

FERTILITY AND THE USE OF BIRTHSPACING
METHODS IN MALAWI: AN EXPLORATORY
STUDY OF MZIMBA DISTRICT

by

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A thesis submitted in partial fulfilment of the
requirements for the degree of
Master of Arts in Demography at the
Australian National University

Canberra, January 1986



D E C L A R A T I O N

Except where otherwise indicated,
this thesis is my own work.

JOE NOWA

January 1986

ACKNOWLEDGEMENTS

I wish to express my thanks to Dr Siew-Ean Khoo, my supervisor, for her invaluable comments and advice throughout the study. I am very grateful to Dr D. Lucas and Dr G. Santow who made constructive comments and suggestions on the first two chapters. I also appreciate very much the advice of Ms. C. McMurray on the style and presentation of this thesis.

I would like to express my gratitude of the moral and material support I received from my colleagues at the National Statistical Office in Malawi, notably A.T. Matemba, W.H. Mbale, W.R. M'manga, S.E. Mndala, R.J. Wigmore and B.R. Khakona. I am very grateful to the Malawi Government for allowing me to use the 1984 Family Formation Survey data in this study.

I wish to express my profound gratitude to the Governments of Malawi and Australia who made it possible for me to do this study. Finally, I would like particularly to thank Jenny Borck for her patient and painstaking typing of this thesis.

Joe Nowa

ABSTRACT

This study was based on data from the 1984 Malawi Family Formation Survey which was a nationwide sample survey conducted by the National Statistical Office and the Ministry of Health. This is an exploratory study on fertility and the use of birthspacing methods in Malawi based on data for the 476 ever-married women in Mzimba District.

The major limitation of the data was the small sample size which limited the number of factors to be examined. Furthermore, a detailed classification of the variables have not been analyzed because cell sizes would be too small to be meaningful. Because the sample was designed to obtain estimates of total number of women aged 15-49 and their children at the regional level for rural areas and at the national level for urban areas, this study used unweighted data examining fertility differentials of ever-married women by place of residence, age at marriage, type of marriage, education and husband's occupation as well as family size preferences and knowledge and use of birthspacing methods.

The objective of the study was to identify major determinants of fertility in Mzimba. The number of children ever born alive was the measure of fertility. The study showed that fertility differentials existed only by age at first marriage and also between women who were first wives and those who were second or higher order wives in polygamous marriages. Woman's current age appeared to influence family size preference positively. The study revealed low levels of knowledge and use of birthspacing methods among women in Mzimba District.

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CHAPTER 1

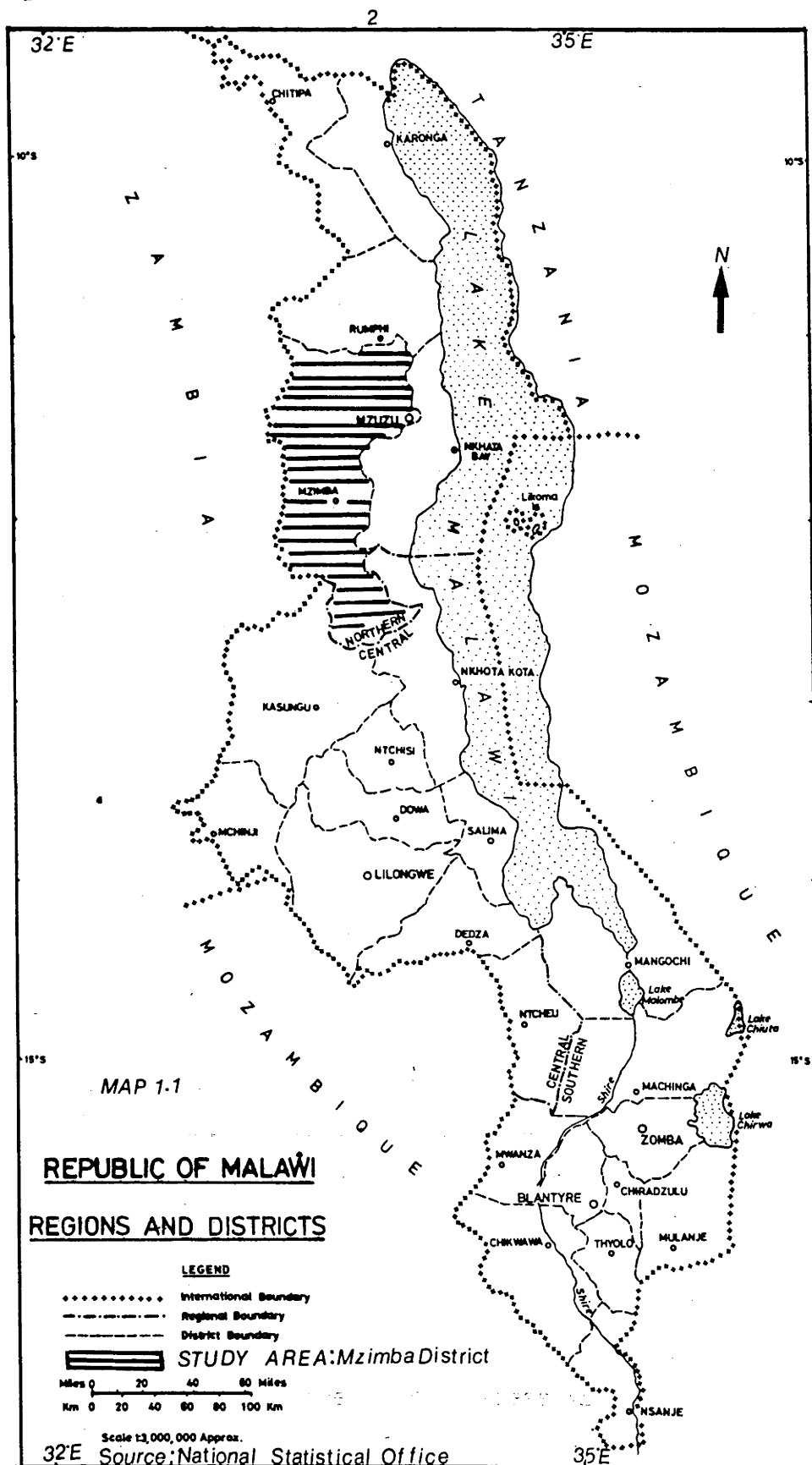
INTRODUCTION

1.1 BACKGROUND INFORMATION

The Republic of Malawi is in south-eastern Africa. It is bordered by three countries: to the east, south and south-west is Mozambique; to the west is Zambia; and to the north-east is Tanzania. The country's total area is 118,484 square kilometres and it became independent from British colonial rule in 1964.

The country is divided into three regions for administrative purposes; Northern, Central and Southern Regions. There are five districts in the Northern Region, nine in the Central Region and ten in the Southern Region. There are four major urban areas; Blantyre and Zomba in the Southern Region, Lilongwe in the Central Region and Mzuzu in Mzimba District in the Northern Region (Map 1.1). Mzimba District is the focus of this study.

The total population enumerated in the 1977 census was 5.5 million and the current estimate of total population in 1985 is 7.1 million (National Statistical Office [NSO], 1984: 113-117). About 50 per cent of the total population live in the Southern Region, 38 per cent in the Central Region and 12 per cent in the Northern Region. About 8 per cent of total population live in urban areas with 6 per cent of the total



population living in the four major urban areas. In 1977 the population of the major urban areas was 219,011 in Blantyre; 24,234 in Zomba; 98,718 in Lilongwe and 16,108 in Mzuzu (NSO, 1980: 39-43).

The crude birth rate (CBR) was estimated at 55.3 births per 1,000 population and the total fertility rate (TFR) at 7.6 (NSO, 1984: 2-9). Table 1.1 gives estimates of age-specific fertility rates for rural and urban areas based on the 1977 census data.

The estimates of mortality rates appear quite high. The estimate of the crude death rate (CDR) in 1976/77 was 25.4 deaths per 1,000 population and the estimate of infant mortality was 176 per 1,000 live births. The estimated expectation of life at birth was 37.8 years for males and 40.9 years for females (NSO, 1984: 54). The average population growth rate was estimated to be slightly above 3 per cent per annum.

There are no explicit population policies in Malawi. The implicit policies are for no intervention to modify fertility or population growth (UN, 1983). However there have recently been some indications of concern about fertility, mortality and the rate of population growth. The major concern of the Government is the high maternal and infant morbidity and mortality rates which are partly due to closely spaced pregnancies (Ministry of Health, 1978; 1981: 23-32). The Government has therefore initiated a program to encourage child-spacing so as to improve the health of the mothers and their children. It is possible that the consequence of this program will be a reduction of fertility in the long run.

TABLE 1.1

AGE-SPECIFIC FERTILITY RATES PER THOUSAND WOMEN: MALAWI, 1976/77

AGE	URBAN	RURAL	TOTAL
15-19	145.5	166.9	165.1
20-24	331.1	342.3	341.2
25-29	330.9	334.4	334.1
30-34	303.8	303.8	303.8
35-39	238.8	240.9	240.8
40-44	75.5	119.3	118.6
45-49	15.5	16.4	16.4
TFR	7205.5	7620.0	7600.0

Source: NSO, 1984: 2 (Table 7.1)

The child-spacing program is an integral part of the Maternal and Child Health program. Under this program, clinics have been established to provide care for expectant and lactating mothers. Children under five years of age are immunized and given food supplements if they are under-nourished. Under the child-spacing program, mothers will be encouraged to have longer birth intervals and there will be distribution of modern contraceptive methods. The public will be motivated through community health education and there will be a trained birth attendant in the rural areas who will also assist in the distribution of contraceptives.

1.2 OBJECTIVES OF THE STUDY

This is an exploratory study of fertility and the use of birthspacing methods in Malawi. It is exploratory because the analysis is based on data for only one district. However, it is probable that the results of this study are fairly representative of the country as a whole. In fact the people in all regions of Malawi share more or less a common culture (Tew, 1950: 30; Kesby, 1977: 161-162, 220).

The main objective of this study is to identify major determinants of fertility in Malawi. It is intended to examine fertility differentials by place of residence, age at first marriage, polygamy, education and husband's occupation. In relation to this objective, differentials in family size preferences and knowledge and use of birthspacing methods by place of residence, woman's current age, age at first marriage, education and husband's occupation will also be examined.

1.3 SOURCES OF DATA

This study is based on data which were collected in the Family Formation Survey during the period May to July 1984. The survey was conducted by the National Statistical Office in conjunction with the Ministry of Health. It was a nationwide sample survey.

The sample was based on three-stage sampling. The country was stratified into the rural agricultural stratum, comprising 5,607 enumeration areas (EA's); the other rural stratum, such as estates and rural trading centres, comprising 261 EA's; the major urban stratum comprising Blantyre, Zomba, Lilongwe and Mzuzu with 306 EA's; and the other urban stratum comprising 115 EA's. The first stage was selection of 150 EA's in the rural areas and 50 EA's in the urban areas. The rural sample was selected with equal probability while the urban sample was selected on a probability proportional to size. The second stage was the selection of 60 households in each EA using systematic random sampling. The third stage was the selection of a sub-sample of the 60 households, choosing 40 households in each EA in the Northern Region and 30 households in each EA in the Central and Southern Region.

The purpose of the survey was to collect data for evaluating current knowledge, attitudes towards and practices of childspacing, so that a program of childspacing could be designed. The survey also collected data on fertility, birth history, breastfeeding, post-partum amenorrhoea, post-partum sexual abstinence, contraceptive knowledge and use, current marital status and type of marriage.

This study uses data for one district, Mzimba District in the Northern Region, because the rest of the data had not been transcribed from the questionnaires so were unavailable when this analysis was carried out. The total sample size for Mzimba District comprised 15 rural EA's and 5 urban EA's. The urban area is Mzuzu which is one of the four major urban areas in Malawi.

A total sample of 592 women aged 15-49 years were enumerated in Mzimba District. There were 435 women in this age-group in the rural areas and 157 in Mzuzu. This study will be based on the analysis of the data for ever-married women aged 15-49 years, and of the total number of women enumerated, 476 women were ever-married (357 in rural areas and 119 in the urban area).

1.4 LIMITATIONS OF THE DATA

The major limitation of the data is the small sample size of 476 ever-married women. A detailed analysis of the data cannot be done because some cells would have too few cases for meaningful interpretation. Furthermore, the small sample size limits the scope of analysis because some of the techniques, such as Multiple Classification Analysis, require a larger number of cases.

The design of the sample was such that reliable estimates of numbers of women aged 15-49 years and their children ever born could be produced at the regional level for rural areas and at the national level for urban areas. Furthermore, the sample is not self-weighting. The weights are calculated for each EA, which makes it possible to produce estimates at a lower level, but the sampling error would be large and

therefore such estimates would not be reliable. This study uses unweighted data, which is a limitation in that estimates of numbers of women aged 15-49 years and their children ever born cannot be produced for Mzimba District.

