Fertility Transition in Benin:

New Reproductive Patterns or Traditional Behaviour?

Pacôme Virgile Aristide CAPO-CHICHI

Thesis Submitted for the Degree of Doctor of Philosophy in the Faculty of Science, University of London

London School of Hygiene & Tropical Medicine

June 1999

Abstract

This study analyses reproductive changes in Benin, a West African country with high fertility and low prevalence of use of modern contraceptive methods, using a combination of quantitative and qualitative approaches. Findings indicate that a transition to lower fertility is underway, particularly in the urban areas, as a result of an emerging pattern of birth limitation and continued desire for the traditional long birth intervals. But only a small change has occurred in the main proximate determinants of fertility. The data suggest:

- that changes in childhood mortality in combination with increased women's education, though modest, have probably created a demand for fertility control among women;

- that induced abortion among other factors, may be one of the means through which such demand was met, particularly in urban areas;

- and that the economic crisis of the 1980s was the main catalyst which precipitated the onset of transition.

Changes in reproductive preference and practice suggest a diffusion process, from the urban and more educated women to the rural and less educated ones. The data also reveal that the low prevalence of use of modern contraception may be associated with poor knowledge, widespread fear of side effects and complications and poor quality of family planning services. The main policy implication of these results is that an appropriate reproductive health programme is required to address women's needs and reduce the levels of unwanted pregnancies and induced abortion which are likely to be rising rapidly.

Table of contents

List of Tables

List of figures

Acknowledgements

To Professor Eusèbe Alihonou, Dr Rigobert Adégbinni and Dr Timothée Gandaho, I dedicate this thesis for being an inspiration all of the time. I am also grateful to my other colleagues at CERRHUD for their support and encouragement.

To my parents, my wife and children, to my brothers and sisters, I dedicate this thesis for their love, encouragement and moral support throughout this training.

This work would not have been completed without the patience and commitment of my supervisor, Dr Fatima Juarez, to whom I am greatly indebted. To her, I wish to express my sincere gratitude for her guidance. I am most grateful to Professor John Cleland for giving me so much of his time. Many thanks also to Dr Brent Wolff for helping me break the deadlock into the world of qualitative research. Many other staff at CPS deserve thanks, especially Sarah Castle and Maia Ambegaokar for helpful comments on earlier drafts, and Evelyn Dodd for editing the final version of this thesis. I am also grateful To Véronique Filippi for her comments, support and encouragement all along the way.

I would like to express my gratitude to the WHO Special Programme of Research, Development and Research Training in Human Reproduction (HRP), for having awarded the grant which enabled me to pursue this training. Special thanks to Heli Bathija, Sola Ayeni, Wole Akande, Jo Kasonde, Alain Pinol and Gilda Piaggio at WHO/HRP for continued support and encouragement.

Financial support for the fieldwork was provided by The Simon Population Trust, the Centre for Population Studies (London School of Hygiene & Tropical Medicine) and WHO/HRP. The "Institut National de la Statistique et de l'Analyse Economique (INSAE)" of Benin and Macro International allowed me access to the quantitative data used in this research. To all these organizations, I wish to express my gratitude.

To my fellow PhD colleagues, thank you for the support and encouragement which I received from all of you in various ways.

Many thanks to my examiners, Dr Chris Langford and Professor Bill Gould, for accepting to judge this work

Finally, a big thanks to all those who helped during the fieldwork and especially to all men and women who accepted to participate in the focus group discussions and in-depth interviews. May this work contribute to improving reproductive health services in Benin.

Chapter 1

Context and research aim

1.1. Introduction

African fertility regimes until recently have been characterized by universal marriage, high fertility and low contraceptive prevalence. The primary moderating factor on overall fertility levels has been the dual practices of prolonged breast-feeding and extended post-partum abstinence from sex by women, both of which act to significantly increase the time interval between successive births. Previous research suggests that prolonged birth intervals are regulated through adherence to norms linking birth spacing to child health and social institutions such as polygyny (Caldwell and Caldwell, 1987). Such fertility regimes are consistent with the theory of "natural fertility" which emphasizes control over reproduction at the social rather than the individual level, and the absence of deliberate efforts to limit family size to specific levels. Intensive efforts of data collection in the last two decades, and particularly the Demographic and Health Surveys (DHS) programme, have shown that sustained fertility transition is underway in several African societies. Classic examples of countries leading the transition in Sub-Saharan Africa are Kenya, Zimbabwe and Botswana where fertility has declined by 20-35% over the past 15 years. By and large, it is now clear that the nature of the African fertility transition will be different from that observed in other developing regions. For example, there is conclusive evidence that fertility in many African settings will present similar decline at all ages (Arnold and Blanc, 1990; Caldwell, Orubuloye and Caldwell, 1992). It is also widely anticipated that large reductions in infant and child mortality, increases in female education and, most important, increases in the use of modern contraception will be the main engines that would drive fertility down (Cohen, 1993; Caldwell and Caldwell, 1997; Kirk and Pillet, 1998).

While scholars have become more relaxed in speaking out of a fertility transition in the context of Sub-Saharan Africa, they have been considerably cautious in expanding this to West Africa for two main reasons. Firstly, though fertility levels derived from most demographic data collected in the region are usually higher in earlier compared to later periods, evidence of continued decline is often nullified when more sophisticated methods are employed (Onuoha and

Timæus, 1995; Brass, Juarez and Scott, 1997). Secondly, data on fertility determinants such as contraceptive prevalence rates and family size intentions provide little or no support to ongoing or imminent fertility decline. For example, in the majority of West African countries, the prevalence of use of modern contraception rarely exceeds 10% among married women and the average desired number of children is often higher than five (Throughout this thesis, modern contraception refers to pills, IUD, injectables, condoms, spermicides, Norplant® and male or female sterilization; and periodic abstinence (including rhythm), withdrawal and local folkloric methods are considered as traditional methods). Apparently, the persistently low prevalence of use of modern contraceptive methods in most West African countries is the key factor that supports widespread scepticism over the importance of fertility changes that are observed in the region. To many observers it is not totally unexpected because, besides the obvious overall low level of development of this subregion, *"... the social structure of West Africa presents in its strongest form Sub-Saharan Africa's resistance to fertility decline."* (Caldwell, Orubuloye and Caldwell, 1992:p212).

Contraceptive use is a deliberate attempt by individual women or couples to delay or avoid conception. As such, it represents a true departure from the absence of conscious control of fertility by individuals. In the context of natural fertility regimes, the existence of contraceptive use, even at low levels, raises many questions for policy makers and fertility theorists alike. In settings such as historical Europe or developing countries in Asia and Latin America, early contraceptive use has been interpreted as a sign of imminent fertility decline (Stycos, 1968; Freedman and Takeshita, 1969; Freedman and Berelson, 1976). More important, early contraceptive users have been seen as cultural innovators who played a crucial role in the diffusion of contraceptive practice and reduced demand for fertility. Yet, very little is known about early contraceptive adopters in historical or contemporary societies. They may have different motivations and intentions depending on the social and cultural context. For example, a recent study in The Gambia found that modern contraception was being adapted to achieve adequate spacing between births (Bledsoe et al., 1994). Contraceptive use in this setting was consistent with continued demand for high fertility, and therefore does not fit with the picture of imminent fertility decline. The study raised important questions about the central tenet of natural fertility which states that individuals do not exert direct conscious control over fertility outcomes.

There are huge policy and research implications from these conclusions, one of which is that little prospect of fertility decline exists for the majority of West African countries in the short run. This study examines changes in reproductive patterns in Benin, a country with a demographic profile of a typical, high fertility pre transition society.

1.2. Backgrounds on Benin

1.2.1. Social and economic context

Benin (formerly Dahomey), a thin coastal land on the immediate west side of Nigeria, is one of the smallest countries in West Africa (Figure 1.1). With less than six million inhabitants as of 1998 the population of Benin is believed to be growing rapidly, at the rate of about 2.8% per year (Benin, 1994a). The Gross National Product (GNP) per capita was about US$360 in 1996, which ranks the country among the poorest in the developing world. Its economy is dominated by the primary sector with almost 60% of the active population (Benin, 1997c). As in most other African countries, the government was the main provider of employment but this situation has been changing, primarily because of a ban on recruitment imposed by the first structural adjustment programme since 1986.

Table 1.1. Adult literacy rates by region (Benin 1992)

Region	Percent literate		
	Male	Female	All
Atacora	15.5	6.0	10.7
Atlantique	44.5	27.0	35.5
Borgou	29.6	9.9	14.9
Mono	29.8	9.2	18.9
Oueme	36.8	17.2	26.6
Zou	34.6	16.2	24.8
Benin	31.4	15.5	23.2

Source Benin, 1994a

Figure 1.1. Map of Benin

Recent evaluations suggest that more than 70% of women of reproductive age have never been to school (Benin, 1997a) and that adult literacy is extremely low (table 1.1). Although still far from satisfactory, there have been important changes in educational achievements over the past decades. The "New School" approach adopted by the military government which ruled the country for more than 17 years has resulted in a sudden increase in school enrolment during the period of 1977 to 1985 for both boys and girls. Between 1982 and 1990, the proportion of women of reproductive age with primary education has increased from 9% to about 20%, more than a twofold increase (Akoha, 1991). Similarly, the proportion of women with secondary education has increased from 6% to about 10%. Overall, the great majority of women of reproductive age remains illiterate in Benin and only a small minority have achieved secondary or higher education.

In Benin as in most other African countries, ethnicity is important because it accounts for most of the social and cultural differences observed in the country. Ethnic groups differ in their reproductive characteristics and this reflects the crystallization of several features that pertain to the modes of production and the structure of gender relations. Roughly, the people of Benin can be divided into eight ethnic groups, though there are more than fifty different dialects in the country. The ethnic groups are mainly concentrated in specific regions and the dominant groups are the "Fon", 42.2% of the total population, mostly found in the Atlantique and Zou regions. The "Adja" ethnic group accounts for 15.6% and lives in the Mono department (south west). "Yorubas" represent 12.1% and are typically found in the Oueme department (south east). Other ethnic groups are the "Baatonu" (8.6%) and the "Otamari" (6.2%) in the north east, the "Peulh" (6.1%), "Yom" (3.9%) and "Dendi" (2.7%) in the north west (Benin, 1994a). Religiosity varies across administrative regions and may be associated to ethnicity. However, religious tolerance is a wide spread practice though religious institutions have great influence on political and social life in the country. The main religious groups in the country are Christians (36%), traditional (35%) and Muslims (21%) but religious syncretism is common (Benin, 1993).

Until 1972, Benin was probably one of the most politically unstable countries in Africa. From 1972 to 1990, the country was ruled under a Marxist military regime leading to a severe economic crisis in the mid-nineteen eighties that resulted in a state bankruptcy with total

paralysis of the economic system. For example, from 1989 on, the annual growth rate of the GNP per capita has been consistently negative, reaching nearly -1.0% in 1992. Between 1987 and 1989, the payment of salaries to civil servants became extremely difficult and for at least eight months they were not paid. The impact of that crisis was felt by the whole of the country but more severely by those living in urban areas. It was the outcry of the urban citizens that led to the famous 1990 national conference when the military Government left power for a democratically elected civil regime. Ever since, Benin is considered a model democratic society in the West Africa region and probably in Africa as a whole. However, the very good performance of the first civil government of the third republic short-lived because in January 1994, the regional currency, the CFA was devalued by 50 percent. Although most macro level analyses are suggestive of an improvement of the economic situation of the CFA zone, there are good indications that in Benin "*le panier de la ménagère continue d'en souffrir*"[1].

1.2.2. Health services and problems

In Benin, people seek treatment from three main sources: traditional healers, government health services and other private and non-government health centres. Very little is known about how traditional healers are organized and the extent of use of their services. Nevertheless, it is suspected that they are very widely consulted by the majority of the rural uneducated population. Similarly, the modern, private sector as well as NGOs providing health services are not well known though, countrywide, their number has risen quite rapidly since the late 1980s as a result of the ban on recruitment.

The government health system parallels the administrative organization. It is organized in three levels, central, intermediate and peripheral (see appendix 1.1). Each level corresponds to an administrative division and has specific health facilities. The central level comprises the National University Hospital Centre (CNHU) which is the reference centre at the national level. Regions have one regional hospital each and are considered as the intermediate level. The subregions, communes and villages constitute the peripheral level. In 1996, only 23% of sub-

[1] Literally translated, this means "the housewife's basket continues to suffer from the devaluation", a popular joke following a declaration by President Soglo in March 1994 that the housewife's basket will benefit from the positive effects of the devaluation (le panier de la ménagère bénéficiera des effets positifs de la dévaluation).

regional health facilities and 74% of communal health complexes had adequate personnel and equipment to function properly according to WHO norms (Benin, 1997b). The coverage of the population by health personnel is relatively poor and large regional discrepancies are observed. For example, in 1996, there were 29,533 inhabitants per medical doctor in the Mono region compared with 2,933 in the Atlantique region (Benin, 1997b).

The health situation is similar to that in most Sub-Saharan African countries. The major health concerns are malaria, acute respiratory diseases and diarrhoeal diseases which account for more than 60% of all consultations and causes of death (Benin, 1995d, 1997b). Sexually transmitted diseases are quite common (Guedou, 1987; Offrin, 1989), but HIV prevalence is one of the lowest in the region. However, the national surveillance system shows that HIV/AIDS is increasing very rapidly despite the efforts of the Benin National AIDS Programs (Benin, 1994c). The Benin Government is committed to the goal of providing health care for all through a primary health care delivery system that is being progressively decentralized. The main areas of intervention defined by various health programmes are malaria, maternal and child health (including immunization and nutrition), water borne diseases (including diarrhoeal diseases and guinea worm), AIDS, leprosy, tuberculosis and other endemic diseases.

1.2.3. Demographic profile

Benin has the characteristics of a young population which is growing at a fast pace. The population pyramid shows a broad base, rapidly narrowing, a clear indication of high fertility. Table 1.2 summarizes the major demographic indicators in 1982 and 1996. Infant and child mortality are falling but still high compared to most other West African countries. The United Nations' Population Division estimated that between 1950 and 1995, the infant mortality rate has decreased from 200 deaths per 1,000 births to 90 deaths per 1,000 births. The latest figure estimated from the Benin DHS (1997a), though a little higher, is somewhat similar: 104 infant deaths per 1,000 births in 1996. On average, women aged 45-49 reported 7.5 live births and the total fertility rate estimated from birth histories was 6.3 in the five years that preceded the survey.

Table 1.2. Selected Demographic Indicators (Benin, 1982 - 1996)

Indicators	1982	1996
Population (in thousands)	3,459	5,593*
Distribution by age group (percent)		
0-14	45.5	48.6
15-64	51.4	48.3
65+	3.1	3.1
Crude birth rate (per thousand)	49.4	47.1
Crude death rate (per thousand)	23.1	15.6
Total Fertility Rate	7.1	6.1
Prevalence of modern contraception (percent)	0.8	3.4
Annual rate of natural increase (percent)	3.5	3.0
Infant Mortality (per 1,000 live births)	123.0	104.0
Maternal Mortality (per 100,000 live births)	800.0	469.0
Life expectancy at birth (years)		
Total	42.0	54.2
Male	40.4	51.8
Female	43.6	56.6

Sources: Benin, 1994a; Benin, 1984; Benin , 1997a. * Estimated from the 1992 census (Benin, 1994a).

In Benin, the law recognizes polygyny as well as monogamy and, on average, about one third of the married men are polygynous (Klissou, 1993) and half of the married women are in polygynous unions (Benin, 1997a). One in three men with no schooling aged more than 40 years are polygynous compared with one in four men with secondary or higher education in the same age group. However, male fertility is as high in monogamous unions as in polygynous unions (Donadje, 1992). Early marriage by women is the norm in the traditional society. The 39th article of the "Coutumier du Dahomey" says that the young girl can be engaged at any age. Age at engagement can be as low as two to five years for the Fon in the Zou region. It varies between 10 and 15 years with the Betamaribe in the Atacora region. However, in some ethnic groups such as the Mina, girls can be engaged only after puberty. As a result of early marriage, first birth to

women occurs at young ages. In 1996, the median age at first birth for women aged 25-49 was 19.6 years. It varies from 18.7 in Atacora to 20.5 in Atlantique and from 19.3 for women with no schooling to 22.9 for those with secondary or higher education. As in most countries in the African region, four types of unions are observed in Benin. These are traditional marriage, religious marriage, civil or legal marriage and consensual union. The most common type of marriage is traditional (Benin, 1993).

1.2.4. Family Planning and population activities

Family planning activities started in Benin with the Benin Family Promotion Association (ABPF), an IPPF-affiliated Non Governmental Organization, which has been in existence since 1971, but only a few clinics were operated in the major cities, mainly Cotonou and Porto-Novo. In 1982, the government launched a family welfare project with the objective of integrating family planning services to other maternal and child health activities. There was no legal backing of this project or other family planning activities but instead an attitude of "laisser faire" has prevailed among officials in the successive governments. According to the 1982 WFS, familiarity with modern contraception was much lower in Benin than in most other countries in the region (Benin, 1984). A key finding of this study was that post-partum sexual abstinence and traditional contraceptives were the most commonly used methods for birth regulation in Benin. This finding is not totally surprising because modern contraceptive methods were virtually unavailable except in the ABPF clinics and in a few government maternities where ABPF was active. Since then, there have been two other nationwide contraceptive KAP surveys, various other small scale studies and, more recently, a Demographic and Health Survey (DHS). Table 1.3 shows the main findings of these studies regarding contraceptive knowledge and practice. The prevalence of modern contraception remains extremely low at only 3%, with little difference between urban and rural areas. Overall contraceptive use, which amounts to 16% of women in union, is dominated by the rhythm method (7%) and withdrawal (5%). Contraceptive practice is fairly similar among the most sexually active age groups and varies from 18% to 22% among women aged 20-24 years to 35-39 years. Unlike some other countries, only 11% of women less than 20 years of age were practising any form of contraception at the time of the survey but it is also noteworthy that more than half of the sexually active unmarried women were using a contraceptive method of which 14% were modern methods. The situation analysis of the Benin

family planning programme, conducted in 1994 concluded that contraceptive methods were available in most health facilities but overall, the programme efforts are weak due to poor quality of services and lack of adequate management and supervision (Benin, 1994b).

Table 1.3. Summary of contraceptive studies in Benin (1982-1996)

Reference	Coverage	Knowledge		Ever use		Current use	
		Mod¶	Trad¶	Mod	Trad	Mod	Trad
Benin, (1984)	National	13	27	3	14	1	4
UNFPA (1984)*	National	49	45	9	16	1	4
Avodagbe (1988)	National	54	15	20	12	-	-
Alihonou et al. (1989)	Pahou	77	78	11	31	-	-
Donadje (1992)	Cotonou&Allada	71	86	-	-	6	14
Zomahoun (1991)	Bohicon	73	-	-	-	-	-
Gandaho (1993)	Pahou	96	90	17	51	11	8
Santos (1994)	Ouidah	77	60	-	-	8	66
Benin (1996)	National	76	76	12	37	3	13

¶ Mod=Modern; Trad=Traditional * Cited by Gandaho (1993)

In May 1996, a formal population policy declaration was adopted by the Government, providing a major incentive for the expansion of family planning activities (Benin, 1996). Still, to many observers, the adoption of a population policy was more to secure funding for a major health programme rather than the result of a perceived need at the national level[2]. A major objective of this declaration is to increase the national contraceptive prevalence rate to 40% by the year 2016. Although fertility reduction was not a stated aim of the population policy declaration, it is obvious that achieving the goal of 40% contraceptive prevalence will have a major fertility impact. To attain these goals, reproductive health activities will be expanded to all areas of the country through the provision of quality care in government health services and will also involve NGOs working in the reproductive health arena.

[2]Incidentally, the adoption of the population policy was a major conditionality for the start of the Population and Health Project. In addition, there are still legal issues to be resolved here because the 1920 law which renders abortion and other fertility regulation practices illegal has not been officially abolished yet.

1.3. Research aims and specific objectives

The interest in this research arose from two related observations shortly after the preliminary report of the Benin DHS was presented. First, most people who assisted in the presentation of DHS findings were disappointed to hear that Total Fertility Rate was still 6.3 and that the prevalence of modern contraception was only 3.4%. But put in context, this apparently high fertility level raises major questions. Total fertility rate from the Benin Fertility Survey was 7.1 in 1982. Therefore, a reduction of nearly one child per woman has occurred between the two surveys and this was more than the 10% reduction conventionally accepted as indicating the start of irreversible decline (Cole and Watkins, 1986). Would fertility then be declining in Benin against the odds or is it just the effect of data quality? And if fertility is declining, through what mechanisms is it happening and why? The significance of a fertility transition in Benin results from the fact that, at first glance, it exhibits all the characteristics of pre transitional societies and shows none of the main features that could suggest an imminent change.

Second, in the view of the Benin government's population objectives, it is surprising that little emphasis is currently placed on understanding belief systems and cultural perceptions of programme beneficiaries. There is virtually no information on whether contraceptive use in Benin remains consistent with continued demand for childbearing and long birth intervals or if it reflects significant shifts in reproductive norms and aspirations. Such information is needed to understand how contraception is rationalized from a lay perspective. The study of contraceptive practices in Benin should throw light on many of the factors that determine acceptance and use. In-depth study of the small minorities who are users of contraception may give insights into their motivations and intentions, the source of demand and how to increase it. In particular, a better understanding of the personal experience of modern contraceptive users may be the key to improving services provision and the starting point for strategies that are appropriate to the expansion of family planning and reproductive health services.

This study aims at understanding the dynamics of reproductive behaviours in Benin, with a particular focus on contraceptive use. Its specific objectives are:

. to investigate the trends and differentials in fertility in Benin.

. to determine the socioeconomic and demographic profile of women using modern and traditional contraception.

. to analyse local perceptions and practices that influence attitudes and adoption of modern contraception.

1.4. An outline of the Thesis

This first chapter has set the research context and identified the main research question. Next, will be a review of current knowledge about fertility trends in Sub-Saharan Africa and the controversies surrounding possible changes. In chapter 3, the data sources are described with an overview of the methods to be used in the analyses. More details are given in the results chapters which are outlined in this section.

Chapter 4 is concerned with two basic questions: how good is the quality of data collected in the Benin DHS as compared to the WFS and what are the trends in fertility levels over the past two to three decades? It uses standard P/F ratio techniques to critically review birth history data from both surveys. Following the observation that irreversible transition is underway in Benin, the chapter analyses the differentials and age patterns of the changes that are occurring.

Because fertility decline is underway in Benin, it is important to understand its nature and determinants. Chapter 5 analyses change in the family formation patterns in order to evaluate whether the Benin transition is primarily the result of child limitation or longer birth intervals. In addition, chapter 5 discusses the importance of the intermediate variables in throwing some light on the determinants of reproductive change.

It is widely believed that contraceptive practice would be the main driving force behind African fertility declines. Therefore, the finding that fertility decline is underway in Benin calls for a closer look at the association between contraception, family size intentions and children born

to women. Chapter 6 examines the profile of demographic innovators on the basis of women's family size intention and achievements. Subsequently, the relationship between contraceptive use and demographic innovation is assessed using logistic regression models.

Chapters 7 and 8 present a different kind of information. In view of changing fertility levels and reproductive patterns, and given that contraceptive prevalence is so low in Benin, it is important to understand what causes women to desire smaller families and why they are not using modern contraceptive methods. In chapter 7 change in normative values regarding fertility and its associated traditional practices are explored. This chapter draws essentially on focus group discussions and other ethnographic data to build an understanding of the social forces that support the ongoing changes in Benin. In chapter 8, women's experiences and individual beliefs are used to analyse the factors that determine contraceptive decision-making. Contrary to initial plans, this chapter called for the use of the demographic innovation model and fully shed light on many of the grey areas that emerged from the data presented in chapter 6.

In chapter 9, both qualitative and quantitative data are drawn upon to discuss the significance of the findings from policy as well as research perspectives. This chapter ends with recommendations that are in line with theoretical and practical considerations.

Chapter 2

Literature review

2.1. Introduction

Fertility decline is a major demographic event because, in most of the societies where it has already occurred, it was accompanied by profound societal transformations. Explaining the onset of fertility decline has therefore become a fundamental objective of demographic enquiry for most of the twentieth century. There has been much interest in African fertility regimes in the last two to three decades because, until recently, Sub-Saharan Africa was the only major region still not participating in what was otherwise a worldwide fertility decline, and this has given rise to the concept of the "Sub-Saharan African Exception" (Caldwell and Caldwell, 1977). The primary aim of this chapter is to highlight the patterns of changes in childbearing trends in Africa and their implications. But before embarking on a review of fertility changes in Sub-Saharan Africa, it will prove useful to recall some important aspects of demographic transition.

2.2. Demographic transition: definition, stages and interpretations

Demographic transition is the process which results in a society passing from one state of population equilibrium with high mortality and high fertility to another state of equilibrium where both mortality and fertility are low (Chesnais, 1992; Watkins, 1986)[1]. In its classic description, demographic transition is depicted as a two-phase phenomenon. Prior to the transition, both mortality and fertility are high and approximately equal thereby generating low population growth. In this period, there may be short term fluctuations in birth and death rates, caused by war, famine or disease, which Malthus (1973), described as nature's positive checks on the expansion of human species. In the first phase, the "destabilisation period", mortality declines substantially while fertility levels remain high, resulting in high population growth

[1] Recently, there have been suggestions that replacement level fertility may not be the end of the process and in many developed countries there is evidence that below-replacement fertility will be in force at least for the next two to three decades.(see for example Ross and Frejka, 1999)

rates[2]. The second phase is characterised by declining fertility rates. Countries which have completed this phase show fertility levels that are low and comparable to mortality levels, the effect of which is another population equilibrium over the long run. The search for a causal mechanism and conditions that go hand in hand with the onset of mortality and fertility transitions has led to the formulation of what is now known as demographic transition theory (Notestein, 1945; Davis, 1963). The initial formulations clearly underlined the relationship between child survival and fertility decline, for example, when Davis (1963) characterized demographic transition as a phenomenon of change and response. Although recognizing the importance of mortality, the overwhelming majority of theoretical developments have focused on the onset of fertility decline because the changes in mortality levels can easily be ascribed to improved hygiene and medical advances. Among population scientists, three preconditions are generally agreed upon for fertility to decline (Coale, 1973):

. fertility must be within the calculus of rational choice;
. lower fertility must be perceived as advantageous;
. effective techniques for fertility reduction must be available and known.

