	1	0	0	0	0	0	0	0	0	0	0	0
-family friction/breakdown	37	1	0	1	5	8	10	4	3	3	2	0	0	0	0
-health or old age care	11	0	0	0	0	0	0	0	0	2	0	0	1	1	7
Legal problems	22	0	0	0	0	2	4	3	3	4	1	2	2	1	0
Other and not stated															
-other n.e.c.*	12	0	0	1	1	4	0	0	0	2	2	1	0	0	1
-unknown or not stated	10	0	0	0	3	1	0	0	2	0	0	2	0	1	1

*Not elsewhere classified.

Table 6.6: Female Out-migration by Cause of Movement and Age, 1992

Cause of movement	Total	Age (years)													
		<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+
All migrants	4943	649	392	471	1120	995	582	259	129	61	50	56	49	45	85
Work/Economic/Educational															
-acquired/seeking job	583	1	7	121	217	115	58	38	14	1	3	4	2	0	2
-job completion/retirement	6	0	0	1	4	0	0	0	0	0	0	0	0	1	0
-to acquire education	126	2	14	35	50	23	1	0	1	0	0	0	0	0	0
-educ. completed/interrupt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-student lodging	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Housing/Environmental															
-acquired/seeking new land/house	38	1	0	0	2	8	7	3	7	0	2	2	3	3	0
-river erosion	3	0	0	0	0	1	0	1	0	0	0	0	0	0	1
Marriage/Familial															
-marriage	812	0	0	26	409	256	93	24	0	4	0	0	0	0	0
-separation/divorce/widow	122	0	1	0	30	52	23	6	5	1	0	1	1	1	1
-move with or join spouse/parents	3178	630	369	286	403	530	391	183	101	53	43	48	37	33	71
-adoption	13	12	1	0	0	0	0	0	0	0	0	0	0	0	0
-family friction/breakdown	17	2	0	0	3	3	5	0	1	0	0	0	1	1	1
-health or old age care	21	0	0	0	0	0	0	0	0	1	1	1	3	6	9
Legal problems	3	0	0	0	0	1	1	0	0	1	0	0	0	0	0
Other and not stated															
-other n.e.c.*	16	1	0	1	1	6	2	4	0	0	0	0	1	0	0
-unknown or not stated	5	0	0	1	1	0	1	0	0	0	1	0	1	0	0

*Not elsewhere classified.

Table 6.7: Male In-migration by Cause of Movement and Age, 1992

Cause of movement	Total	Age (years)													
		<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+
All migrants	3125	558	357	260	242	285	403	386	216	127	96	73	49	37	36
Work/Economic/Educational															
-acquired/seeking job	523	0	3	11	26	61	115	123	69	44	28	17	11	9	6
-job completion/retirement	442	0	0	3	26	68	84	87	47	31	35	28	12	12	9
-to acquire education	175	2	30	53	53	22	9	3	0	0	0	0	2	1	0
-educ. completed/interrupt	13	0	0	2	3	2	4	1	1	0	0	0	0	0	0
-student lodging	35	0	2	4	5	11	4	2	4	0	0	0	1	0	2
Housing/Environmental															
-acquired/seeking new land/house	313	2	3	7	14	41	63	57	38	27	17	12	15	9	8
-river erosion	8	0	0	0	0	0	1	5	1	0	1	0	0	0	0
Marriage/Familial															
-marriage	4	0	0	0	0	1	1	2	0	0	0	0	0	0	0
-separation/divorce/widow	3	0	0	0	0	1	1	0	0	0	1	0	0	0	0
-move with or join spouse/parents	1486	542	317	178	106	66	94	85	41	19	9	12	6	4	7
-adoption	14	12	1	1	0	0	0	0	0	0	0	0	0	0	0
-family friction/breakdown	17	0	0	0	0	1	3	7	4	1	0	0	1	0	0
-health or old age care	26	0	0	0	1	1	7	1	6	0	2	2	0	2	4
Legal problems	17	0	0	0	0	3	5	4	2	2	1	0	0	0	0
Other and not stated															
-other n.e.c.*	49	0	1	1	8	7	12	9	3	3	2	2	1	0	0
-unknown or not stated	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

*Not elsewhere classified.

Table 6.8: Female In-migration by Cause of Movement and Age, 1992

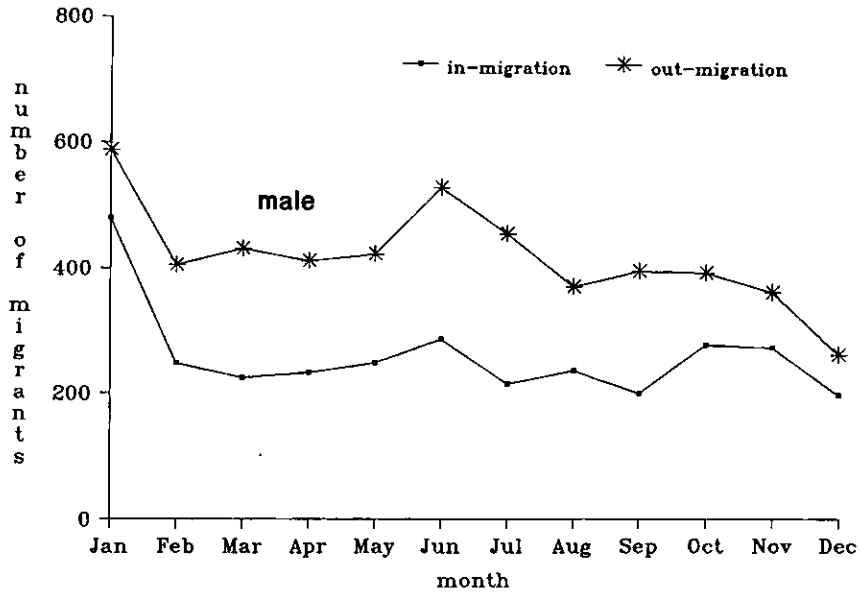
Cause of movement	Total	Age (years)													
		<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+
All migrants	3784	597	329	257	848	805	404	199	93	51	53	30	23	36	59
Work/Economic/Educational															
-acquired/seeking job	131	0	2	22	17	32	36	11	6	1	2	0	0	0	2
-job completion/retirement	48	0	1	6	14	14	6	2	1	0	2	1	1	0	0
-to acquire education	88	0	23	31	22	12	0	0	0	0	0	0	0	0	0
-educ. completed/interrupt	3	0	0	0	0	2	1	0	0	0	0	0	0	0	0
-student lodging	3	0	0	1	2	0	0	0	0	0	0	0	0	0	0
Housing/Environmental															
-acquired/seeking new land/house	72	1	2	0	7	7	14	3	5	11	7	0	4	8	3
-river erosion	3	0	0	0	0	1	1	0	0	0	0	0	0	1	0
Marriage/Familial															
-marriage	703	0	0	4	419	225	27	15	6	2	3	1	0	0	1
-separation/divorce/widow	209	0	0	3	50	73	46	19	9	3	2	0	1	2	1
-move with or join spouse/parents	2424	575	299	185	305	417	262	145	65	33	36	27	13	21	41
-adoption	28	21	1	4	2	0	0	0	0	0	0	0	0	0	0
-family friction/breakdown	21	0	0	0	4	9	4	1	0	1	0	0	0	1	1
-health or old age care	21	0	0	0	0	3	4	1	0	0	0	0	2	2	9
Legal problems	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other and not stated															
-other n.e.c.*	30	0	1	1	6	10	3	2	1	0	1	1	2	1	1
-unknown or not stated	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

*Not elsewhere classified.