1.5 ORGANIZATION OF THE STUDY

This study is organized into five chapters. This chapter has provided some background information about Malawi and its demographic situation and discussed the objectives of the study, sources and limitations of the data. The second chapter reviews the literature on determinants of fertility in Africa. The third chapter examines fertility differentials in order to identify important determinants of fertility. The fourth chapter examines differentials in family size preferences and contraceptive knowledge and use. The fifth chapter presents a summary of the main findings and conclusions.

CHAPTER 2

REVIEW OF LITERATURE

2.1 INTRODUCTION

There has been little study of fertility in Malawi. This review of literature, therefore, examines studies of fertility in all countries in sub-Saharan Africa. First, however, some of the theoretical work on determinants of fertility will be reviewed. Following that, findings of some studies of fertility in the sub-Saharan Africa region will be discussed. The review will focus on fertility differentials according to marriage patterns (age at marriage and type of marriage), knowledge and use of contraception, place of residence, education and husband's occupation, as these variables will be included in the analysis of fertility differentials in this thesis.

The analysis of the determinants of fertility attempts to provide explanations of variations in levels of fertility and of why the number of children born during a woman's reproductive span may be below the number that would have been born under conditions of natural fertility. According to Henry (1979: 17-28), natural fertility refers to fertility within marriages or stable unions in which there is an absence of deliberate control of fertility by contraception or induced abortion in response to the number of children already born in that union. The determinants of fertility are therefore viewed as checks to the realization of a woman's full reproductive potential (Hawthorn, 1970: 10; Bongaarts, et al, 1984:529). A better understanding of these factors provides the necessary foundation for sound population policies (Bongaarts, 1978: 105).

Researchers have tried to provide some explanations of the determinants of fertility through the economic theory of fertility in which children are seen as a commodity similar to any other goods and parents are taken as consumers (Jones, 1977: 11-34; Anker and Knowles, 1982: 27-57). This theory is based on the economic demand theory of maximizing utility of goods, whereby a consumer desires an optimal combination of all goods. Concepts of demand, supply and individual maximization of utility are key elements of this theory. In societies where fertility can be controlled, demand factors are said to be the main determinants of fertility, while in societies with natural fertility, supply factors such as fecundity, age at marriage, marriage stability and others are said to be the main factors of fertility (Bongaarts and Menken, 1983: 27).

It is also argued that children in developing countries are needed because of their significant economic contribution in the form of labour. Caldwell (1976; 1977a: 78-88; 1977b: 441-452), based on his studies in West Africa, argued this point in terms of wealth flows which include all forms of economic contributions including labour. His argument is that in Africa children are needed because of their economic contributions which start from early ages to adulthood, and that, unless a reversal of flow of wealth occurs (that is, from parents to children) there will be a persistence of high fertility in Africa.

Davis and Blake (1956) proposed an analytical framework for the sociology of fertility which classified a group of behavioural and biological factors identified as intermediate fertility variables. These factors, which influence human reproduction, are intercourse, conception and gestation variables. The intercourse variables are

factors which affect a woman's exposure to intercourse, such as age at marriage, marriage stability, sexual abstinence and frequency of intercourse. The conception variables are factors which affect a woman's exposure to conception, such as fecundity and contraception. The gestation variables are factors affecting gestation and successful parturition, such as miscarriage and abortion. The intermediate variables have a direct reducing or increasing effect on fertility, while the socio-economic, cultural and environmental factors influence fertility only through these intermediate variables.

Bongaarts (1978) later proposed a mathematical model based on the work of Davis and Blake (1956) as follows:

$$TFR = C_m \times C_c \times C_a \times C_i \times TF$$

where C_m , C_c , C_a and C_i are indices of the fertility inhibiting effects of non-marriage, contraception, induced abortion and lactational infecundity respectively. TFR is the total fertility rate and TF is the total fecundity rate. The effects of marriage, contraception, induced abortion and lactational infecundity explain most of the variations in fertility.

These theories have been outlined here to give a better understanding of determinants of fertility and to prepare the ground work of this study. The economic theory of fertility has only been discussed briefly; other work on the economic theory of fertility by Becker (1960; 1965), Easterlin (1975) and Schultz (1976) have not been discussed here because of limitations on the scope of this study. Caldwell's theory of flow of wealth provides a possible explanation for high fertility and possible conditions of fertility decline in Africa.

On the other hand, Bongaarts' model, based on Davis and Blake's analytical framework of fertility, provides a mathematical measurement of the impact of the intermediate fertility variables. This discussion of the Bongaarts' model has excluded the derivation of the indices as they will not be used in the present analysis. The remaining sections in this chapter examine the fertility levels in Africa and their determinants as recorded by various observers.

2.2 FERTILITY LEVELS IN AFRICA

Jones (1977: 3-4) defined high fertility as a total fertility rate of 5 or above. Using this definition, almost all African countries have high levels of fertility, as shown in Table 2.1. Madagascar has the lowest total fertility rate of 5.0 and Kenya has the highest total fertility rate of 8.2. Sanderowitz and Paxman (1985: 9) noted that almost all countries in Africa have a total fertility rate of 5 or higher. Africa has the highest levels of fertility world-wide and no country in the region appears to have indications of sustained decline (United Nations [UN], 1984: 26; Bongaarts, 1984: 341). Hall (1985: 14) noted that according to the World Bank, a rapid stabilization of African population would be achieved only if there was a twenty-fold rise in family planning services by the end of this century. Bongaarts (1984: 347, Table 3) calculated that, in order for Africa's total fertility rate of 6.4 in 1984 to decline to a total fertility rate of 3.2 in 2025, it would require an increase of contraceptive prevalence in the region from 12 per cent in 1984 to 59 per cent in 2025. Otherwise according to Rondinelli (1985: 176), Africa's population would continue to increase at a rapid rate. Furthermore, it has been observed that fertility is highest in the east and west regions of Africa and lowest in the central

TABLE 2.1

TOTAL FERTILITY RATES (TFR) IN SOME AFRICAN COUNTRIES

SOURCE	COUNTRY	YEAR	TFR	SOURCE	COUNTRY	YEAR	TFR
1	ALGERIA	1977	7.4	4	MALAWI	1977	7.6
1	BENIN	1982	7.1	1	MAURITANIA	1972	7.9
1	BOTSWANA	1981	6.2	1	MOROCCO	1972	6.9
1	BURKINA FASO	1974	7.2	1	NIGERIA	1982	6.3
1	CAMEROON	1978	6.5	1,2	SENEGAL	1978	7.1
1	EGYPT	1976	5.3	1	SIERRA LEONE	1973	6.2
1	ETHIOPIA	1971	5.8	1,2	SUDAN	1979	6.0
1,2	GHANA	1980	6.5	1	TANZANIA	1973	6.3
1	IVORY COAST	1981	7.4	1	TUNISIA	1980	5.3
1,2	KENYA	1978	8.2	1	UGANDA	1969	6.9
2,3	LESOTHO	1976	5.8	1	ZAMBIA	1974	6.7
1	MADAGASCAR	1972	5.0				

- Sources: 1. Senderowitz and Paxman, 1985:9, Table 2
 2. Alam and Casterline, 1984:15, Table 3.
 3. Timaeus and Balasubramanian, 1984:23, Table 11
 4. NSO, 1984:3.

region (Bongaarts, et al., 1984: 513). The total fertility rate for Malawi is 7.6.

2.3 MARRIAGE AS A SUPPORT FOR HIGH FERTILITY IN AFRICA

It has been established in Section 2.2 that Africa has high fertility according to the findings of studies conducted in the region. One factor supporting high fertility in Africa is the marriage pattern. The effect of marriage on fertility depends on the age at marriage, the proportion of women currently married, divorce and widowhood rates, frequency of remarriage, polygamy and the age at which sexual activity permanently stops (Bongaarts, et al., 1984: 517).

Most studies have revealed that women in Africa marry at an early age and that a very high proportion remain married throughout their lifetime (Conde and Boute, 1974: 9; Lucas, 1980: 69). Senderowitz and Paxman (1985: 7-9) observed that the proportion of ever-married women aged 15-19 years in sub-Saharan Africa ranges from about one-third in Ghana, Lesotho and Madagascar to about 61 per cent in Ethiopia and Mauritania, and that the mean age at first marriage is around 18 years in most countries (Table 2.2). It is argued that the higher marriage rates and the early ages at first marriages of women result in higher fertility since more women are exposed to the risk of conception for longer periods. Van de Walle (1968: 234), in his study of marriage in African censuses and surveys, calculated the singulate mean age at marriage, total fertility rates and crude birth rates for Guinea, Dahomey, Portuguese Guinea, Congo, Mozambique and Burundi. He concluded that age at marriage is not a major determinant of variations in fertility between countries.

TABLE 2.2

MEAN AGE AT MARRIAGE AND TOTAL FERTILITY
RATE (TFR) IN SUB-SAHARAN AFRICA*

COUNTRY	MEAN AGE AT MARRIAGE	TFR
Benin	18.0	7.1
Cameroon	18.0	6.5
Ghana	19.0	6.5
Ivory Coast	18.0	7.4
Kenya	18.4	8.2
Lesotho	18.1	5.9
Mauritania	19.7	7.9
Nigeria	16.6	6.3
Senegal	16.4	7.1
Sierra Leone	15.7	6.2

Source: Senderowitz and Paxman (1985:9, Table 2)

* Only countries with available data

A study in Eastern Nigeria (Omideyi, 1983:150) found evidence of a negative relationship between age at marriage and fertility, as women who married before age 15, 15-19 and 20 or higher had an average of 5.4, 4.3 and 3.2 children respectively. Women in Cameroon who married before age 20 had an average of 4.4 children and those who married at age 20 or higher had an average of 3.9 children or less (World Fertility Survey [WFS], 1983a: 6). On the other hand, Emereuwaonu (1984: 86, Table 4), in his study of determinants of fertility in Kenya, found that age at marriage was not statistically significant in influencing fertility. It has been further observed that age at marriage is now rising in North Africa, but not in sub-Saharan Africa (WFS, 1984: 50), which suggests that age at marriage in sub-Saharan Africa would have very little impact on fertility decline.

Furthermore, it has been observed that marriage in sub-Saharan Africa is universal and that divorce and widowhood rates are high, as are rates of remarriage (Bongaarts, et al., 1984: 518-520). This observation has also been reported in the various World Fertility survey reports. Sudanese women experience early and universal marriage as well as high rates of divorce and remarriage (WFS, 1982: 4-6). Similar findings were reported for Kenya (WFS, 1979: 3-4) as well as for Lesotho (WFS, 1981a: 3-4). However, Chernichovsky (1984: 134), in his study of fertility behaviour in Botswana, observed that marriage in Botswana is not universal and that the society accepts extramarital fertility. Since most fertility occurs within marriage and because most of the countries in sub-Saharan Africa experience early and universal marriage, the implication is that there will be high fertility in the sub-region.

2.4 POLYGAMY AND FERTILITY

This section examines the literature on the effects of polygamy on fertility. It should be noted that the term polygamy will be used in this study to signify polygyny and not polyandry. The subject of polygamy is of interest in this study, because this type of marriage, in which a man has two or more wives, is common in Africa (McDonald, et al., 1981: 86), although it is also found in the Middle East (Muhsam, 1956). Polyandry, in which a woman has two or more husbands, is not found in Africa.

The effect of polygamy on fertility has been widely studied. Some of these studies in Africa have shown lower fertility for women in polygamous marriages than those in monogamous marriages. It is argued that the fertility of women in polygamous marriages is lower because they have lower frequency of sexual intercourse and also because second or higher order wives in polygamous marriages have older husbands than women in monogamous marriages (Bongaarts, et al., 1984: 521-522). Furthermore, it is argued that a monogamously married man is likely to take a second wife if the first wife is childless and also that polygamy facilitates the practice of postpartum abstinence which checks the overall fertility of African women (Molnos, 1973: 12). Muhsam (1956: 16), in his study of the effect of polygamy, observed that the fertility of women in polygamy was lower than the fertility of women in monogamy because of lower frequency of sexual intercourse. On the other hand, Olusunya (1971: 172) argued that women in polygamous unions would have lower frequency of sexual intercourse which would have any effect on their fertility only when the polygamous male has more than the usual number of wives (that is, 2 or 3). Newman and Lura (1983: 398) concluded that polygamy restricted the fertility of women as their study

of fertility control in Africa indicated lower fertility of women in polygamous marriages.