With these preconditions in mind, reflections on the issue have often been at two broad levels. On the one hand, there is an attempt to describe the patterns of changes during the transition period. This has been done, for Europe, using studies of local and regional microsystems between 1750 and 1940. The most extensive undertaking of this type is that of the Princeton European Fertility Project (Coale and Watkins, 1986). More recently, studies of fertility decline in Asia and Latin America used data from the World Fertility Surveys and the Demographic and Health Surveys (Leete and Alam, 1993; Guzman et al., 1997). For example, both empirical and contemporary data show that once fertility decline has started in an area, it is usually irreversible and spreads over quite rapidly. It has also been observed that in a given setting, fertility decline starts with the most educated, urban elite of the community before it spreads to the other social strata.

---

[2] It has been observed that high population growth rates may not only be the result of lower mortality but instead a combination of a decline in mortality levels and a rise in fertility (Dyson and Murphy, 1985). In addition, there are suggestions that mortality decline may not always precede fertility decline, even though examples of such cases are suspected to be methodologically flawed (Chesnais, 1992)

Efforts have also been devoted to the identification of the socioeconomic and cultural factors that explain the onset of the process of change in fertility levels. Both macro and micro-level analyses have been conducted. At the macro level, outcome variables such as birth rates, fertility rates and sometimes contraceptive prevalence rates have been used in regression models where explanatory variables have often been those characterizing either the social or the economic context of the countries involved. At the micro level, outcome variables are often contraceptive use status, birth intervals and other proximate determinants of fertility with independent variables such as education, incomes, occupation, place of residence. This type of model has had major policy implications. For example, the Bongaarts' proximate determinants model (Bongaarts, 1982) and latter findings by Jain (1989) and Robey et al. (1992) regarding the relationship between contraceptive prevalence and fertility have played a key role in the definition of population policies in many developing countries (see for example Gould (1995) for a discussion, with an emphasis on the case of Kenya).

Ideally a theory of fertility decline should not only be able to explain historically observed changes in fertility, but also provide the basis for predicting, with some degree of accuracy, the patterns of changes that would occur in a country given the stage it has attained regarding posited explanatory variables. However, perhaps one of the most significant facts in the history of demographic transition over the last ten years is the realization, after almost half a century of debates, that no simple mono-causal framework can completely explain the decline in fertility (Cleland, 1994; Kirk, 1996; Mason, 1997). "*No one really understands the fertility transition in places where it has occurred.*" said Cohen (1995:p148). The number of different tentative explanations of fertility transition is impressive. For example, Dirk van de Kaa (1996) in a review of findings of fifty years of research into the determinants of fertility, identified three levels according to how specific authors have been in their approaches. Each narrative or sub-narrative views the process of transition from a different angle but none, on their own, are applicable to all experiences of demographic changes. A detailed discussion of all these explanatory approaches is beyond the scope of the present chapter (see for example van de Kaa, 1996; Mason, 1997). However, three main lines of interpretation are briefly reviewed, owing to their relevance for understanding African fertility transitions.

2.2.1. The economic explanation: a theory of fertility transition?

The narrative

The economists' initial approach to fertility transition, the so-called demand theory, is highly rooted within the framework of consumer behaviour which views the individual as trying to maximize satisfaction, given a range of goods (such as cars, refrigerators or children !), their prices, his own tastes and income (Leibenstein, 1974; 1975; Schultz, 1974; Becker, 1981). By adding the notion of supply (the cultural constraints that determine natural fertility) and by broadening the concept of cost to account for monetary, time and psychic constraints to the use of birth control, Richard Easterlin came out with a more sophisticated model: the demand-supply model of fertility decline (Easterlin, 1975; Easterlin, Pollack and Wachter, 1980; Easterlin and Crimmins, 1985). In opposition to the natural fertility paradigm, the demand-supply theory asserts that fertility decisions are rational in both pre-transitional and modern societies. In traditional societies, children are a valuable asset because they can bring financial benefits to their parents even at young ages; they are an investment for the future, an 'insurance' for old age both for subsistence and against a hazardous environment. In modern societies, new job opportunities for women and the increases in the costs of childbearing and child rearing changes the economic value of children who become 'economically' less profitable. Reduced demand is the result of a shift in the balance between the benefits of having many children and the costs of achieving large family sizes, a direct consequence of modernization viewed as a socioeconomic development process. The conscious, rational choice between the benefits and the costs (purely economic as well as psycho-sociological), "the utilities and dis-utilities", of having versus not having many children is the cornerstone of the decision process to low fertility. This approach is purely inductive in the sense that it drew most of its central theses from early analyses of historical European data. The demand-supply model has been dominant over the last two to three decades, probably because of its "mathematical" rigour and its intuitive appeal. It is certainly this characteristic that justified its adoption in the massive US-funded study of the determinants of fertility in developing countries (Bulatao and Lee, 1983).

An "African" version of demand theories of fertility transition is the wealth flow theory, a sociological restatement developed by Caldwell (1978; 1980a; 1980b; 1981). The mainstream argument developed by Caldwell is that familial production in Africa is characterized by "inter-generational exploitative economic relations" which favours the older generations in Africa. Therefore, fertility will decline only when the net flow of the inter-generational wealth reverses (i.e. becomes economically less advantageous for parents). This will come about with the advent of modernization, or more specifically westernization, a term he uses to characterize the adoption of new behaviours that would lead to greater emotional and economic nucleation within couples. Westernization is induced by increased education and the availability of new job opportunities for women, all of which generate greater a burden for childbearing and child rearing. Caldwell, until recently, has always stressed that Africa is different from other regions and may not undergo fertility transition unless fundamental changes occur in the family system, namely the erosion of traditional kinship obligations. The wealth flow theory, which is heavily based on data from Sub-Saharan Africa (Nigeria and Ghana to be specific), has been criticized mainly because many of its key variables were not readily measurable for testing purposes (Shultz, 1983; Thadani, 1978; Cain, 1982). Even when measures and data became available, tests of the model found results that were not in the expected direction (Kaplan, 1994; Stecklov, 1997). However, Caldwell's work has been useful in improving researchers' understanding of the interrelation between reproduction and social organization in the region[3].

Testing "the theory"

When subjected to extensive tests, all theoretical models have proved inadequate for both description, explanation and prediction. Results from the European Fertility Project found no clear and consistent association between fertility decline and modernization variables at either the individual or aggregate levels. Decline in fertility levels occurred in Europe even while child mortality was well above those observed in some African countries where decline is yet to come (Coale and Watkins, 1986) and in developing countries under a wide variety of socioeconomic development levels (Bongaarts and Watkins, 1996). For example, it was considered that fertility decline would not occur in developing countries unless a minimum level of social and economic

[3] Other research work such as Page and Lesthaeghe (1981) and Lesthaeghe (1989) also merit citing.

development is reached. Yet, fertility declined in countries such as Bangladesh, India, Kenya, Botswana and Thailand in periods when standards of living changed little over time (see for example Hirschman et al., 1993). The Latin American experience goes even further to show that it is possible for different models of transition to take place in the same country. An example of such phenomena is the fact that fertility decline occurred in the larger cities of these countries because of urbanization and increases in female education, while in the rural poor areas the decline was primarily driven by the "plentiful availability of modern contraceptives" (Zavala de Cosio, 1988; 1997). The many exceptions which clearly did not follow the proposed paths and, sometimes, apparent asynchrony observed between the changes in socioeconomic variables and fertility have pointed to the poor predictive value of the models. It is now clear that fertility transition is the consequence of a combination of factors which come from a diversity of sources. Therefore, there is a need for a case by case analysis to identify what factors might be or have been crucial in the onset of fertility transition in a particular region.

2.2.2. The innovation-diffusion framework

The innovation-diffusion approach to fertility decline is the direct result of a severe rebuttal to demand theories following the Princeton European Fertility Project (Cleland, 1985; Coale and Watkins, 1986; Cleland and Wilson, 1987). Simply defined, "*... diffusion is the process by which an innovation is communicated through certain channels over time among members of a social system.*" (Rogers, 1995:p5). The term innovation is usually understood as either a product, technique, practice or an idea that is intrinsically new or new to a particular setting. From the demographic transition standpoint, this new product can be expressed in various ways, for example contraceptive knowledge and use or the motivation for birth limitation. In its general form, innovation diffusion is viewed from three different, although interrelated, perspectives. First is the adoption perspective which focuses on the individual's behaviour and how information about the innovation is communicated from one person to the other. Secondly, the market and infrastructure perspective is related to facilitating factors such as access to the innovation or the way in which it is differentially made available to various socioeconomic or demographic categories of potential adopters. Thirdly, the development perspective focuses on the interrelation between technological diffusion, economic development and social change

(Brown, 1981). As regards the fertility transitions, these three perspectives underline the fact that birth control diffusion may occur in a spontaneous manner once the conditions for its demand are met, but its onset may also be encouraged and facilitated by government policies and family planning programmes, especially through availability and enhanced quality of services.

At the individual level, the literature on diffusion of innovations indicates that friends, relatives and neighbours can be important sources of information and support for acceptors of the "new product". In the broad sense, these models suggest that social networks, especially interpersonal relations, provide an important conduit through which family planning information and, more generally, small family ideas may be transmitted (Montgomery, 1993; Mita and Simmons, 1995). The central tenet of this theory is that adoption of an innovation is primarily the result of a learning and communication process. In other words, "... *the behaviour of individuals is heavily influenced by the behaviour or perceived behaviour of others with whom they interact.*" (Cleland, 1998:p7). In examining the diffusion process, it is therefore important to identify factors related to the effective flow of information, the characteristics of information flows, information reception and resistance to adoption. Opposition to adoption may come from either the individual's general propensity to adopt innovations or the congruence between the innovation and the social, economic and psychological characteristics of the potential adopter (Brown, 1981). Thresholds and critical mass are also important characters of the diffusion process because different threshold levels may be required to induce changes depending on the socioeconomic characteristics of the regions under study. For example, Valente (1995) observed that low threshold adopters tend to be far more cosmopolitan and exposed to the mass media while high threshold adopters rely to a greater extend upon interpersonal persuasion to adopt an innovation. In the absence of individual level data, diffusion models have been applied to country data in Africa as well as Asia, Europe and America during the 1990s (Watkins, 1991; Diamantides, 1992; Montgomery and Chung, 1994; Valente, 1995; Valente et al.,1997; Rodriguez 1997; Bongaarts and Watkins, 1996). In particular, Bongaarts and Watkins (1996), using data from 69 developing countries between 1960 and 1990, observed that within macro-regions there are transition leaders where fertility declined first (the most industrialized, literate and most urban states). Then, others in geographic proximity followed through diffusion, often before they have attained the level of development that induced transition in the leader country (Mason, 1997).

2.2.3. The proximate determinants' model

The proximate determinants' model belongs to the general narrative of the biological and technological determinants of fertility (van de Kaa, 1996). In analysing what factors affect childbearing, Davis and Blake (1956) identified eleven biological and behavioural variables related to intercourse, conception and gestation, and through which social and cultural factors act to determine the level of fertility in a given area. Using data from 23 developing countries, eight developed countries and ten historical populations, Bongaarts (1982), showed that 90% of variations in the level of fertility may be accounted for by only four of these intermediate variables, namely marriage, contraception, induced abortion and post-partum infecundability. This observation would hold for most regions of the world except where there is a high level of pathological sterility. To measure the effects of these intermediate variables, a set of four indices, C_m, C_c, C_a and C_i, each ranging from 0 (strong effect) to 1 (no effect) which measure the relative contribution of marriage patterns, contraception, induced abortion and post-partum infecundability to the level of fertility, have been introduced. The formal equation summarizing this is the following:

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

A key feature of the Bongaarts' model is that it gives a clear picture of how the intermediate variables affect fertility measures and how these effects change over time during the various transitional stages. In particular, this model suggests that contraception, the effect of which is very weak in the early transitional phases, increases gradually to become the most important fertility inhibitor at the end of the demographic transition. Because of its simplicity and its focus on only a few of the proximate determinants, the Bongaarts model has been very attractive and its applications have proliferated in developing countries in the last two decades. Although the model has been criticized (Hobcraft and Little, 1984; Reinis, 1992; Jolly and Gribble, 1993), it has proved very useful and generally consistent in understanding patterns of fertility decline in many countries.

2.3. Lessons learned: back to square one?

A number of researchers have suggested that demographers got it wrong the moment they assumed, among others[4], that all fertility transitions are induced by the same factors (Greenhalgh, 1990; Szretzer 1993; Hirschman, 1994). However, there is growing consensus and a wealth of evidence in support of viewing demographic transition in a long-term perspective whereby lower fertility is necessary to offset the destabilisation induced by decreased mortality rates (Wilson and Airey, 1999). However, there is now evidence that helps integrate the various competing narratives in a way that underlines their relationships. Drawing on the lessons learned from the fifty years of conjectures, Karen Mason (1997) in her presidential address to the 1997 annual conference of the Population Association of America, proposed a synthesis framework in which fertility decline is the outcome of how the following key factors are perceived among reproducing couples or women[5]:

. child survival probabilities;

. child cost and benefits;

. costs of post-natal versus prenatal controls on family size composition

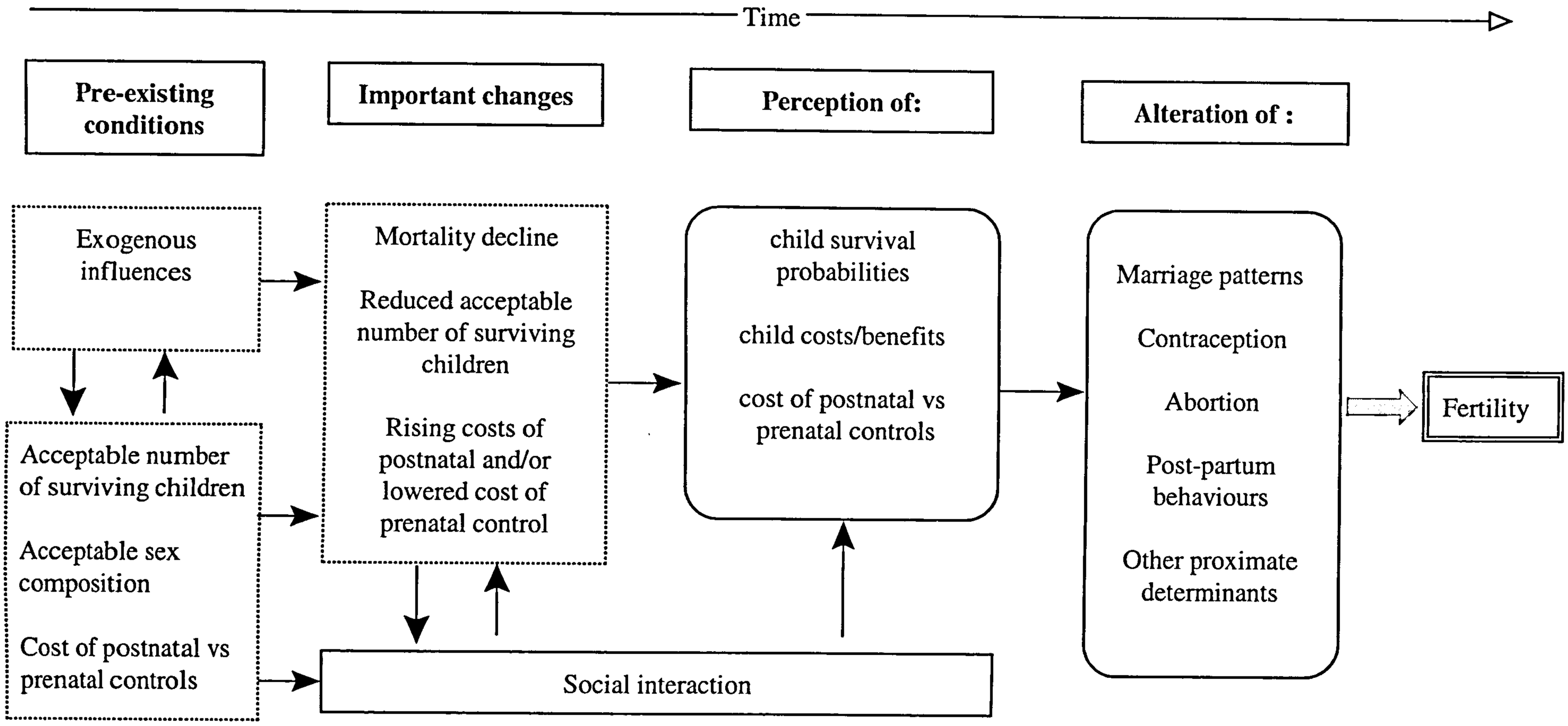
This framework asserts that fertility decline is a delayed response to increasing probabilities of child survival (i.e. reduced mortality). Moreover, the pace at which changes in the key factors are perceived and reacted to, in terms of fertility regulation is influenced by initial conditions, the exogenous influences and the type of social interactions involved. The model implies that the diversity of pre-existing conditions and exogenous influences and the possibilities of combining these are such that it is unrealistic to expect different countries to follow the same path to the transition.

---

[4] For example most analyses seem to have assumed that fertility regulation in post-transitional and pre-transitional societies are fundamentally different.

[5] Obviously, these three key determinants influence each other although they may also be affected by other exogenous factors. For example, if mortality decreases, the burden of raising more surviving children may drive women to reconsider the cost/benefit of children or the cost of post natal versus pre-natal control. Similarly, the existence of a good family planning programme can affect women's perception of how pre-natal birth control compares to post-natal regulation.

Figure 2.1. A framework for analysing fertility transitions



Therefore, reflexions need to be shifted towards understanding the unique combination of factors which may trigger fertility response to lower mortality in a given setting. In other words, one of the competing explanations of fertility transition may be more relevant to a specific region or society compared with others. However, though implicitly assumed, this model did not specify that alteration of fertility necessarily happens though change in one or more of the proximate determinants. Thus, a more complete model requires four temporal levels to be specified: the pre-existing conditions, the important changes, the perception of these changes and the alteration of behavioural and biological factors to affect fertility. By modifying slightly the model proposed by Mason and by adding to it the fourth level one obtains the framework proposed in figure 2.1. A simple translation of this framework is that while perception of change in the key factors (child survival, child cost/benefits, relative cost of control mechanisms) is the engine of fertility change, diffusion is the lubricant and the proximate determinants are the mechanisms of action (Cleland, 1999). Given the amount of data presently available and the fact that each theory has its own counter examples, it is highly likely that this attitude of "no win"[6] will prevail over demographic transition research in the next few decades.

2.4. Fertility in Africa: what do we know?

Fertility trends in Sub-Saharan Africa have been the object of heated debates among demographers. Moreover, some authors have been very pessimistic over the likelihood of any fertility decline in the foreseeable future (World Bank, 1986; Caldwell and Caldwell, 1988; 1990). Two dominant views emerge when analysing the reasons why it has taken so long for fertility to decline in sub-Saharan Africa. The first posited that the region is more underdeveloped than any other region of the world and that the persistence of high fertility needs little further explanation. Although there is no doubt about the development level of the Sub-Saharan African region, the discussions in the previous sections suggest that this cannot be the main factor explaining the persistently high fertility rates recorded until the late nineteen eighties.

The second school of thought explained it in terms of the unique social organization of this region. Different reasons are cited as organizational factors supporting the perception that in

---

[6] or more positively "win-win"

Sub-Saharan Africa, having many surviving children is necessary and morally correct. One reason is economic and relates to the importance of manpower for both access to land and productivity, enhanced by polygyny, the existence of separate spousal budgets and weak conjugal bonds. Another reason is the kinship system which values allegiance of adults to their lineage and stresses the importance of ancestors, both living and deceased. In sum, African parents benefit from their children in terms of economic and social support throughout their lives until their death and even afterwards in forms of highly valued funeral rites (Caldwell and Caldwell, 1987; Lesthaeghe, 1989). By practising prolonged breast-feeding and post-partum sexual abstinence, African societies seek to reduce child mortality as well as safeguarding the mother's health. As indicated by Lesthaeghe (1989), "*In addition to the concern about child survival, the health of the woman who constitutes the productive and reproductive capital of kinship groups, requires protection against exhaustion by rapid procreation.*" (p. 16). While this descriptive picture seems well anchored, the theoretical implications have certainly gone too far in their generalisation, as evidenced by recent findings in relation to fertility trends.

2.4.1. Demographic transition in Africa: the evidence

From the late 1950s to mid 1960s, fertility levels were widely variable across Sub-Saharan Africa and TFRs varied from a lowest of 3.5 in Gabon (1960-61) to a highest of 7.4 in Côte d'Ivoire. The generally low fertility rate observed in most countries in the central region of Sub-Saharan Africa was attributed to widespread prevalence of pathological infertility due to sexually transmitted diseases. Studies show that mortality rates in the corresponding period were also high but started to decline. By the end of the nineteen sixties, mortality decline became widespread and some countries such Kenya and Sudan were already experiencing natural growth rates of about 3 percent per annum. Brass et al. (1968), in the first comprehensive review of fertility and mortality levels in Sub-Saharan Africa, concluded that the region was entering a phase of rapidly accelerating population growth. It is certainly this exponential population growth and its potential environmental consequences that triggered interest in fertility in the region. Fertility levels during the late sixties to the early eighties show no clear trend in any of the countries for which data was available except in the west-central region where it seems to have increased. Estimates for the last ten to fifteen years show that fertility levels are still high in most countries, with total fertility rates generally exceeding five births per woman.

However, since Kenya in the late 1990s, transition theorists have been avidly watching total fertility rates in other African countries in order to detect downwards trends. This is reflected both in the sharp increase in the number of countries that have been covered by DHS surveys and the wealth of national or regional comparative studies that have been published (Caldwell, Orubuloye and Caldwell, 1992; Freedman and Blanc, 1992; Foote, Hill and Martin, 1993; Brass and Jolly, 1993; Locoh and Hertrich, 1994; Onuoha and Timaeus, 1995; Lesthaeghe and Jolly, 1995; Bongaarts and Watkins, 1996; Gould and Brown, 1996; Kirk and Pillet, 1998; Mboup and Saha, 1998; Cohen, 1998). It is now known that, contrary to the views of earlier Afro-pessimists, a clear trend of regional transition is emerging. For example, the most recent of these analyses found that moderate to large declines in fertility levels (1.5 child per woman or more) have taken place in ten countries while twelve others showed smaller decline of less than one child per woman (Cohen, 1998). Unfortunately, besides Kenya, Zimbabwe and Botswana where extensive investigations have been conducted, studies of fertility trends in other African countries have often remained at the level of two-point comparisons and, in a few cases, the examination of changes in the proximate determinants, particularly contraception.

Studies of the mechanisms of changes, specially through the proximate determinants' model have also revealed some unique patterns. The advent of the WFS has enabled, for the first time, extensive enquiries into the proximate determinants framework in developing countries. Analyses of such data have given valuable insights into the complexity of the relationships between fertility and its proximate determinants in Sub-Saharan Africa. The main conclusions from WFS data for Sub-Saharan Africa were that of early and universal marriage, long post-partum infecundability due to long breastfeeding and post-partum abstinence and uniformly low prevalence of use of modern contraception. More recently, DHS data have revealed substantial changes, with trends towards later age at first marriage in younger age-groups in many countries (Westoff, Blanc and Nyblade, 1994). Post-partum infecundability remains a persistently strong component of fertility while in a few countries such as Kenya, Zimbabwe and Botswana, the fertility inhibiting effect of contraception has become more important (Jolly and Gribble, 1993). But even then, there are indications that contraceptive use in most African societies is still associated with continued demand for children as is exemplified by wanted family sizes recorded in most DHS surveys in the region (Cleland, Onuoha and Timaeus, 1994; Mhloyi, 1994). In

addition, some studies have suggested that there may be a considerable amount of redundant use (or double protection) as in Zimbabwe (Brown, 1997).

2.4.2. The paths of influence

The decline in child mortality, "the common cause" as it is called, is now a reality in virtually all African countries even though mortality levels are still unacceptably high by world standards[7]. How individual countries react to improved child survival would depend on the constellation different factors that may trigger changes in the perception of child benefits compared to their costs and the adoption of prenatal versus post-natal control behaviours. One path of influence has been proposed by Caldwell and colleagues: increased education and job opportunities for women (Caldwell, 1987; Caldwell, Orubuloye and Caldwell, 1992). This has been observed in all pioneer countries, but still, its importance in the newly emerging states in the African demographic transition remains unclear.

A second pathway is through economic and social crises as suggested by Boserup (1985). Because this presupposes the existence of a prior period of "rising aspirations with respect to living standards and returns from children", Lesthaeghe and Jolly (1995) suggested that it may be restricted to urban areas but also to rural women in countries which had performed well economically after their independence. This scenario is highly likely as indicated by the massive study initiated by the "Institut National d'Etudes Demographiques (INED)" in France (Coussy and Vallin, 1996). Locoh (1994) warned against the generalizability of the crisis-led transition hypothesis when she said: "*All those, and they are many, who without admitting it, expect the economic crisis, exacerbated by structural adjustment programmes to persuade populations to limit their fertility should meditate the case of Ghana...*" (p:127).

Current knowledge about demographic transitions around the world provide ample support to the perception that both factors (improvement in education and economic considerations) may be

---

[7] In some countries, there are fears that prolonged economic crises with resulting inevitable cuts in social and medical expenditures by governments may have a reversing effect on child mortality and school enrolment, particularly for girls. However, as Gould and Brown (1996) pointed out, that an increase (most probably temporary) in child mortality needs to induce a rise in fertility to validate demographic transition theory would no doubt, be ironic.

relevant to African societies, either in isolation or in combination. There are indications that most of the changes in childbearing are associated with increasing prevalence of modern contraception. Even though contraceptive use is more for spacing purposes than parity-specific limitation of births, studies have revealed that, at least in a few countries, contraceptive use for birth limitation is becoming predominant (Westoff and Bankole, 1995). This has strengthened the proponents of a contraception-driven model of fertility decline in the region. It is believed that the low contraceptive prevalence observed in the majority of countries may also be associated with institutional factors such as lack of coherent population and family planning programmes due to weak policy support and generally inadequate resources. However, in many countries, there have also been shifts in the political arena, resulting in the adoption of population policies with clear goals of fertility reduction. Roudi (1991) has documented that nearly 20 countries have adopted population policies by 1991. Many more countries have already joined this list since and in most other countries, family planning programmes are implicitly encouraged or at least tolerated by governments. Despite earlier rejection (Frank, 1987), it is possible that abortion may also be playing a crucial role in the observed fertility trends. But this issue has been difficult to document because of lack of reliable data.