Table 6.9: In- and Out-migration by Sex and Month, 1992

Age (years)	In-migration			Out-migration		
	Both sexes	Males	Females	Both sexes	Males	Females
January	986	480	506	1179	588	591
February	569	248	321	873	405	468
March	511	225	286	867	431	436
April	505	233	272	783	412	371
May	522	249	273	838	423	415
June	665	287	378	1023	530	493
July	514	215	299	908	457	451
August	534	237	297	718	372	346
September	456	200	256	768	397	371
October	627	279	348	791	394	397
November	588	274	314	696	363	333
December	432	198	234	534	263	271
All months	6909	3125	3784	9978	5035	4943

Figure 6.2: Number of In- and Out-migrants by Sex and Month, 1992



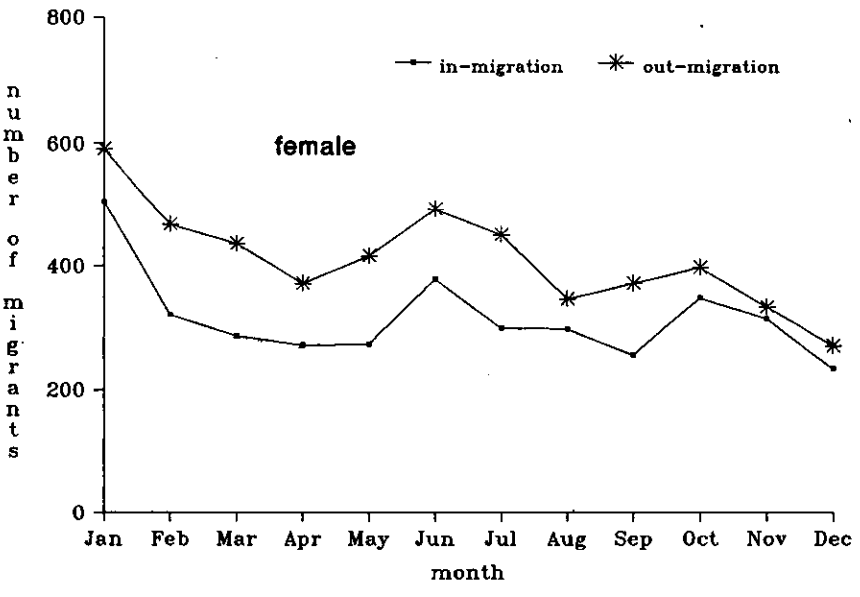


Table 6.10: Male Migration by Destination or Origin, 1992

Destination/origin			Out-Migration						In-Migration					
			Age (years)						Age (years)					
Division	rural/ urban	District	0-14	15-24	25-34	35-44	45+	Total	0-14	15-24	25-34	35-44	45+	Total
All migrants			1459	1740	1149	407	280	5035	1175	527	789	343	291	3125
Rajshahi	rural	all	4	3	0	1	0	8	9	3	5	1	3	21
	urban	all	18	16	4	1	4	43	11	0	8	2	0	21
Khulna	rural	all	6	7	2	1	3	19	12	3	5	3	2	25
	urban	all	30	30	12	7	8	87	30	12	14	8	10	74
Dhaka	rural	Dhaka	10	13	4	3	2	32	37	9	16	4	4	70
	rural	Narayanganj	14	8	6	4	4	36	15	10	10	4	5	44
	rural	rest	32	8	4	4	2	50	21	10	17	3	8	59
	urban	Dhaka	506	727	342	105	70	1750	244	139	243	86	89	801
	urban	Narayanganj	89	128	77	21	11	326	72	37	61	30	14	214
	urban	Narsingdi	12	13	9	2	1	37	14	5	10	8	6	43
	urban	Gazipur	29	27	15	6	4	81	15	10	11	6	3	45
	urban	rest	16	14	12	1	3	46	13	4	10	1	10	38
Chittagong	rural	Comilla	58	20	22	8	6	114	78	22	23	18	13	154
	rural	Chandpur	301	106	91	56	62	616	349	121	137	72	56	735
	rural	rest	19	8	8	10	3	48	29	9	12	3	6	59
	urban	Sylhet	51	80	45	15	9	200	66	27	31	10	18	152
	urban	Comilla	23	23	8	7	7	68	26	8	14	11	1	60
	urban	Chandpur	14	14	10	7	5	50	3	9	9	3	2	26
	urban	Chittagong	98	126	65	8	15	312	72	34	34	17	17	174
	urban	rest	13	13	9	7	5	47	16	4	10	3	3	36
India			110	87	60	34	36	327	24	21	21	7	2	75
Other Asia			0	101	112	25	4	242	3	16	32	11	6	68
Middle-East			0	161	221	70	16	468	2	9	42	27	10	90
Other			0	1	6	2	0	9	0	0	3	5	0	8
Unknown			6	6	5	2	0	19	14	5	11	0	3	33

Table 6.11: Female Migration by Destination or Origin, 1992

Destination/origin			Out-Migration						In-Migration					
			Age (years)						Age (years)					
Division	rural/ urban	District	0-14	15-24	25-34	35-44	45+	Total	0-14	15-24	25-34	35-44	45+	Total
All migrants			1512	2115	841	190	285	4943	1183	1653	603	144	201	3784
Rajshahi	rural	all	1	3	1	0	0	5	5	9	2	1	3	20
	urban	all	13	16	5	2	6	42	7	6	2	1	4	20
Khulna	rural	all	6	12	2	1	2	23	14	6	6	1	1	28
	urban	all	30	27	13	6	9	85	18	21	11	2	5	57
Dhaka	rural	Dhaka	15	12	11	1	2	41	35	25	13	6	2	81
	rural	Narayanganj	11	16	7	2	0	36	20	23	8	3	4	58
	rural	rest	25	40	18	1	2	86	33	40	14	3	3	93
	urban	Dhaka	514	576	268	65	92	1515	294	259	151	29	47	780
	urban	Narayanganj	98	102	45	11	9	265	80	69	38	6	12	205
	urban	Narsingdi	10	11	2	4	0	27	12	9	7	0	1	29
	urban	Gazipur	33	15	18	1	1	68	12	21	3	5	3	44
	urban	rest	12	12	3	3	4	34	9	11	7	1	3	31
Chittagong	rural	Comilla	60	189	50	6	10	315	74	168	48	8	16	314
	rural	Chandpur	283	736	210	40	63	1332	343	824	187	37	48	1439
	rural	rest	27	19	13	0	3	62	25	15	10	5	3	58
	urban	Sylhet	73	51	28	6	7	165	67	35	24	14	15	155
	urban	Comilla	20	26	14	1	2	63	18	21	10	3	6	58
	urban	Chandpur	24	29	15	2	1	71	6	14	5	2	1	28
	urban	Chittagong	115	133	52	11	17	328	52	39	32	8	12	143
	urban	rest	15	20	7	2	0	44	25	20	6	2	2	55
India			113	55	47	23	55	293	23	12	12	5	7	59
Other Asia			0	3	1	0	0	4	0	0	1	1	0	2
Middle-East			5	6	4	1	0	16	1	0	1	1	1	4
Other			0	0	0	1	0	1	0	0	0	0	0	0
Unknown			9	6	7	0	0	22	10	6	5	0	2	23

CHAPTER 7

Special Supplement

TRENDS IN INFANT AND CHILD MORTALITY IN MATLAB BY SEX AND CAUSE OF DEATH, 1981-1992

Introduction

The most important features of the demographic trends in Matlab revealed by the DSS have undoubtedly been the rapid declines in fertility and in under-five mortality which have occurred in the 1980s and early 1990s in both the MCH-FP and Comparison areas. Between 1981 and 1992 the total fertility rate fell by about 37 percent in both the MCH-FP and the Comparison areas. In the same period under-five mortality fell by 40 percent and 36 percent in the two areas respectively. This decline was achieved despite the fact that during the first part of the period mortality was rising rather than falling, due to an epidemic of shigellosis in Matlab which reached its peak in 1984 (Bennish and Wojtyniak, 1991). From 1985 onwards under-five mortality fell steadily until 1991, when there was a temporary upsurge in both areas.