In his study of the fertility of 23 African cultures, Dorjahn (1959), found that in only 5 cultures were wives of polygamists as fertile or more fertile than wives of monogamists and concluded that the reasons for reduced fertility of women in polygamous marriages were higher marriage instability and higher incidence of venereal disease. Nag (1968: 97) examined the effect of polygamy on fertility taking a society as a unit and observed no significant difference in fertility between societies with a high incidence of polygamy and those with a low incidence of polygamy. Similarly, in his study of polygamy among African agricultural societies, Brabin (1984: 39) concluded that the evidence for lower fertility of women in polygamous marriages compared with those in monogamous marriages is inconclusive since the difference may be due to frequency of divorce, sterility, age differentials or sexual abstinence. The 1978 Cameroon Fertility Survey revealed no difference in the fertility of women in polygamous marriages and of those in monogamous marriages, and it was further noted that the difference in fertility relating to the rank of a wife in polygamous marriages was due to the effect of age (WFS, 1983a:6). Ahmed (1985: 47-49; 87-88), in his study of polygamy among the Yoruba of Western Nigeria, concluded that there was no difference in fertility between women in polygamous and monogamous unions.

The findings of these studies have not been consistent. Some have shown that women in polygamous marriages have lower fertility than women in monogamous marriages, while other studies found no difference. However, these studies suggest that, if women in polygamous marriages

have lower fertility than those in monogamous marriages, it is due to frequency of divorce, sterility, age differences or sexual abstinence and not necessarily due to frequency of intercourse.

2.5 KNOWLEDGE AND USE OF CONTRACEPTION

Studies show that contraception plays a very limited role in influencing fertility in sub-Saharan Africa (Bongaarts, et al., 1984: 525-526). Very few women were aware of any method of delaying or avoiding a pregnancy or were current users of any method of contraception. The 1979-80 Ghana Fertility Survey revealed that 9.5 per cent of all currently married women were using contraception (WFS, 1983b: 13); while in Kenya, only 7 per cent were using contraception according to the 1978 Kenya Fertility Survey (WFS, 1979: 10); and in Lesotho, only 5 per cent were using contraception according to the 1977 Lesotho Fertility Survey (WFS, 1981a: 10). The low level of contraceptive practice in Africa is unlikely to have any impact on the overall fertility of the region. Moreover, use of contraception does not necessarily lead to reduced fertility because most of those who practice contraception in Africa and in other developing countries, are women who already have above average fertility (Ware, 1981: 80). Heisel (1968: 636), in his study of attitudes to and practice of contraception in Kenya, based on a 1966 sample of 744 ever-married rural women aged 15-49, noted that all women who wanted to stop childbearing were so old that they were nearing the end of their childbearing period. He observed that 20 and 36 per cent of women in age-groups 25-29 and 30-34 respectively, compared with 44, 65 and 69 per cent of women in age-groups 35-39, 40-44 and 45-49 reported that they had enough children.

The practice of sexual abstinence during breastfeeding and the observance of terminal sexual abstinence in sub-Saharan Africa have similar effects on fertility to that of contraception, although the objectives of these practices may be different. Similarly, prolonged lactation may inhibit fertility because it extends the period of postpartum amenorrhoea (Van Ginneken, 1974: 203; Newman and Lura, 1983: 397) during which women cannot conceive. In some societies, the duration of postpartum abstinence is shorter than the period of breastfeeding, but where the duration of postpartum abstinence is more prolonged, so is also the duration of breastfeeding (Nag, 1983: 179). The duration of postpartum sexual abstinence was longer in West Africa than East Africa where the practice of coitus interruptus was common (Newman and Lura, 1983: 398). The practices of breastfeeding and postpartum abstinence as well as coitus interruptus were intended to extend the duration of childspacing for health reasons rather than to limit the ultimate number of children. Caldwell and Caldwell (1981: 73-74) argue that indigenous contraceptive practices have not been aimed at limiting family size, but at preventing undesired conceptions, such as those resulting from premarital or extra-marital relations, and also at avoiding closely spaced births.

Anthropological studies have found that the practice of sexual abstinence to be widespread among various societies in Tanzania and Malawi during breastfeeding, mourning of a death of a close relative, and during initiation ceremonies (Tew, 1950; Beildelman, 1973: 262). Hautvast-Mertens (1973: 252) noted that postpartum contraceptive practices, of which coitus interruptus was most important, were prevalent among the Nyakyusa of Rungwe District in Tanzania. Similarly, Wilson (1973: 249), in her study of the Nyakyusa of the Tanzania-Malawi

borderland noted the practice of coitus interruptus during breastfeeding for a period of two years up to the time of weaning the child, and she further observed that in polygamous unions, lactating mothers abstained from sexual contact completely until the child was weaned. Tew (1950: 19), in her study of the people of the Lake Nyasa Region (now Malawi), observed that, although sexual intercourse among the Yao women resumed after a child was four or five months old, no second child was born while the first one was still being breastfed, which was about two years. This implies that they probably practised coitus interruptus, which was a common method of contraception in the sub-region.

It should be noted that factors, such as education and urbanization have an effect on contraception. Education may lead to greater awareness and possibly to greater use of modern contraceptive methods as well as a decline in the practice of prolonged breastfeeding and postpartum sexual abstinence. Urbanization may also have similar effects on contraception to those of education. Caldwell and Caldwell (1981: 80, Table III), in their study of the 1974-75 Nigerian Segment of the Changing African Family Project, found that both husband and wife's education had negative effects on the average duration of breastfeeding and postnatal abstinence among the Yoruba women of Western State in Nigeria.

Using Bongaarts' indices to measure the impact of contraception on fertility, studies in Nigeria (Bongaarts, 1981: 119; Orubuloye, 1981: 234), Ghana (Gaisie, 1984: 42) and Kenya (Mosley, et al., 1982: 20), indicated very little or no impact. These studies suggest that the fertility-reducing impact of contraception is very little among African societies and this is consistent with the low levels of knowledge and use of modern contraceptives.

This section has reviewed the literature on contraception. Practices of sexual abstinence and coitus interruptus during the period of breastfeeding were included because, although they are not regarded by other authors (for example, Bongaarts, et al., 1984: 516) as contraceptive methods, they still have a fertility-reducing effect. However, the major observation from these studies is that the fertility-reducing effect of all contraception among African societies is very little.

2.6 PLACE OF RESIDENCE AND FERTILITY

This section reviews literature on fertility differentials by place of residence in terms of urban and rural categories. Some studies of sub-Saharan Africa have revealed lower fertility for urban women than for rural women, while others have revealed either higher fertility for urban women than for rural women or no difference in the fertility of urban and rural women. Conde (1971: 79), however, noted that most countries in Tropical Africa have higher fertility in rural areas than in urban areas.

On the bases of the mean number of children ever born to ever-married women, the Nigeria Fertility Survey 1981/82 revealed that urban women in Nigeria (with an average of 3.3 children) have lower fertility than rural women (who have an average of 3.8 children) (National Population Bureau, 1984: 72 Table 2.2.5B). Based on data from the Sudan Fertility Survey 1979, there appears to be no difference in fertility between urban and rural women in Sudan when fertility is measured in terms of mean number of children ever born to ever-married women (4.2 children for both urban and rural women). However, when fertility is

measured in terms of total fertility rate, urban women in Sudan appeared to have lower fertility (5.1 children) than rural women (6.4 children) (WFS, 1982: 8).

Similarly, according to the Senegal Fertility Survey 1978, there appears to be no difference in the fertility of urban and rural women when fertility is measured by mean number of children ever born; but in the terms of total fertility rate, urban women appeared to have lower fertility (6.5) than rural women (7.5). In contrast, when fertility is measured in terms of total marital fertility rate, urban women in Senegal had slightly higher fertility (8.2) than rural women (8.0) (WFS, 1981b: 7-10). The Cameroon Fertility Survey 1978 showed a marital fertility rate of 7.0 and 6.5 for urban and rural women aged 15-39 (WFS, 1983a: 8).

On the other hand, Alam and Casterline (1984: 16 Table 14), in their comparative study of socio-economic differentials in fertility, found that in Ghana, Kenya, Lesotho, Senegal and Sudan, urban women have lower fertility than rural women. Rodriguez and Cleland (1981: 366-367), in their study of the socio-economic determinants of marital fertility in twenty countries including one country in Africa (Kenya), concluded that a rural-urban differential in fertility is universal and that where urban fertility is higher than rural fertility, it might be because of the short history of the urban population who still have a rural background.

According to the 1977 Malawi Population Census, urban women in Malawi had lower fertility than rural women (NSO, 1984: 2-5). Urban women had an average of 2.8 children while rural women had 3.8 children.

Furthermore, the total fertility rate for urban women was 7.2 while for rural women, it was 7.6 children.

These studies suggest that urbanization sometimes has an influence on fertility. The impact of urbanization on fertility can be positive or negative. It was observed in Sudan that as urban women constitute a small proportion of the total women, urbanization may not have an appreciable impact on the overall level of fertility (WFS, 1982: 12). This could also be true for most of the countries in sub-Saharan Africa. However, it should be noted that other variables, such as education and occupation, which are related to urbanization, could also influence fertility. These variables will be discussed in the next sections.

2.7 EDUCATION AND FERTILITY

The role of education on fertility is one of the concerns in fertility determinants. Attempts have been made to establish and understand the relationship between education and fertility. Most studies have shown an inverse relationship between education and fertility, while others have shown either a positive, a curvilinear or no relationship (Cochrane, 1979: 6-10).

Education affects fertility through the intermediate variables such as age at marriage, breastfeeding or contraception (Conde and Boute, 1971: 8-10; Arora, 1983: 39-40; Bongaarts, et al., 1984: 516). It is argued that education raises the age at marriage which reduces the period of childbearing and thus lowers fertility. This assumes that women who marry at later ages would not have shorter birth intervals

than women who marry at early ages. However, women's education may shorten the duration of breastfeeding which leads to shorter birth intervals and thus increased fertility, and higher educational levels for women may reduce their probability of marrying and since most fertility occurs among married women, this will also lower fertility (Cochrane, 1979: 72-74; Ware, 1981: 82; Rodriguez and Cleland, 1981: 385-386). Education may also lead to a greater awareness and use of contraceptives, which would further influence fertility. Holsinger and Kasarda (1976: 156-196) noted that education influences fertility through changing the individual's attitudes, values and beliefs towards family size and contraception besides raising the individual's age at marriage.

The literature concerning the relationship between education and fertility suggests that an inverse relationship between education and fertility is considerably stronger and more consistent for females than for males and that male's education tends to have a positive relationship with fertility (Cochrane, 1979; Ware, 1981: 79-81). It has also been noted that education is more likely to increase fertility in countries with low levels of female education through improved health, better nutrition and abandoning of traditional practices of prolonged lactation and postpartum abstinence. Caldwell (1981: 107-108), in his study of fertility in Africa, observed that fertility of women with no education is significantly lower than those with some education and that fertility of women with secondary or higher education is lower than those with no education. Studies in Kenya (WFS, 1979: 7), Lesotho (WFS, 1981a: 7), Tanzania (Ewbank, 1977) and Senegal (Alam and Casterline, 1984: 20), have also found this curvilinear relationship between female education and fertility, whereby both the illiterate and the highly

educated women have lower fertility than women who have some primary education. In Kenya women aged 15-49 with lower primary education had a total fertility rate of 9.2 compared with 8.3, 8.4 and 7.3 for women with no education, upper primary and secondary or higher education respectively (Alam and Casterline, 1984: 20 Table 5). In Lesotho, the values based on total fertility rates were 5.8, 6.1, 5.6 and 4.5 children for women with no schooling, lower primary, upper primary and secondary or higher levels of education respectively. In Senegal, the total fertility rate, for women aged 15-49 were 7.3, 9.4, 6.3 and 4.5 for no education, lower primary, upper primary and secondary or higher education respectively.

Some studies such as in Eastern Nigeria (Omideyi, 1983: 149-151) and Sudan (Alam and Casterline, 1984: 20) revealed an inverse relationship between woman's education and fertility. In Eastern Nigeria women with no education had an average of 5.2 children and those with secondary or higher education had an average of 3.0 children; and in Sudan, women with no education had a total fertility rate of 6.5 and those with secondary or higher education had a total fertility rate of 3.4.

The evidence from the 1977 census data suggests that female education in Malawi has an inverse relationship with fertility (NSO, 1984: 5-6). Women who had no education had an average of 4.3 children, while women with primary, secondary and university education had an average of 2.9, 1.6 and 1.3 children respectively. The inverse relationship between education and fertility was observed in both rural and urban areas as well as in all three regions of the country. However, the difference between these values could be due to age

differentials in that women with some education are relatively young and have been exposed to childbearing for a short period.

2.8 HUSBAND'S OCCUPATION AND FERTILITY

This section reviews literature on husband's occupation and fertility of spouse. Husband's occupation has been widely used in the study of fertility differentials and it has been observed that women who have husbands whose occupations are in primary industries, particularly agriculture and mining, have high fertility, while those whose husbands are professional and urban industrial workers have lower fertility (UN, 1981a: 168).