Following the World Fertility Surveys, there have been great concerns about the likely effect of reduced post-partum infecundability which would result from the erosion of traditional practices such as breast-feeding and post-partum sexual abstinence. This has led theorists to forecast a two-phase transition with an increase in fertility followed by a decline associated with rising levels of contraceptive practice (Page and Lesthaeghe, 1981; Bongaarts, Frank and Lesthaeghe, 1984). While there are indications that fertility may increase prior to widespread decline (Dyson and Murphy, 1985), little reliable data exist to test such a proposition in Africa and the available information permits no definite conclusions. Even for countries which participated in both WFS and DHS programmes, the evidence seems to be that post-partum infecundability at national levels is at best stable (Cleland, Ali and Capo-chichi, 1999).

The pessimism over the likelihood of a widespread fertility transition in Africa is certainly over and, as in other regions of the world, Africa will undergo a global demographic transition. Whether the current trend will result in replacement (or near replacement) levels of fertility

remains unclear however, because even countries which are considered at the forefront of the transition process still present fertility levels that are generally above four children per woman. Given the increasing links with other parts of the world through communication and transportation networks, ideas and messages can be diffused that permeate cultural barriers to varying degrees. The diversity of socioeconomic conditions of the countries entering the fertility transition in Africa seems compatible with a diffusion process as indicated by Bongaarts and Watkins (1996). It is highly plausible that the cultural adaptations to innovative behaviours regarding fertility which are bound to occur may be taking place more rapidly than anticipated.

Chapter 3

Data and methods

3.1. Introduction

One of the goals of this research is to analyse changes in reproductive patterns, especially contraceptive behaviours, reproductive intentions and motivations in Benin. As has always been the case with this kind of analysis, quantitative or qualitative methods alone are insufficient to give a clear picture of what really is going on at the individual level. For these reasons, this study uses a combination of quantitative and qualitative tools to address the main research questions. This approach is particularly useful in studies of reproductive practices because "*... the particular limitations and strengths inherent to each method suit them ideally to complement each other in a unified research design*" (Wolff, Knodel and Sittitrai, 1993: p119). The mixing of qualitative and quantitative approaches has been increasingly used in the investigation of fertility behaviours, the former giving a more in-depth view, the latter making general inferences possible (see for example Salway, 1996; Blanc et al., 1996). The aim of this chapter is to describe the data used in the study and how they were collected. Then, the methods of analysis are briefly presented followed by an outline of the contents of each of the subsequent chapters.

3.2. Quantitative data sources

3.2.1. Background and comparability of DHS and WFS data

In most Sub-Saharan African countries the only data sources that allow a simultaneous analysis of fertility and its determinants at a national level are the World Fertility Surveys (WFS) and the Demographic and Health Surveys (DHS). In Benin, a WFS and a DHS survey have been conducted in 1982 and 1996 respectively. Both surveys used multistage cluster sampling methods to collect data from nationally representative samples of women of reproductive age: 4018 for the WFS and 5491 for the DHS. This research mainly uses data from the 1996 DHS. However, the 1982 WFS data provides the opportunity to evaluate changes in fertility patterns over a time span of approximately 30 years and is used for this purpose. The extent to which WFS and DHS data are comparable is an important issue if they are to be used for trend evaluations. Both WFS

and DHS programmes have a household schedule and a core questionnaire complemented by various modules. In Benin, the two surveys collected information on women's background characteristics and maternity histories, marriage, contraceptive use and post-partum variables. Although the questionnaires were not similar in all respects, the questions on these key demographic events sufficiently overlap to allow comparability between the two sets of data.

3.2.2. Data quality

Reporting biases are the major concern in demographic enquiries, the most important of which are those on age and date reporting, and omission or displacement of vital events such as births and deaths. Obviously, conclusions may be seriously biased if they are drawn from data affected largely by some of these errors. For that reason, special attention is paid to the quality of both 1982 WFS and 1996 DHS data in this section and throughout subsequent chapters in the thesis.

The quality of data collected through the WFS and DHS surveys has been the subject of lengthy discussions (see for example Singh, 1987; United Nations, 1987; Chidambaram, Cleland and Verma, 1980 for the WFS and Arnold, 1990 for the DHS). The WFS data is of acceptable quality except in a few countries where there were serious distortions of the data concerning specific topics. For example, earlier evaluations of the Benin WFS identified problems of digit preference as in most other African countries (Singh, 1987). There was also evidence of omissions of births by older women. However, the study concluded that birth reporting was good, at least for the most recent five-year period that preceded the survey. Although these analyses call for considerable caution in the interpretation of the WFS data, there is no reason to believe that fertility rates calculated from these data are not broadly correct.

Evaluations conducted for the various surveys of the DHS programme indicated that no significant omission of births occurred in any country and that reasonably complete and accurate information on births has been obtained in all DHS countries (Arnold, 1990). Although the Benin DHS data was not part of this evaluation, there is little reason to conclude that they would be of lower quality. In effect, during the fieldwork, there were weekly meetings in which the author participated as a member of the country coordinating team. In addition to reviewing progress in

data collection and discussing solutions to various field problems, these meetings also served as a forum to assess aspects of data quality including coverage of women and children as well as age reporting. There was no sign of serious distortion of the data during field monitoring. Inevitably, there would be issues of data quality that need to be handled in the best possible way at the analysis stage. These will be discussed in specific chapters.

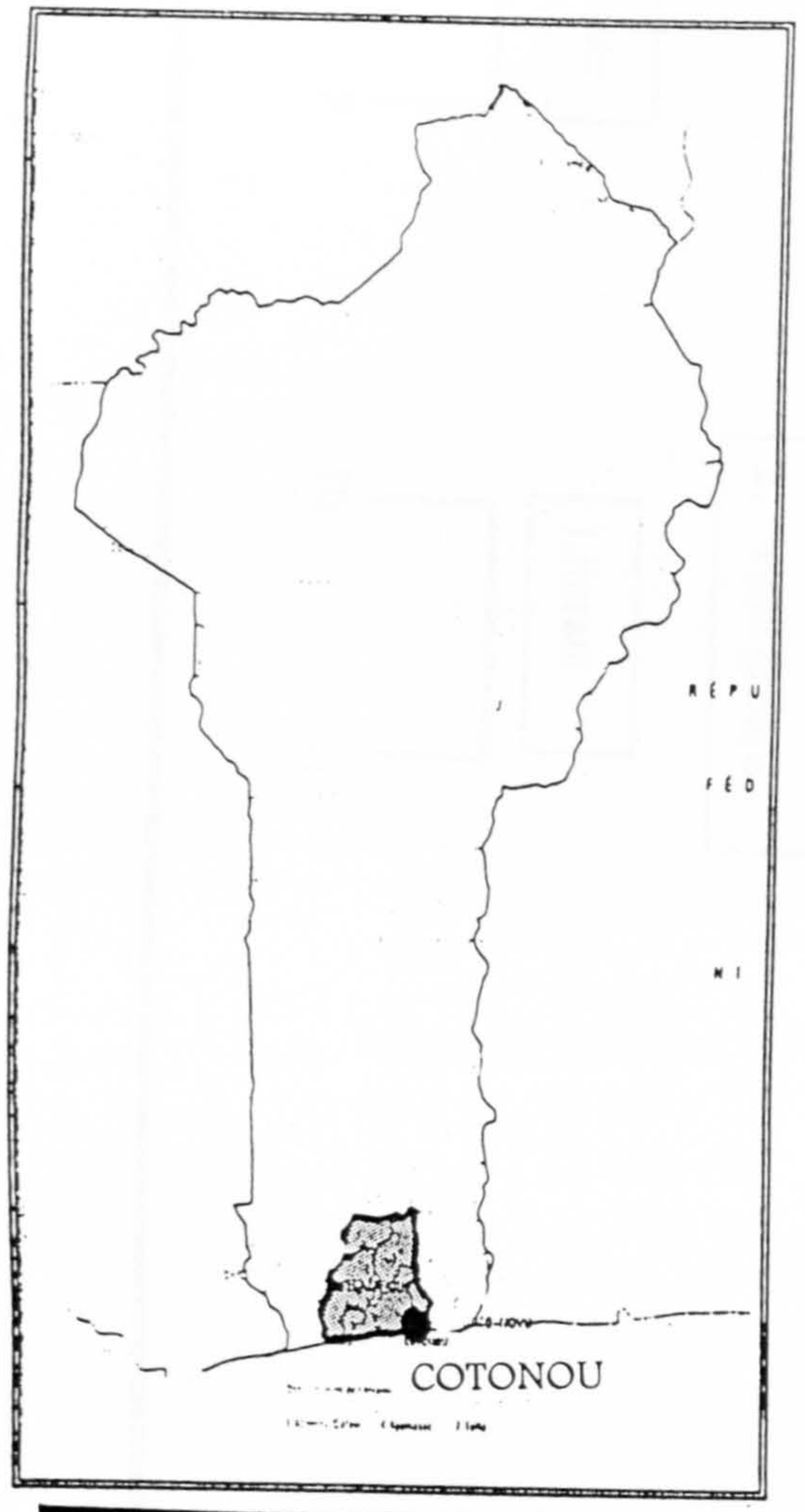
3.3. Qualitative data sources and methods

3.3.1. The setting

The qualitative data were collected in Cotonou, the largest and most "modern" city of the country. Cotonou is located in the Atlantique region (see Figure 3.1). It accounts for more than 10% of the total population of Benin and about 30% of the urban population. Virtually all ethnic groups are found in the city, but the most used language is that of the Fon ethnic group. This cultural diversity is thought to be one of the major causes of rapidly changing social and cultural norms in many aspects of everyday life. The most prevalent economic activity in Cotonou is trading of food and other domestic goods and services. In 1996 for example, approximately 80% of women in Cotonou were in the trade industry whether large or small. The adult literacy rate is 49%, much higher than in any other area of the country (Benin, 1994a; 1997c). It is a rapidly expanding city, with a population growth rate of approximately 4% between 1979 and 1992 (Guingnido, 1993).

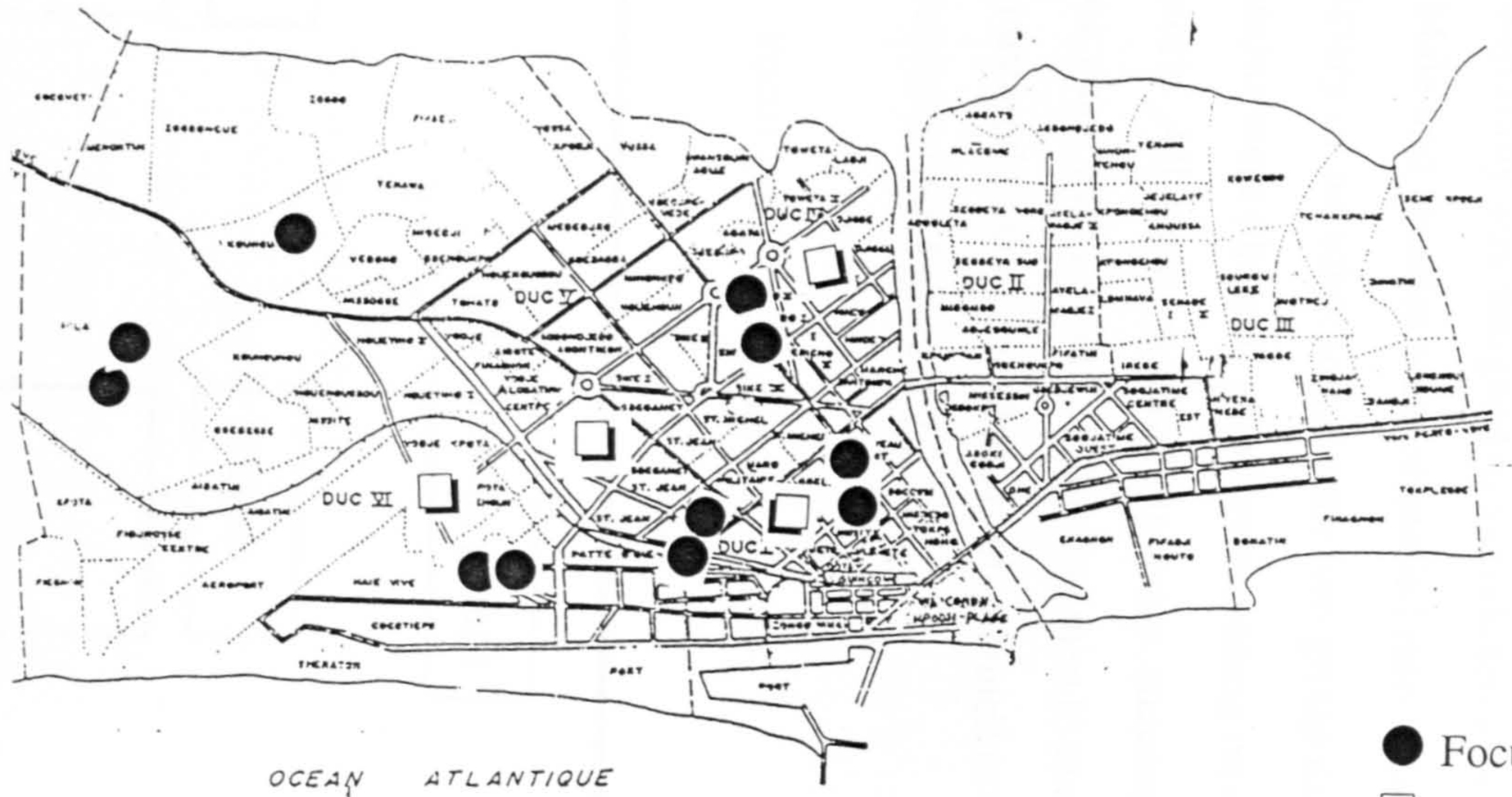
The selection of Cotonou for the qualitative research is mainly based on the assumption that it would represent the leading edge in any fertility decline that could occur in the country and, therefore, is the most appropriate setting for investigating the social context of reproductive changes that may be taking place. The qualitative study was carried out in two phases: first, a focus group study followed by in-depth interviews.

Figure 3.1. Study setting



département de l'atlantique

Cotonou and the Study sites



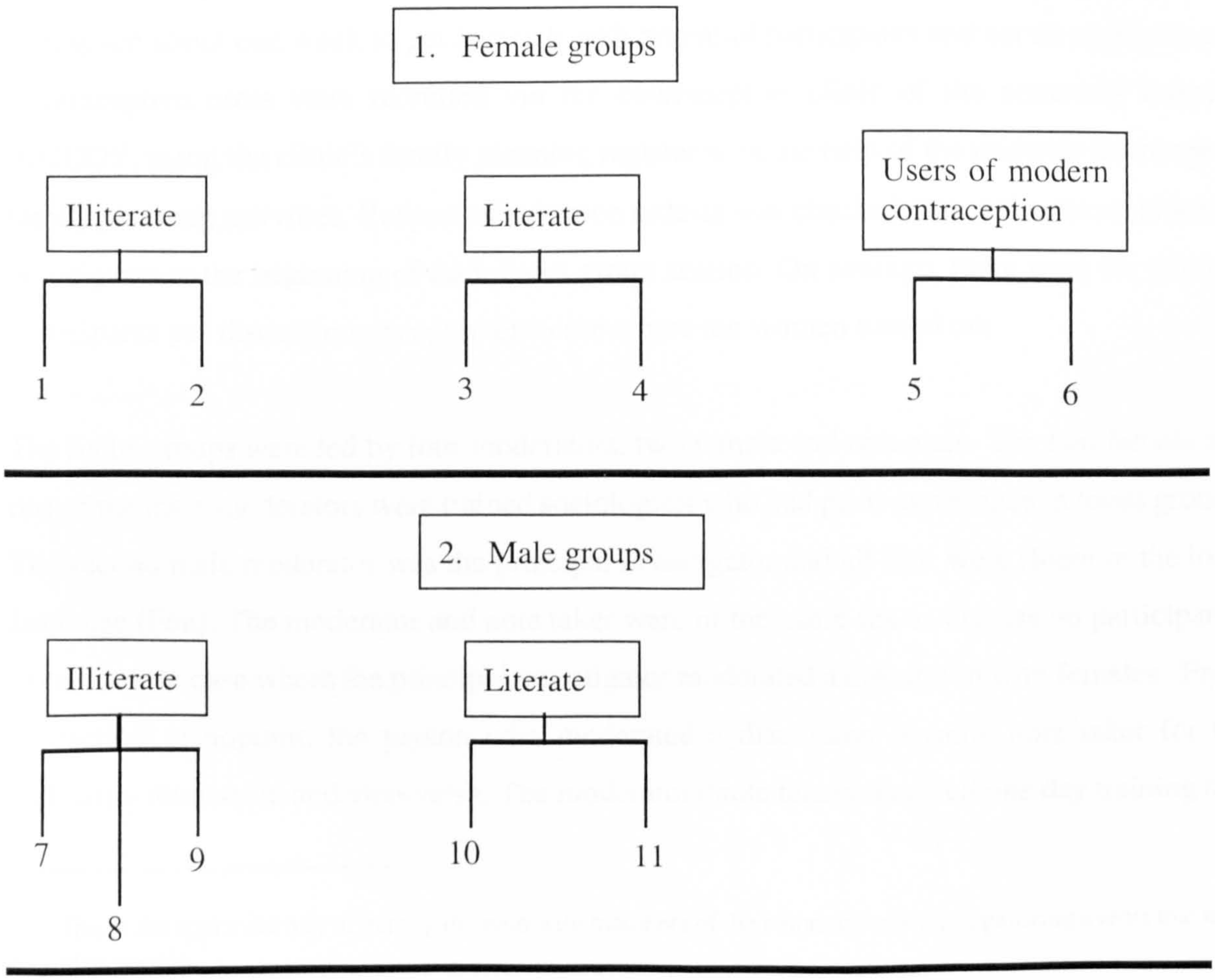
● Focus group

❑ In-depth interview

3.3.2. Focus group study

The focus group study was designed to include ten group discussions, six with females and four with males. Male and females were stratified into literate (secondary or higher education) and illiterate (primary or no schooling), with two group discussions in each category. Two focus group discussions were planned with women using modern contraceptive methods at the time of the fieldwork. All these discussions were successfully completed. In addition, a third discussion took place with a group of illiterate men to avoid conflicts between two communities, both of which wanted to host one discussion planned in their area. This makes a total of eleven focus group sessions (see Figure 3.2.).

Figure 3.2. Focus group study design



The focus group discussion guidelines (see appendices 3.1a & 3.1b), included questions on reproduction and fertility preferences, birth interval dynamics, breast-feeding, post-partum abstinence and the resumption of sexual intercourse after birth. Participants were also asked questions about the use of contraception, whether modern or traditional, male participation in family planning decisions and secret use of contraception by women.

Participants were selected on the basis of two criteria; first, they had to be married (or in a stable relationship), with at least two children and second they needed to be fluent in Fon language which was used for all sessions. In each area selected for holding discussions, the study team met with the local political and administrative leader known as the "délégué" using an authorization letter issued by the administrative authorities from the Cotonou city council[1]. A briefing session was held with the "délégué", describing the objectives of the study, how it was to be done and who would participate. In addition, selection criteria were discussed and the "délégué" was required to help the team select seven to nine males and the same number of females. He was then given about one week to get in touch with potential participants and set an appointment. Contraceptive users were recruited via the contraceptive clinic of the maternity hospital (CUGO)[2], using the clinic's family planning register with the help of the midwife in charge of family planning activities. Respect of selection criteria was checked during the presentation of participants at the beginning of each focus group session. On average, there were six to eight participants per discussion except in one case where ten women turned out.

The focus groups were led by four moderators, two female and two male. The two female and one of the male moderators were trained sociologists who had prior experience in focus groups. The second male moderator was the principal investigator and all four were fluent in the local language (Fon). The moderator and note taker were of the same sex as discussion participants, except in one case where the principal investigator moderated a discussion with females. From a practical standpoint, the person who moderated a discussion became note taker for the following discussion and vice-versa. The moderators/note takers received one day training that

---

[1] This is the approved way of getting in touch with members of the community when organizing events that need to gather people.

[2]CUGO stands for Clinique Universitaire de Gynécologie et d'Obstétrique.

included lectures, practical sessions and a pretest with midwives at the maternity hospital.

The data collection took one and a half months, from mid-January to end of February 1997. Even with the help of local leaders, it proved difficult to gather participants, particularly for male groups. Usually, this was due to the selection criteria. Yet sometimes, difficulties were simply the result of last-minute problems which prevented some discussions from taking place as planned. For example, when the "délégué" of Cadjehoun was first contacted for the female illiterate focus group, the study team also met with a woman who usually helps him in this sort of task (ie. gathering people for various events). The research team was then given an appointment for the afternoon of the following Monday. On the Monday the teams was told that one of the women living in the area had lost her husband on the preceding Sunday and that no group discussion could be held in that area before the dead man was buried. It took two weeks for these funerals to finish and the discussions took place only three weeks after the day of the first appointment.

Most discussions were held in the home of one of the participants but some were held at a community gathering place. The principal investigator assisted in all of them, as a moderator or note taker for discussions with males and as an observer for females' discussions, following permission from participants. It is possible that the presence of a man could have affected women's responses, especially on sensitive issues such as sex and contraception. However, results show that participants were very open in both male and female groups on virtually all topics. For example, when the female moderator asked for permission to allow the principal investigator to observe the discussions in Alègléta, one of the women said the following, which is typical of comments by the women in most of the groups:

> *"If he wants to be there, he can stay. There is nothing to hide from him since they [men] too, take part in all we are going to talk about now. As we already allowed it [the discussions] to be recorded, he can listen afterwards even if he does not assist. He better stays to hear what we [women] think of their behaviours when it comes to sex or contraception. He might become our messenger to his fellow males...(laugh)"*

On average, discussions lasted between one and a half to two hours, excluding presentations of the study team and participants. All discussions were tape recorded and detailed notes were taken in French with a particular attention to nonverbal communication behaviours. Each discussion was immediately transcribed into French by the note taker of that session, inserting gestures and sign-languages as they happened. All transcriptions were controlled by the principal investigator and six randomly selected sessions were transcribed for the second time by an independent transcriber to ensure that transcription from Fon language into French was adequate. In the few cases where the two transcriptions did not totally match on some key issues, the appropriate meaning was chosen following consultation with the moderator.

3.3.3. In-depth interviews

In relation to the objectives of the study, it was planned to conduct in-depth interviews with 32 women of reproductive age, eight of whom would be current users of modern contraception. Each of these current users of modern contraception would be matched to one ever user of modern contraception, one user of traditional contraception and one non user of contraception according to age, schooling and possibly type of marriage. It was also planned that each woman would be visited three to four times to ensure familiarity with interviewers and allow for time to cover the contents of the interview guidelines. However, some modifications occurred from the original plan. The following paragraphs describe the main activities undertaken in the field and underline changes to the initial protocol.

The first activity undertaken in the field was to hold discussions with personnel from the National Institute of Statistics and Economic Analysis (INSAE). This led to the selection of appropriate clusters that would yield the maximum number of Fon residents and the printing of detailed maps of these clusters. Subsequently, local authorities were contacted to obtain their authorization to conduct the study. Recruitment of interviewers followed. Four women were selected out of nine candidates. They were all trained sociologists with five to nine years of experience. Before the training, discussions took place with a senior lecturer in sociology from the National University of Benin to help in the preparation of training material and to conduct some training sessions. Two other persons from INSAE were also invited, one to give a talk on

enumeration principles and the second on the use of cluster maps.

The second phase of the field work relates to the training of interviewers, the pretest of data collection instruments and the data collection. The training of interviewers took place from 11 September to 20 September 1997 in CERRHUD[3] and included two days' field work for pretesting the data collection instruments. The pre-test was organized in cluster Z19 of the Zongo area of Cotonou. Appendix 3.2 shows the timetable of the training sessions. The data from the pretest were discussed on Wednesday 20 September 1997 and data collection instruments were finalized. Interviewers were then assigned their respective clusters, upon discussions among themselves. The last step in the training phase was to visit local authorities to introduce the interviewers and take necessary actions to inform the population about the study.

Prior to selecting women for the interviews, a screening procedure was undertaken in each of the four clusters. This was necessary for two reasons. The first and most important reason was the absence of recent data which could give an accurate picture of contraceptive use status and enable selection of women to be interviewed. Even if the DHS data was used, tracing women as our experience with various follow-up studies in Cotonou suggested would have been difficult, notwithstanding the obvious ethical problems that would arise. The second reason was that contraceptive prevalence is very low in Cotonou (5.4% in 1996) and it was necessary to screen a large number of women to obtain enough current users of modern contraceptives in our sample.

The screening consisted of a survey of all women of reproductive age (15-49 years) who reside in the study clusters and was carried out in three steps. In the first step, all compounds in the selected areas were identified. The compound numbers were checked against those marked on the maps obtained from INSAE and corrected if necessary. Secondly, all households identified in a compound were listed and, for each of them, members were recorded on a household schedule. Information such as usual name (s), age, sex, relationship to household head and whether or not they usually reside in the household was collected for each individual. Eligible women were then identified from the household list on the basis of their age and their status of

---

[3]Centre de Recherche en Reproduction Humaine et en Demographie; CERRHUD is the home institution of the principal investigator

residence. Only women aged 15-49 and usually residents were selected for the contraceptive screening survey. De Jure population of women aged 15-49 was used for the survey because the study planned return visits to women who would be selected for in-depth interviews. The screening questionnaire covered two main topics: the woman's background (age, education, marital status, children ever born and children alive) and her knowledge and use of contraception[4]. This enabled the study team to identify and classify women in four broad groups using the definitions in table 3.1.

Table 3.1. Criteria for defining women's contraceptive use status

Use-status Group	Definition
a. current users of modern contraception	Women using any modern method[5] of contraception at the time of screening
b. Ever users of modern contraception	Women who have used at least one modern method of contraception in the past but not using modern contraception at the time of screening
c. Users of traditional contraception	Women who never used any modern contraceptive method but have practised periodic abstinence, withdrawal or other folk methods in the past or are using at the time of screening
d. Nonusers of contraception	Women who declared they had no prior experience of contraception, be it modern or traditional as defined above

Selection of women then followed but not exactly according to the initial plan. First, women from the Fon ethnic group using modern contraception at the time of screening were identified.

[4] Data collection tools, including interview guides are presented in appendices 3.3a to 3.3d

[5]As defined in chapter 1, modern contraception refers to the pills, IUD, injectables, condoms, spermicides, Norplant® and male or female sterilization. As a result, periodic abstinence (including rhythm), withdrawal and local folkloric methods are considered as traditional methods.

Between four and six such women were selected per cluster depending on the cluster size. More women were actually selected than planned to account for refusals and incomplete interviews. Secondly, for each user of modern contraception retained in the sample, an appropriate match was looked for on the basis of age and schooling. The variable "type of marriage" was left out because it had proved difficult to match on all three variables as initially proposed. While it is possible that leaving out this variable may affect some of the conclusions of the qualitative analyses, it is believed that such effect would be considerably reduced, owing to the fact that there seven cases where matching was possible on all three variables and four additional cases where three out of four women have been matched on all three variables.