In this issue of the DSS Annual Report we take a closer look at this decline in under-five mortality, and analyse its components by sex and by cause of death. It is hoped that this will be the first of a series of special topics which will examine various aspects of demographic trends in Matlab in greater detail.

Tables showing the registered deaths in Matlab by sex, age group, area and cause of death have been published in the Annual Reports for every year since 1982. The data used for this analysis have been extracted from these published tables, together with some corresponding tabulations for 1981. The simple results shown here reveal some important features of the mortality decline, but they also raise many new questions, and it is hoped that they will thereby stimulate further in-depth studies.

Mortality by Sex

In most countries of the world, mortality rates of males are higher than those of females at all ages. However, in some populations of South Asia this pattern has sometimes been reversed, with higher female mortality rates from the end of the first month of life until relatively late in life. This South Asian pattern was prevalent in Matlab in the 1970s (D'Souza and Chen, 1980; Koenig and D'Souza, 1986).

The infant and child mortality rates for male and female children recorded in the MCH-FP and Comparison areas for the years 1981 to 1992 inclusive are shown in Table S.1, and are illustrated in Figures S.1 and S.2. For infants, there does not appear to have been any consistent differential during the first part of the period under review: sometimes the male rates are higher, and sometimes the female. But from 1987 in the MCH-FP area and from 1989 in the Comparison area,

the male infant mortality rates have been consistently higher than the female. For children aged between 1 and 5, the female mortality rates were higher throughout the whole period, but the gap between the two narrowed conspicuously in both areas, so that by 1991 the differential had all but disappeared. In other words, the relative decline in mortality for females has been more rapid than that for males.

Mortality by Cause of Death

The cause of death classification followed in the Annual Reports up to and including 1986 was radically revised in 1987, thus breaking the continuity of the data and invalidating any analysis of trends for certain causes of death. However it has still been possible to extract comparable figures for what may be regarded as the four major causes of infant and child deaths: diarrhoeal disease (including dysentery and cholera); acute respiratory infections (including pneumonia, whooping cough and influenza); tetanus; and measles. Many children of course die of a combination of these diseases, and the allocation of these deaths to one or other category is liable to be arbitrary. In particular the deaths attributed to measles only include those which occurred when the rash was still visible. But measles is often followed by complications, generally diarrhoea and/or ARI, which may prove fatal. Thus the figures shown here certainly under-estimate the importance of measles as a cause of death, and by implication the contribution which measles vaccinations may have made to the reduction in infant and child mortality (Fauveau, 1994).

The numbers of infant deaths by cause have been converted into mortality rates by dividing these numbers by the number of births during the year in question; the deaths of children aged 1-4 have been divided by the mid-year population in the age group. The results are shown in sections (a) and (b) of Table S.2, and are illustrated in Figures S.3 and S.4.

The most conspicuous feature of the analysis of infant mortality is that the most important element in the overall decline was the virtual eradication of tetanus. In 1980 more than half the infant deaths in both areas were attributed to tetanus; by 1991 they accounted for less than 3 percent. However a note of caution is needed before these figures are accepted at their face value. The DSS Annual Reports for 1981 to 1983 contain a footnote to the effect that the diagnosis of tetanus had been made by equating it with the local term "Takuria", or possession by an evil spirit which produced symptoms similar to those of tetanus; there is no doubt that other causes were sometimes subsumed under this heading (Fauveau, 1994). It should also be observed that the eradication of tetanus will only have had a major impact on the neonatal mortality rates; but, as is evident from Table 2.1, post-neonatal mortality also declined during this period. Thus a further step of the investigation would be the separate analysis of neonatal and post-neonatal rates by cause of death. However, despite these reservations, it is clear that a major reduction in mortality from neonatal tetanus occurred during this period, which may be attributed to the spread of tetanus toxoid immunization, the training of traditional birth attendants and the provision of safe delivery kits.

The relative overall decline in child mortality was appreciably greater than that in infant mortality. When the age-specific mortality rates are converted into life table probabilities of dying between the ages of 1 and 5, it becomes clear that in the early 1980s almost as many children were dying in this period of

their lives as had died in the first year of life. Comparing the rates for 1981 and 1992 shows that mortality in the 1-4 age group had been reduced by 69 percent in the MCH-FP area, and by 58 percent in the Comparison area. The numbers in section (b) of the Table S.2 and in Figure S.4 indicate that the major component of this fall was the reduction in diarrhoeal disease. Measles mortality also underwent a large relative fall, but, as indicated above, the figures understate the importance of measles, and its reduction by immunisations almost certainly contributed to the fall in diarrhoeal deaths. It is notable that mortality rate for "other causes" showed a strong decline in both areas, but as mentioned above, a change in the classification system precludes comparative analysis.

Sex Differentials by Cause of Death

It remains to link the two parts of this paper and ask how far the changing sex differentials in mortality may be associated with the changing composition of the mortality rates by cause of death. Sex ratios (male/female) of the infant and the child mortality rates by cause of death were therefore calculated for the two areas. When graphed they at first presented a bewildering pattern of zig-zagging lines, but after heavy smoothing with moving averages[1], discernible trends emerged. Yet the results, illustrated in Figures S.5 and S.6, still contain many anomalous features, and we present them here, not because we feel they tell a coherent story, but rather in the hope that they will provoke further discussion and research.

Diarrhoeal mortality in the 1-4 age group showed a heavy sex bias, with the females rates at least twice as great as the male, in both areas. Thus the reduction of diarrhoeal mortality in this age group must have contributed to the narrowing of the overall sex differential in child mortality. The same was true of infants in the Comparison area although the size of the differential was much smaller. But among infants in the MCH-FP area, diarrhoea appeared to be killing more boys than girls, and the sex ratio of the mortality rates increased steeply over the time period.

The sex ratios of the mortality rates from respiratory infections also increased over the time period, both for infants and children 1-4, in the MCH-FP area. The rates were heavily selective of male infants from 1987 through 1992. On the other hand in the Comparison area the ARI sex ratios declined over time for the 1-4 age group, and showed no consistent trend for infants.

Due to the virtual eradication of mortality from tetanus and measles in the MCH-FP area, figures for these causes of death are only available for the first few years. In the Comparison area tetanus was killing more boys than girls, and the differential increased over time, though it must be remembered that by the end the numbers of tetanus deaths were getting very small. Mortality rates from measles among children aged 1-4 in the Comparison area were heavier for females, although the sex ratios were above those of the "all causes".

The residual group of "others" cannot be further broken down, due to the change in the cause-of-death classification mentioned above. For infants it consists largely of neonatal deaths other than those due to tetanus; for children aged 1-4, accidental deaths (mostly due to drowning) feature prominently. The sex

[1]A three year moving aveage was used.

ratios for the infants do not differ greatly from unity: those for children 1-4 showed heavier female mortality, but with the differential reducing over time.

We will not venture any explanation for these apparent associations between sex-selective mortality and the various causes of death, but merely present these figures in the hope that they will stimulate further analyses.