Alam and Casterline (1984: 20-26) found that fertility differentials by husband's occupation were modest in Africa compared with Asia and South America, which showed substantial differentials. They further observed that in countries where substantial differentials existed, women whose husbands were agricultural workers had highest fertility while women whose husbands were white collar workers had lowest fertility. The African countries included in their study were Ghana, Kenya, Lesotho, Senegal and Sudan. They observed that in Ghana, Kenya, Senegal and Sudan the total marital fertility of women aged 30-44 whose husbands were agricultural workers was higher than those whose husbands were professional or clerical workers. However, using the total marital fertility rate during the first 20 years of marriage, in Kenya and Senegal, women whose husbands were agricultural workers appeared to have lower fertility than those whose husbands were professional or clerical workers, just as in Lesotho. The total fertility rates during the first 20 years of marriage for women whose husbands were agricultural workers were 6.8 (Kenya), 5.3 (Lesotho) and 6.1 (Senegal),

and for those whose husbands were professional or clerical workers were 7.0 (Kenya), 5.8 (Lesotho) and 6.4 (Senegal) (Alam and Casterline, 1984: 26, Table 6).

Mosley, et al., (1982: 14), in their study of the dynamics of birthspacing and marital fertility in Kenya, found that women whose husbands were agricultural workers or household servants had slightly lower fertility than women whose husbands were professional, clerical, manual, sales or service workers. According to them, this pattern of fertility differentials was due to the fact that women whose husbands were not agricultural workers or household servants had shorter durations of breastfeeding and lactational amenorrhoea which were not compensated by contraception.

The mean number of children ever born to women in Lesotho whose husbands were agricultural workers was slightly higher than that of women whose husbands were not agricultural workers (Central Bureau of Statistics, 1981: 98 Table 5.13). In Nigeria (National Population Bureau, 1984: 75 Table 2.2.5E) and Sudan (Department of Statistics, 1982: 55), women whose husbands were service workers had slightly more children ever born on average than women whose husbands were agricultural or professional workers. In Lesotho and Nigeria, women whose husbands were agricultural workers had an average of 3.8 children and those whose husbands were professional workers 3.3 children. On the other hand, in Sudan, women whose husbands were professional and those whose husbands were agricultural workers had an average of 4.1 children compared with 4.4 children for women whose husbands were service workers. However, these differences in fertility between husband's occupation groups are quite small. The evidence from these studies

suggests that husband's occupation has very little impact on the fertility of the spouse in sub-Saharan Africa.

2.9 DISCUSSION

Generally it has been found that countries in sub-Saharan Africa have high fertility and that Malawi, with a total fertility rate of 7.6, is no exception. The studies reviewed have shown that age at marriage is negatively related with fertility, but it has very little fertility reducing effect in sub-Saharan Africa. Some studies have revealed lower fertility for women in polygamous marriages, while others have shown no difference between the fertility of women in polygamous marriages and those in monogamous marriages. The findings of these studies in respect of fertility differentials by type of marriage have not therefore been consistent.

Furthermore this review indicates that contraception has little impact on fertility in sub-Saharan Africa. Levels of knowledge and use of contraception are low. Similarly urbanization appears to have little impact on fertility in sub-Saharan Africa because of its low levels.

From these studies, woman's education appears to have greater impact on fertility than husband's education. However, the relationship between women's education and fertility has not been consistent in all studies, some of which revealed a negative or a curvilinear relationship between education and fertility. On the other hand, husband's occupation appears to have little impact on fertility. The factors reviewed here will be examined in the next chapters in order to identify major determinants of fertility of women enumerated in the survey in Mzimba District, Malawi.

CHAPTER 3

FERTILITY DIFFERENTIALS

3.1 INTRODUCTION

This chapter examines differentials in fertility in order to identify factors influencing the fertility of sampled women in Mzimba District. The mean number of children ever born alive is used as the measure of fertility. The factors to be examined, controlling for age in the forthcoming analyses, include place of residence, age at first marriage, education, type of marriage and husband's occupation.

3.2 PLACE OF RESIDENCE AND FERTILITY

The 1984 Family Formation Survey was conducted on a de facto basis in conformity with previous surveys including the 1977 population census (NSO, 1980: X). For this reason, the place of residence implies also the respondent's place of enumeration.

The 1984 survey reveals that urban women in Mzimba District have an average of 3.1 children while rural women have an average of 3.4 children (Table 3.1). The level and pattern of fertility of sampled women in Mzimba District in 1984 appears similar to the national and regional level and pattern of fertility as observed in 1977, despite the fact that these are not estimates of fertility of the whole of Mzimba. In fact the 1977 census data indicate that average fertility levels of women in Northern Region are similar to the national averages. The regional differentials in fertility reveal that the fertility of women

in Central Region is highest followed by that of Northern Region and then Southern Region. The total fertility rates for Northern, Central and Southern Region are 7.8, 8.1 and 7.2 respectively according to the 1977 census data (NSO, 1984: 8-9). Urban women have a total fertility rate of 7.4 in Northern Region, 7.5 in Central Region and 6.9 in Southern Region. The fertility of rural women according to the 1977 census is as high as the national average due to the heavy weight of rural population, about 92 per cent of the total population (5,547,000). In Northern Region, the rural population is about 93 per cent of the regional total population (649,000), which is also the proportion of rural population in Mzimba District (301,000). The population of Mzuzu comprises 36 per cent of the regional urban population (45,000).

Furthermore, the levels and patterns of fertility in Malawi during the periods 1971/72 and 1976/77 appear to be similar (NSO, 1984: 25-26). This is an indication of constant fertility due to the absence of family planning programmes in Malawi. When the data in Table 3.1 were standardized for age, the difference in the fertility of urban and rural women appears negligible. The impact of urbanization on fertility cannot be very strong in Malawi because the population is not highly urbanized. Most people live in urban areas simply for employment purposes and not on a permanent basis, and the proportion of urban population, 8 per cent, is very small. Circulatory migration of male workers is prevalent in Malawi. They periodically leave their families in rural areas to find work in urban areas during slack agricultural seasons so as to supplement their rural incomes (World Bank, 1981: 6-7). Sometimes their families join them in the urban areas if ever they have employment. Hence women with rural backgrounds and values were included

TABLE 3.1

MEAN NUMBER OF CHILDREN EVER BORN ALIVE
TO ALL WOMEN BY AGE AND PLACE OF RESIDENCE:
MALAWI AND NORTHERN REGION, 1977 AND 1984.

PLACE OF RESIDENCE & AGE (YEARS)	MALAWI 1977(1)	NORTHERN REGION	
		ALL DISTRICTS 1977(1)	MZIMBA (UNWEIGHTED) 1984(2)
URBAN			
15-19	0.4 (23475)	0.4(2565)	0.5(44)
20-24	1.8(24992)	1.9(2417)	1.3(26)
25-29	3.4(20965)	3.5(1848)	3.6(35)
30-39	5.3(22777)	5.4(2370)	5.3(34)
40-49	6.4(11518)	6.3(1376)	6.7(18)
ALL AGES	3.1(103727)	3.2(10576)	3.1(157)
ADJUSTED MEANS	3.3	3.3	3.3
RURAL			
15-19	0.5(256543)	0.4(34539)	0.3(101)
20-24	2.0(229157)	2.0(25401)	1.6(94)
25-29	3.6(212274)	3.7(20746)	3.3(72)
30-39	5.6(283293)	5.6(32706)	5.5(92)
40-49	6.8(210823)	6.6(25531)	7.2(76)
ALL AGES	3.6(1192090)	3.5(138923)	3.4(435)
ADJUSTED MEANS	3.5	3.5	3.4

Sources: (1) NSO, 1980: 102-104 (calculations based on Table 2.2.1)
(2) Family Formation Survey 1984 (Mzimba District Dataset)

NOTE: (a) Adjusted means have been standardized for age based on 1984 distribution of rural women.
(b) Figures in brackets in this and subsequent tables refer to number of cases.

in the urban population if they were found in urban areas during the survey enumeration. The period of the survey enumeration (May-July) was during the slack period of agricultural activities.

It may be useful to examine urban-rural fertility differentials for ever-married women since the fertility of all women appears to indicate no difference between fertility of urban and rural women. Table 3.2 shows averages of 3.9 and 4.1 children ever born to ever-married urban and rural women respectively. Standardizing for age, the ever-married urban women have an average of 4.0 children ever born compared with an average of 4.1 children ever born to ever-married rural women. The t-test shows that the difference between the fertility of urban and rural women is not significant ($p = 0.61$).

Similarly, the mean numbers of children ever born by woman's current age clearly show no difference between the fertility of urban and rural women except for women aged 40-49 years who have an average of 6.7 and 7.2 children ever born for urban and rural areas respectively (Table 3.2). However, a t-test also shows that the difference between the fertility of urban and rural women aged 40-49 is not significant ($p = 0.42$). These findings suggest that there are no urban and rural fertility differentials.

TABLE 3.2

MEAN NUMBER OF CHILDREN EVER BORN ALIVE
TO EVER-MARRIED WOMEN BY AGE OF MOTHER
AND PLACE OF RESIDENCE, 1984

AGE (YEARS)	PLACE OF RESIDENCE		
	URBAN	RURAL	ALL AREAS*
15-19	1.0(19)	0.8(37)	0.8 (56)
20-24	1.8(16)	1.8(82)	1.8 (98)
25-29	3.7(33)	3.4(71)	3.5(104)
30-39	5.5(33)	5.5(92)	5.5(125)
40-49	6.7(18)	7.2(75)	7.1 (93)
ALL AGES (15-49)	3.9(119)	4.1(357)	4.0(476)
ADJUSTED MEANS	4.0	4.1	4.0

Source: Family Formation Survey, 1984 (Mzimba District Dataset)

NOTE: Adjusted means have been standardized by age of all ever married women.

* The category of "All areas" in this and subsequent tables refers to the sum of unweighted data for urban and rural areas in Mzimba District.

3.3 AGE AT FIRST MARRIAGE AND FERTILITY

Under conditions of natural fertility, the age at first marriage of women is a very important determinant of fertility. It is the beginning of a woman's exposure to conception. The age at marriage is the determinant of the average length of time a woman is exposed to the risk of childbearing (McCarthy, 1982: 7). It is expected that women who marry at early ages would have more children than those who marry at later ages (Arora, 1983: 48-49). This argument presupposes a situation of stable married life and natural fertility as defined by Henry (1979). Marriage stability may be affected by divorce, death, temporary separation or frequency of remarriage.

According to this study, about 61 per cent of total ever-married women married before the age of 18 years. The 1977 census showed that the average age at marriage for women in Northern Region is around 18.4 years (NSO, 1984: 12).

Table 3.3 shows higher fertility among women who married at early ages than among those who married at later ages. The mean number of children born to women who married before age 18 is 4.2 compared with an average of 3.8 children born to women who married at 18 or higher. Rural women who married before age 18 have an average of 4.3 children and those who married at age 18 or higher have an average of 3.7 children. Urban women who married before age 18 have an average of 4.0 children as compared with 3.8 children born to women who married at age 18 or higher.

TABLE 3.3

MEAN NUMBER OF CHILDREN EVER BORN TO
EVER-MARRIED WOMEN BY AGE AT FIRST
MARRIAGE AND PLACE OF RESIDENCE, 1984

PLACE OF RESIDENCE	AGE AT FIRST MARRIAGE		TOTAL
	<18	18+	
URBAN			
Observed means	4.0(67)	3.9(52)	3.9(119)
Adjusted means	4.1	3.7	4.0
RURAL			
Observed means	4.3(224)	3.7(133)	4.1(357)
Adjusted means	4.3	3.7	4.1
ALL AREAS			
Observed means	4.3(291)	3.7(185)	4.0(476)
Adjusted means	4.3	3.7	4.0

Source: Family Formation Survey, 1984 (Mzimba District Dataset)

NOTE: Adjusted means have been standardized by age.

When the data in Table 3.3 were standardized for age, women who married at early ages still had higher fertility than those who married at later ages. The standardized mean number of children born to women who married before age 18 was 4.3 compared with an average of 3.7 children born to women who married at age 18 or higher. From this analysis, age at marriage appears to have an inverse relationship with fertility. Women who married at early ages have higher fertility than those who married at later ages in both urban and rural areas. A t-test indicates that the difference between fertility of women who married before age 18 and those who married at age 18 or higher is statistically significant at the 5 per cent significance level for rural women and not significant for urban women (for urban, $p = 0.918$; for rural, $p = 0.027$; and for all areas, $p = 0.045$).