In some cases where it was suspected that there might be difficulties in completing the interviews with some women, two matches were identified instead of one. Table 3.2 shows the number of women selected in each cluster as well as the number of interviews that actually took place. Most of the women selected for the in-depth interviews accepted to participate but there were also some refusals and incomplete interviews as it appears from table 3.2. Overall, 81% of selected women accepted to participate in the study; among them, 97% successfully completed the interviews (ie about 80% of the women initially selected), respectively 14 current users modern contraception, 16 ever users of modern contraception, 15 users of traditional methods and 14 women who never used any methods.

Table 3.2. Data situation at the end of the data collection period

Number of women	**Aidjedo (ZD22)**	**Cadjehoun (ZD31)**	**Gbegamey (ZD03)**	**Gbeto (ZD20)**	**Total**
Screened	162	128	98	60	448
Selected	19	20	20	16	75
Interviewed	18	13	15	15	61
Transcribed	18	13	13	15	59
% completed	95	65	65	94	79

In Cadjehoun and Gbegamey where women are more mobile, it proved quite difficult to meet some of them even after three visits. Some interviews were done at night (around 8.00 or 9.00 pm) when women finished their daily activities and were ready to give their time to other matters. Most of the interviews were conducted in one session of about two to three hours, a sharp reduction when compared with the two to three visits which were planned. This is probably because the screening process had contributed to greater familiarity of interviewers with study participants and that women were less reluctant to discuss sexual matters than initially anticipated.

Transcriptions were undertaken by the interviewers and completed immediately after the discussions. After each interview, the principal investigator met with the interviewer to discuss various aspects of data collection. Each tape was then listened to and the transcriptions read by the principal investigator to ensure they were fully and properly transcribed. A summary sheet including respondents' background characteristics and answers to key questions was completed for each interview (see appendix 3.3d).

3.4. Data management

Once a week, the research team met to review progress in data collection and exchange experiences. Discussions followed on various topics including respondents' reactions to key questions, possible sources of bias, etc. Upon completion of transcriptions, the data were all typed, corrected and converted into The Ethnograph v4.0 (Seidel, Friese and Leonard, 1995) for analysis. This was done by two secretaries from 1 March to 27 March 1997 for the focus group discussions and from 15 October 1997 to 15 January 1998 for the in-depth interviews. For both focus groups and in-depth interviews, comprehensive coding schemes (see appendices 3.5a & and 3.5b), were developed by the principal investigator with the assistance of other members of the study team. The principal investigator did all the coding himself, but at start, three focus group transcripts and six interview transcripts were "re-coded" by other team members to check for consistency at the beginning. This proved useful because the discussions that followed among members of the research team raised awareness of the need for accuracy and completeness of the transcriptions. There were a few disagreements between different coders but

in most instances, the principal investigator obtained the same results as other team members. Four weeks after the first round, all the sessions were coded for a second time to check for reliability. This task could have been relegated to other members of the team as the numerous opportunities for interactions and discussions with them had already given the author considerable insights about the data. Instead, code-mapping proved an essential part of the analysis process because it helped make the principal investigator aware of what the data was really revealing. The coding schemes were further revised and adapted as data analysis proceeded.

3.5. Data reliability and validity

Critics of qualitative data often refer to the "unrepresentative" nature of data collected from small samples (Reed and Payton, 1997). For example, the use of the "délégué" for identifying and gathering focus group participants could have affected the representativeness of the focus group samples because local authorities usually select participants whom they think are most "presentable" or more likely to speak out (Rutenberg and Watkins, 1997). However, it is believed that the selection criteria left little room for manoeuvre to the "délégué" and such an effect even if it exists would not dramatically affect the findings.

There are other issues that are even more important for both interviews and focus groups regarding reliability and validity of qualitative data. In focus groups, for instance, there are chances that some participants dominate others during the discussion and participants reactions may differ depending on the topics. While these phenomena cannot be completely ruled out in focus group discussions, steps have been taken to reduce their effects in the present study, for example by watching for "shy" participants and directing questions to them from time to time. The similarity of participants regarding education level was also an important factor which facilitated group dynamics by enhancing participation. Incidentally, it happened that in most of the groups, the age difference was not too wide, on average 7-12 years between the oldest and the youngest participant in all groups. A major concern in this study relates to the sensitive nature of the sexual issues. However, the study team was quite surprised by the degree of openness of participants when it came to discussing sex. It was even apparent that discussions

became more animated once questions relating to sexual behaviours were introduced.

In discussing how to assess the validity of qualitative data, Hammersley (1990) proposes that conclusions drawn from qualitative analyses should be assessed for their plausibility and credibility. According to this author, a claim may be considered plausible when it is very likely to be true given our existing knowledge. For example, one plausible cause of low contraceptive prevalence in Benin may be non availability of contraceptives at clinic level. Credibility on the other hand refers to the accuracy of the ethnographer's judgement, given the phenomena under consideration and the circumstances of the research. The plausibility and credibility of the findings of this study were assessed by sharing the preliminary results of the study with other members of the study team and other researchers on the field. Two presentations were made to the research team in CERRHUD, one before the study started and one at the end of data collection and both were followed by discussions on the meaning of possible results that would come out of the study. There were also informal discussions with personnel from the Division of Family Health in the Ministry of Health and ABPF. These actions greatly enhanced understanding of many of the issues surrounding reproductive behaviours in Benin.

Other sources of ethnographic data which were prompted by information from interviews and focus group discussions were also explored to complement what had already been gathered. In this respect, idioms, traditional and contemporary songs that relate to fertility in the Fon were collected. Discussions were held with market women about the sale of modern and traditional contraceptives to confront some of the findings on the sources of contraceptive methods.

Obviously, there are no perfect data and no matter what precautions have been taken, subjective impressions and uncertainties about the reliability and validity of both quantitative and qualitative data are likely to remain. However, the use of combined approaches and multiple sources such as those attempted in this study permits the conclusion that these data reflect to a fair degree what is going on in the population studied. The research team has also been impressed by new explanatory themes that emerged from the qualitative data which were not suspect at the beginning of the study.

3.6. Data analysis

There are many ways in which qualitative and quantitative data can be combined. Brannen (1992), for example, proposed three possible strategies. First, quantitative data could be given preeminence over the qualitative data. For example, in studies where little is known about the study subject, qualitative methods, and particularly focus groups may be used to develop a questionnaire that will be used for a larger quantitative survey. Secondly, the qualitative data would be given more preeminence over the quantitative data. This often happens when results of previous quantitative studies have proved particularly puzzling or contrary to expectations, leading to possible alternative theories. Finally, both data can be given equal weight in the analysis. This thesis has tended to conform more to the third pattern, giving roughly equal importance to both qualitative and quantitative analyses which are briefly described in the following paragraph.

3.6.1. Quantitative data analysis

With respect to the quantitative analysis, standard techniques which have been developed for each topic under consideration are used. Such techniques include Parity Progression Ratios for the analysis of timing and spacing of births, Bongaarts' model for the analysis of the intermediate fertility variables, logistic regression to identify the determinants of contraceptive use and hazard models for birth intervals and the duration of post-partum abstinence. Multivariate techniques were applied mostly to the DHS data. In using logistic regression models, attention was paid to the multilevel structure of the data and appropriate correction techniques were used. Further detailed descriptions of the techniques used for quantitative data analyses are given in specific chapters. These descriptions focus on theoretical considerations, key variables and their measurement as well as explanatory variables as needed.

3.6.2. Qualitative data analysis

The qualitative data has been analysed using search techniques available in The Ethnograph (v4.0). Both theme identification and incidence-density strategies were used. The first step was

the identification of themes and construction of representative tables to display the data. In these tables, the units of analysis are the group for focus group discussions and the individual for in-depth interviews. During the themes identification process, attention was paid both to "sought information", that is, those themes which were expected, such as the recognition of short birth intervals, and to "emergent themes", that is unexpected insights offered by respondents. The second step has been to develop ethnographic summaries using direct quotes from the transcripts, with narrative explanations.

Chapter 4

Fertility in Benin: a 30-year perspective

4.1. Introduction

Until the last decade, fertility levels remained very high in Benin as in much of Sub-Saharan Africa. There is now clear evidence that secular fertility decline has started in many countries in the region, even in West Africa, the most transition-resistant area of all (Kirk and Pillet, 1998; Cohen, 1998). Crude comparison of WFS and DHS estimates of recent fertility suggests that a decline may be underway in Benin. However, as was the case in many other African countries, it is possible that this change may be the reflexion of data errors. The objectives of this chapter are twofold: to assess the quality of birth history data collected as part of the 1982 Benin WFS and the 1996 Benin DHS and, if the data are of acceptable quality, to analyse fertility levels, trends and differentials in Benin using birth history data collected in both surveys.

4.2. Fertility levels

A primary concern in analysing birth history data from less developed countries and especially Africa is the accuracy of reporting. Significant biases can occur because of misstatement of the age of women and displacement of births or omission of children born to them (Brass and Rashad, 1992). Such biases can arise because of memory lapse for events that occurred in the past (i.e. for older women). The extent to which such errors have occurred in the Benin data is examined in this section.

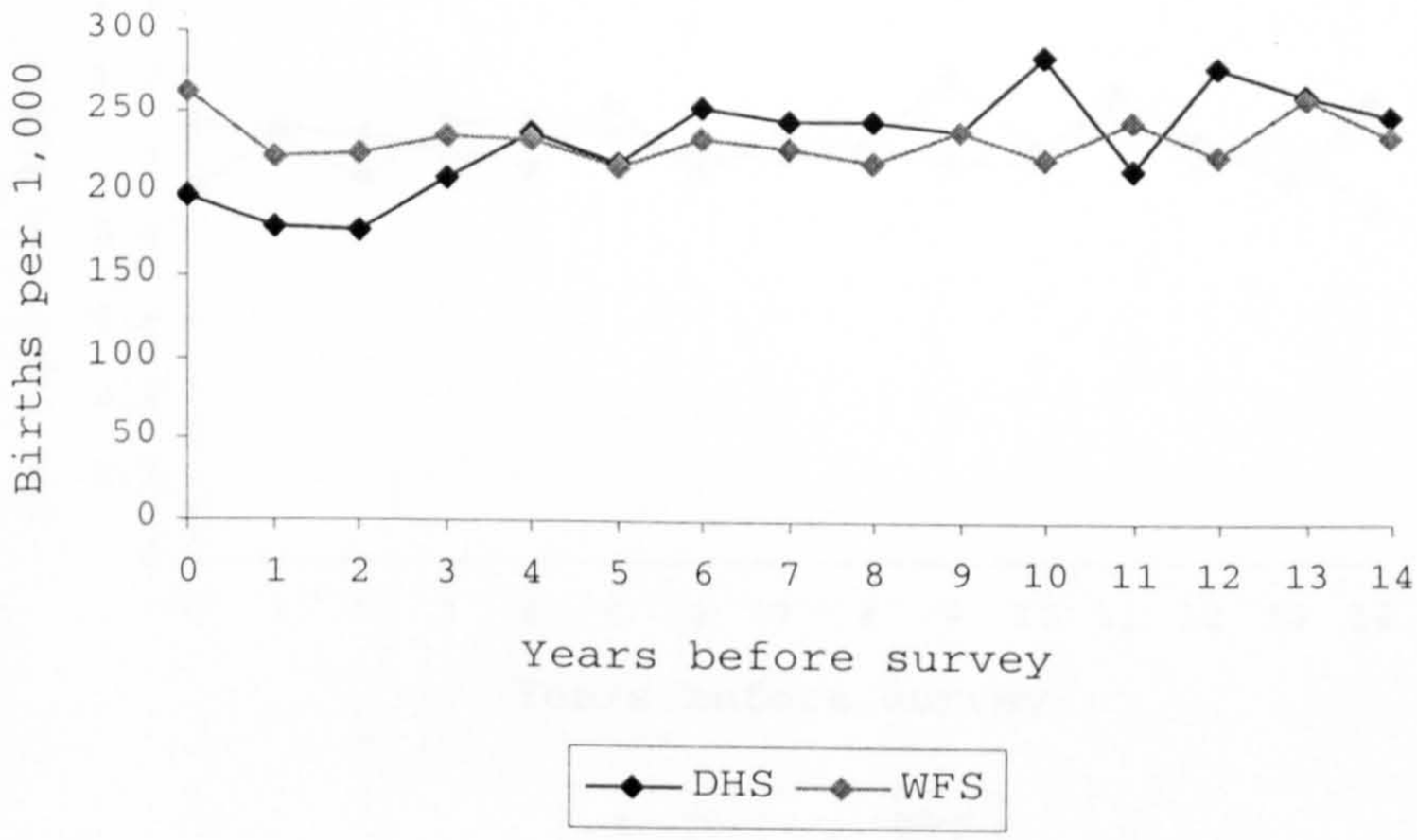
4.2.1. Data quality

Some authors have argued that because the DHS collect additional data for children less than five years of age, there is a tendency by interviewers to push some births outside the most recent five-year period (Arnold, 1990; Blacker, 1994). The explanation given is that births would be shifted backwards, making them six or seven-year-old to avoid asking a battery of extra questions on

feeding practices, immunization, health and anthropometric measurements. Such shifting would give a false impression of fertility decline in the five years that preceded the survey.

In the Benin DHS, these additional data were collected for children aged less than 36 months (ie three years). If such errors are present, the data would show a shortage of births in the third year preceding the survey in favour of the fourth and fifth years. Figure 4.1 presents the distribution of the number of children ever born to 1,000 women aged 15-49 by single years preceding the two surveys.

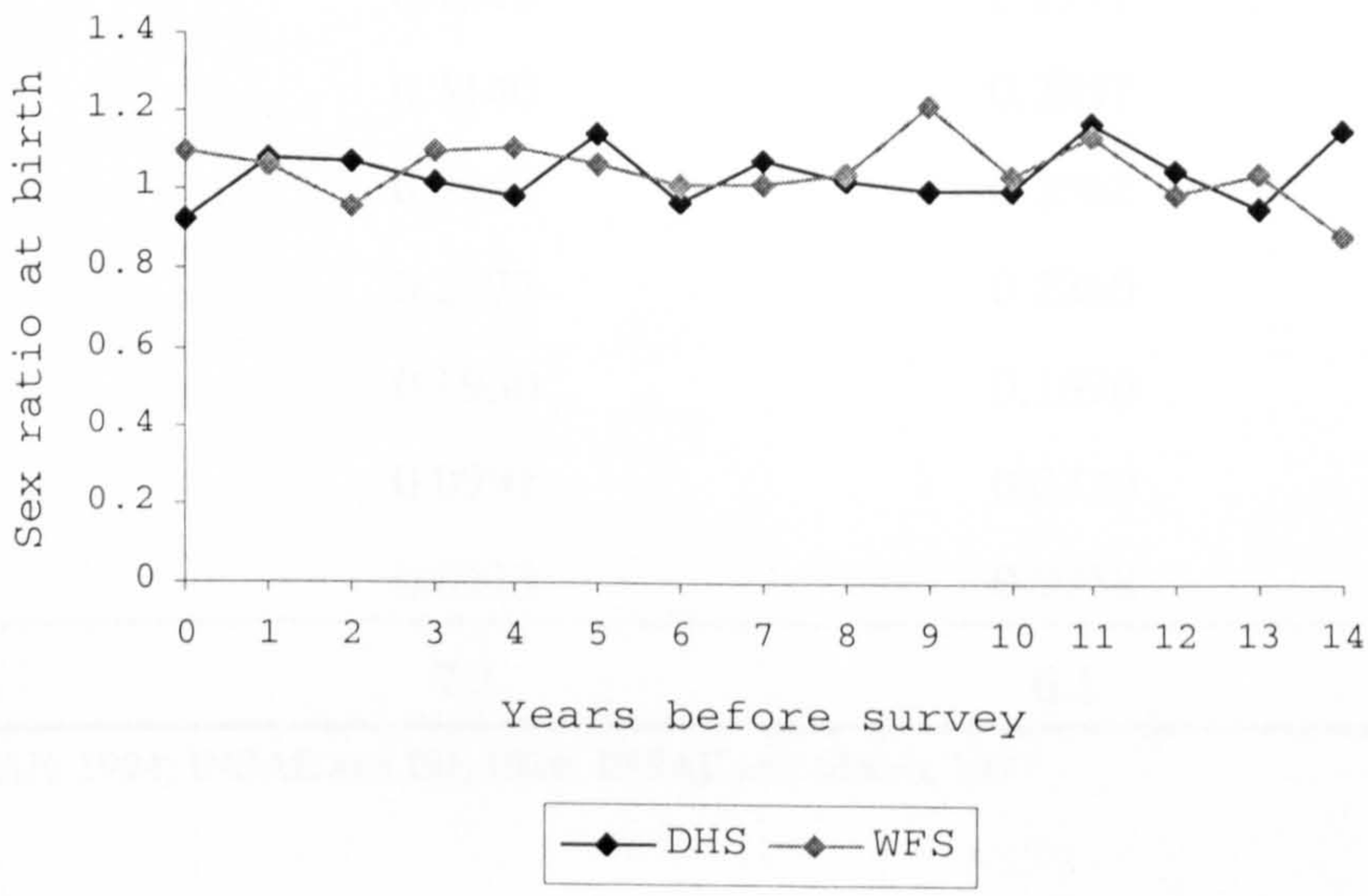
Figure 4.1. Numbers of children born per 1,000 women of reproductive age (1982-1996)



A shortage of children in the second and third years preceding the DHS can be observed, suggesting that some births are effectively being pushed out of the three-year interval. The curve recovered in the fourth and fifth years as the number of children rises. Apparently, these biases counterbalance. Even if births reported in the 1996 survey were transferred incorrectly from the third to the fourth years, the overall number of children born in the five-year reference period would cancel this type of error. Therefore, a 5-year period is needed to calculate recent fertility because it will provide improved estimates.

Another check on the data relates to the extent to which reporting of births is affected by sex preference. Sex-ratios outside the normal range may indicate sex-selective omission in the reporting of births. Figure 4.2 shows the sex-ratios at birth in the 15 years preceding the survey for both 1982 WFS and 1996 DHS. The trends are erratic but fluctuations are slightly larger for the period of 10 years or more before the date of the interview, an indication sampling errors due to smalls numbers of births in this period. However, no specific sex-selection bias is apparent in the reporting of children as the lines show no specific tendency.

Figure 4.2. Sex ratio at birth in the years preceding the surveys (1982-1996)



4.2.2. Current fertility

Current fertility for the period 1982 and 1996 are presented in table 4.1. It is apparent from these values that fertility levels are still quite high in Benin. The total fertility rate has declined from

7.1 in 1982 to 6.3 in 1996. This compounds to an 11% decline in 14 years, which makes it a very slow decline. The downward trend observed between the two surveys is supported by the 1992 census indicating that recent fertility is only slightly above six children per woman. Variations between the census and the DHS estimates may be attributed to different methods of data collection and questions. In effect, estimates from the 1992 census were based on children born in the last 12 months while the DHS estimate is based on births in the five years that preceded the survey. Nevertheless, further exploration of the data is needed before any firm conclusion can be drawn as regards the quality of the data.

Table 4.1. Fertility estimates from various sources (Benin, 1982-1996)

Age-group	1982 (WFS)	1992 (Census)	1996 (DHS)
15-19	0.1510	0.1397	0.1230
20-24	0.3140	0.2857	0.2712
25-29	0.3289	0.3062	0.2834
30-34	0.2777	0.2260	0.2604
35-39	0.1930	0.1690	0.2049
40-44	0.0991	0.0720	0.0898
45-49	0.0513	0.0258	0.0310
TFR	7.1	6.1	6.3

Sources: INSAE, 1994; INSAE and ISI, 1984; INSAE and Macro, 1997

4.2.3. Lifetime fertility

The average parities by age of women in the two surveys are shown in table 4.2. These estimates are more revealing about the quality of the data. The average parity for women aged 45-49 was 6.3 for the 1982 WFS compared with 7.5 for the 1996 DHS.

A closer inspection shows a decline at each age-group for women less than 35 years of age. At this age the trend reverses, showing higher fertility for the 1996 DHS when compared to the 1982

WFS. This difference increases with age while a reduction in the average parities is expected if fertility has been declining. It remains still to explain if these discrepancies for women aged 35 or more years may be explained by a rise in fertility or it is a reflection of omissions. It seems more plausible, however, that there is serious omission of births in the WFS data, particularly from the age of 35 years upwards.

Table 4.2. Average parity by age of women (1982-1996)

Age-group	Average parity		Change
	WFS(1982)	DHS(1996)	
15-19	0.29	0.23	-0.06
20-24	1.53	1.33	-0.20
25-29	3.12	2.81	-0.31
30-34	4.72	4.50	-0.22
35-39	5.75	6.02	+0.26
40-44	6.06	6.85	+0.79
45-49	6.27	7.47	+1.20

4.2.4. Exploratory analysis of birth history data using P/F ratios

In this section, birth histories are screened using the methods suggested by Brass (Brass, 1980; Brass and Rashad, 1992). Here, cumulative rates by cohorts and periods and P/F ratio methods are used as diagnostic tools in the evaluation of the quality of the 1982 WFS and 1996 DHS data, and the levels and trends of fertility. These estimates are shown in four panels (table 4.3. for the WFS data and table 4.4 for the DHS data). The first panel presents the fertility rates by cohort and period. The second and third panels refer to the rates cumulated by cohort (P) and by period (F). Cumulation of rates is a powerful procedure for elucidating part of the biases introduced by time location error of the births (Brass and Rashad, 1992). By comparing the cumulative fertility up to the current age (P) with the corresponding measure calculated from a period rate for a synthetic cohort (F), omissions and large displacements of births can be located

and thus, detect the spurious from genuine fertility trends. The fourth panel presents estimates for the P/F ratios which compare past to current fertility. This technique was originally developed for correcting fertility data (Brass, 1980), but further advancements in evaluation tools has proven that P/F is an important indicator for screening maternity histories (Brass and Rashad, 1992; Hobcraft, Goldman and Chidambaram, 1982), and for providing evidence of fertility change. If the data are well reported and if fertility has remained constant, P/F ratios would differ from 1.0 only by chance. Values greater than 1.0 and consistently increasing with age indicate fertility decline while a rise in fertility is suggested by values lower than 1.0 and consistently decreasing with age. As regards the Benin data, the joint interpretation of the four panels will allow a more thorough exploration of the fertility levels and trends. Moreover, the utilization of two surveys (WFS and DHS), with an overlapping period, i.e. 1961-1981, is extremely valuable as more insights can be gained on the quality of these surveys.

An examination of panel A of table 4.3 (1982 WFS) indicates lower age specific fertility rates (ASFR) for periods further back in the past. For example, the ASFR for women aged 20-24 years is lower for the period 25-29 years before the date of survey 0.2035 than for the period 15-19 years before the survey, 0.2403. With the exception of the age-group 40-44 years, this general trend of high fertility for the most recent period is also observed for the two most recent five-years and suggests an apparent increase in fertility at all ages.

Now, let us examine the cumulated rates that are less affected by time location errors. Panel C of table 4.3 (1982 WFS) gives us a perspective by period. The total fertility rate for the 0-4, 5-9 and 10-14 years before the date of the survey are quite similar: 6.99, 6.75 and 6.81 respectively. Inspecting the cumulative fertility rates at different ages for the period 30-34 to 15-19 years preceding the date of the survey suggests a Potter effect, that is, births being pushed forward nearer to the date of the interview (i.e. births occurring further in the past have been placed in more recent dates: Potter, 1977). This effect is common in retrospective surveys of the type analysed. Following the usual assumption that recent births are better reported, there seems to be a slight rise in fertility for the period 0-4 years before the date the survey.