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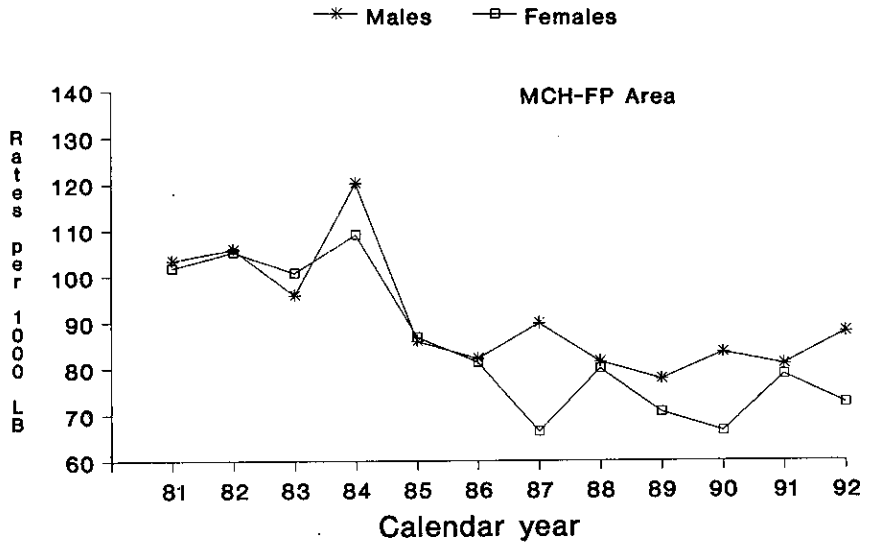
Table S.1: Matlab Infant and Child Mortality Rates by Sex and Area, 1981-1992

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
(a) Infant mortality rates by sex and area												
MCH-FP area												
Males	103.4	105.9	95.8	120.3	86.0	82.2	89.7	81.6	77.8	83.6	81.1	88.1
Females	101.7	105.3	100.7	109.2	86.8	81.4	66.5	80.0	70.6	66.5	78.8	72.7
Both sexes	102.6	105.6	98.2	114.8	86.4	81.8	78.4	80.8	74.3	75.2	80.0	80.5
Comparison area												
Males	106.0	124.1	104.9	132.9	124.0	94.6	91.3	92.5	98.0	90.5	122.6	92.3
Females	123.5	111.9	120.3	121.1	112.5	90.8	97.4	100.9	83.5	84.6	106.7	88.0
Both sexes	114.5	118.3	112.5	127.1	118.4	92.7	94.4	96.6	90.7	87.5	114.9	90.2
(b) Child mortality rates by sex and area												
MCH-FP area												
Males	11.8	11.8	18.3	16.7	12.9	10.0	8.6	6.0	4.8	5.0	6.6	5.3
Females	26.8	26.4	25.9	30.3	20.1	16.9	11.2	9.3	8.0	5.5	7.4	6.5
Both sexes	19.1	18.8	21.9	23.1	16.4	13.4	9.9	7.6	6.4	5.3	7.0	5.9
Comparison area												
Males	20.3	19.3	25.0	31.1	15.8	15.2	8.7	11.2	8.1	7.2	8.8	7.7
Females	29.6	36.5	46.7	48.4	34.5	26.7	21.8	17.7	15.0	11.3	9.3	12.9
Both sexes	24.8	27.4	35.3	39.2	24.6	20.7	15.0	14.4	11.5	9.3	9.1	10.4

Table S.2: Matlab Infant and Child Mortality Rates by Cause of Death and Area, 1981-1992

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
(a) Infant mortality rates (1q0) per thousand live births												
MCH-FP area												
Diarrhoeal	3.1	10.9	10.3	15.1	11.0	12.0	9.2	14.3	12.6	8.5	10.5	9.4
ARI	15.3	17.7	10.6	16.7	7.1	21.7	11.8	14.6	12.3	13.9	12.0	10.5
Tetanus	36.4	42.6	31.2	15.7	27.3	14.7	1.2	1.6	0.3	0.3	1.9	0.0
Measles	0.3	0.9	0.0	3.0	0.0	1.2	0.0	0.3	0.0	0.0	0.0	0.0
Other	47.5	33.5	46.1	64.3	39.2	32.2	56.2	50.1	49.0	52.5	55.6	60.5
Total	102.6	105.6	98.2	114.8	86.4	81.8	78.4	80.8	74.3	75.2	80.0	80.5
Comparison area												
Diarrhoeal	5.3	9.9	7.0	15.2	12.1	13.2	11.0	13.2	16.1	8.5	18.8	15.9
ARI	13.4	15.4	8.9	15.2	11.4	17.7	16.7	23.5	16.1	18.7	29.8	19.1
Tetanus	55.9	57.0	43.7	34.6	47.8	32.1	11.5	10.9	5.8	3.7	3.0	0.6
Measles	3.3	1.9	2.2	4.2	2.2	1.9	0.5	0.3	0.3	0.3	0.3	0.0
Other	36.7	34.0	50.7	57.9	44.8	27.8	54.6	48.8	52.4	56.3	62.9	54.5
Total	114.5	118.3	112.5	127.1	118.4	92.7	94.4	96.6	90.7	87.5	114.9	90.2
(b) Child Mortality Rates (4m1) per thousand children aged 1-4												
MCH-FP area												
Diarrhoeal	4.9	6.6	9.2	12.1	7.2	6.6	4.3	2.2	2.5	1.0	1.5	1.7
ARI	1.3	2.9	1.5	1.3	0.8	1.4	1.1	1.0	0.5	0.9	1.1	0.6
Tetanus	0.4	0.3	0.3	0.3	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Measles	2.0	1.0	0.5	1.2	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Other	10.5	8.0	10.4	8.2	6.5	5.2	4.5	4.4	3.3	3.2	4.2	3.5
Total	19.1	18.8	21.9	23.1	16.4	13.4	9.9	7.6	6.4	5.3	7.0	5.9
Comparison area												
Diarrhoeal	5.5	9.4	15.3	19.2	10.7	9.3	8.2	6.5	4.3	3.3	3.8	4.3
ARI	3.1	2.9	1.5	2.8	1.0	2.0	1.8	1.4	2.5	1.6	0.9	1.3
Tetanus	1.2	1.5	1.0	0.9	0.5	0.5	0.1	0.0	0.0	0.0	0.0	0.0
Measles	3.4	2.9	2.6	5.5	4.0	2.8	0.2	0.2	0.2	0.2	0.2	0.4
Other	11.6	10.7	14.8	10.8	8.4	6.0	4.6	6.1	4.5	4.3	4.2	4.3
Total	24.8	27.4	35.3	39.2	24.6	20.7	15.0	14.4	11.5	9.3	9.1	10.4

Figure S.1: Trends in Infant Mortality Rates by Sex and Area, 1981-1992



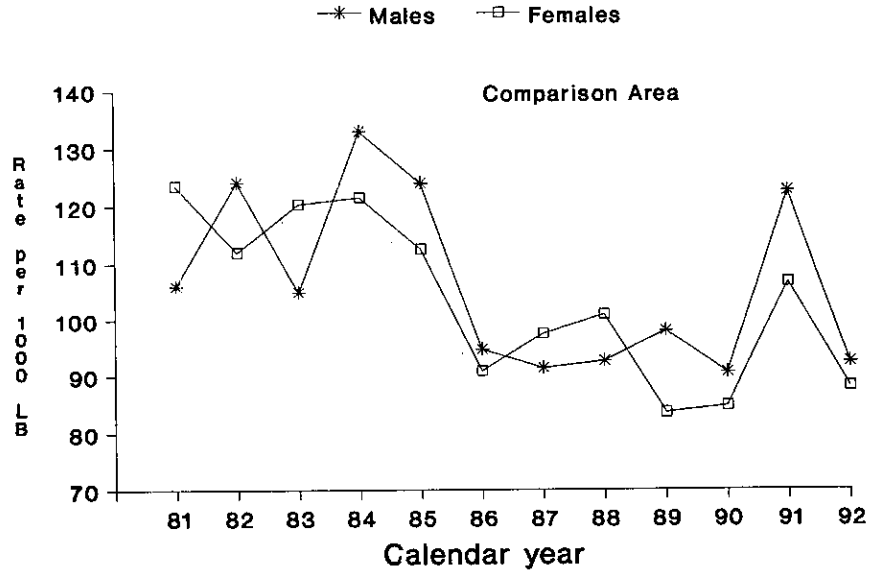
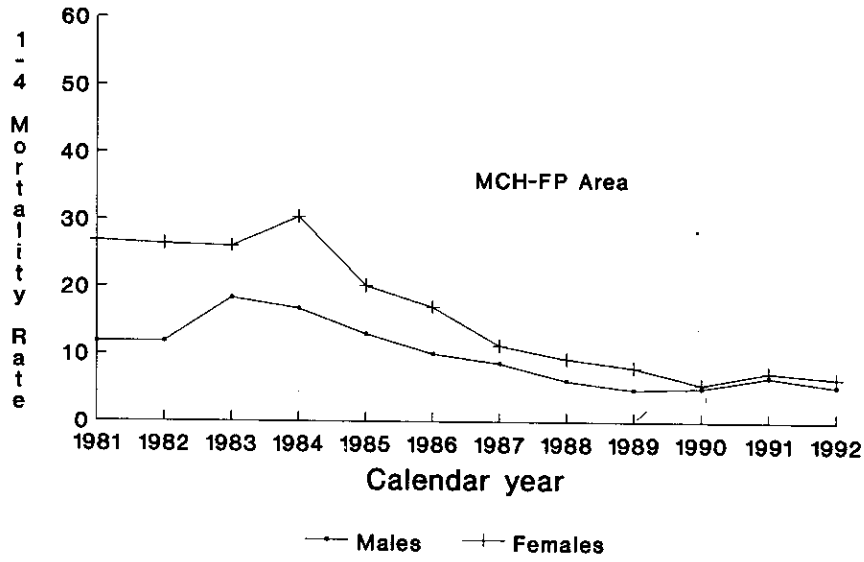