3.4 POLYGAMY AND FERTILITY

The 1977 census indicated that the incidence of polygamy in Malawi is highest among the people of Northern Region, based on information on mean number of wives per ever-married males, and that marriages are more stable in Northern and Central Region than in Southern Region (NSO, 1984: 12-14). It would appear that the system of paying brideprice in Northern Region contributes to the high incidence of polygamy and stability of marriages, since divorce would mean either the woman's father would have to refund the number of cattle paid as brideprice if she initiated the divorce or the husband would lose his investment in the marriage, including the brideprice, if he initiated the divorce and could not justify his reasons. This section examines the effect of polygamy on fertility.

The observed data in Table 3.4 suggest that women in polygamous marriages have higher fertility than those in monogamous marriages. Women in polygamous marriages had an average of 4.6 children ever born and women in monogamous marriages had an average of 3.8 children ever born. A t-test indicates that the difference in fertility of women in polygamous and monogamous marriages is significant ($p = 0.006$). Furthermore, the t-test is also significant for rural women ($p = 0.01$) but not significant for urban women ($p = 0.309$). However, after controlling for age, there is not much difference in the fertility of women in polygamous marriages and those in monogamous marriages. Urban women in polygamous marriages had an average of 4.0 children and those in monogamous marriages had an average of 3.8 children, while rural women displayed no difference in fertility (an average of 4.1 children after standardization).

The data in Table 3.4 further show that women who were first wives in polygamous marriages had higher fertility (5.5 children) compared with women who were second or higher order wives (4.2 children). This pattern is observed in both urban and rural areas. A t-test indicates that the difference in fertility of first and second or higher order wives in polygamous marriages is statistically significant ($p = 0.007$). Even after controlling for age, first wives in polygamous marriages still have higher fertility (4.7 children) than second or higher order wives (3.7 children). These results suggest that the difference in fertility of first and second or higher order wives is not due to differences in age.

The system of polygamy is part and parcel of the tradition of the people of Northern Region. A man may become polygamous either through his own choice or through outside pressure. He may have another wife

TABLE 3.4

MEAN NUMBER OF CHILDREN EVER BORN ALIVE TO
EVER-MARRIED WOMEN BY TYPE OF MARRIAGE AND
PLACE OF RESIDENCE, 1984

TYPE OF MARRIAGE	PLACE OF RESIDENCE					
	URBAN		RURAL		ALL AREAS	
	OBSERVED MEANS	ADJUSTED MEANS	OBSERVED MEANS	ADJUSTED MEANS	OBSERVED MEANS	ADJUSTED MEANS
MONOGAMY	3.8(88)	3.8	3.8(258)	4.1	3.8(346)	4.1
POLYGAMY	4.4(31)	4.0	4.7(99)	4.1	4.6(130)	4.0
FIRST WIFE	5.2(13)	*	5.6(32)	4.9	5.5(45)	4.7
SECOND OR HIGHER ORDER WIFE	3.7(18)	3.7	4.3(67)	3.7	4.2(85)	3.7
ALL WOMEN	3.9(119)	3.9	4.1(357)	4.0	4.0(476)	4.0

Source: Family Formation Survey, 1984 (Mzimba District Dataset)

NOTE: Adjusted means have been standardized by the age distribution of all ever-married women in the sample.

* Not calculated because of small number.

provided that he pays the brideprice or he may be persuaded to marry a younger sister of his wife as his second wife by his in-laws if they are satisfied that their daughters will have a good and successful family. Childbearing is a priority. If a woman cannot have children, it is a sufficient reason for divorce. Under the system of brideprice, there is strong pressure for a woman to have many children to justify the husband's payment of brideprice. Children remain with the man in the case of divorce, separation or death.

The analysis suggests that there is no difference between the fertility of women in polygamous marriages and those in monogamous marriages. However, among women in polygamous marriages, there are some differences in the fertility of the first wife and the second or higher order wife. These findings appear similar to the findings of studies in Cameroon (WFS, 1983a: 6) and in Nigeria (Ahmed, 1985: 87-88) as noted in Chapter 2.

3.5 EDUCATION AND FERTILITY

This section examines fertility differentials by education. Woman's education will be examined first and then husband's education. Table 3.5 reveals an inverse relationship between woman's education and fertility. Women who had no education had 5.1 children on average compared with 3.3 children ever born to women with upper primary or higher education. Urban women who had no education had an average of 4.9 children and women with upper primary or higher education had an average of 3.7 children. Rural women with no education had an average of 5.1 children compared with 3.0 children ever born to women with upper primary or higher education.

TABLE 3.5

MEAN NUMBER OF CHILDREN EVER BORN ALIVE TO
EVER-MARRIED WOMEN BY EDUCATION OF THE WOMEN
AND THEIR HUSBANDS BY PLACE OF RESIDENCE, 1984

EDUCATION LEVEL	PLACE OF RESIDENCE					
	URBAN		RURAL		ALL AREAS	
	OBSERVED MEANS	ADJUSTED MEANS	OBSERVED MEANS	ADJUSTED MEANS	OBSERVED MEANS	ADJUSTED MEANS
WOMAN'S EDUCATION						
NONE	4.9(17)	3.9	5.1(134)	4.4	5.1(151)	4.3
LOWER PRIMARY	4.5(12)	*	4.3(86)	4.1	4.3(98)	4.1
UPPER PRIMARY OR HIGHER	3.7(90)	3.9	3.0(137)	3.8	3.3(227)	3.8
HUSBAND'S EDUCATION						
NONE)	4.1(77)**	4.0	4.5(37)	4.3	4.3(41)	4.1
PRIMARY)			4.0(279)	4.0	4.1(352)	4.0
SECONDARY OR HIGHER	3.6(42)	4.1	3.1(41)	4.0	3.4(83)	4.0
TOTAL	3.9(119)	3.9	4.1(357)	4.0	4.0(476)	4.0

Source: Family Formation Survey, 1984 (Mzimba District Dataset)

* Not calculated because of small number of cases, less than 15.

** Includes 4 cases for no education.

After standardizing for age, there is still a negative relationship between education and fertility among rural women while there appears to be no difference in the fertility of urban women by education. Rural women with no education had an average of 4.4 children and those with upper primary or higher education had an average of 3.8 children. On the other hand, urban women had an average of 3.9 children irrespective of educational level. That is, the difference in fertility of urban women by educational levels is merely due to differences in age. However, due to small numbers of urban women with no education compared with the number of women with upper primary or higher education, one cannot put much weight on the evidence for no difference in fertility between educational levels in urban areas.

The 1977 census data also showed an inverse relationship between education and fertility. Women in Northern Region who had no schooling had an average of 4.7 children and those with primary, secondary and university education had an average of 2.9, 1.3 and 0.9 children respectively (NSO, 1984: 5-6). Rural women had an average number of children born that was similar to the regional averages, while urban women with no schooling had an average of 4.6 children compared with an average of 0.8 children for women with university education.

As has been noted in Chapter 2, Cochrane (1979) observed that an inverse relationship between education and fertility is much more consistent for females than for males, and that husband's education tends to increase the perceived ability to afford children. Also, according to Anker and Knowles (1982: 31-32), the relationship between husband's education and fertility is indeterminate.

In this study, husband's education appears to have no influence on fertility after controlling for age of spouse (Table 3.5). Women whose husbands had no education had an average of 4.1 children compared with 4.0 children ever born to women whose husbands had some education. A t-test indicates that the difference in fertility of women whose husbands have no education and those whose husbands have some education is not significant, confirming the point that husband's education has no effect on the fertility of the spouse.

This section has examined the effect of education on fertility. The differentials indicate that the fertility of rural women with no education is higher than those with some education, even after controlling for age. In the case of urban women, the evidence appears to indicate that any difference in fertility by education is due to age differences. However the data for urban women should be treated with caution due to small numbers of women with lower levels of education. Furthermore, this study indicates that husband's education has no impact on the fertility of the spouse.

3.6 HUSBAND'S OCCUPATION AND FERTILITY

Husband's occupation has been classified in the analysis into agricultural and non-agricultural workers. Rodriguez and Cleland (1981: 373), in their study of socio-economic determinants of marital fertility in twenty countries, noted that women whose husbands were agricultural workers had higher fertility than those whose husbands were non-agricultural workers, except in Indonesia. They further observed that husband's occupation appeared to be a more important determinant of marital fertility in Asia than in other regions.

TABLE 3.6

MEAN NUMBER OF CHILDREN EVER BORN ALIVE TO
EVER-MARRIED WOMEN BY HUSBAND'S OCCUPATION
AND PLACE OF RESIDENCE, 1984

HUSBAND'S OCCUPATION	PLACE OF RESIDENCE		
	URBAN	RURAL	ALL AREAS
AGRICULTURAL WORKERS			
OBSERVED MEANS	3.3(23)	4.2(250)	4.1(273)
ADJUSTED MEANS	3.2	4.1	4.0
NON-AGRICULTURAL WORKERS			
OBSERVED MEANS	4.1(96)	3.9(107)	4.0(203)
ADJUSTED MEANS	4.2	4.0	4.1
ALL OCCUPATIONS			
OBSERVED MEANS	3.9(119)	4.1(357)	4.0(476)
ADJUSTED MEANS	3.9	4.1	4.0

Source: Family Formation Survey, 1984 (Mzimba District Dataset)

NOTE: Adjusted means have been standardized for age.

The data for Mzimba District reveal very slight difference in the fertility of women whose husbands were agricultural workers compared with the fertility of women whose husbands were non-agricultural workers (Table 3.6). The mean number of children for women with husbands who were agricultural workers was 4.1 and an average of 4.0 children for women whose husbands were non-agricultural workers. Based on the standardized mean number of children, urban women whose husbands were agricultural workers had lower fertility (3.2 children) than women with husbands who were non-agricultural workers (4.2 children). However, numbers of urban women are small, especially those whose husbands were agricultural workers. After standardizing for age, husband's occupation appears to have no impact on the fertility of rural women.

A t-test indicates that the effect of husband's occupation on the fertility of the spouse is not statistically significant (for urban, $p = 0.183$; for rural, $p = 0.372$; and for all areas, $p = 0.659$). This is contrary to the observations of other studies of developing countries, that women whose husbands were engaged in agriculture tend to have more children than women whose husbands were in non-agricultural occupations (UN, 1981a; 168-169).

3.7 A MULTIVARIATE ANALYSIS OF THE DETERMINANTS OF FERTILITY

The analysis so far has been in the form of cross-classification of data which identifies the relationship between each factor and fertility. On the other hand, a multivariate analysis helps to find out the net effect of each factor on fertility and how well the predictor variables explain the variation in the dependent variable (Srinivasan, 1979: 98-100). Multiple classification analysis (MCA), one of the

multivariate analysis techniques, will be used in this section to examine the net effect of each factor on fertility.

The MCA techniques were originally developed by Yates in 1934 and were further elaborated by Anderson and Bancroft in 1952 (UN, 1979: 120). Andrews, et al., (1973) have thoroughly documented the computer programs for these techniques. This analysis uses the MCA program in the Statistical Package for the Social Science (SPSS), described by Kim and Kohout (1975: 409-433). The analysis has been done using data for the total sample because one of the limitations of MCA is that it requires a considerable number of cases (Andrews, et al., 1973: 17-27).

The variables included in the analysis are woman's education, age at marriage and type of marriage as independent variables with the mean number of children ever born to ever-married women as the dependent variable. Woman's current age has been used as a covariate because fertility is related to woman's age. Place of residence and husband's education and occupation have been excluded in this analysis because the earlier tabulations, in which t-tests were applied, have shown that these variables have no significant effect on fertility.

The analysis of variance in Table 3.7 indicates that age at marriage is the only variable which has a significant effect on fertility and that no two-way interaction is significant. The multiple classification analysis in Table 3.8 indicates that age at marriage has a very strong inverse relationship with fertility. After adjusting for the effects of the other independent variables and the covariate, women who married before age 18 years had an average of 4.3 children compared with an average of 3.7 children born to women who married at age 18 or higher. This is consistent with the results of the analysis of the

TABLE 3.7

ANALYSIS OF VARIANCE OF COVARIATE, MAIN
EFFECTS AND TWO-WAY INTERACTIONS OF
VARIABLES INFLUENCING FERTILITY

SOURCE OF VARIATION	SUM OF SQUARES	DEGREES OF FREEDOM	MEAN SQUARE	F	SIGNIFICANCE OF F
COVARIATE					
(1) Age	2285.788	1	2285.788	783.535	0.000
MAIN EFFECTS					
(2) Education	2.352	2	1.176	0.403	N.S.
(3) Age at Marriage	59.407	1	59.407	20.364	0.000
(4) Type of Marriage	4.537	1	4.537	1.555	N.S.
TWO-WAY INTERACTIONS					
(2) x (3)	1.380	2	0.690	0.236	N.S.
(2) x (4)	2.921	2	1.461	0.501	N.S.
(3) x (4)	3.084	1	3.084	1.057	N.S.
EXPLAINED	3366.450	10	236.645	81.118	0.000
RESIDUAL	1356.533	465	2.917		
TOTAL	3722.983	475	7.838		

N.S. = Not significant because values were greater than 0.05.