Table 4.3. Cohort-Period Fertility Rates, Cumulative Fertility by Cohort and Period and P/F Ratios, 1982 WFS

Age-group of cohort at end of period	Years before the survey						
	0-4	5-9	10-14	15-19	20-24	25-29	30-34
Panel A: Cohort-period fertility rates							
10-14	-	0.0016	0.0014	0.0024	0.004	0.0052	0.0021
15-19	0.0559	0.0521	0.0622	0.0688	0.0691	0.0398	0.0353
20-24	0.2518	0.2330 .	0.2483	0.2403	0.2272	0.2035	
25-29	0.3270	0.3141	0.3026	0.3005	0.2671		
30-34	0.3087	0.2927	0.2817	0.2827			
35-39	0.2395	0.2147	0.2233				
40-44	0.1466	0.1739					
45-49	0.0678						
Panel B: Cumulative fertility of cohort at end of period (P)							
10-14	-	0.0082	0.0070	0.0120	0.0201	0.0258	0.0105
15-19	0.2878	0.2673	0.3229	0.3641	0.3712	0.2094	0.1767
20-24	1.5264	1.4880	1.6057	1.5730	1.3455	1.1943	
25-29	3.1229	3.1762	3.0858	2.8482	2.5300		
30-34	4.7198	4.5494	4.2565	3.9435			
35-39	5.7468	5.3298	5.0601				
40-44	6.0628	5.9293					
45-49	6.2686						
Panel C: Cumulative fertility within period(F)							
10-14	-	0.0082	0.007	0.012	0.0201	0.0258	0.0105
15-19	0.2796	0.2685	0.3179	0.356	0.3656	0.2247	0.1871
20-24	1.5387	1.4335	1.5595	1.5577	1.5018	1.2424	
25-29	3.1736	3.004	3.0724	3.0603	2.8374		
30-34	4.7173	4.4675	4.4807	4.4738			
35-39	5.9147	5.5408	5.5973				
40-44	6.6477	6.4101					
45-49	6.9869						
Panel D: P/F ratios							
10-14	-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
15-19	1.0294	0.9956	1.0158	1.0227	1.0154	0.9320	0.9440
20-24	0.9920	1.0380	1.0296	1.0098	0.8960	0.9613	
25-29	0.9840	1.0573	1.0044	0.9307	0.8917		
30-34	1.0005	1.0183	0.9500	0.8815			
35-39	0.9716	0.9619	0.9040				
40-44	0.9120	0.9250					
45-49	0.8972						

Table 4.4. Cohort-Period Fertility Rates, Cumulative Fertility by Cohort and Period and P/F Ratios, 1996 DHS

Age group of cohort at end of period	**Years before the survey**						
	0-4	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**
			Panel A: Cohort-period fertility rates				
10-14	-	0.0007	0.0010	0.0006	0.0013	0.0035	0.0015
15-19	0.0448	0.0473	0.0604	0.0661	0.0644	0.0729	0.1065
20-24	0.2171	0.2276	0.2423	0.2459	0.2581	0.2591	
25-29	0.2737	0.3125	0.3304	0.3195	0.3119		
30-34	0.2791	0.3215	0.3120	0.3096			
35-39	0.2375	0.2630	0.2680				
40-44	0.1416	0.1772					
45-49	0.0582						
	Panel B: Cumulative fertility of cohort at end of period (P)						
10-14	0.0000	0.0037	0.0049	0.0031	0.0065	0.0173	0.0076
15-19	0.2279	0.2412	0.3050	0.3368	0.3391	0.3719	0.5324
20-24	1.3265	1.4429	1.5483	1.5685	1.6622	1.8277	
25-29	2.8112	3.1110	3.2208	3.2600	3.3870		
30-34	4.5065	4.8283	4.8197	4.9351			
35-39	6.0159	6.1347	6.2752				
40-44	6.8425	7.1611					
45-49	7.4519						
	Panel C: Cumulative fertility within period(F)						
10-14	-	0.0037	0.0049	0.0031	0.0065	0.0173	0.0076
15-19	0.2242	0.2400	0.3068	0.3334	0.3283	0.3816	0.5400
20-24	1.3095	1.3780	1.5183	1.5628	1.6186	1.6769	
25-29	2.6777	2.9406	3.1705	3.1606	3.1779		
30-34	4.0733	4.5481	4.7303	4.7087			
35-39	5.2609	5.8631	6.0703				
40-44	5.9687	6.7490					
45-49	6.2595						
	Panel D: P/F ratios						
10-14	-	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
15-19	1.0166	1.0049	0.9942	1.0102	1.0329	0.9745	0.9859
20-24	1.0130	1.0472	1.0198	1.0037	1.0269	1.0899	
25-29	1.0498	1.0579	1.0159	1.0315	1.0658		
30-34	1.1064	1.0616	1.0189	1.0481			
35-39	1.1435	1.0463	1.0337				
40-44	1.1464	1.0611					
45-49	1.1905						

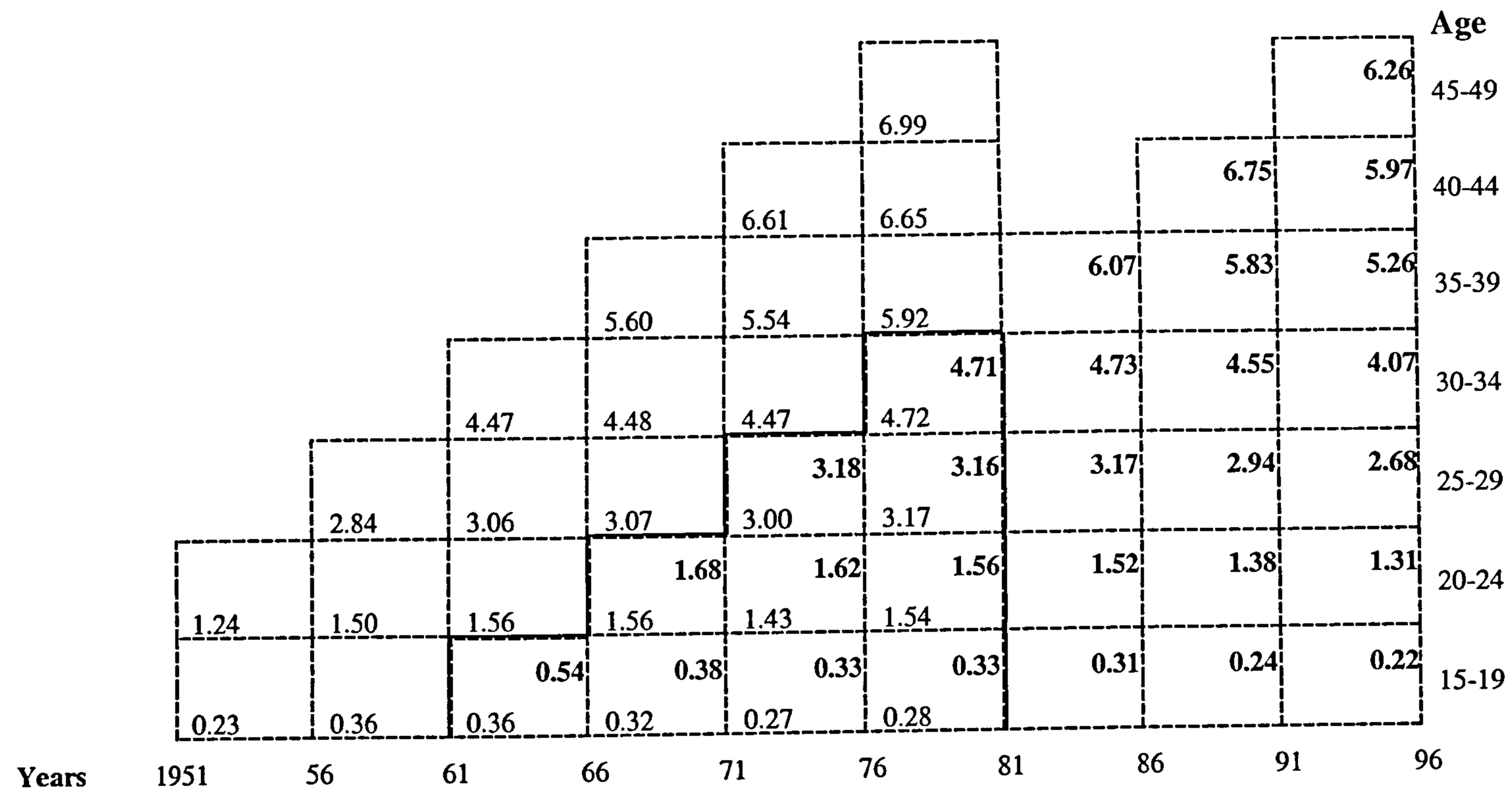
The cumulative fertility by cohorts (P), panel B, indicates omission when the two oldest cohorts are compared at age 40-44. The assumption that these omissions would have occurred in the reporting of events that took place a long time ago is corroborated when inspecting the cohorts 45-49 and 40-44 while they were 20-24 (1.1943 and 1.3455 respectively). Time location errors in the reporting of births are evident for older cohorts for events occurring in the past, confirming the existence of a Potter effect. For example, cumulative fertility of cohorts 45-49, 40-44, 35-39, 30-34 up to age 25 with rates of 1.1943, 1.3455, 1.5730, 1.6057 again supports the hypothesis that births are being pushed forward. A similar pattern is also observed at other ages.

P/F ratios, in panel D, confirm some of the findings of the previous panels. Omissions are indicated by P/F values below 1.0 for the two oldest cohorts for events occurring further in the past (refer to diagonal). However, the rest of the P/F values are very close to 1.0, falling below or above this reference value with no clear trend over time. This suggests that fertility has remained constant over time despite the apparent rise observed in panel C.

The 1996 Benin DHS data present a different picture to that of 1982 WFS. In panel A (table 4.4), cohort-period fertility rates show systematically lower fertility rates in the 5-year period preceding the survey for all age groups. Even at younger ages, this tendency remains. Fertility rates for the age 15-19 years were constant in the period 10-24 years before the survey, falling in the most recent periods. The rest of the panels are more illustrative of fertility trends and levels. In panel C, the TFR for the 10-14 years before the survey, 5-9 and 0-4 are 7.25, 7.04, and 6.26 respectively. These rates indicate a fertility fall during the last 15 years with the decline being stronger for the last 5-year period preceding the date of the survey (1991-1996). Cumulative fertility at different ages does not indicate major structural errors. There is no evidence of births being pushed forward by the older women. Similarly, there is no other evidence of significant discrepancies in the time locations of births. These findings indicate that the DHS data is of much better quality than that of the WFS.

P/F ratios estimated from the DHS data, panel D, are close to 1.0 in the period before 1986, but for the period 0-4 and 5-9 years before the survey (1992-96, and 1986-92 respectively) P/F ratio estimates consistently increase with age indicating a fertility decline.

Figure 4.3. Overlapping cumulative fertility rates with period (F) (Benin, 1982-1996)[1]



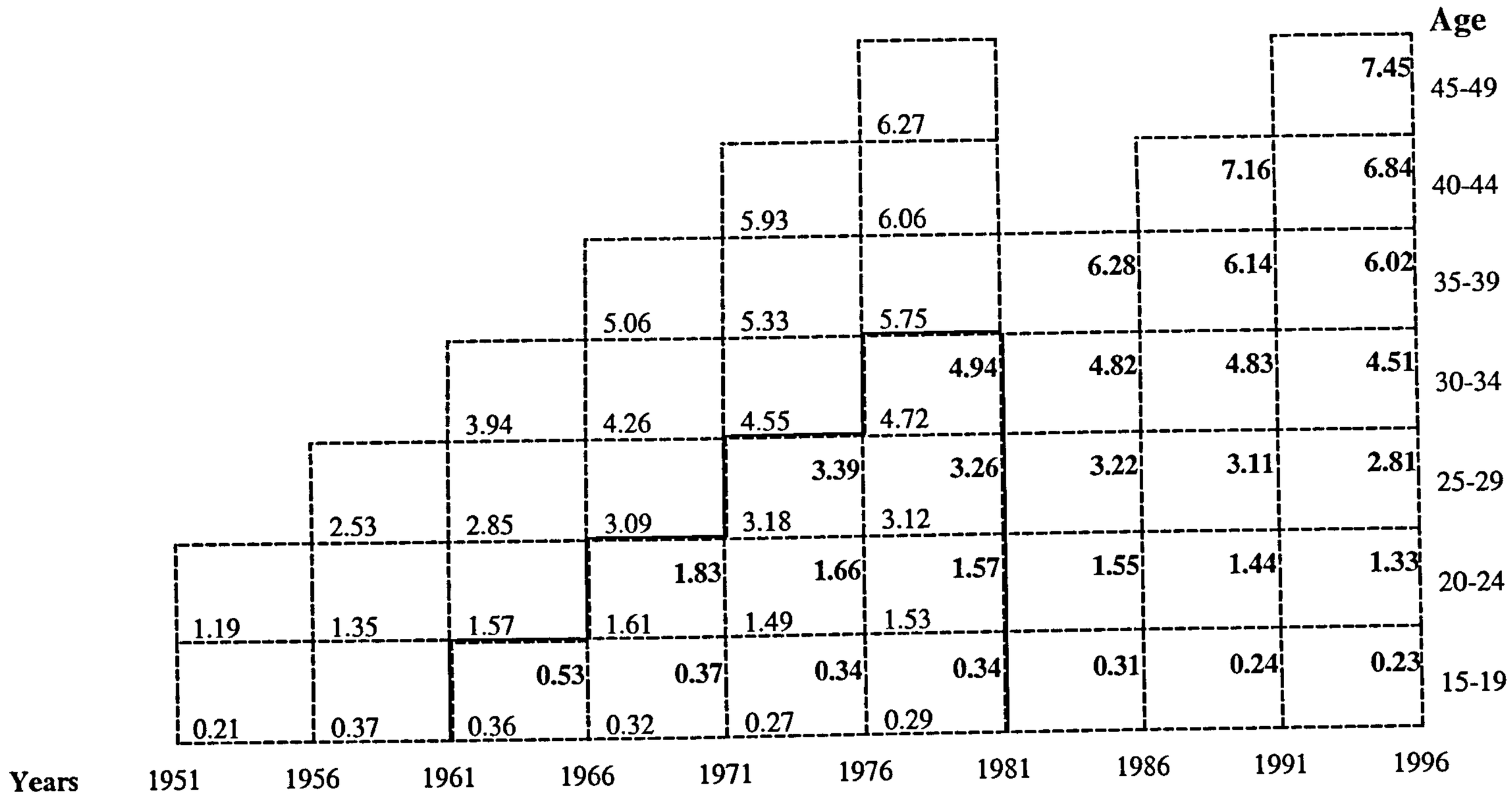
Note: Rates derived from the WFS data er in regular character

Rates derived from the DHS data are in bold character

---

[1]Note that the WFS data has been shifted one year back to simplify comparisons. However, it is believed that this will have no effect on overall results.

Figure 4.4. Overlapping cumulative fertility rates of cohort at the end of period (P): (Benin, 1982-1996)[2]



Note: Rates derived from the WFS data er in regular character

Rates derived from the DHS data are in bold character

---

[2]Note that the WFS data has been shifted one year back to simplify comparisons. However, it is believed that this will have no effect on overall results.

The decline in fertility is very small in the period 1986-92 and stronger for 1992-96. This is suggestive that sustained fertility decline is underway in Benin, and that the onset of fertility decline can be traced as earlier than the eighties. When overlapping F_i values of WFS and DHS (Figure 4.3) are examined, and considering the types of errors detected in the WFS data set, it is clear that fertility has remained constant up to 1976, with a slight increase of fertility during the period 1976-81 and with the onset of fertility initiating in 1986 onwards. It is clear from the screening of birth histories of the WFS and DHS, that the level of fertility for the period previous to 1961 was underestimated (Potter effect-birth pushed forward). P_i values for the overlapping period (1961-1981), consistently show lower levels for WFS than DHS at the same ages, supporting the notion that fertility estimates were also low in the WFS data due to omission of births of the older cohorts (Figure 4.4).

The screening of the 1982 WFS and 1996 DHS birth histories has been very useful because it has helped in detecting the trend of fertility. Moreover, it has shown that the DHS data, which will be used in the following chapters, is of relatively good quality, and confidence can be placed on the findings obtained from this source. The WFS data present some errors that have been found in most retrospective surveys in developing countries. However, these errors seem to be concentrated among older women with respect to the births in a less recent past. Therefore, it would not be totally misleading to use the most recent births (i.e. in the last five years) in the estimation of fertility at the WFS.

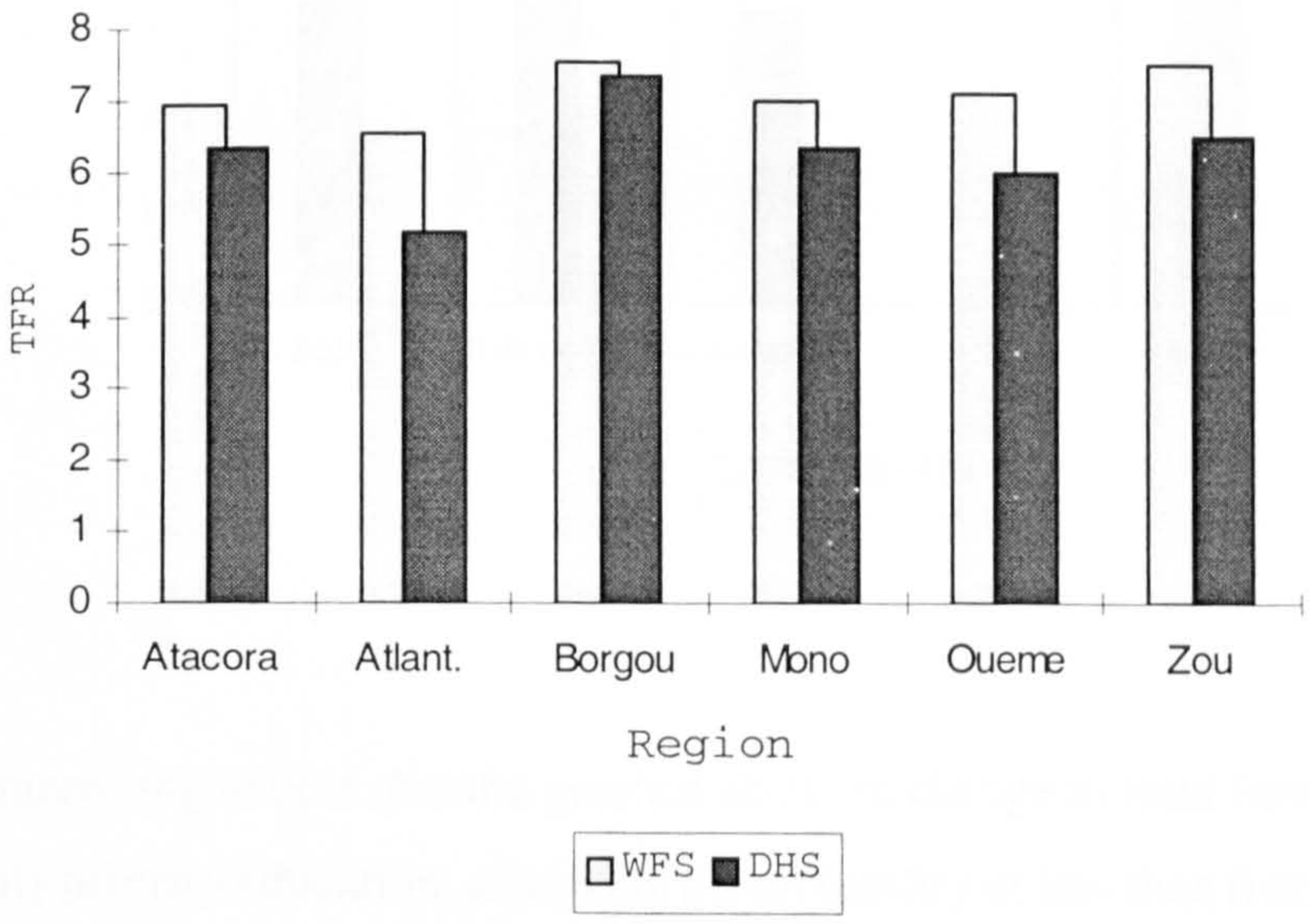
4.3. Differentials and differential trends

The major background factors that are thought to influence fertility in developing countries are region, type of residence and level of education. Figure 4.5 presents fertility differentials by region for both the 1982 WFS and the 1996 DHS.

Fertility levels were above 6.5 children per woman in all regions in 1982. In addition, the lowest TFR is observed in the Atlantic region (6.5) and the highest in Borgou (7.6), thus making a difference of about one child per woman. DHS data show similar patterns. Atlantic region has the lowest fertility, with a level that is only marginally more than five children per woman. This

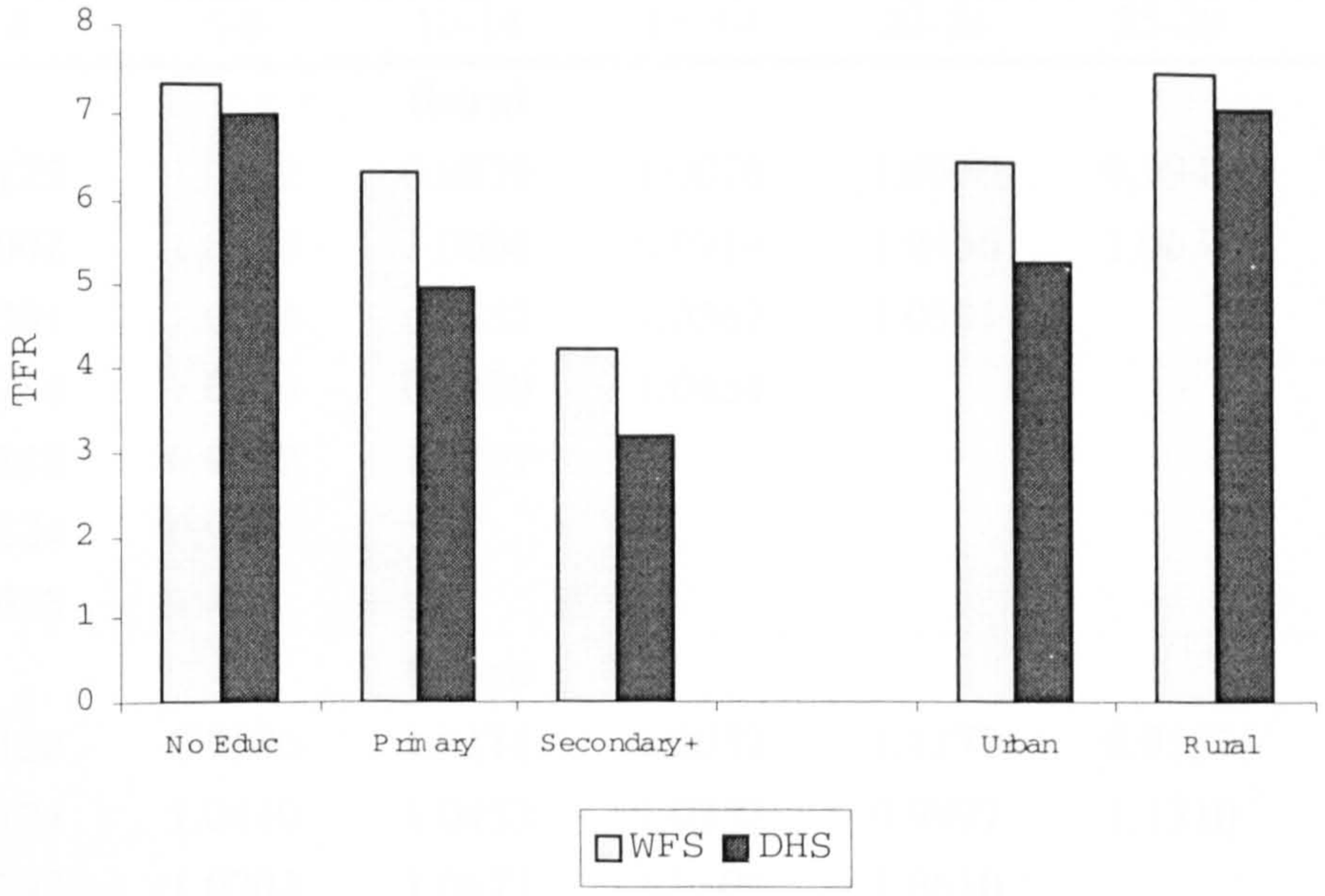
corresponds to a fertility reduction of around 1.5 children. Atlantic region has the largest proportional reduction, followed by Oueme and Zou. Borgou continues to have the highest fertility with very little change over time.

Figure 4.5. Fertility trends by region (1982-1996)



Education has always been considered as the major differentiating factor regarding fertility. Benin is no exception and fertility trends according to education level conforms to the expected pattern (Figure 4.6). In 1982, women who had secondary or higher education had about three children less than their non- educated counterparts and two children less than those with only primary education. Important reductions of fertility have occurred in women with secondary or higher education and those with primary education. More educated women are now only marginally above three children per woman.

Figure 4.6. Fertility trends by education and type of place of residence (1982-1996)



However, it is interesting to note that the greatest absolute change in total fertility rate corresponds to those with only primary education, achieving a total fertility of less than five children per woman.

TFRs are lower in urban as compared with rural areas in both surveys. Although there may be a decline in both urban and rural areas, the decline is more pronounced in the urban settings. Fertility in urban women has fallen by nearly 1.5 children compared with less than 0.5 children among rural women. The following table, derived from a comparative analysis of P/F ratios in urban and rural areas using the 1996 DHS data confirms these findings. Moreover, it suggests that fertility decline initiated earlier in urban areas, in the period 15-19 years before the survey (i.e. 1977-1981), while in rural areas, convincing evidence of decline is observed only in the five years before the survey (i.e. 1992-1996). In effect, in urban areas, values of P/F consistently higher than 1.0 and increasing with age are already apparent in the period 15-19 years before the survey and the same trend is observed in more recent periods as well. On the other hand, increasing P/F ratios are observed in rural areas only in the period 0-4 years before the survey.

Table 4.5. P/F ratios for urban and rural women according to the 1996 DHS

Age group	Years before the survey						
	0-4	5-9	10-14	15-19	20-24	25-29	30-34
			Rural				
15-19	1.0123	1.0162	0.9879	1.0076	1.0060	0.9942	0.9892
20-24	1.0002	1.0548	1.0006	0.9914	1.0456	1.0637	
25-29	1.0331	1.0384	0.9852	1.0367	1.0591		
30-34	1.0784	1.0140	0.9980	1.0454			
35-39	1.0848	0.9937	1.0097				
40-44	1.0824	0.9967					
45-49	1.0988						
			Urban				
15-19	1.0128	0.9886	1.0114	1.0033	1.1173	0.9157	0.9794
20-24	1.0174	1.0410	1.0453	1.0252	0.9997	1.1310	
25-29	1.0892	1.0702	1.0672	1.0304	1.0610		
30-34	1.1355	1.1351	1.0639	1.0372			
35-39	1.2230	1.1586	1.0639				
40-44	1.2725	1.1726					
45-49	1.3425						

In table 4.6, indices of change in overall as well as marital fertility between the two surveys are presented for urban and rural women. The method proposed by Coale (1969) is adopted here because it improves the evaluation of change by using the same standard population: the Hutterites. In addition, because a significant proportion of births occurs outside marriage in Africa, the indices of overall fertility are preferred. Nevertheless, marital fertility indices are also calculated to examine the possibility of changing reproductive behaviours within marriage.

As a general pattern, the percent change in overall fertility is compatible with the comparison of total fertility rates. Overall fertility has declined by about 20% for urban women but only by 8% for rural women. What is more striking is the differential change in marital fertility. While fertility within marriage has changed by 13% for urban women, there seems to be hardly any change in marital

fertility for rural women as the change in this group amounts to less than one percent.