Figure S.2: Trends in Child Mortality Rates by Sex and Area, 1981-1992



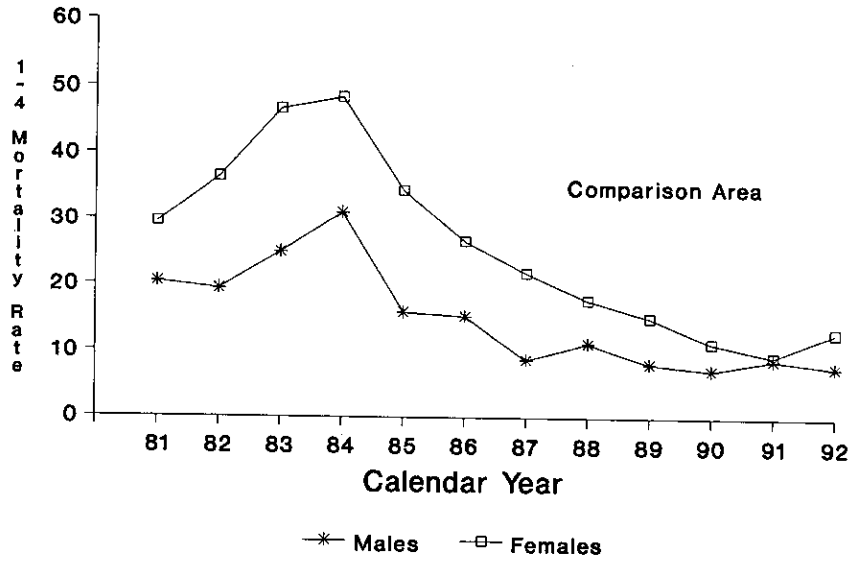
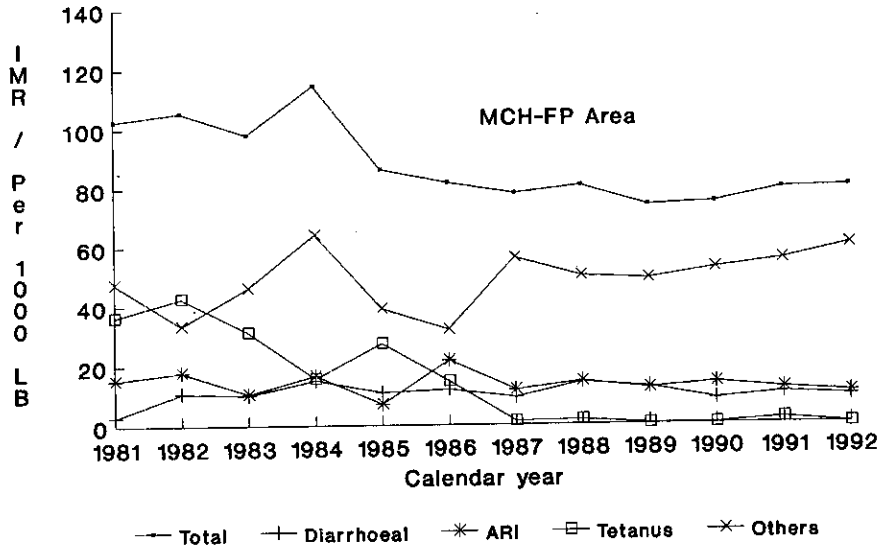


Figure S.3: Trends in Infant Mortality Rates by Cause of Death and Area, 1981-1992



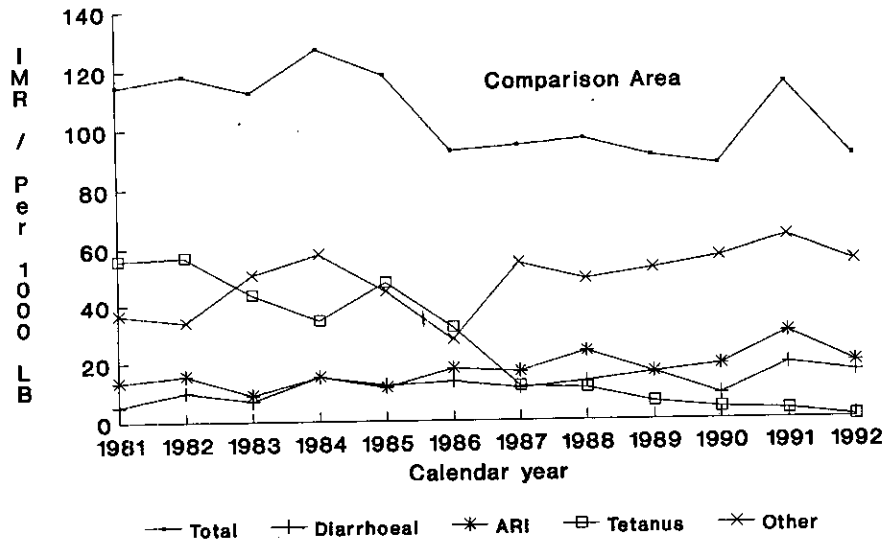
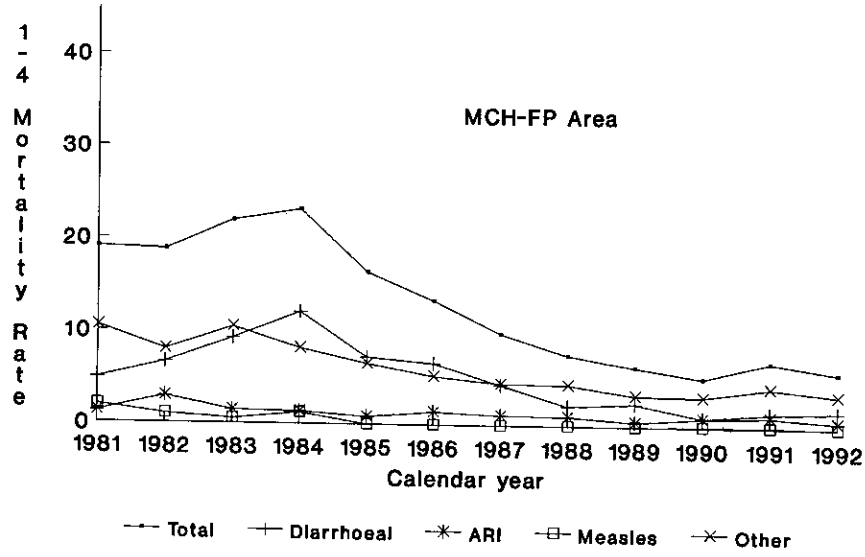