TABLE 3.8

EFFECTS OF PREDICTOR VARIABLES ON NUMBER OF
CHILDREN EVER BORN ALIVE TO EVER-MARRIED
WOMEN CONTROLLING FOR AGE

PREDICTOR VARIABLE	NUMBER OF CASES	UNADJUSTED		ADJUSTED (2)	
		DEVIATIONS(1)	ETA	DEVIATIONS(1)	BETA
EDUCATION					
NONE	151	1.01		0.02	
LOWER PRIMARY	98	0.24		0.12	
UPPER PRIMARY+	227	-0.78	0.28	-0.07	0.03
AGE AT MARRIAGE (YEARS)					
<18	291	0.20		0.29	
18+	185	-0.32	0.09	-0.45	0.13
TYPE OF MARRIAGE					
MONOGAMY	346	-0.22		0.06	
POLYGAMY	130	0.58	0.13	-0.16	0.04
MULTIPLE R-SQUARED					0.634
TOTAL WOMEN					476
GRAND MEAN					4.05

Source: Family Formation Survey, 1984, (Mzimba District Dataset).

NOTES: (1) Deviations from grand mean.
(2) Adjusted for effects of the other independent variables
and the covariate.

differentials in fertility by age at marriage in which an inverse relationship between age at marriage and fertility was shown.

The multivariate analysis further indicates that education has no significant effect on fertility. Women with no education had an average of 4.1 children while those with lower primary education had an average of 4.2 children and those with upper primary or higher education had an average of 4.0 children. These differences are very small despite the indications of a curvilinear relationship between education and fertility. In this study there were very few women with secondary or higher education, so it may be difficult to observe any impact of education on fertility. The earlier analysis indicated an inverse relationship between education and fertility, because it did not consider the effects of factors other than age on fertility.

Furthermore, the multivariate analysis also suggests that, although the fertility of women in monogamous marriages was slightly higher than that of women in polygamous marriages, the difference is not significant. After adjusting for the effects of the other independent variables and the covariate, women in monogamous marriages had an average of 4.1 children while women in polygamous marriages had an average of 3.9 children, only a very small difference. This is consistent with the previous finding after controlling for age, that there is no significant difference in the fertility of women in polygamous marriages and those in monogamous marriages.

The three predictor variables which have been included in the multivariate analysis and the covariate explain about 63 per cent of the variation in fertility. Age at marriage has the highest beta (0.13)

compared with education (0.03) and type of marriage (0.04), after adjusting for the effects of the other independent variables and the co-variates, age. Polygamy and education have no impact on fertility in this study. This study suggests that age at marriage is the major determinant of fertility, having a very strong inverse relationship. However, this is somewhat surprising given the eta values in Table 3.8. The difference in fertility of urban and rural women is not statistically significant. Similarly polygamy, education and husband's occupation appear to have no impact on fertility according to this study. The next chapter examines two other factors that are related to fertility. These are knowledge and use of contraception and family size preferences.

CHAPTER 4

FERTILITY PREFERENCE AND
KNOWLEDGE AND USE OF
BIRTHSPACING METHODS

4.1 INTRODUCTION

This chapter examines demographic and socio-economic differentials in family size preferences and knowledge and use of birthspacing methods. The variables discussed are place of residence, woman's current age, woman's age at first marriage, education and husband's occupation. The analysis of differentials in desired family size considers whether such differentials would apply to actual completed family size if preferences were implemented successfully (Pullum, 1980: 16). For the preferences to be realized, knowledge and use of birthspacing methods is required if desired family size is less than natural fertility as defined by Henry (1979).

The data on family size preferences are based on the responses to the question "If you could choose, how many children would you like to have during your lifetime?" An attempt will be made to examine consistency of the responses to the question "Do you want to have any more children at any time in the future?" which was asked of women who were not then pregnant, and the question "After the birth of this child, do you want to have any more children at any time in the future?" which was asked of women who were then pregnant.

4.2 DEMOGRAPHIC AND SOCIO-ECONOMIC VARIABLES AND FAMILY SIZE PREFERENCE

A number of concepts have been used to describe family size preference. These are ideal, intended, expected or desired family size. The achieved or actual family size implies the number of living children that a woman has at a particular time (Pullum, 1980: 11). In this study, desired family size refers to the response of women in the survey to the question, "If you could choose, how many children would you like to have during your lifetime?"

The data in Table 4.1 show that about 75 per cent of ever-married women indicated a desired family size of 5 or more children. About 4 per cent of the ever-married women reported "up to God" as their desired family size and they have been included in Table 4.1 in the category of 7 or more children. About 74 per cent of urban women and 76 per cent of rural women desired a family size of 5 or more children. The average desired family size for urban women was 5.7 children, and it was 5.9 children for rural women.

The proportion of women who desired a family size of 5 or more children increases with age. This is likely to be due to the influence of the woman's current number of living children since some women may not want to say that some of their children are not wanted. About 69 per cent of ever-married women aged 15-24 preferred a family size of 5 or more compared with 79 per cent of women aged 35-49. This point is consistent with the positive relationship between woman's age and mean number of children desired. The average desired family size for women aged 15-24 was 5.3 children compared with 6.5 children for women aged 35-49.

The woman's age at first marriage appears to have no effect on desired family size. About 75 per cent of women who married before 18 and at age 18 or higher preferred a family size of 5 or more children and the average desired number of children was 5.9 in both cases.

Furthermore, the data reveal a higher proportion of women with lower primary education who indicated a desired family size of 5 or more children than those with no education or higher levels. About 85 per cent of ever-married women with lower primary education desired a family size of 5 or more children compared with 73 per cent of women with no education or with higher levels of education. A curvilinear relationship emerges between woman's education and fertility preference. Women with lower primary education indicated an average desired family size of 6.4 children compared with 6.0 children for women with no education and 5.5 children for women with upper primary or higher education.

An examination of the data for differentials by husband's occupation reveals that 75 per cent of ever-married women whose husbands were agricultural workers and those whose husbands were non-agricultural workers desired a family size of 5 or more children. Furthermore, the average desired family size of women whose husbands were agricultural workers was 5.9 children and among women whose husbands were non-agricultural workers it was 5.8 children. A t-test indicates that the difference in mean number of children desired by women whose husbands were agricultural workers and by women whose husbands were non-agricultural workers is not statistically significant ($p = 0.546$). Husband's occupation appears to have no influence on the family size preference of women.

TABLE 4.1

PERCENTAGE DISTRIBUTION OF EVER-MARRIED
WOMEN BY DESIRED FAMILY SIZE AND
DEMOGRAPHIC AND SOCIO-ECONOMIC VARIABLES, 1984

VARIABLE	FAMILY SIZE DESIRED			TOTAL	MEAN NUMBER OF CHILDREN DESIRED*
	<5	5-6	7+		
PLACE OF RESIDENCE					
URBAN	26	45	29	100(119)	5.7(117)
RURAL	24	40	36	100(357)	5.9(340)
AGE (YEARS)					
15-24	31	48	21	100(154)	5.3(153)
25-34	22	45	22	100(184)	5.8(173)
35-49	21	28	51	100(138)	6.5(131)
AGE AT MARRIAGE (YEARS)					
<18	25	40	35	100(291)	5.9(278)
18+	25	43	32	100(185)	5.9(179)
EDUCATION					
NONE	27	33	40	100(151)	6.0(144)
LOWER PRIMARY	15	37	48	100 (98)	6.4 (92)
UPPER PRIMARY OR HIGHER	27	48	25	100(227)	5.5(221)
HUSBAND'S OCCUPATION					
AGRICULTURE	25	37	38	100(273)	5.9(257)
NON-AGRICULTURE	25	46	29	100(203)	5.8(200)
TOTAL	25	41	34	100(476)	5.9(457)

Source: Family Formation Survey, 1984 (Mzimba District Dataset)

* Excludes 19 women who reported "up to God" as number of children desired.

4.3 NUMBER OF LIVING CHILDREN AND FAMILY SIZE PREFERENCE

This section examines the relationship between a woman's current number of living children and family size preference. The objective of the analysis is to assess the proportion of women with at least one unwanted birth and further to assess the proportion of women actually wanting to stop childbearing.

Table 4.2 indicates that 81 per cent of ever-married women had a desired family size greater than their present family size; 15 per cent had a desired family size equal to actual family size; and 4 per cent had a desired family size less than their actual family size. The proportion of women whose number of living children exceeded their desired family size is an estimate of the proportion of women with at least one unwanted birth (Lightbourne and McDonald, 1982: 20-21). Furthermore, the proportion of women with the number of living children equal to or greater than their desired number of children is an estimate of the proportion of women who want to terminate childbearing.

About 79 per cent of urban ever-married women desired more children than their current number of children while the proportion of rural women was 83 per cent. The proportion of women desiring a family size greater than their current family size decreased with age from 98 per cent for women aged 15-24 to 60 per cent for women aged 35-49. On the other hand, age at first marriage appears not to have any effect on desired family size. The proportions of women who married before age 18 and those at age 18 or higher with a desired family size greater than their current family size were 82 and 81 per cent respectively.

TABLE 4.2

PERCENTAGE DISTRIBUTION OF EVER-MARRIED WOMEN
BY WHETHER NUMBER OF LIVING CHILDREN (NLC) IS
GREATER THAN, EQUAL TO OR LESS THAN DESIRED
FAMILY SIZE (DFS) AND BY DEMOGRAPHIC AND
SOCIO-ECONOMIC VARIABLES, 1984

VARIABLE	NLC>DFS	NLC=DFS	NLC<DFS	TOTAL
PLACE OF RESIDENCE				
URBAN	11	10	79	100(119)
RURAL	2	15	83	100(357)
AGE (YEARS)				
15-24	0	2	98	100(154)
25-34	4	12	84	100(184)
35-49	9	30	61	100(138)
AGE AT MARRIAGE (YEARS)				
<18	4	14	82	100(291)
18+	4	15	81	100(185)
EDUCATION				
NONE	5	23	72	100(151)
LOWER PRIMARY	2	13	85	100 (98)
UPPER PRIMARY OR HIGHER	4	9	87	100(227)
HUSBAND'S OCCUPATION				
AGRICULTURE	4	15	81	100(273)
NON-AGRICULTURE	5	15	80	100(203)
TOTAL	4	15	81	100(476)

Source: Family Formation Survey, 1984 (Mzimba District Dataset).

The proportion of women desiring a family size greater than their actual family size increases with educational level, ranging from 72 per cent for women with no education to 87 per cent for women with higher levels of education. This pattern may be due to the fact that most women with higher levels of education were young and had only a few children. The data further reveal that 81 per cent of women whose husbands were agricultural workers and 80 per cent of women whose husbands were non-agricultural workers desired a family size greater than their present family size.

4.4 CONSISTENCY OF RESPONSES

The consistency of responses to questions on whether they wanted any more children and the number of children desired with current number of living children will be examined here. It is assumed that current family size influences responses to the two questions. The responses are considered to be consistent if a woman wants no more children and her current family size is greater than or equal to her desired family size, and if a woman wants more children and her current family size is less than her desired family size; otherwise the responses are inconsistent (Palmore and Concepcion, 1981: 525).

The proportion of ever-married women with consistent responses was 79 per cent. In the urban area it was 78 per cent and in the rural areas it was 79 per cent (Table 4.3). Most inconsistent responses were from women who did not want any more children and yet their current achieved family size was less than their desired family size. The proportion of women in this category was 17 per cent. Palmore and Concepcion (1981:525), in their paper about desired family size and

TABLE 4.3

PERCENTAGE DISTRIBUTION OF EVER-MARRIED WOMEN
BY CONSISTENCY OF RESPONSES OF WANTING MORE
CHILDREN WITH NUMBER OF LIVING CHILDREN (NLC)
GREATER THAN, EQUAL TO OR LESS THAN DESIRED
FAMILY SIZE (DFS) AND BY PLACE OF RESIDENCE, 1984

CONSISTENCY OF RESPONSES	PLACE OF RESIDENCE		
	URBAN	RURAL	ALL AREAS
CONSISTENT RESPONSES			
NLC>DFS, want no more	13	14	14
NLC<DFS, want more	65	65	65
TOTAL CONSISTENT RESPONSES	78	79	79
INCONSISTENT RESPONSES			
NLC>DFS, want more	8	3	4
NLC<DFS, want no more	14	18	17
TOTAL INCONSISTENT RESPONSES	22	21	21
TOTAL EVER MARRIED WOMEN	100(119)	100(357)	100(476)

Source: Family Formation Survey, 1984 (Mzimba District Dataset)

contraceptive use, noted similar findings and their explanation was that probably some of the women who gave inconsistent responses were older or had family problems which led them not to want any more children at that time otherwise not all such answers are truly inconsistent. The proportion of ever-married women with inconsistent responses was 21 per cent. In the urban area, it was 22 per cent and in the rural areas 21 per cent.