Table 4.6. Indices of fertility by type of place of residence in Benin (1982-1996)

Residence	Marital fertility (I_g)		Overall fertility (I_f)		TFR		% decline		
	WFS	DHS	WFS	DHS	WFS	DHS	I_f	I_g	TFR
Urban	0.58	0.50	0.47	0.38	6.4	5.2	13.18	20.05	18.17
Rural	0.61	0.61	0.59	0.54	7.4	7.1	0.60	7.80	5.19
Benin	0.60	0.57	0.55	0.47	7.1	6.3	5.33	13.51	11.26

4.4. Age patterns of fertility change

Figure 4.7. Age-specific fertility rates by type of place of residence (1982-1996)

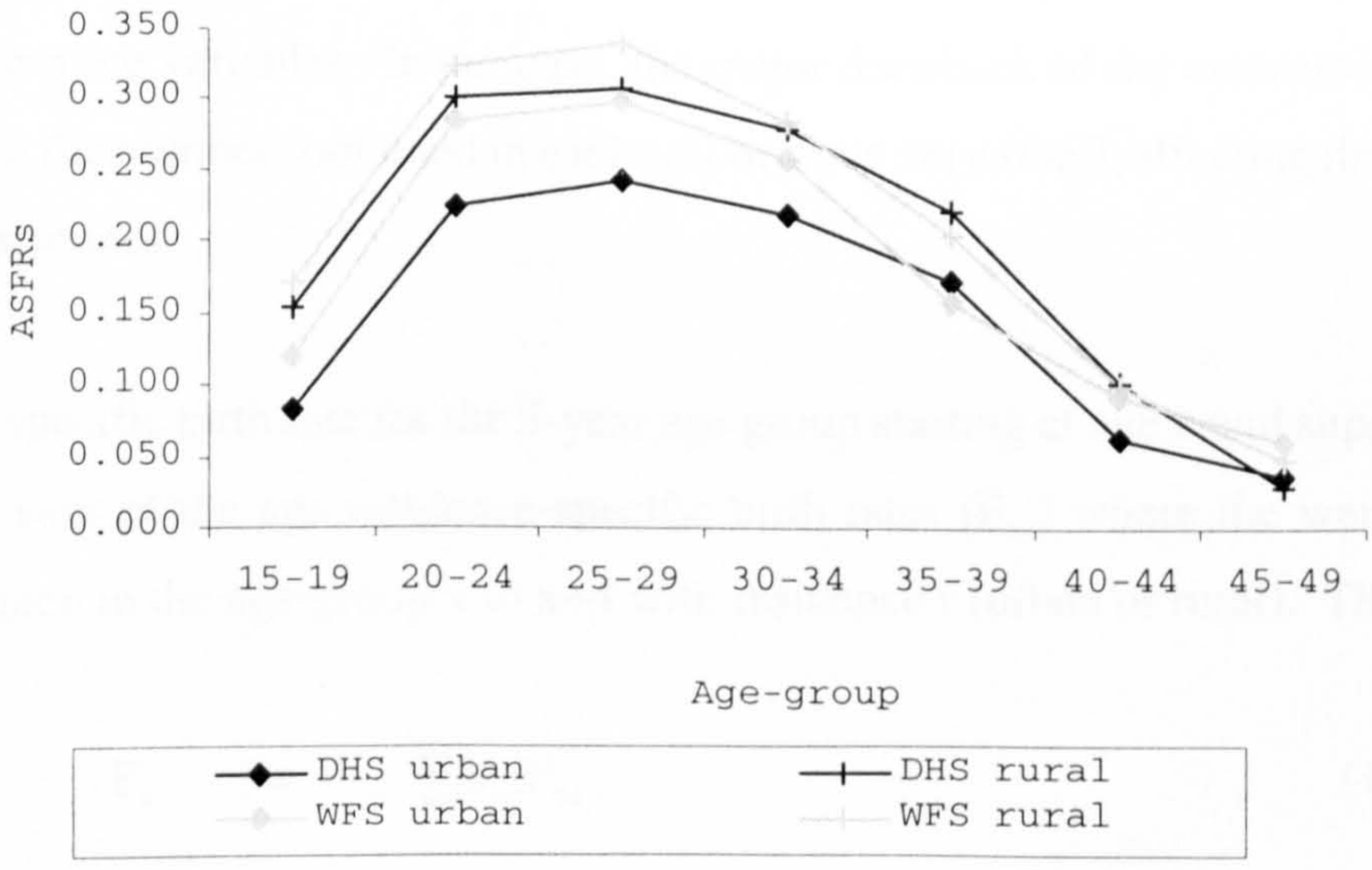


Figure 4.7. presents age-specific fertility rates estimated by type of place or residence from the WFS

as well as the DHS data. In urban areas, the decline is more pronounced for younger women aged 15-34. But still there is a change for older women as well, apart from the age-group 35-39 where there seems to be a slight rise[3]. In rural areas on the other hand, the modest decline is concentrated among younger women and virtually no change is observed for older women.

4.5. Decomposition of fertility changes by type of residence and education

Regarding the social variables studied for their impact on fertility, urbanization and women's educational attainment are the two variables that have proved most consistently and strongly related to fertility. If, for example, positive changes occur in the educational composition of the population, (i.e. more educated women), the TFR would be affected even if fertility behaviour has remained constant within each educational group because of the decrease in the proportion of non-educated women who usually have the highest TFR. The same applies to the urban/rural composition of the population where rural women tend to have higher fertility. Using the components-of-difference technique, the effect of changing composition of the population due to one variable can be estimated. The technique has been described for the first time by Kitagawa (1955), and applied in various settings (see for example Retherford and Ogawa, 1978; Weinberger, Lloyd and Blanc, 1989). The following paragraph describes the method for one variable, namely residence, but it can also be extended to two or more variables. In our case, the major drawback of the extension to more than one variable is that the numbers obtained in each cell become very small, affecting dramatically the accuracy of the estimates.

Let F_x be the age-specific birth rate for the 5-year age group starting at age x and suppose we write F_x as a weighted sum of the age-residence-specific birth rates ($F_{x,r}$) where the weight $k_{x,r}$ is the proportion of women in the age-group x to x+4 with residence r (urban or rural). Then,

$$F_x = \sum_r k_{x,r} F_{x,r} \qquad (1)$$

---

[3] This may be the result of erratic variations or omission of births as already reported in the section on data quality

and the change in age-specific birth rate between the 1982 WFS and the 1996 DHS can be written as

$$F_{x,DHS}-F_{x,WFS} = (\sum_r DF_{x,r}k_{x,r,WFS}) + (\sum_r F_{x,r,WFS}Dk_{x,r}) + (\sum_r DF_{x,r}Dk_{x,r}) \quad (2)$$

where $DF_{x,r} = F_{x,r,DHS} - F_{x,r,WFS}$

and $Dk_{x,r} = k_{x,r,DHS} - k_{x,r,WFS}$

The right-hand side of equation (2) is composed of three main parts: the rate component, the residence component and the interaction component respectively. By summing up each side of this equation over x, one obtains the change in TFR between the WFS and the DHS (left-hand side) which is broken into the three components of change in TFR (right-hand side).

The rate component of the change in TFR is the amount of change that would have occurred if the residential composition of the population has remained as it was in 1982, given the actual changes in residence-specific birth rates.

The residence component is the amount of change that would have occurred because of the change in residential composition of the population if birth rates had remained the same as in 1982.

The difference between the change in TFR and the sum of the first two components is called the interaction component. This term is an expression of how much fertility decline varies across residence categories.

Table 4.7 shows the application of this method to the Benin data using type of residence and level of education as the main explanatory variables.

Table 4.7 Decomposition of the change in TFR by residence and education

Factor	Change* due to:						Total	
	Rate		Factor		Interaction			
	Abs	%	Abs	%	Abs	%	Abs	%
Residence	0.59	80.6	0.07	9.0	0.08	10.4	.73	100
Education	0.44	60.2	0.16	22.4	0.13	17.4	.73	100

* Absolute changes do not add to 0.73 due to rounding

The results show that the fertility decline observed between 1982 and 1996 is mainly due to reductions of fertility within residence and education categories, though this is more pronounced for residence compared with education. The improvement in urbanization accounts for only 9% of the reduction in total fertility rate while increases in the level of education explain more than one-fifth of the change in fertility. The relatively large proportions due to interaction suggest that the amount of reduction in fertility levels is different between urban and rural settings and between education groups.

4.6. Summary

The analyses presented in this chapter provide evidence that birth histories collected as part of the DHS data are of good quality for use in more detailed analyses of family formation patterns. While the WFS data is of a lesser quality, the types of errors detected do not preclude their use but caution is needed for the interpretation of trends, especially for older women. The data also show that fertility is falling in Benin, though at a slow pace. Trends and differentials follow classical patterns observed in most countries where fertility transition has already taken place or is underway. Fertility is declining more rapidly in urban compared with rural areas and in educated compared with non-educated women. In particular, while marital fertility decline has clearly begun in urban areas, there seems to be hardly any change in fertility among married women in rural areas.

Chapter 5

The nature and determinants of fertility changes in Benin

5.1. Introduction

The analysis of fertility levels and trends over the past 30 years revealed that Benin has initiated a sustained transition towards lower fertility, as has already happened in many other African countries. This chapter attempts, on the basis of quantitative data derived from the 1982 Benin WFS and the 1996 Benin DHS, to examine the mechanisms through which such changes are being delivered. Trends in union and family formation patterns in Benin are analysed using parity progression methods in order to determine whether the observed changes are the result of a delay in the timing of entry into parenthood, parity-specific child limitation behaviours or an increase in the length of birth intervals. Subsequently, the Bongaarts' proximate determinants model is used to explore the importance of recent evolutions in marriage, contraceptive use and other post-partum variables in determining fertility changes.

5.2. Marriage

Studies of marriage systems in Africa have consistently pointed to many difficulties, especially with respect to how a woman's marital status is ascertained. Besides the more obvious problems due to recall errors in the reporting of age at union in retrospective surveys, there are also problems in defining the exact timing of entry into marriage in many countries[1]. This is because in most African countries, marriage is a process rather than a single event that would precede the establishment of a household or the birth of children (United Nations, 1990; van de Walle, 1992). However, it has been a consensus over some years now that in Africa, any type of union be it legal, traditional or consensual, may be considered equivalent to marriage in terms of exposure to sexual intercourse (see for example United Nations, 1987 and van de Walle, 1993). As a result marriage and union are used interchangeably in most African countries. Table 5.1. presents the

[1] It is known that exposure to sex before formal entry into union or cohabitation is prevalent in contemporary Africa (Meekers, 1993)

percent distribution of women by current marital status and age according to the 1996 Benin DHS. Marriage is virtually universal in Benin as less than one in a hundred women is still single by the time they reach their mid-thirties. Marriage also occurs relatively early. More than one in four women aged 15-19 have already been in union at the time of survey and, by the age of 25, almost 80% of women have already been in union.

Table 5.1. Percent distribution of women by marital status and age (Benin 1996)

Age group	Marital status						N
	Single	Married	Consensual union	Widowed	Divorced	Separated	
15-19	70.9	24.5	4.1	0.1	0.3	0.1	1075
20-24	20.5	67.7	9.4	0.5	0.4	1.5	1020
25-29	5.7	80.6	10.2	0.3	0.7	2.4	964
30-34	1.6	84.8	8.7	1.8	1.3	2.0	766
35-39	0.6	86.0	6.4	3.1	1.9	2.0	693
40-44	0.2	82.5	8.7	4.0	2.3	2.2	527
45-49	0.3	83.5	4.5	7.5	1.8	2.3	447
Benin	19.0	68.9	7.6	1.8	1.0	1.7	5491

To check for the accuracy of reporting of age at first marriage in the DHS data, the percentages of women who entered their first union by age 19 for the age groups 25-34 and 40-49 for both the WFS and the DHS surveys were tabulated. The choice of these two age-groups was based on two assumptions: first, that if there are reporting errors for the age at marriage, this is more likely to occur among older women and second, that women aged 25-34 at the time of the WFS would be approximately 40-49 at the time of the DHS. Thus, their reports should be in close agreement if no errors occurred.

The results, presented in table 5.2, indicate that the two proportions are very similar, suggesting that the reporting of age at first marriage in the DHS is fairly accurate, at least in the older age-group. They also reveal that the proportion of women married by age 19 is unexpectedly low for older women in the WFS data. This is evidence of the existence of an upward bias in the reporting of age at entry into union among older women in the WFS because it is unlikely that age at marriage could have declined in the corresponding period. The singulate mean age at first marriage (SMAM) might be more illustrative of the changes occurring in marriage (table 5.2). Assuming that current age was relatively well reported in both surveys, the SMAM indicates that age at first marriage has risen by about one and a half years between the two surveys. Although the SMAM is robust to errors in the reporting of age at marriage, the observed change is extremely large for a 14-year period and calls for caution in its interpretation.

Table 5.2. Percent married by age 19 and singulate mean age at marriage for WFS and DHS data (Benin, 1982-1996)

	WFS (1982)	DHS (1996)
Percent married by age 19		
25-34	62.1	56.6
40-49	50.1	62.2
SMAM	18.3	19.9

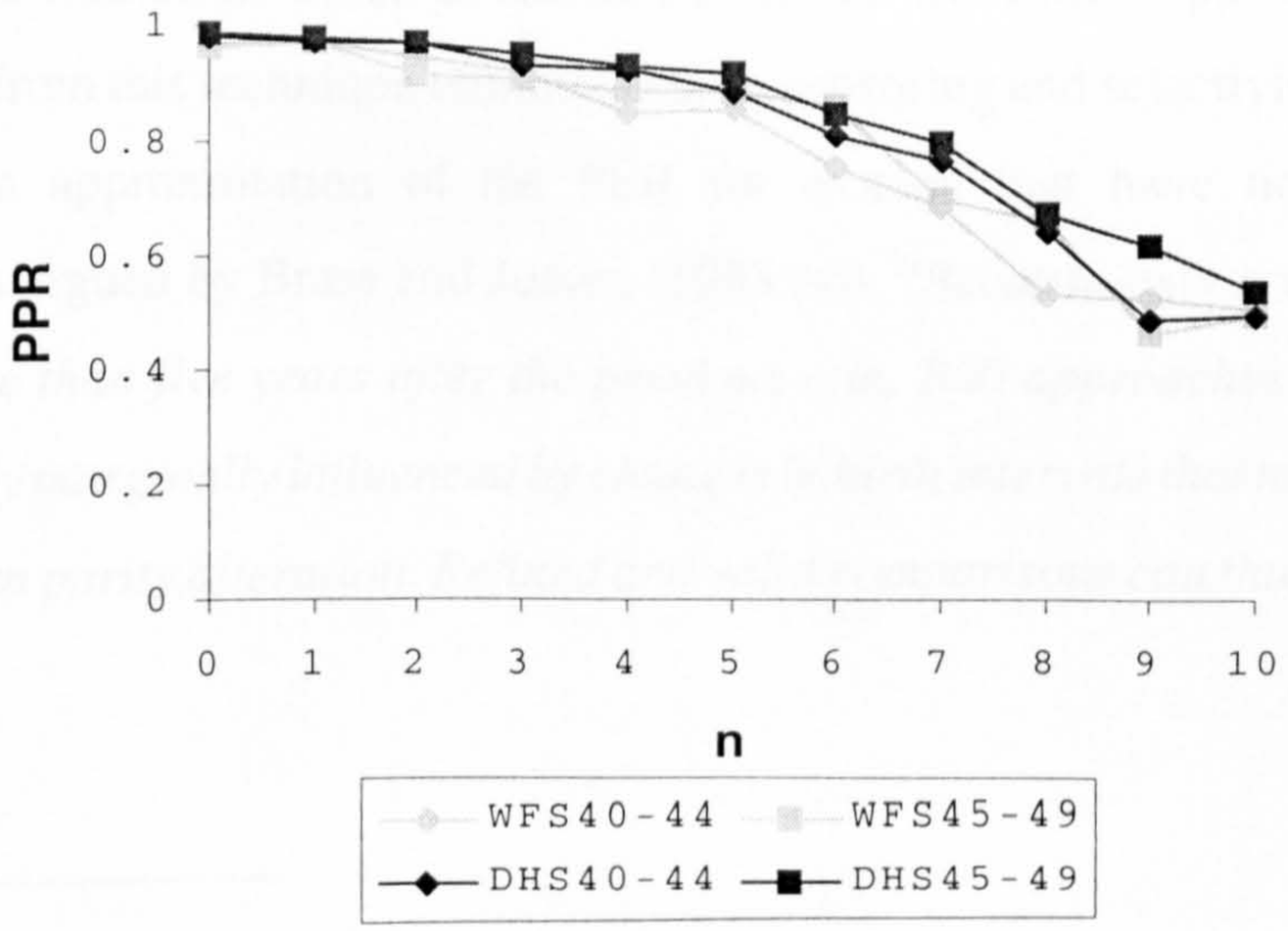
For example, 71% of women aged 15-19 are still single at the time of the DHS and the corresponding figure for the WFS is only 56%. A possible explanation may be that this reflects a shift in the identification of the point of entry into marital union and not necessarily a change in women's exposure to sexual intercourse. A further support to the plausibility of this explanation is that according to the DHS data where the age of events seems to be better reported, the median age at first sex has remained virtually constant from age 20-24 to 45-49 (Benin DHS, 1997). Similarly, it has been observed from the WFS data that more than a third of women who married had their first child as a result of premarital conceptions and a little less than 20% of first births to ever married women actually occurred outside marriage.

5.3. Parity progression ratios and the family formation process

5.3.1. Parity progression for older women

The analysis of birth history data, using life table techniques, views the family formation process as a "*... series of steps in which women pass successively through marriage to first births, to second births and so on, until they have achieved their completed family size.*" (Cohen, 1993:p42). The most common measures for analysing birth transitions are the parity progression ratios (PPR), that is, the probability for a woman with n birth(s) to have the $(n+1)^{th}$ birth. Birth histories collected from DHS-type surveys provide a good basis for describing the process of family formation using data for women aged 45-49 and eventually 40-44 years. Figure 5.1 presents parity progression ratios (PPR) for these cohorts in 1982 and 1996. The PPRs are very high in both surveys for all cohorts, at least up to the sixth birth where more than 80% of women aged 45-49 who have had a sixth birth will go on to have a seventh birth. Substantial reductions in PPRs are observed only after parity seven, corroborating the high parities attained by these women.

Figure 5.1. Parity progression ratios for women aged 40-44 and 45-49 in Benin (1982-1996)



Overall, the PPRs from both data sources exhibit similar patterns with little change before the sixth or seventh child. The consistently lower values of the PPRs calculated from the WFS data compared to those obtained from the DHS may be due to omission of births by older women at the WFS as already pointed out in the previous chapter.

5.3.2. Analysis of B60s

Because the majority of women in cross-sectional surveys have not completed their fertility, PPRs have limited explanatory power in establishing current trends in family formation, as they only refer to older women. In order to obtain a better insight of the transition from birth "x" to birth "x+1" for truncated birth histories, a similar measure called B60 was proposed by Rodriguez and Hobcraft (1980). Simply defined, B60 is the probability that, having had a birth[2], a woman would have the next within five years (i.e. 60 months). These probabilities will be referred to as censored parity progression ratios. The B60s are robust to most data errors and only modestly lower than actual PPRs because the majority of women have birth intervals that are shorter than five years. In addition, they can be calculated for a wider range of age-groups.

However, the B60s are subject to selection bias towards women who marry early and are the "fast movers" (Rodriguez and Hobcraft, 1980). Juarez (1983) proposed a simple adjustment procedure to correct for this limitation which is referred to as the truncation approach. The adjusted estimate derived from this technique eliminates both censoring and selectivity effects. They can be considered an approximation of the PPR for women that have not completed their reproduction. As argued by Brass and Juarez (1983:p6), "*Because only a small proportion of births occur more than five years after the previous one, B60 approaches a pure measure of quantum. It is only marginally influenced by changes in birth intervals that may be occurring for reasons other than parity alteration. Refined and valid comparisons can thus be made of trends by cohorts.*".

---

[2] B60s for first births, usually refer to the transition to first birth within 5 years of union, and women entering in the calculation are those ever in union (legally married or not).

Transition to first births

The timing of the first birth has important repercussions on subsequent fertility and, in many societies, is closely linked to the age at entry into union. In Africa, however, marriage is viewed as a process which takes place sometimes over long periods. Accordingly, there are difficulties in interpreting childbearing in relation to marriage because a substantial proportion of births occur outside what is considered a union. As in other African countries, Benin women start childbearing at relatively young ages. Apparently, the slight change observed in the age at first marriage over the past two decades seems to be concentrated in younger women living in urban areas (table 5.3).

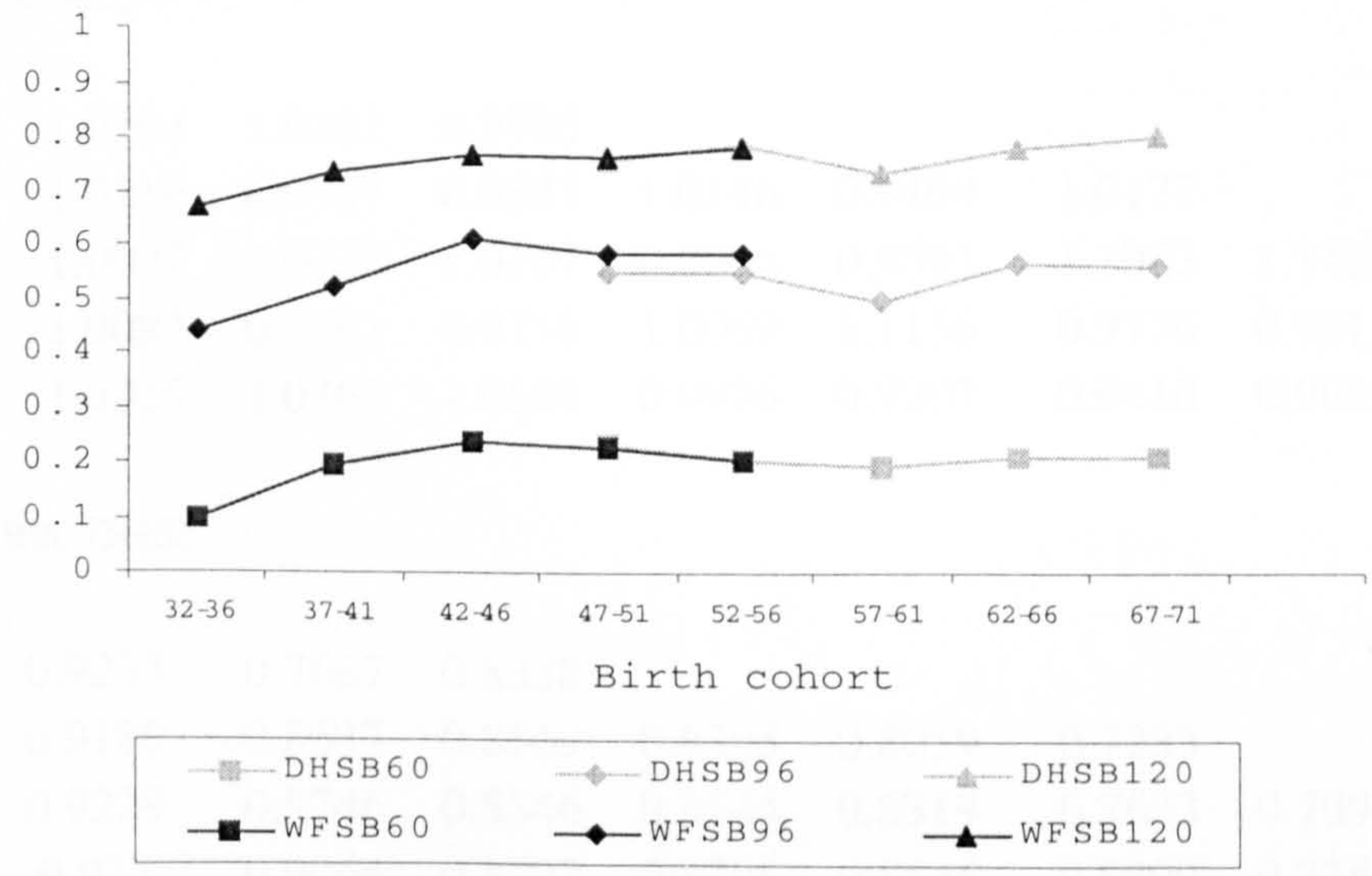
Table 5.3. Median age at first birth for women aged 20-49 and 25-49 (1982-1996)

Region	WFS		DHS	
	20-49	25-49	20-49	25-49
Urban	19.8	20.1	20.5	20.4
Rural	19.3	19.3	19.3	19.3
Benin	19.4	19.5	19.7	19.6

Due to the inherent difficulties in the interpretation of the transition from union to first birth, transition from age 12 to first birth is examined using respectively B60, B96 and B120 which correspond to the analysis of first birth by age 17, 20 and 22 respectively. The results are presented in Figure 5.2 using birth cohorts in order to evaluate the time trends. There is close agreement in the overlapping period of the two surveys for the three cutting points. The figure shows that for the WFS data, the probability of having a first birth by age 17, increases for the birth cohorts 1932-36 to 1942-46, while for more recent cohorts (1947-51 and 1952-56), the trend remains relatively constant. This suggests that in the 1960s more women had achieved the first birth by age 17 than in the 1950s. A similar pattern is observed by age 20 and 22. Because Benin has not been characterized in the past as a country with a high prevalence of sexually transmitted diseases (e.g. syphilis), secondary sterility is not suspected to be a problem. It is therefore likely that this rising trend is a reflection of time location errors in the data (Potter effect) already pointed out in the evaluation data quality (Chapter 4, section 4.2.4).

As regard the DHS data, the probabilities of achieving a first birth by ages 17 and 20 have remained constant through time but small modifications are observed in the probability of achieving a first birth by age 22 for the youngest cohorts. It is possible that the slightly higher proportion of women achieving their first birth by age 22 reflects real changes occurring in the family formation process because the DHS data was shown to be of good quality. If this was true, it would indicate an acceleration of the timing of the first birth by young women, a deliberate strategy that may be compatible with the transition of fertility towards smaller completed families.

Figure 5.2. Adjusted probability of transition from age 12 to first birth (Benin: 1982-1996)



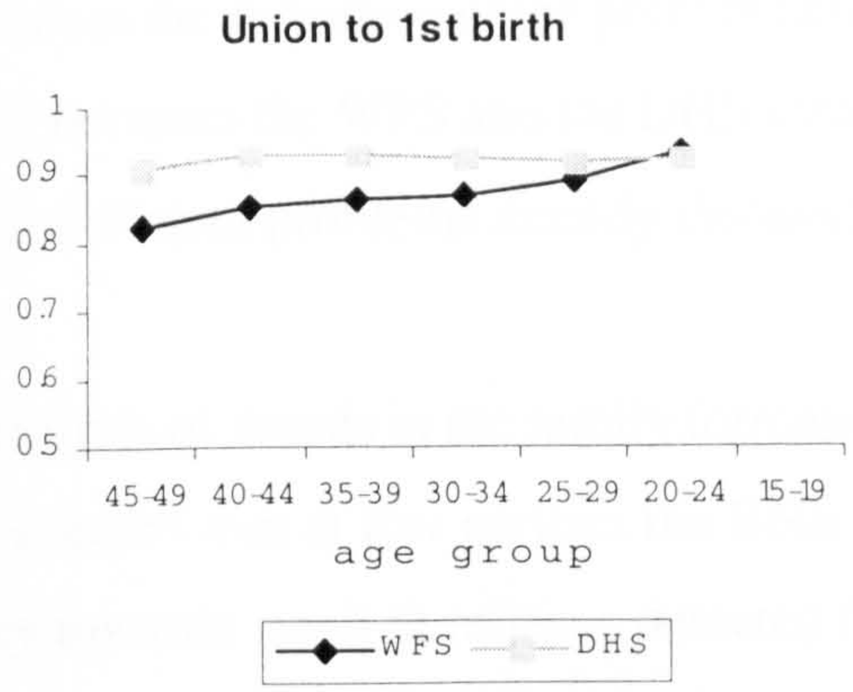
Transition from first to higher order births

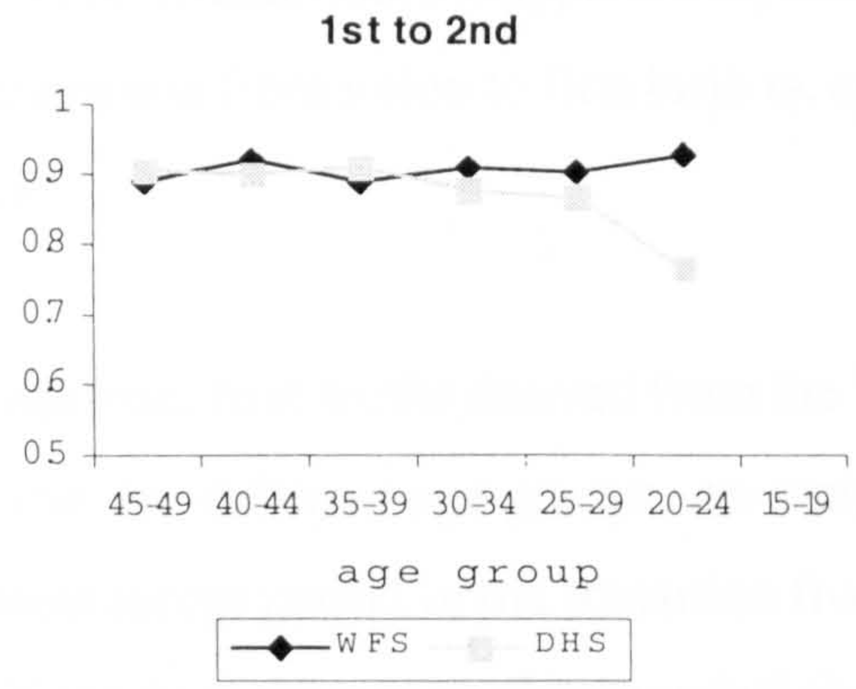
In table 5.4, adjusted values of the B60s are tabulated together with indices of relative change for both WFS and DHS data. In this analysis, B60s obtained from very small samples (primarily from younger cohorts at higher parities) are eliminated because they are susceptible to larger sampling variation and may distort the overall picture of trends in the family building process. Adjusted B60s are also plotted by age cohort in figure 5.3. In these graphs, age cohorts are presented from oldest to youngest women so that the time trend can be maintained from left to right.