Figure S.4: Trends in Child Mortality Rates by Cause of Death and Area, 1981-1992



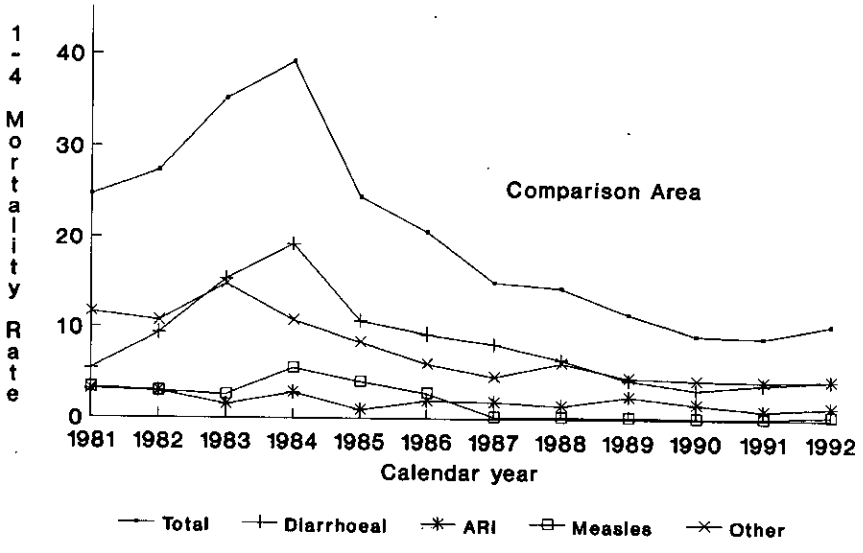
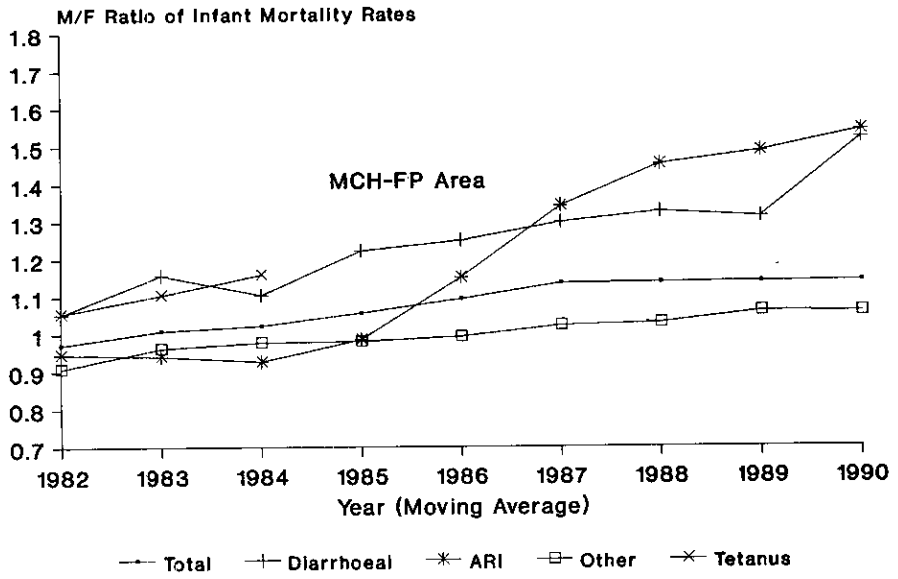


Figure S.5: Sex Ratios of Infant Mortality by Cause of Death and Area, 1982-1990



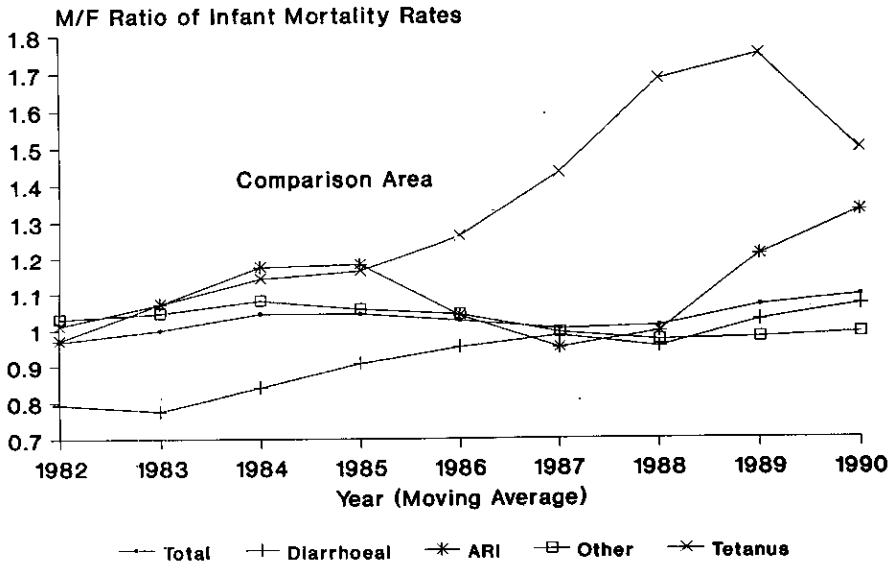
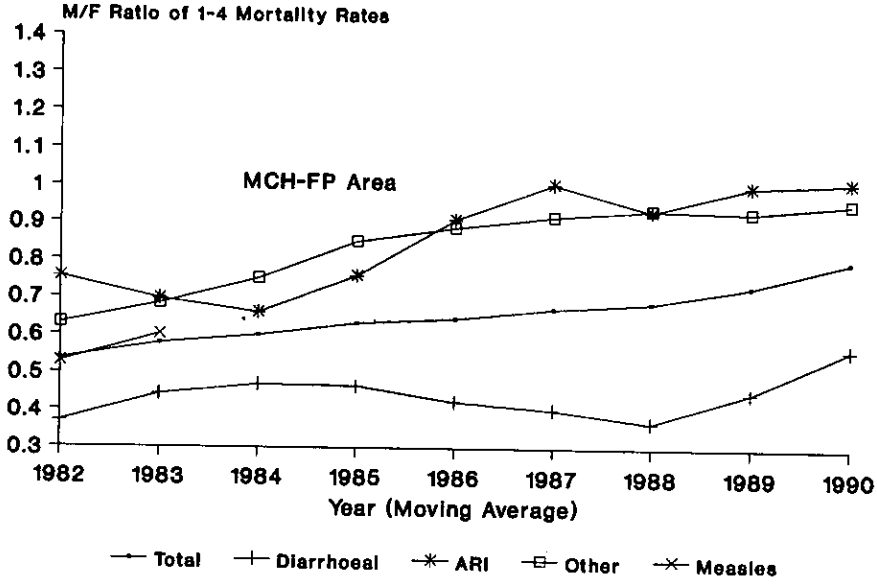
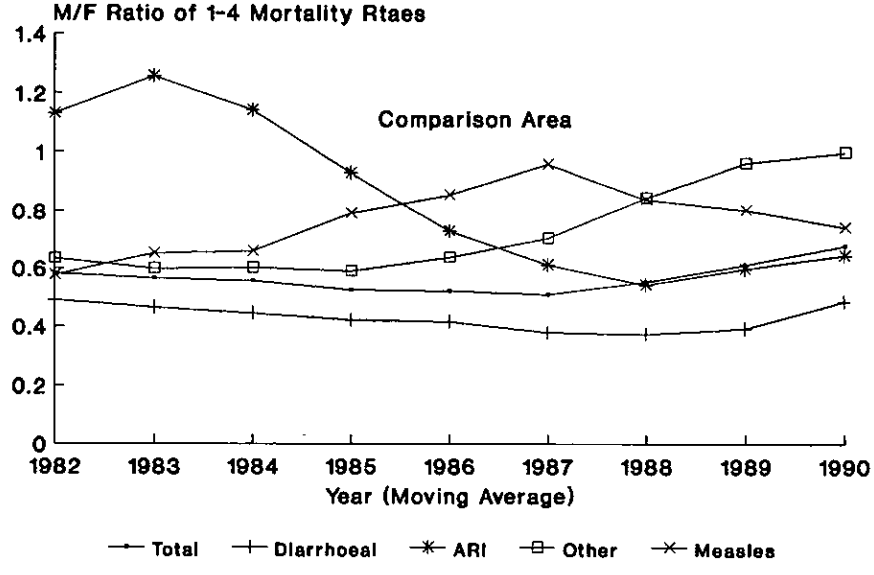