4.5 A MULTIVARIATE ANALYSIS OF FACTORS OF FAMILY SIZE PREFERENCE

This section examines the effects of the independent variables on family size preference. The independent variables are place of residence, woman's current age, age at marriage, woman's education and husband's occupation. The dependent variable in this analysis is the desired family size.

The analysis of variance indicates that only women's current age is statistically significant in influencing desired family size, and that none of the two-way interactions between the independent variables is significant at the 0.01 level of significance (Table 4.4). After adjusting for the effects of the other independent variables, the average desired family size for urban women was 5.8 children, and for rural women it was 5.9 children. A positive relationship between woman's current age and family size preference is evident; the average desired family size for women aged 15-24 was 5.4 children compared with 6.5 for women aged 35-49 years. On the other hand, the relationship between woman's education and family size preference is curvilinear, with an average desired family size of 6.3 children (adjusted) for women with lower primary education compared with

TABLE 4.4

ANALYSIS OF VARIANCE OF MAIN EFFECTS
AND TWO-WAY INTERACTION OF VARIABLES
INFLUENCING DESIRED FAMILY SIZE

SOURCE OF VARIATION	SUM OF SQUARES	DEGREES OF FREEDOM	MEAN SQUARE	F	SIGNIFICANCE OF F
MAIN EFFECTS					
(1) Place of residence	0.514	1	0.514	0.115	N.S.
(2) Age	75.480	2	37.740	8.445	0.000
(3) Education	26.398	2	13.199	2.954	N.S.
(4) Age at Marriage	0.127	1	0.127	0.028	N.S.
(5) Husband's Occupation	0.130	1	0.130	0.029	N.S.
TWO-WAY INTERACTION					
(1)x(2)	9.029	2	4.514	1.010	N.S.
(1)x(3)	3.521	2	1.761	0.394	N.S.
(1)x(4)	7.661	1	7.661	1.714	N.S.
(1)x(5)	1.786	1	1.786	0.400	N.S.
(2)x(3)	5.185	4	1.296	0.290	N.S.
(2)x(4)	0.249	2	0.124	0.028	N.S.
(2)x(5)	11.001	2	5.501	1.231	N.S.
(3)x(4)	1.473	2	0.737	0.165	N.S.
(3)x(5)	29.446	2	14.723	3.295	0.038
(4)x(5)	3.356	1	3.356	0.751	N.S.
EXPLAINED	194.582	26	7.484	1.675	0.021
RESIDUAL	1921.541	430	4.469		
TOTAL	2116.122	456	4.641		

N.S. = Not significant because values were greater than 0.05.

TABLE 4.5

EFFECTS OF PREDICTOR VARIABLES ON FAMILY SIZE PREFERENCE (1)

PREDICTOR	NUMBER	UNADJUSTED		ADJUSTED (3)	
VARIABLE	OF CASES	DEVIATIONS(2)	ETA	DEVIATIONS(2)	BETA
PLACE OF RESIDENCE					
URBAN	117	-0.17		-0.07	
RURAL	340	0.06		0.02	
			0.05		0.02
AGE (YEARS)					
15-24	153	-0.52		-0.50	
25-34	173	-0.04		-0.01	
35-49	131	0.67		0.59	
			0.22		0.20
EDUCATION					
NONE	144	0.16		0.00	
LOWER PRIMARY	92	0.53		0.47	
UPPER PRIMARY OR HIGHER	221	-0.33		-0.20	
			0.16		0.12
AGE AT MARRIAGE (YEARS)					
<18	278	0.01		-0.01	
18+	179	-0.01		0.02	
			0.00		0.01
HUSBAND'S OCCUPATION					
AGRICULTURE	257	0.05		-0.02	
NON-AGRICULTURE	200	-0.07		0.02	
			0.03		0.01
MULTIPLE R-SQUARED					0.061
TOTAL WOMEN					457
GRAND MEAN					5.87

SOURCE: Family Formation Survey, 1984 (Mzimba District Dataset)

NOTES: (1) Excludes women who reported "up to God" as number of children desired.

(2) Deviations from grand mean.

(3) Adjusted for the effects of the other independent variables.

an average family size of 5.9 for women with no education and 5.7 for women with upper primary or higher levels of education (Table 4.5). After adjusting for the effects of the other independent variables, age at first marriage and husband's occupation appeared to have no influence on family size preference.

4.6 KNOWLEDGE AND USE OF BIRTHSPACING METHODS

Fertility preferences may be used for the prediction of future fertility under the assumption that women will be able to plan their fertility so that they attain their desired family size. In order for women to achieve their fertility goal, they would have to use contraception if desired fertility is less than natural fertility in that population (that is, fertility in the absence of contraception).

There is evidence to suggest that fertility preferences are associated with the use of contraception and achieved fertility. A study in Thailand revealed that women who had reached or exceeded their desired family size used contraception more than women who had not yet attained their ideal family size (Knodel and Prachuabmoh, 1973). Similarly, Palmore and Concepcion (1981), in their study based on WFS data for ten Asian and Latin American countries, found that fertility preferences were related to contraceptive use. This section examines the extent of the knowledge and use of birthspacing methods among ever-married women in Mzimba District.

The proportion of ever-married women who knew a method of birthspacing was 24 per cent of the total sample, 33 per cent of women in urban areas and 22 per cent of women in rural areas (Table 4.6). The proportions increased with age only for urban women and not for rural

TABLE 4.6

PERCENTAGE OF EVER-MARRIED WOMEN WHO WERE
AWARE OF A METHOD OF BIRTHSPACING BY
SELECTED VARIABLES, 1984

VARIABLE	PLACE OF RESIDENCE		
	URBAN	RURAL	ALL AREAS
AGE (YEARS)			
15-24	23(35)	17(119)	18(154)
25-34	36(56)	25(128)	28(184)
35-49	39(28)	23(110)	26(138)
PARITY			
< 3	20(40)	15(125)	16(165)
3-4	43(30)	27 (89)	31(119)
5+	37(49)	24(143)	27(192)
EDUCATION			
NONE	24(17)	16(134)	17(151)
LOWER PRIMARY	25(12)	22 (86)	22 (98)
UPPER PRIMARY OR HIGHER	36(90)	26(137)	30(227)
TOTAL	33(119)	22(357)	24(476)

Source: Family Formation Survey, 1984 (Mzimba District Dataset)

women. About 23 per cent of urban women aged 15-24 knew a method of birthspacing compared with 39 per cent in the age group 35-49. The proportions of rural women aged 15-24, 25-34 and 35-49 years who knew a birthspacing method was 17, 25 and 23 per cent respectively. The data in Table 4.6 further reveal that 31 per cent of women whose parity was 3-4 knew of a method of birthspacing, compared with only 16 per cent of women whose parity was less than 3, and 27 per cent of women with parity 5 or higher. Furthermore, the proportion of ever-married women who knew a birthspacing method increases with woman's educational level. The proportion of women with no education who knew of a birthspacing method was 17 per cent compared with 30 per cent for women with upper primary or higher levels of education. In the rural areas 16 per cent of women with no education and 26 per cent of women with upper primary or higher levels of education knew of a method. In the urban area, the figure was 24 per cent for women with no schooling and 36 per cent for women with upper primary or higher levels of education.

This indicates that knowledge of birthspacing methods is quite low in Malawi compared with other African countries. The proportion of ever-married women who knew of a method of birthspacing was 51 per cent in Sudan (WFS, 1982: 14); 88 per cent in Kenya (WFS, 1979: 9) and 33 per cent in Lesotho (WFS, 1981a: 10).

This study further reveals that very low proportions of currently married women were currently using a method of birthspacing (Table 4.7). About 8 per cent of currently married women (11 per cent in urban and 7 per cent in rural areas) were currently using a method of birthspacing. The small number of cases using a method of birthspacing limits the extent of the interpretation of these data. However, the overall pattern indicates that use of a birthspacing method has a

slightly curvilinear relationship with age and parity and that it increases with education. This pattern is consistent with that observed in some Asian, Oceania and Latin American countries as well as in Kenya, based on WFS data. In these countries current contraceptive use is curvilinearly related to age and number of living children and women's education has a positive relationship with contraceptive use (UN, 1981b: 46-51, 56-96).

The pattern among urban women in Table 4.7 is the opposite of the overall pattern discussed above. There is a positive relationship between use of a birthspacing method and women's current age and parity, and an inverse relationship between use of a birthspacing method and women's education. This is a reflection of the type of birthspacing methods which the women knew and could use, as will be discussed below. It is sufficient to note here that over 50 per cent of currently married women who were using a contraceptive method to delay pregnancy, used traditional methods of birthspacing, mostly sexual abstinence. Older women could afford to use these methods but not young women who might have been married for only a short duration.

The low level of use of a method of birthspacing is consistent with the pattern in other African countries. As has been noted in Chapter 2, the proportion of current users of a method of contraception among currently married women was 9.5 per cent in Ghana (WFS, 1983b: 13); 7 per cent in Kenya (WFS, 1979:10); and 5 per cent in Lesotho (WFS, 1981a: 10). In Sudan, it was 6 per cent according to the 1979 Sudan Fertility Survey (WFS, 1982: 15).

TABLE 4.7

PERCENTAGE OF CURRENTLY MARRIED WOMEN CURRENTLY
USING A METHOD OF BIRTHSPACING BY CURRENT AGE,
PARITY, EDUCATION AND PLACE OF RESIDENCE, 1984

CURRENT AGE PARITY AND EDUCATION	PLACE OF RESIDENCE		
	URBAN	RURAL	ALL AREAS
AGE (YEARS)			
15-24	0(33)	4(119)	3(152)
25-34	15(54)	9(126)	11(180)
35-49	17(23)	8 (98)	10(121)
PARITY			
<3	3(38)	4(124)	4(162)
3-4	15(27)	9(87)	11(114)
5+	16(45)	8(132)	10(177)
EDUCATION			
NONE	25(16)	4(127)	6(143)
LOWER PRIMARY	17(12)	6 (83)	7 (95)
UPPER PRIMARY OR HIGHER	7(82)	11(133)	9(215)
ALL CURRENTLY MARRIED WOMEN	11(110)	7(343)	8(453)

Source: Family Formation Survey, 1984 (Mzimba District Dataset)

Data in Table 4.8 show the type of birthspacing methods which the respondents knew and were using. Most women who knew a method of birthspacing indicated traditional methods, of which abstinence was most common. About 25 per cent of urban women and 4 per cent of rural women knew of modern methods of birthspacing such as the pill or IUD compared with about 49 per cent of urban women and 62 per cent of rural women who were aware of traditional methods of birthspacing. About 50 per cent of the women who used a method of birthspacing practised abstinence. These findings appear consistent with the attitude to family planning in Malawi at least up to the time of the survey (1984). Access to modern contraception has been limited. However, governmental support had been available primarily to reduce infant and child mortality.

These results appear to conform with the findings of other studies carried out in Tanzania and Malawi which revealed widespread use of traditional methods of birthspacing, such as postpartum sexual abstinence and coitus interruptus. It was noted earlier (Chapter 2) that Wilson (1973: 249) and Hautvast-Mertens (1973: 252) reported that postpartum abstinence and coitus interruptus have been practised in Tanzania and Malawi for spacing children.

This chapter has examined differentials in family size preference and knowledge and use of birthspacing methods. Over 70 per cent of ever-married women preferred a family size of five children or more. The difference in mean number of children preferred by urban and rural women was very small and not significant. Woman's current age appears to be the only variable which is significantly related to fertility preference and it is positively related with average number of children desired. On the other hand, age at first marriage, woman's education and husband's occupation appear to have no influence on the number of

TABLE 4.8

PERCENTAGE DISTRIBUTION OF CURRENTLY MARRIED WOMEN WHO WERE
 AWARE OF A BIRTHSPACING METHOD OR WHO WERE USING A METHOD TO
 DELAY PREGNANCY BY METHOD OF BIRTHSPACING AND
 PLACE OF RESIDENCE, 1984 (1)

METHOD	% AWARE OF METHOD		% USING METHOD	
	URBAN	RURAL	URBAN	RURAL
PILL OR IUD	25	4	0	4
ABSTINENCE	31	39	50	50
TRADITIONAL MEDICINE	18	23	17	8
OTHER (2)	26	34	33	38
ALL METHODS	100(39)	100(77)	100(12)	100(24)

Source: Family Formation Survey, 1984 (Mzimba District Dataset)

Notes: (1) Data refer to the first method which respondents knew and very few of them indicated a second method (two women indicated the pill, and seven women indicated traditional methods).