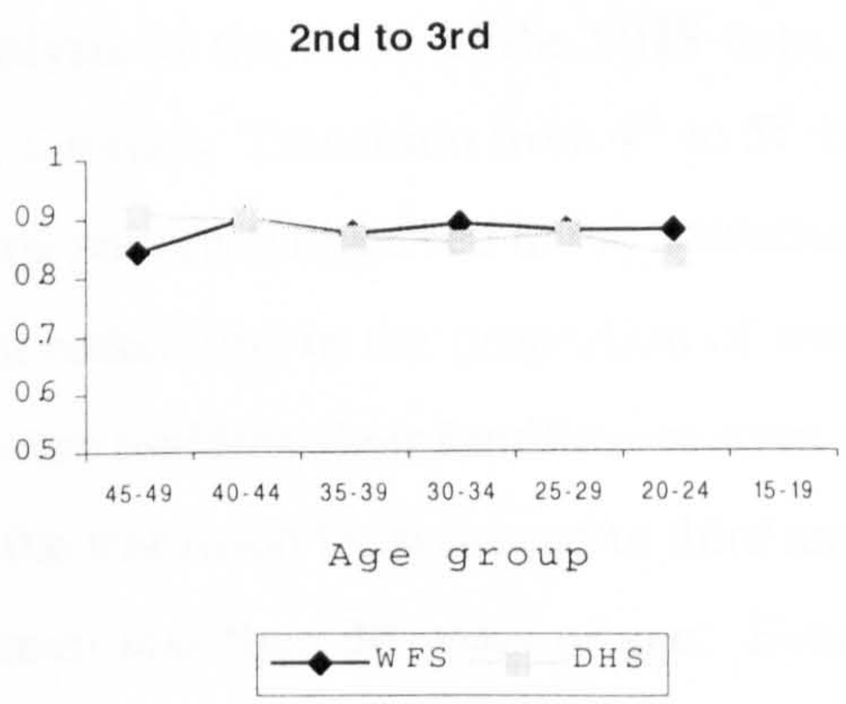
Table 5.4. Adjusted probability of having the next birth within five years and indices of relative change by birth order and age-group in Benin (1982-1996)

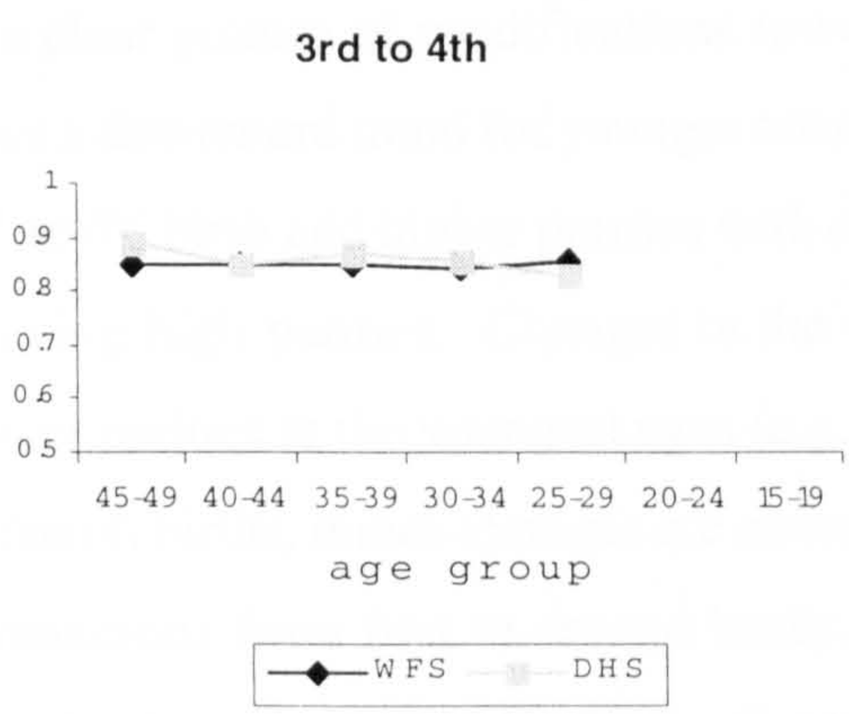
Age groups	Birth order							
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8
Adjusted B60s (1982 WFS)								
20-24	0.9309	0.9309	0.8740					
25-29	0.8862	0.9054	0.8757	0.8565	0.7707	0.8757		
30-34	0.8674	0.9066	0.8893	0.8442	0.8139	0.8605	0.7774	0.7541
35-39	0.8591	0.8869	0.8747	0.8522	0.8481	0.7771	0.6798	0.7541
40-44	0.8512	0.9180	0.9003	0.8464	0.7602	0.7949	0.7147	0.7414
45-49	0.8244	0.8855	0.8423	0.8485	0.8257	0.8448	0.7939	0.6646
Indices of relative change								
20-24/25-29t	1.0504	1.0282	0.9980					
25-29/30-34t	1.0216	0.9987	0.9847	1.0146	0.9469	1.0177		
30-34/35-39t	1.0097	1.0222	1.0167	0.9906	0.9597	1.1073	1.1436	1.0000
35-39/4044t	1.0093	0.9661	0.9716	1.0069	1.1156	0.9776	0.9512	1.0172
40-44/45-49t	1.0325	1.0367	1.0689	0.9976	0.9207	0.9410	0.9002	1.1155
Adjusted B60s (1996 DHS)								
20-24	0.9235	0.7667	0.8338					
25-29	0.9189	0.8637	0.8669	0.8305	0.8059	0.7233		
30-34	0.9229	0.8746	0.8546	0.8544	0.8319	0.7633	0.7098	0.6666
35-39	0.927	0.9064	0.8702	0.8706	0.8645	0.8309	0.7340	0.6666
40-44	0.9258	0.9004	0.8977	0.8492	0.8572	0.8199	0.7503	0.7033
45-49	0.9039	0.9036	0.9091	0.8878	0.8679	0.8559	0.8085	0.7447
Indices of relative change								
20-24/25-29t	1.0051	0.8876	0.9618					
25-29/30-34t	0.9956	0.9876	1.0144	0.9721	0.9688	0.9477		
30-34/35-39t	0.9956	0.9649	0.9821	0.9813	0.9623	0.9186	0.9671	1.0000
35-39/4044t	1.0013	1.0067	0.9693	1.0252	1.0086	1.0135	0.9783	0.9478
40-44/45-49t	1.0242	0.9965	0.9875	0.9566	0.9876	0.9579	0.928	0.9444

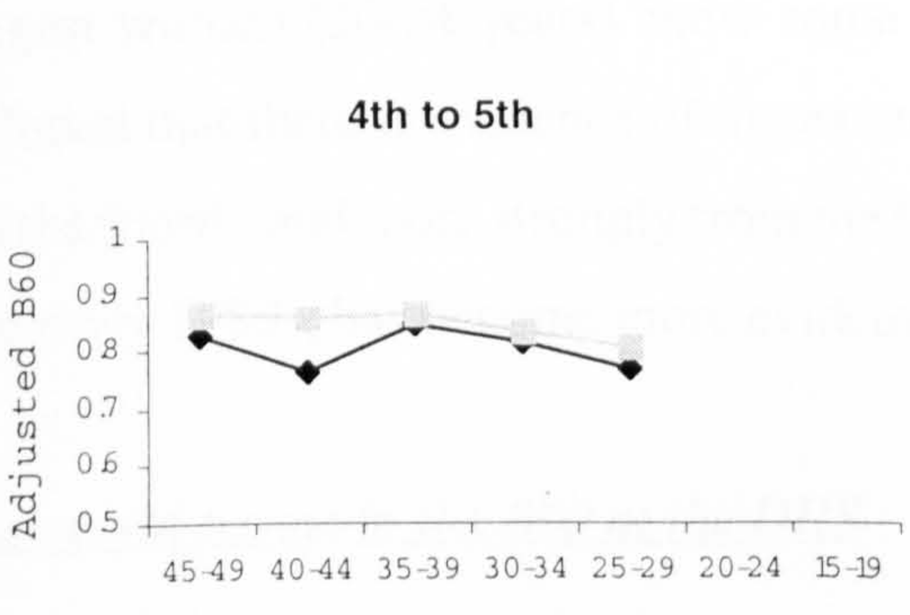
Figure 5.3. Trends in adjusted B60s from union to eighth birth in Benin (1982-1996)

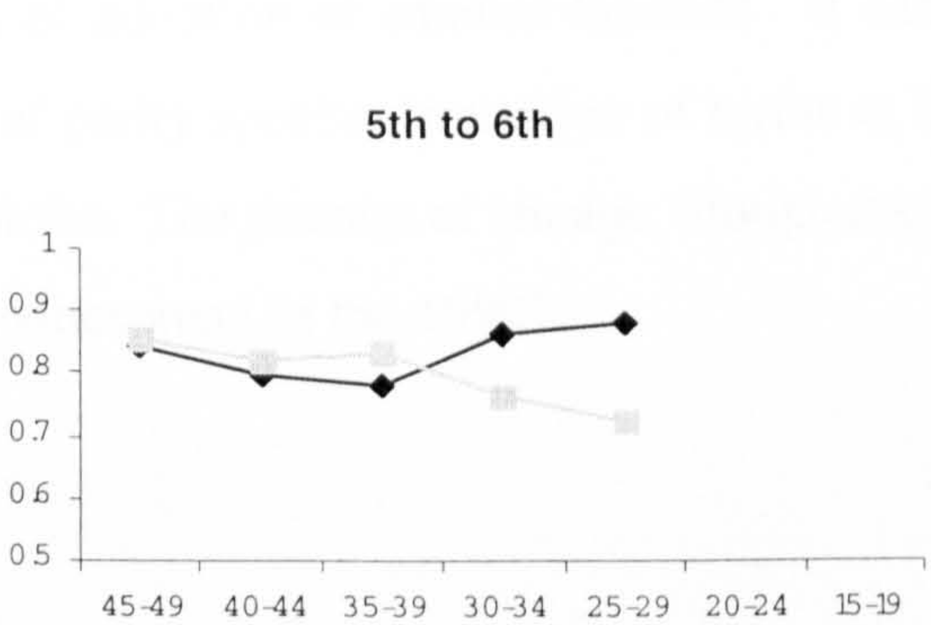


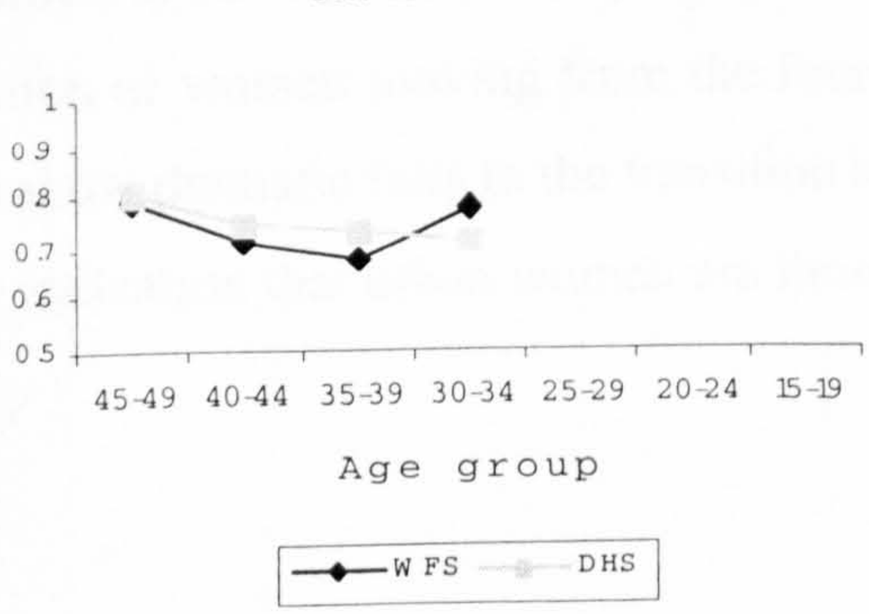


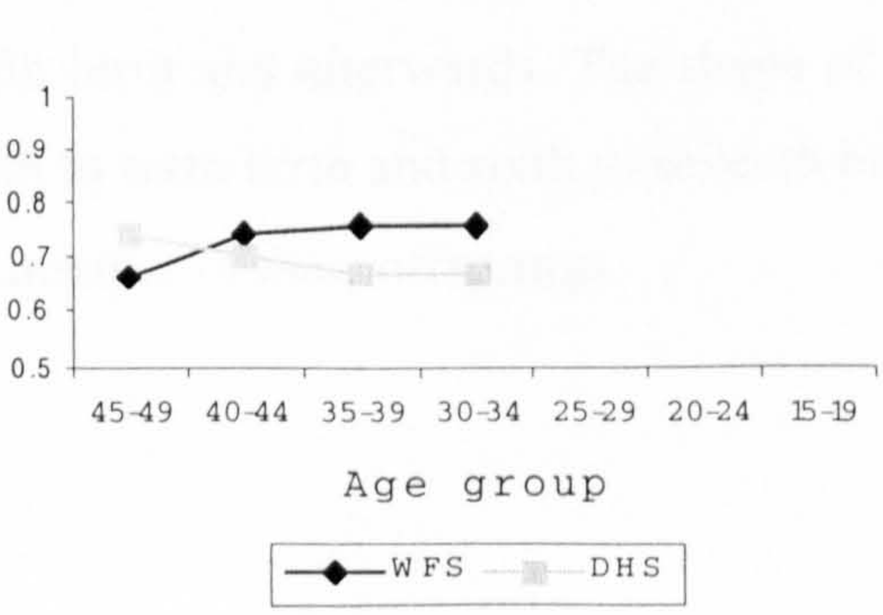












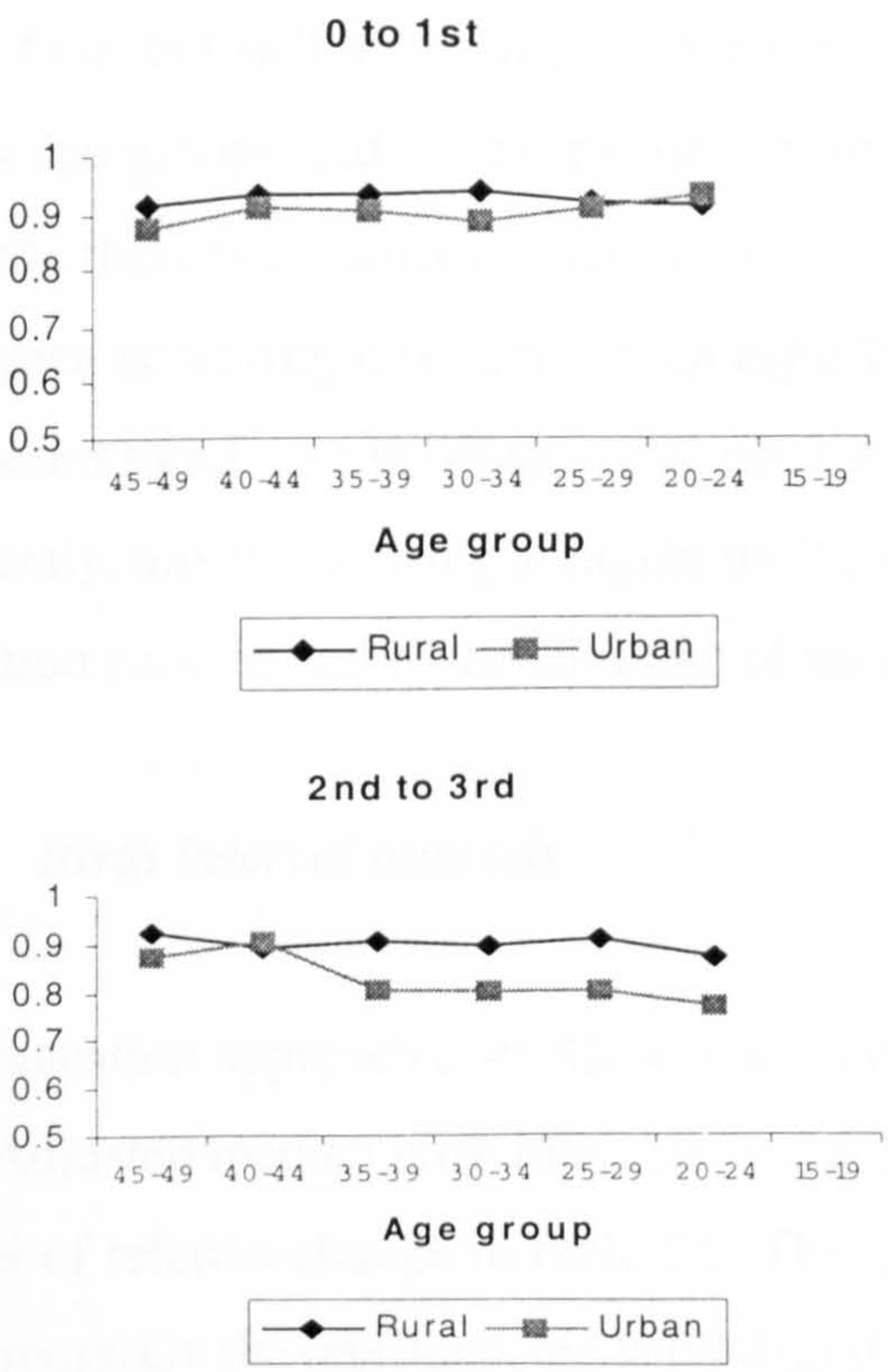
Estimates for the transition from union to first births are less informative here because of the difficulties in the definition of the point of entry into union. In addition, the apparent asynchrony observed between the WFS and the DHS data in the transition from union to first birth is, again, a reflexion of data problems already discussed earlier.

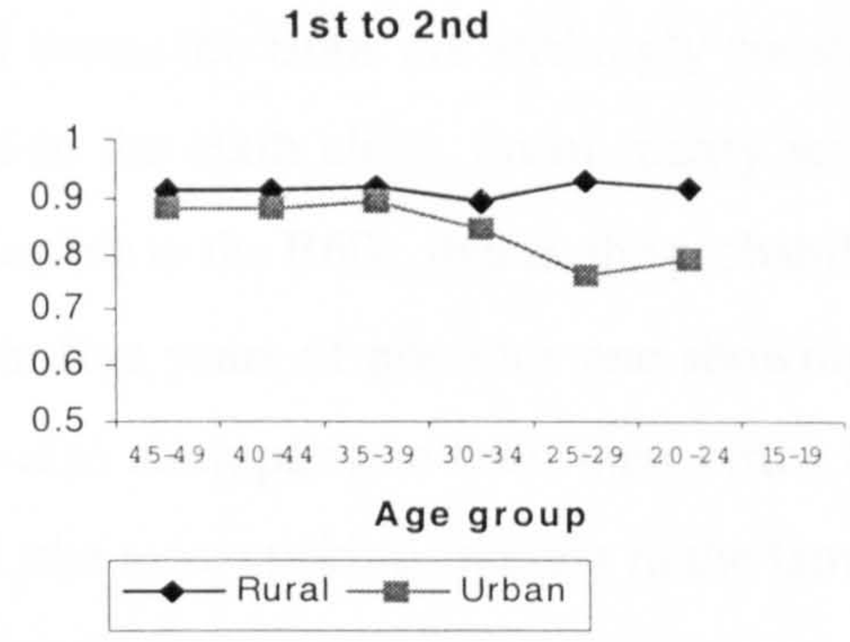
In the analysis of trends in the family formation process from first births derived from the WFS data, it appears that at low parities the B60s are similar for different age groups. An incipient tendency towards small families is detected for the most recent period in the transition from 4th to 5th births but this has not continued with higher parities where there is no clear trend of change. The analysis of the B60s of the DHS data, presents a clear picture of modifications towards smaller families. Transition from 4th to 5th births shows a downward trend for younger cohorts. The same pattern is observed in the transition from 5th to 6th birth and higher parities with even stronger reductions in the proportion of women achieving high parities. Changes in the way couples are building their families are even seen at lower parities at the youngest ages (e.g. 20-24). In the transition from second to third and third to fourth births, minor changes are observed for women less than 30 years of age. Even in the transitions from first to second births, the youngest women (20-24 years) show some signs of adoption of smaller families. It can be concluded that there is evidence of the existence of parity specific limitation of births at least from the fourth, and more strongly from the fifth births. The process of change, though starting in the early 1980s, has become more evident and widespread in the 1990's.

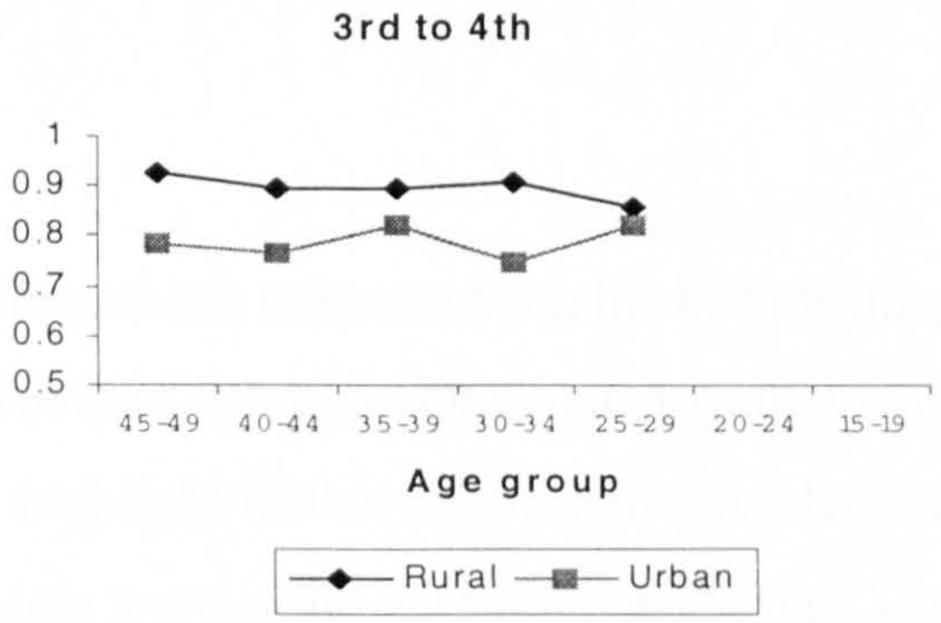
Urban-rural trends in the B60 at the DHS

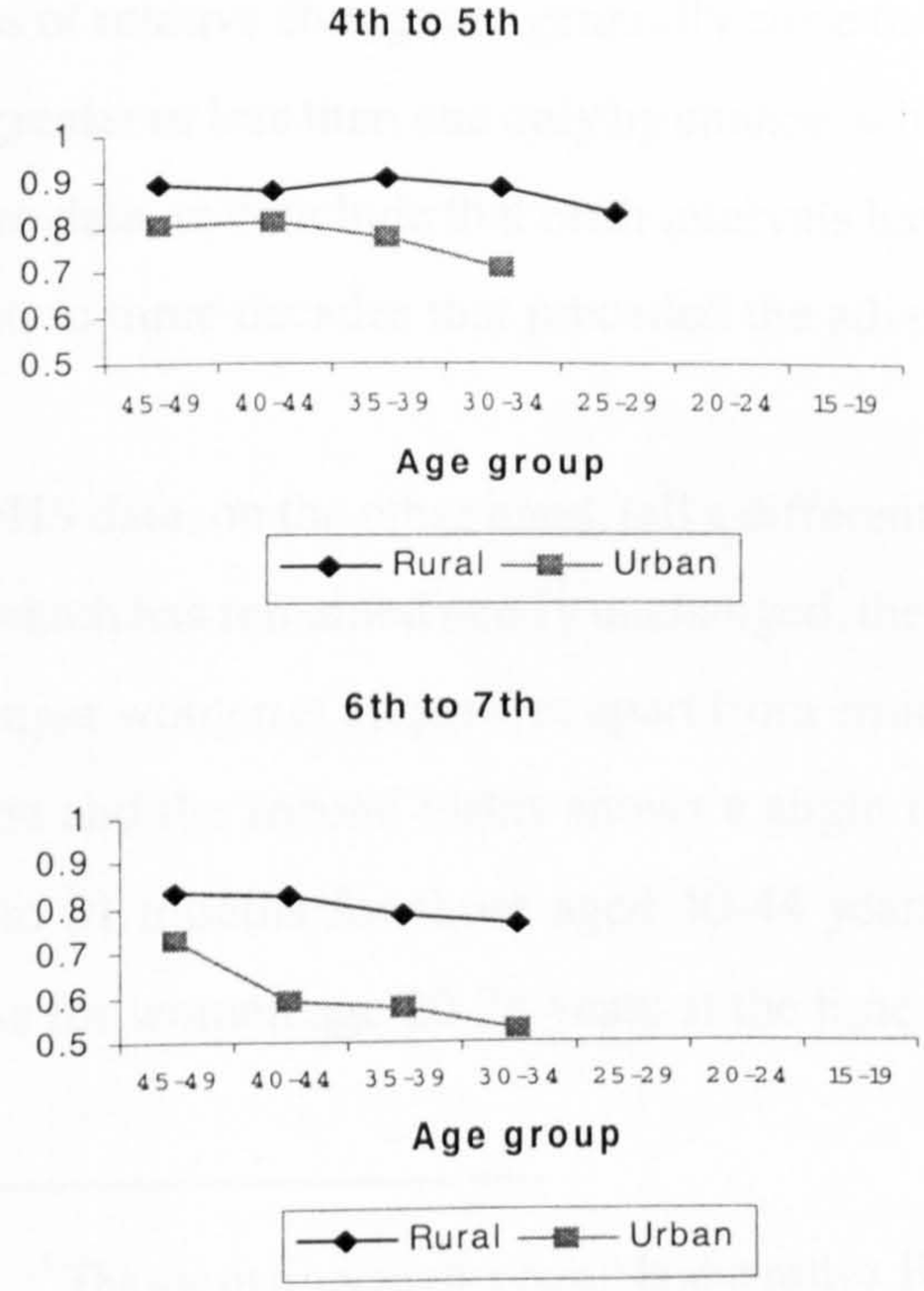
Further disaggregation of the DHS data was done to explore urban/rural differentials in the changing patterns of family formation. Figure 5.4 shows the plots of adjusted B60s for transition from union to the eighth birth, by age cohort. In urban areas, there is a clear reduction in the proportion of women moving from the fourth to fifth birth and afterwards. The shape of the curves show dramatic falls in the transition to the fifth to sixth birth and sixth to seventh birth, a clear indication that urban women are limiting the number of their offsprings.