Figure S.6: Sex Ratios of Child Mortality by Cause of Death and Area, 1982-1990





Appendix A

Names and Codes of Villages in the DSS Area, 1992

MCH-FP area				Comparison area			
Block*	Village code	Village name	Village code	Village name	Village code	Village name	Village code	Village name
	D	Charmukundi	V59	Doshpara	A	Uddamdi	V78	Soladana
	W	Kaladi	V60	Suvankardi	B	Charmasua	V79	Pitambordi
	V10	Dhakirgaon	V61	Munsabdi	C	Sarderkandi	V80	Daribond
	V11	Nabakalash	V62	Shilmondi	F	Sepoykandi	V90	Narinda
	V31	Dighaldi	V72	Upadi	G	Thatalia	V95	Baluchar
	V32	Mobarakdi			J	Char Harigope	V96	Rampur
					U	Baispur	V97	Dhanagoda
	H	Lamchari	V26	Narayanpur	V01	Kadamtali	V98	Santoshpur
	V12	Bhangerpar	V56	Palipara	V02	Nilokhi	V99	Baluakandi
	V13	Baburpara	V82	Dhanarpar	V03	Char Nilokhi	VB1	Taltoli
	V19	Lakshmipur	V83	Padmapal	V04	Char Pathalia	VB2	Sree Rayerchar
	V20	Dagorpur	V85	Bhanurpara	V05	Gazipur	VB3	Rayerkandi
	V21	Khadergaon	V87	Hurmaisha	V06	Fatepur	VB4	Ramdaspur
	V22	Beloti	VB12	Nagda	V07	Nayakandi	VB5	Thakurpara
	V23	Baluchar	VB13	Naogaon	V08	Goalbhar	VB6	Sarkerpara
	V24	Machuakhal			V09	Naburkandi	VB7	Mirpur
					V14	Enayetnagar	VB8	Farazikandi
	K	Shahpur	V40	Masunda	V35	Durgapur	VB9**	Ramanathgonj
	L	Tatkhana	V41	Paton	V36	Ludhua	VB10	South Rampur
	M	Char Nayergaon	V42	Adhara (South)	V37**	Charputia	D28	Bazarkhola
	N	Aswinpur	V43	Kanachak	V38	Galimkha	D29	Kirtonkhola
	O	Nayergaon	V44	Panchdona	V45	Bakchar	D30	Banuakandi
	P	Titerkandi	V64	Kawadi	V46	Silinda	D31	Harina Bazarkhola
	Q	Char Shibpur	V86	Adhara	V47	Tulatali	D32	Khalisha
	V27	Panchghoria	V88	Datikara	V48	Gangkandi	D33	Nayanagar
	V28	Khidirpur	VB11	Mehron	V49	Harina Bhabanipara	D34	Saidkharkandi
	V30	Harion	D100	Barogaon			D35	Molla Kandi
	V39	Gobindapur	D101	Naojan	V50	Bakharpur	D88	Sankibhanga
					V51	Induriakandi	D89	Sankibangha
	R	Nandalalpur	V52	Nayakandi	V53	Chhoto Haldia		Namapara
	S	Tatua	V54	Balakandi	V58**	Mohishmari	D90	Zahirabaj
	T	Amuakanda	V55	Induria	V65	Nayachar	D91**	North Joypur
	V15	Bhati Rasulpur	V57	Baluchar	V66	Thatalia	D92**	West Joypur
	V16	Binandapur	V63	Islamabad (East)	V68	Sobahan	D93	Maizkandi
D	V17	Hatighata			V69**	Naobangha	D94	Hazipur
	V18	Torkey	V67	Majlishpur	V70**	South Joypur	D95	Tapaderpara
	V25	Char Pathalia	V81	Sonaterkandi	V71	Khamarpara	D96	Rampur
	V29	Shibpur(South)	V84	Shanbajkandi	V73	Sadardia	D97	Nayakandi
	V33	Shibpur(North)	V89	Islamabad (Middle)	V74	Ketundia	D98	Bara Haldia
	V34	Satparia			V75	Mukundia	D99	Mandertoli
					V76	Chosoi		

*Division by block applies only to the MCH-FP area.
**Lost due to river erosion.

Appendix B

Mid-year Population, Births, and Deaths by Village, 1992

Village code*	Population	Live births	Deaths	Birth rate	Death rate
D	1745	49	11	28.1	6.3
W	3413	62	22	18.2	6.4
V10	1520	39	10	25.7	6.6
V11	1654	49	12	29.6	7.3
V31	8563	223	78	26.0	9.1
V32	2631	71	25	27.0	9.5
V59	1015	32	13	31.5	12.8
V60	895	28	12	31.3	13.4
V61	670	23	9	34.3	13.4
V62	852	21	2	24.6	2.3
V72	5806	173	46	29.8	7.9
Block A	28764	770	240	26.8	8.3
H	1165	26	12	22.3	10.3
V12	518	13	4	25.1	7.7
V13	739	25	12	33.8	16.2
V19	2930	66	24	22.5	8.2
V20	1188	35	14	29.5	11.8
V21	474	15	6	31.6	12.7
V22	563	13	8	23.1	14.2
V23	481	7	7	14.6	14.6
V24	2626	57	22	21.7	8.4
V26	2587	65	25	25.1	9.7
V56	1481	29	9	19.6	6.1
V82	1438	40	15	27.8	10.4
V83	530	13	4	24.5	7.5
V85	431	10	2	23.2	4.6
V87	584	13	6	22.3	10.3
VB12	4049	116	38	28.6	9.4
VB13	4539	133	37	29.3	8.2
Block B	26323	676	245	25.7	9.3

(continued)

Appendix B (cont.)

Village code	Population	Live births	Deaths	Birth rate	Death rate
K	892	22	2	24.7	2.2
L	484	15	3	31.0	6.2
M	166	2	1	12.0	6.0
N	2063	53	19	25.7	9.2
O	1424	25	10	17.6	7.0
P	1881	50	17	26.6	9.0
Q	324	6	3	18.5	9.3
V27	876	16	6	18.3	6.8
V28	1393	45	12	32.3	8.6
V30	543	9	2	16.6	3.7
V39	344	5	7	14.5	20.3
V40	754	21	3	27.9	4.0
V41	1498	39	12	26.0	8.0
V42	725	15	3	20.7	4.1
V43	846	23	6	27.2	7.1
V44	605	17	6	28.1	9.9
V64	4483	117	31	26.1	6.9
V86	778	22	5	28.3	6.4
V88	491	13	4	26.5	8.1
VB11	2472	50	17	20.2	6.9
D100	3252	73	29	22.4	8.9
D101	1247	29	15	23.3	12.0
Block C	27541	667	213	24.2	7.7
R	1349	38	10	28.2	7.4
S	951	26	10	27.3	10.5
T	1485	50	8	33.7	5.4
V15	597	7	5	11.7	8.4
V16	762	23	3	30.2	3.9
V17	1066	26	3	24.4	2.8
V18	3669	94	27	25.6	7.4
V25	1201	26	13	21.6	10.8
V29	438	6	1	13.7	2.3
V33	516	10	6	19.4	11.6
V34	817	14	6	17.1	7.3
V52	238	5	2	21.0	8.4
V54	636	13	10	20.4	15.7
V55	531	15	8	28.2	15.1
V57	1085	23	7	21.2	6.5
V63	2080	49	16	23.6	7.7
V67	595	14	2	23.5	3.4
V81	615	14	2	22.8	3.3
V84	2169	61	22	28.1	10.1
V89	1376	33	10	24.0	7.3
Block-D	22176	547	171	24.7	7.7
MCH-FP Area	104804	2660	869	25.4	8.3

(continued)

Appendix B (cont.)