(2) The category of "other" had already been coded in the raw data and therefore it is difficult to distinguish on the data tape which of the methods had been included.

children a woman desired. Furthermore this study indicated only four per cent of ever-married women appeared to have at least one unwanted child, based on the information on the desired number of children and number of living children. This chapter revealed that less than 20 per cent of ever-married women want to terminate childbearing and these women are mostly in age group 35-49, who are already approaching the end of their childbearing period. Finally this study has revealed low levels of knowledge and use of birthspacing methods, which were mostly traditional methods.

CHAPTER 5

SUMMARY AND CONCLUSION

This study is based on data from the 1984 Malawi Family Formation Survey which was a nationwide sample survey conducted by the National Statistical Office and the Ministry of Health. However, this study has used data for Mzimba District only as data for the other areas were not available. This was because data preparation and computerization were still in progress when the data were needed for this study.

Because of the limitations of the data, this study has been exploratory, examining fertility differentials by place of residence, age at marriage, type of marriage, education and husband's occupation as well as family size preferences and knowledge and use of birthspacing methods in Mzimba District. The major limitation of the data was the small sample size which restricted the extent of analysis. To avoid cell sizes too small to be meaningful, only a small number of factors influencing fertility, family size preferences and knowledge and use of birthspacing methods could be examined using the multivariate techniques. Furthermore, because of the sample design which was not intended to obtain estimates at the district level, no attempt was made to obtain estimates of fertility for the whole of Mzimba and the study has used unweighted data. The findings of this study apply strictly to the sample population.

As there were no previous detailed studies on fertility in Malawi, the review of the literature on fertility covered countries in sub-Saharan Africa. The literature shows that Africa has very high

levels of fertility and no country in the region appears to have indications of sustained fertility decline (UN, 1984: 26). Malawi is no exception to this. Marriage in Africa supports high fertility since most women marry at an early age and it is almost universal. Some studies have, however, revealed that age at first marriage is now rising in North Africa but not in sub-Saharan Africa (WFS, 1984: 50).

Although the findings of this study cannot effectively be applied to the whole of Mzimba District because the data have not been weighted, the pattern of fertility of women in the sample appeared to conform to the national and regional (that is, Northern Region in which Mzimba District is located) patterns of fertility as obtained from the 1977 population census data.

In this study, the mean number of children ever born to ever-married women has been used as a measure of fertility. The analysis shows that the difference in fertility between urban and rural women is not statistically significant. This finding could reflect the low levels of urbanization and also the rural background of most urban people in Mzimba District which is also a common feature at the national level.

On the other hand, the analysis suggests that the fertility differentials by age at first marriage are significant. Both the t-test and multivariate analysis gave consistent results of the significance of age at first marriage. Age at first marriage has a very strong inverse relationship with fertility with women who married at early ages having higher fertility than those who married at late ages.

According to this study, polygamy appears to have no impact on fertility. Although the unadjusted data indicated that women in polygamous marriages have higher fertility than those in monogamous marriages, after controlling for age, the difference in the fertility of women in polygamous marriages and those in monogamous marriages disappeared. Similarly, the multiple classification analysis also indicated that there is no difference between the fertility of women in polygamous marriages and those in monogamous marriages. However, first wives in polygamous marriages have higher fertility than second or higher order wives, and the difference in the fertility of these women remains even after controlling for age.

Education of both women and their husbands also appears to have no influence on fertility. Although the unadjusted data indicated an inverse relationship between woman's education and fertility, the multivariate analysis, which adjusted for the effects of age and age at first marriage, showed that women's education had no effect on mean number of children born.

This study also shows that a high proportion (75 per cent) of ever-married women preferred a family size of five or more children. Average desired family size is positively related to woman's current age. This is because older women tend to have more children and they would normally not want to imply that some of their children were not wanted by indicating a lower desired family size. On the other hand, age at first marriage, woman's education and husband's occupation appeared to have no influence on desired family size.

About 81 per cent of ever-married women desired a family size greater than their current number of living children. Only four per cent indicated a desired family size that was less than their current number of living children. Based on the desired family size, about 19 per cent of ever-married women wanted to stop childbearing. These were the women whose family size preference was equal to or less than their current number of living children. This type of information suggests that these women would be receptive to family planning. However, most of these women who wanted to stop childbearing were those nearing the end of their childbearing period.

This study further reveals very low levels of knowledge and use of birthspacing methods. The methods of birthspacing which most women knew were traditional methods, of which sexual abstinence was common. The low levels of knowledge and use of birthspacing methods reflect the absence of family planning programmes in Mzimba District, which is also a common feature at the national level.

The findings of this study have some limitations which originate mostly from the small sample size, especially for the urban area. Some of the fertility differentials may not appear significant due to small numbers which have also affected the number of variables and the categories which could be analysed. It was not possible, for example, to examine fertility differentials by education beyond primary school because the number of women with secondary school or higher education was small. Yet the impact of education on fertility is very noticeable at higher levels of education according to studies of other countries. Similarly, the number of women who married at age 20 or higher was very small.

However, given that there were no family planning programmes and no deliberate effort by Government to provide and encourage people to adopt family planning, the findings of this study appear plausible. The preference for large families and the low level of knowledge and use of birthspacing methods reflect the prevailing family planning attitudes in the country as well as the cultural values which lead most women and their husbands to aspire to have as many children as God can give. These have policy implications in that any family planning programme which aims at limiting the ultimate family size is bound to fail because of the high fertility aspirations, while if it is intended to improve the health of the mother and the child by encouraging appropriate spacing of children, there may be a chance of success. However, such a programme must also be accompanied by mass education to motivate people to adopt family planning.

It is hoped that the findings of this study will stimulate interest for further research in Malawi as more data become available. Fertility differentials should be analysed by place of residence, age at first marriage, polygamy, education and husband's occupation when data for the whole country become available as it would then be possible to divide these variables into more detailed categories. A detailed classification of age at first marriage, level of education and husband's occupation may reveal the existence of a specific relationship between fertility and these variables. Further research is also needed in family size preferences and knowledge and use of contraception in other regions of Malawi to see if the patterns are the same or if they differ from those for Mzimba District. Further studies could also examine whether there is a preference for sons or daughters, or whether the sex composition of current living children has any relationship to

desired family size; and they could also examine the difference between children born alive and surviving children in relation to the desired number of children, number of living and additional children wanted. This type of information is necessary for the formulation of realistic population policies.

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APPENDIX I

EXTRACT OF THE 1984 FAMILY FORMATION SURVEY QUESTIONNAIRE

C O N F I D E N T I A L

Form FFS/1984/2
MALAWI GOVERNMENT
National Statistical Office

FAMILY FORMATION SURVEY

1984

PART A: IDENTIFICATION

		QUESTIONNAIRE 2			
FORM TYPE	2 1			Full Names of the Female as in Questionnaire 1:	
REGION/DISTRICT	2-3				
TA/TOWN	4-5	Only for Females Aged 15-49			
ENUMERATION AREA	6-8	Years as listed in		Line Number from Questionnaire 1	
VILLAGE/PLACE	9-11	Quest. 1 (one FORM			
HOUSEHOLD NUMBER	12-14	for each Female)		Age in completed Years, 2 Digits	
DWELLING UNIT NUMBER	15			Highest Level of Education attended	

FERTILITY, BIRTH HISTORY AND MARRIAGE

PART B: FERTILITY - LIVE BIRTHS ONLY

1.1 During your whole lifetime, have you ever given birth to any children who were born alive? ENUMERATOR: IF NO, GO TO 1.4	YES = 1 NO = 2		22
1.2 How many of your own children are now living with you? ENUMERATOR: IF NONE, ENTER 00	SONS		23-24
	DAUGHTERS		25-26
1.3 How many of your own children are now living elsewhere? ENUMERATOR: IF NONE, ENTER 00	SONS		27-28
	DAUGHTERS		29-30
1.4 Have you given birth to children who were born alive, but have died? ENUMERATOR: IF NONE, ENTER 00	SONS		31-32
	DAUGHTERS		33-34
1.5 ENUMERATOR: ADD TOTAL CHILDREN EVER BORN ALIVE (1.2, 1.3 AND 1.4) ASK THE RESPONDENT WHETHER THE TOTAL IS CORRECT IF THE RESPONDENT HAS HAD NO LIVE BIRTHS, GO TO 7.1, PART F	SONS		35-36
	DAUGHTERS		37-38
	TOTAL		

PART G: CURRENT EXPOSURE TO BIRTH AND ATTITUDE TOWARD FAMILY SIZE

8.1 Have you had any sexual relations in the last four weeks?	YES = 1 NO = 2		208
8.2 Are you aware of any methods that couples can use to space children? ENUMERATOR: IF NO, GO TO 8.4	YES = 1 NO = 2		209
8.3 Which methods are you aware of? (specify)			210-218
8.4 Are you now pregnant? ENUMERATOR: IF YES, GO TO 9.0 IF NO TO BOTH 8.2 AND 8.4 GO TO 8.7 IF NO TO ONLY 8.4 OR DO NOT KNOW, GO TO 8.5	YES = 1, NO = 2 DO NOT KNOW = 3		219
8.5 Are you currently using any methods to delay pregnancy? ENUMERATOR: IF NO, GO TO 8.7	YES = 1 NO = 2		220
8.6 Which method(s) are you using? (specify)			221-223
8.7 Do you want to have any (more) children at any time in the future? ENUMERATOR: IF NO OR UNCERTAIN, GO TO 9.1	YES = 1, NO = 2 UNCERTAIN = 3		224
8.8 Would you like to have your next baby/a baby as soon as possible, or would you like to delay your next baby/your baby? ENUMERATOR: IF CODE 1, GO TO 9.1	AS SOON AS POSSIBLE = 1 DELAY = 2		225
8.9 For how many years would you like to delay your next baby/your baby? ENUMERATOR: AFTER 8.9 IS ANSWERED, GO TO 9.1	NUMBER OF YEARS DELAY		226-227
9.0 After the birth of this child, do you want to have any more children at any time in the future?	YES = 1 NO = 2		228
9.1 If you could choose, how many children would you like to have during your lifetime? ENUMERATOR: PROBE FOR THE REPLY AND RECORD THE NUMBER DESIRED. SPECIFY ANY NON-NUMERICAL ANSWERS:	NUMBER DESIRED		229-230
9.2 If you could choose, how long a gap would you like between one child and the next? Years: Months: ENUMERATOR: PROBE FOR THE REPLY AND RECORD THE GAP DESIRED. SPECIFY ANY NON-NUMERICAL ANSWERS:	RECORD IN MONTHS		231-232

PART H: MARRIAGE

10.1 Are you currently married, widowed, separated or divorced, or have you never been married? ENUMERATOR: IF NEVER MARRIED, END INTERVIEW	MARRIED = 1, WIDOWED = 2 SEPARATED OR DIVORCED = 3 NEVER MARRIED = 4	233
10.2 How many times have you been married?		234
10.3 How old were you when you first married? ENUMERATOR: RECORD AGE IN COMPLETED YEARS	AGE IN YEARS	235-236
ENUMERATOR: THE FOLLOWING QUESTIONS RELATE TO THE CURRENT HUSBAND OF THE RESPONDENT IF SHE IS CURRENTLY MARRIED, AND TO THE LAST HUSBAND IF SHE IS WIDOWED, SEPARATED OR DIVORCED		
10.4 Does/did your husband have any other wives while married to you? ENUMERATOR: IF YES ASK: How many? RECORD NUMBER, EXCLUDING RESPONDENT. IF NO, GO TO 10.6	YES = 1 NO = 2	237
	NUMBER	238
10.5 Are/were you the first, second, third,, wife?	FIRST = 1, SECOND = 2 THIRD = 3, ETC	239
10.6 Did your husband ever attend school? ENUMERATOR: IF YES, ASK: What was the highest level of school he attended? IF NO OR UNIVERSITY, GO TO 10.8	YES = 1, NO = 2	240
	PRIMARY = 1, SECONDARY = 2 UNIVERSITY = 3	241
10.7 What was the highest standard/form that he completed? STANDARD: FORM: DO NOT KNOW (tick):		242-243
10.8 What is your husband's occupation (specify)		244-245
10.9 Is your husband self-employed or paid employee?	SELF-EMPLOYED = 1 PAID EMPLOYEE = 2	246
11.1 ENUMERATOR: CHECK IN 10.1. IF MARRIED ASK: What is the name of your husband? Name ENUMERATOR: ENTER THE LINE NUMBER OF HUSBAND FROM QUESTIONNAIRE 1 IF HUSBAND IS NOT LISTED IN QUESTIONNAIRE 1, ENTER CODE 98 IN THE BOX		247-248

END INTERVIEW AND THANK THE RESPONDENT

ENUMERATOR's NAME DATE

DAY	MONTH	YEAR
		8 4

 249-254