Village code	Population	Live births	Deaths	Birth rate	Death rate
A	2760	95	22	34.4	8.0
B	2056	59	23	28.7	11.2
C	3726	135	48	36.2	12.9
F	1222	46	7	37.6	5.7
G	2471	79	20	32.0	8.1
J	536	20	3	37.3	5.6
U	8142	234	82	28.7	10.1
V01	649	10	4	15.4	6.2
V02	504	11	5	21.8	9.9
V03	667	22	9	33.0	13.5
V04	280	6	0	21.4	0.0
V05	3393	102	28	30.1	8.3
V06	2318	74	19	31.9	8.2
V07	416	17	1	40.9	2.4
V08	1222	39	9	31.9	7.4
V09	1142	34	14	29.8	12.3
V14	836	37	10	44.3	12.0
V35	3547	130	49	36.7	13.8
V36	4946	160	46	32.3	9.3
V37	0	0	0	0	0
V38	1660	49	17	29.5	10.2
V45	1087	31	8	28.5	7.4
V46	379	19	10	50.1	26.4
V47	1803	49	17	27.2	9.4
V48	593	13	5	21.9	8.4
V49	1315	53	14	40.3	10.6
V50	146	7	2	47.9	13.7
V51	870	25	7	28.7	8.0
V53	3264	89	33	27.3	10.1
V58	0	0	0	0	0
V65	730	24	8	32.9	11.0
V66	811	27	5	33.3	6.2
V68	858	26	7	30.3	8.2
V69	0	0	0	0	0
V70	0	0	0	0	0
V71	463	16	5	34.6	10.8
V73	795	20	6	25.2	7.5
V74	1398	35	18	25.0	12.9
V75	399	9	5	22.6	12.5
V76	1647	52	22	31.6	13.4
V78	258	2	5	7.8	19.4
V79	366	6	2	16.4	5.5
V80	1115	23	11	20.6	9.9
V90	1165	22	16	18.9	13.7
V95	1649	52	17	31.5	10.3
V96	665	24	6	36.1	9.0
V97	435	12	3	27.6	6.9
V98	170	5	1	29.4	5.9
V99	701	23	5	32.8	7.1

(continued)

Appendix B (cont.)

Village code	Popula-tion	Live births	Deaths	Birth rate	Death rate
VB1	1149	41	14	35.7	12.2
VB2	1013	28	9	27.6	8.9
VB3	2924	105	20	35.9	6.8
VB4	3713	112	32	30.2	8.6
VB5	968	22	13	22.7	13.4
VB6	658	14	5	21.3	7.6
VB7	255	10	6	39.2	23.5
VB8	1325	55	20	41.5	15.1
VB9	0	0	0	0	0
VB10	2743	88	28	32.1	10.2
D28	1185	34	6	28.7	5.1
D29	163	5	1	30.7	6.1
D30	739	29	8	39.2	10.8
D31	1029	39	12	37.9	11.7
D32	707	27	6	38.2	8.5
D33	1084	50	6	46.1	5.5
D34	1424	46	16	32.3	11.2
D35	663	22	6	33.2	9.0
D88	1488	51	14	34.3	9.4
D89	1176	20	9	17.0	7.7
D90	1128	40	8	35.5	7.1
D91	0	0	0	0	0
D92	0	0	0	0	0
D93	1116	44	18	39.4	16.1
D94	1290	38	20	29.5	15.5
D95	449	12	3	26.7	6.7
D96	780	22	6	28.2	7.7
D97	858	21	9	24.5	10.5
D98	3277	79	28	24.1	8.5
D99	2087	59	14	28.3	6.7
Comparison Area	100966	3136	991	31.1	9.8

*See village name in Appendix A.

Appendix C

Life Table Equations

1. $$ {}_nq_x = \frac{{}_nm_x}{{}^1/_n + {}_nm_x \left[{}^1/_2 + {}^n/_{12} \left({}_nm_x - \ln C \right) \right]} $$

2. $$ \ell_0 = 100{,}000 $$

$$ \ell_x = \left(1 - {}_nq_{x-1}\right) \ell_{x-n} $$

3. $$ L_0 = 0.276\ell_0 + 0.724\ell_1 $$

$$ L_1 = 0.410\ell_1 + 0.590\ell_2 $$

$$ L_i = \tfrac{1}{2} \left(\ell_i + \ell_{i+1} \right), \quad i = 2, 3, 4 $$

$$ {}_nL_x = \frac{{}_nd_x}{{}_nm_x} \quad \text{for } 5 \le x \le 80 $$

$$ {}_\infty L_{85} = \frac{\ell_{85}}{{}_\infty m_{85}} \quad \text{for the last age group 85+} $$

4. $$ \mathring{e}_x = \frac{T_x}{\ell_x} \quad \text{where } T_x = \sum_{y=x}^{\infty} L_y $$

Note: Greville's method, as suggested in Shryock, H.S., Seigel, J.S., and Associates, The Methods and Materials of Demography (revised), U.S. Dept. of Commerce, Bureau of the Census, 1975, Vol. II p.414 and pp. 444-5.

(ln C assumed to be 0.095; separation factors in Equation 3 correspond to an infant mortality rate of 100.)

Appendix D

Staff of the DSS, 1992

Matlab Field Station

Supervisory Staff:

Mr. A.M. Sarder, Manager
Mr. A.K.M. Nurul Islam, SFRO
Mr. Liaquat Ali Mondal, FRO
Mr. Md. Ismail, FRO
Mr. Md. Khalilur Rahman I, Asst. Supvr.

Senior Health Assistants:

Mr. Md. A. Mannan Bakaul
Mr. Aftekharuzzaman
Mr. M. A. Satter Miah
Mr. Md. Serajul Hoque
Mr. K. J. M. Mannan Pathan
Mr. A. Rashid Miah
Mr. A. Latif Patwary
Mr. AFM Aminul Islam Khan
Mr. Monoranjan Das

Paramedic:

Mr. Md. Monirul Alam Bhuiya

Admin. Assistant:

Mr. A.K.M. Mozibul Hoque

Health Assistants:

Mr. Md. Nasir Ahmed
Mr. Md. Shahidur Rahman
Mr. Alfazuddin Ahmed Chowdhury
Mr. Sadiquzzaman
Mr. Shah Mostafa Kamal
Mr. Md. Mozammel Hoque
Mr. Sk. A. Jabber
Mr. A. Malek Patwary
Mr. Md. Idrish Ali Miah I
Mr. Md. Abul Kashem
Mr. Md. Idrish Ali Miah II
Mr. Md. Zahirul Hoque
Mr. Md. Nurul Hoque
Mr. Md. Golam Hossain
Mr. Paresh Ch. Chakraborty
Mr. Md. Monirul Hoque
Mr. Jabed Ali

Recorders:

Ms. Shahana Ahmed, HA
Ms. Monowara Begum, HA

Dhaka-based Staff

Dr. Michael A. Strong
Mr. Saker A. Chowdhury
Ms. Lutfun Nahar
Mr. Md. Golam Mostafa
Mr. Sentu B. Gomes
Mr. M.A. Jalil Sarker
Ms. Rahima Mazhar
Mr. A.B.M. Delwar Hossain
Mr. Md. Kapil Ahmed
Mr. Sajal K. Saha
Mrs. Habiba Rahman
Mr. Md. Khayrul Alam Khan
Mr. Md. Arifur Rahim
Ms. Nasrin Aktar
Mr. Birendra Nath Adhikary