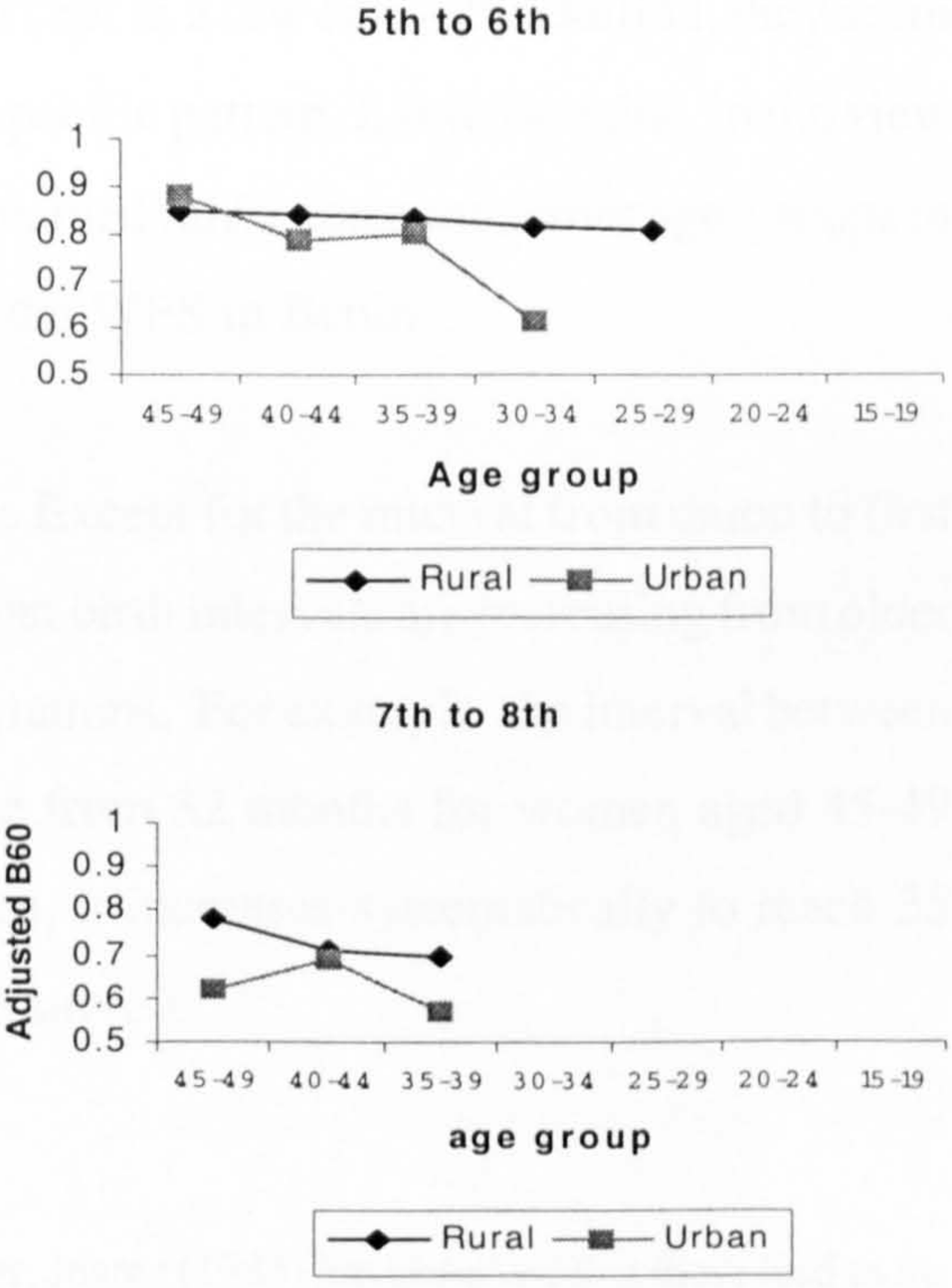
Figure 5.4. Trends in B60 from union to the eighth birth by place of residence in Benin (1996)











At low parities also some modifications are observed. From first to second births, there is a slight downward trend of the B60s at younger ages among urban women, which spreads up to parity four, but still these changes are small. In rural areas, the B60s are strikingly constant across age-groups and for all parities up to transition to the sixth child. From parity seven onwards, there is evidence of a modest but noticeable decline in the B60s, that is, the probability of women achieving a seventh or an eight birth within five years of previous one showing a downward trend. As in urban areas, rural women are also attempting to limit their births but apparently, this is occurring at higher parities. Overall, the most striking changes in the family formation process and in the adoption of smaller families is seen among urban women.

5.3.3. Birth interval analysis.

The truncation approach also allows the analysis trends in birth intervals from the birth history data. Adjusted median birth intervals[3] are presented for both WFS and DHS data together with indices of relative change in table 5.5. These results highlight further changes in reproductive behaviours. On the one hand, the WFS data show no clear trend in the birth intervals by age. The indices of relative change are generally close to one except in a few cases. In addition, they seem to be greater or less than one only by chance, with no specific pattern. It is reasonable, in the view of these data, to conclude that birth intervals have remained fairly constant across age-groups in the two to three decades that preceded the advent of the WFS in Benin.

The DHS data, on the other hand, tell a different story. Except for the interval from union to first birth which has remained nearly unchanged, the median birth intervals are increasing from older to younger women at all parities apart from erratic variations. For example, the interval between the first and the second births shows a slight decline from 32 months for women aged 45-49 years to 31 months for those aged 40-44 years. Then, it increases systematically to reach 35 months for women age 20-24 years at the time of the survey.

---

[3] The use of trimeans is a possible alternative. However, Juarez (1983) has observed that these lead to the same conclusions as the use of medians.

Table 5.5. Adjusted median birth intervals from union to the eighth birth in Benin (1982-1996)

Age groups	Birth order							
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8
Adjusted median birth intervals (WFS, 1982)								
15-19								
20-24	16.8	34.1						
25-29	16.8	33.3	33.0	38.7	32.4			
30-34	16.4	30.6	32.6	36.1	32.2	34.4	38.3	
35-39	17.5	32.3	33.2	35.7	33.3	34.9	35.6	33.9
40-44	15.6	32.3	31.8	35.6	34.8	35.1	37.0	36.1
45-49	16.9	35.8	35.6	35.4	34.9	34.7	36.2	38.9
Indices of relative change								
24-24/25-29t	0.9988	1.0223						
25-29/30-34t	1.0243	1.0885	1.0130	1.0713	1.0074			
30-34/35-39t	0.9365	0.9476	0.9829	1.0121	0.9674	0.9842	1.0755	
35-39/40-44t	1.1249	1.0012	1.0425	1.0026	0.9574	0.9956	0.9612	0.9392
40-44/45-49t	0.9231	0.9011	0.8944	1.0068	0.9966	1.0095	1.0221	0.9265
Adjusted median birth intervals (DHS, 1996)								
15-19								
20-24	14.9	35.1	38.0	43.8				
25-29	13.3	33.1	34.6	36.1	36.2	43.6		
30-34	12.5	31.8	32.4	33.2	36.0	38.5	41.0	
35-39	13.7	31.6	31.3	32.5	32.3	32.9	36.0	38.3
40-44	13.0	30.9	30.6	31.5	32.3	33.2	32.1	35.4
45-49	12.9	31.8	31.6	30.7	31.5	32.5	33.4	35.5
Indices of relative change								
24-24/25-29t	1.1256	1.0583	1.0982	1.2142				
25-29/30-34t	1.0617	1.0419	1.0663	1.0862	1.0051	1.1345		
30-34/35-39t	0.9150	1.0059	1.0354	1.0211	1.1152	1.1696	1.1384	
35-39/40-44t	1.0510	1.0220	1.0238	1.0325	0.9987	0.9921	1.1228	1.0806
40-44/45-49t	1.0077	0.9724	0.9677	1.026	1.0267	1.0200	0.9610	0.9975

Table 5.6. Adjusted median birth intervals from union to the eighth birth by place of residence (Benin, 1996)

Age groups	Birth order							
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8
Adjusted median birth intervals (1996, Urban)								
15-19								
20-24	17.3	37.7	40.2					
25-29	15.1	36.7	36.2	38.6				
30-34	14.4	33.5	35.7	35.8	41.2	46.6		
35-39	17.2	33.5	32.9	36.5	38.3	40.1	46.8	43.8
40-44	13.4	32.7	29.8	33.1	34.3	35.3	40.3	40.1
45-49	13.7	32.7	34.4	34.5	35.8	35.2	37.5	47.3
Indices of relative change								
24-24/25-29t	1.1479	1.0264	1.1124					
25-29/30-34t	1.0463	1.0966	1.0119	1.0802				
30-34/35-39t	0.8391	0.9982	1.0865	0.9803	1.0743	1.1604		
35-39/40-44t	1.2779	1.0257	1.1055	1.1016	1.1166	1.1362	1.1608	1.0934
40-44/45-49t	0.9796	0.9994	0.8661	0.9594	0.9589	1.0029	1.0745	0.8483
Adjusted median birth intervals (1996, rural)								
15-19								
20-24	16.1	34.2						
25-29	14.4	32.2	35.4	35.6	37.2			
30-34	13.4	31.7	31.7	32.7	35.4	38.7	41.8	
35-39	14.6	31.0	31.5	31.8	31.3	33.2	34.8	36.8
40-44	14.7	30.7	32.4	31.6	31.9	33.9	30.7	35.9
45-49	14.5	32.0	31.3	30.3	30.6	32.6	32.6	32.1
Indices of relative change								
24-24/25-29t	1.1162	1.0614						
25-29/30-34t	1.0748	1.0176	1.1161	1.0899	1.0509			
30-34/35-39t	0.9193	1.0213	1.0061	1.0272	1.1321	1.1654	1.2029	
35-39/40-44t	0.9959	1.0091	0.9746	1.0057	0.9821	0.9817	1.1315	1.0244
40-44/45-49t	1.0131	0.9615	1.0339	1.0429	1.0408	1.0401	0.9418	1.1169

The same observation holds for the interval between second and third births. At higher parities, the trend is even clearer as suggested by the intervals between third and fourth and fourth to fifth birth. Such results provide a strong support to the conclusion that birth intervals have been increasing from older to younger women.

As in the previous section, the birth interval data for the 1996 Benin DHS are analysed by type of place of residence in table 5.6. Two main conclusions can be drawn from this table. With the exception of the first and eight interval, the trend is toward a lengthening of the duration between births, the younger the women. It is interesting that the modifications are experienced by even the older cohorts 40-44 years in all parities. For rural women, a similar trend of lengthening of the intervals, from the second to the seventh is observed from older to younger cohorts. However, the changes are smaller than those shown in urban areas.

5.4. Proximate determinants of fertility

It is classic to ascribe changes in fertility levels to variations in four underlying biological and behavioural variables known as proximate determinants or intermediate variables (Bongaarts and Potter, 1983). These are marriage, contraception, induced abortion and post-partum infecundability. The proximate determinants' framework allows the examination of possible mechanisms through which observed changes in overall fertility could have occurred. With the exception of induced abortion, data on the variables identified in the proximate determinants' framework were collected during both the 1982 WFS and the 1996 DHS and are presented in table 5.7. The following section focuses on contraception, abortion and port-partum infecundability only, because the issues surrounding marriage patterns have already been addressed earlier in this chapter.

5.4.1. The proximate determinants in Benin: levels and trends

Table 5.7 presents the levels of some of the proximate determinants of fertility in Benin according to both WFS and DHS data.

Table 5.7. Levels of selected intermediate variables in Benin: 1982-1996

Indicators	1982 WFS	1996 DHS
SMAM (years)	18.3	19.9
%using contraception (any)	7.2	16.4
% using contraception (modern)	0.8	3.4
Mean duration postpartum infecundability*	17.2	18.9
Mean duration of postpartum abstinence*	17.8	15.8
Mean duration of postpartum amenorrhoea*	13.1	13.4
Mean duration of breastfeeding*	17.8	16.9

* Mean duration are in months Sources: UN, 1984; Singh &Ferry, 1984; Benin, 1984; Benin, 1997

Contraception

In Benin, the prevalence of use of modern contraceptive methods has always been low, even by Sub-Saharan African standards. From 1982 to 1996, modern contraceptive use by women in union has risen from an insignificant 0.8% to 3.4%. But there was also a significant increase in the practice of traditional contraception (from 6% to 13%), especially the rhythm method (from 2% to 7%). The differential factors of use of modern contraception in Benin are those found in nearly all contraceptive studies. Women in urban areas are more likely to be using modern contraception than their rural counterpart. Likewise, the more educated women are more inclined to use modern contraceptives. However, it is worth noting that the differences observed between urban and rural as well as educational groups are small when compared to other countries. For example, in the 1996 Benin DHS, the prevalence of use of modern contraception in urban Benin was only 5.8%. The low level of use of modern contraception persists despite the facts that both knowledge of modern contraception and services availability have improved substantially over the last 15 years. In 1982, only 40% of women knew any method of contraception and less than 15% knew anything about modern contraceptive methods. In 1996, these proportions have risen

to 80% and 76% respectively.

Induced abortion

In the absence of reliable data, it is difficult to precisely estimate the incidence of induced abortion and its impact on fertility levels in Benin. However, there are a number of studies which attempted to investigate the nature of the problem. These indicate that induced abortion is a major reproductive health problem and that, although illegal, it is used for delaying as well as limiting births by women of all ages and social classes. For example, in a national study of pregnancy outcomes among 1,740 female college and university students, Avodagbe (1988) found that more than sixty percent of those interviewed reported having had at least one pregnancy and that in about eighty percent of those cases, the pregnancy was terminated through induced abortion. A recent hospital-based study by Alihonou, Goufodji and Capo-chichi (1996) also found that induced abortion is a common practice, under safe as well as unsafe conditions[4]. This study analysed all cases of complications of induced abortion reported to the three main hospital maternities in Cotonou over a period of one year. It estimated that there were about ten cases of complications due to induced abortion per hundred births, suggesting that the true incidence of induced abortion may be much higher. Moreover, the study revealed that in almost 40% of cases the abortion was induced because either the woman or her partner did not want anymore children. Furthermore, cases of induced abortion in this study included women of all ages and educational as well as socio-economic background. These results are compatible with findings from other studies in the region (Konate et al., 1998). Research from South-West Nigeria, a region close to Benin, both geographically and culturally, suggest an incidence ratio of 20 to 30 abortions per 100 live births (Henshaw et al., 1998; Okonofua et al., 1999). The plausibility of the importance of induced abortion in Benin is also supported by a recent study by Bongaarts (1997), which showed that unwanted fertility and abortion tend to rise at the early stages of transition in the absence of strong family planning programmes.

---

[4] In addition to medical interventions such as curettage or aspiration, women reported an impressive number of other lay approaches to induce abortion. These range from the use of various medicines that are known to be counter-indicated for pregnant women to the use of different kinds of alcoholic drinks, both local and imported, and Coca-Cola in combination with malaria tablets or Aspirin, the use of traditional herbs etc... which they usually describe with graphic details; the insertion of stem or metal rod into the vagina.

Post-partum infecundability

In most societies, the duration of the post-partum infecundable interval is primarily a function of breastfeeding behaviour (Bongaarts and Potter, 1983). However, because prolonged post-partum abstinence is customary in Sub-Saharan Africa, the post-partum infecundable period can exceed the anovulatory period to the extent that abstinence lasts beyond the resumption of ovulation. In Benin, as in all traditional African societies, sexual abstinence by women following childbirth is common and relatively long. DHS data suggest that, on average, women abstain from sex following child birth for about 16 months. This is slightly shorter than reported 14 years earlier by the WFS (18 months) and may be an indication of an erosion of traditional practices. On the other hand, the duration of postpartum amenorrhoea, which is closely related to lactation, has remained virtually constant between 1982 and 1996 (13.1 months compared with 13.4 months).

The long durations of both postpartum amenorrhoea and sexual abstinence conceal wide regional and residential differences, especially in the more recent DHS data. The duration of amenorrhoea ranges from 7.3 months in Atlantique to 17.1 months in Oueme. Likewise, women in Atlantique abstain for only 5.8 months on average, compared to more than 22 months in Atacora. As a result, postpartum infecundability ranges from less than 12 months in Atlantique to almost 23 months in Atacora. Similarly, urban women tend to become susceptible more rapidly than rural women. Regarding the effect of education, women with no education have an overall duration of postpartum infecundability of 20 months compared to 14 and 7 months for those with primary and secondary education respectively.

5.4.2. Application of the Bongaarts model to the Benin data

The extent to which marriage patterns, contraceptive use, induced abortion and postpartum infecundability reduce fertility from its biological maximum can be quantified using a set of indices: C_m, C_c, C_a and C_i. Bongaarts and Potter (1983) provide simple formulae for their calculation.

Estimation of the Bongaarts' indices

a) Index of marriage (C_m)

C_m is estimated as a weighted average of the age-specific proportions of females currently married with the weights provided by the age-specific marital fertility rates. In other words,

$$C_m = \frac{\sum m(a)g(a)}{\sum g(a)} \qquad (1)$$

where:

. m(a)= age-specific proportions currently married or in consensual union among females

. g(a)=age-specific marital fertility rate

As suggested by Bongaarts and Potter, g(a) is obtained, in this thesis, by dividing the age-specific fertility rate by the proportion of women that is currently married or in union in each age group. However, caution will be needed in the application of the model to most Sub-Saharan African countries because it assumes that fertility occurs within marriage or union, which is certainly not the case of many women in Benin.

b) Index of contraception (C_c)

C_c is derived from the following equation

$$C_c = 1 - 1.08 * u * e \qquad (2)$$

where:

. u equals the proportion currently using contraception among married women of

reproductive age

. e is the average use-effectiveness and is calculated as a weighted average of method-specific use-effectiveness, with the weights equal to the proportion of women currently using a given method.

In this thesis, values of e(m) are derived from Bongaarts (1983); e(m)=1, 0.99, 0.95, 0.94, 0.90 and 0.70 respectively for Sterilization, Injections, IUD, Condom, Pill and other methods.

c) Index of abortion (C_a)

The index of abortion is calculated using the formula:

$$C_a = \frac{TFR}{TFR + 0.4(1+u)TA} \qquad (3)$$

where

- TFR is the total fertility rate
- u is the prevalence of contraceptive use
- TA is the total abortion rate (i.e. the average number of induced abortion per woman at the end of the reproductive period if current age-specific abortion rates apply)

However, because there are no reliable data on abortion rates in Africa, the index C_a is usually set to 1.0 (i.e. no abortion exists in the population). This thesis adopts the same approach as TA is unknown, even thought it is apparent from the analysis of external sources that it may not be appropriate.

d) Index of post-partum infecundability (C_i)

C_i is calculated using the following equation:

$$C_i = \frac{20}{18.5 + i} \qquad (3)$$

where

. i is the average duration of postpartum infecundability. For an individual woman, the duration of post-partum infecundability is defined (and calculated) as the maximum of either the duration of post-partum amenorrhoea or the duration post-partum sexual abstinence. These two durations are provided in both DHS and WFS files as current status variables (i.e. obtained directly from questions on the duration of amenorrhoea/sexual abstinence in the last open birth interval and whether the woman is currently amenorrheic/abstaining at the time of the survey). For example, the corresponding value for i in 1996 is 18.9 months (see table 5.7).

Impact of the proximate determinants

The upper panel of table 5.8. presents these indices for the 1982 WFS and the 1996 DHS. Both data sets indicate that post-partum infecundability is still the main inhibitor of overall fertility as it would reduce total fecundity to almost half its initial value. As regards the WFS, no other factor has any significant impact. The DHS data suggests that the inhibiting effect of contraception has increased slightly in 1996 as compared with the WFS data. Also, there seems to be a greater impact of changes in marriage. However, caution is needed in the interpretation of this index for the case of Africa as discussed earlier. Because little has changed between the WFS and the DHS, the remainder of this chapter concentrates on the DHS data.

In this section, differential impacts of the proximate determinants are examined. The results of these analyses are presented in the lower panel of table 5.8 for the DHS data, respectively by place of residence, schooling and region. In both urban and rural areas, post-partum

infecundability remains the main moderator of overall fertility, followed by changes in age at marriage, while the effect of contraception is still very weak. The impact of changes in union patterns appears to be a stronger inhibitor of the potential fertility among urban women as compared to rural women, while the index of post-partum infecundability has a lower influence in urban settings (i.e. a stronger effect among rural women).

Table 5.8. Levels and differentials in the indices of the proximate determinants (Benin, 1982-1996)

Background variables	Indices		
	C_m	C_c	C_i
Benin WFS (1982)	0.915	0.937	0.560
Benin DHS (1996)	0.809	0.877	0.535
Differentials in 1996			
Urban	0.703	0.829	0.578
Rural	0.874	0.881	0.522
No schooling	0.872	0.894	0.515
Primary	0.715	0.804	0.619
Secondary+	0.498	0.692	0.775
Atacora	0.861	0.925	0.484
Atlantique	0.675	0.780	0.662
Borgou	0.876	0.958	0.495
Mono	0.865	0.867	0.597
Oueme	0.779	0.756	0.525
Zou	0.841	0.891	0.562

Differentials in the indices are more pronounced for women with secondary or higher education. For educated women, the index of marriage is very low, suggesting a strong inhibiting effect. The index of contraception is also relatively low for women with secondary or higher education. Contrastingly the index of post-partum infecundability is much higher for these women, indicating a weaker effect. For women with no schooling, the main protection from high fertility

is post-partum infecundability while contraception and marriage patterns have very little effect. Women with primary education fall in between these two extremes. They still benefit from some post-partum protection, but this protection is clearly weaker than the one observed for uneducated women. Marriage has an effect on the potential fecundity of women with primary education, but still, this impact is much smaller than that of women with secondary or higher education. When regions are concerned, it is clear that Atacora and Borgou regions still enjoy the strongest post-partum protection, with indices lower than 0.5. In Atlantique and Oueme regions, the most modern of areas, union patterns have strongest effect on fertility reduction. As regard the effect of contraception, it is strongest in Oueme and Atlantique while in Atacora and Borgou it seems to have very little impact.

Comparing Benin with other countries in the region reveals some significant differences. Table 5.9 presents the Bongaarts indices for Benin and a few other African countries where transition is clearly underway. The indices show that the fertility impact of post-partum infecundability is stronger in Benin and Senegal (the West African countries) than in Kenyan and Zimbabwe (the East African countries). Kenya and Zimbabwe, the two countries most advanced in their transition toward low fertility in Africa, present a major effect of contraception. In Senegal, there is a greater effect of change in marriage age, a pattern that seems to be common to most of the other countries currently entering the fertility transition in Africa (Cohen, 1998).

Table 5.9. Indices of the proximate determinants of fertility in selected African countries

Country and year	Bongaarts indices		
	C_m	C_c	C_i
Benin (1996)	0.81	0.88	0.54
Senegal* (1997)	0.74	0.89	0.56
Kenya (1993)	0.80	0.71	0.64
Zimbabwe (1994)	0.91	0.52	0.61

Sources: Muhwava, 1997; Population Council, 1999; *Estimated from Senegal, 1998

The apparent similarity in the effect of contraception in the two West African countries (Benin and Senegal) hides, however, important differences in the types of methods being used (Table 5.10). A striking characteristic is the relatively high prevalence of use of the so-called traditional methods in Benin. At the national level, this prevalence amounts to 13% in Benin, compared with only 5% in Senegal. Even in Kenya and Zimbabwe, the difference in these two proportions is small (about 6%). This finding indicates that in Senegal, Kenya and Zimbabwe, contraceptive use is dominated by modern methods while in Benin, the methods most commonly used are those classified as traditional. A second feature that distinguishes Benin from Senegal is the pattern of the urban-rural differential in contraceptive use. Senegal present a large urban-rural differential for modern methods and also for all methods (19.3% vs 2.1% and 23.8% vs 7.1%). This patterns conforms with findings in most other countries in West Africa. In contrast, the difference between urban and rural women in terms of contraceptive prevalence is very small in Benin (19% vs 15% for all methods and 5.8% vs 2.1% for modern methods).

Table 5.10. Contraceptive prevalence by type of place of residence in selected African countries

Country & year	All methods			Modern methods			Traditional methods		
	Nat*.	Urb*.	Rur*	Nat.	Urb.	Rur.	Nat.	Urb.	Rur.
Benin (1996)	16.4	19.0	15.0	3.4	5.8	2.1	13.0	13.2	12.9
Senegal (1997)	12.9	23.8	7.1	8.1	19.3	2.1	4.8	5.0	4.4
Kenya (1993)	32.8	43.4	30.9	27.3	37.9	25.5	5.5	5.5	5.4
Zimbabwe (1994)	48.1	57.6	44.2	42.2	53.9	37.3	6.0	3.7	4.9

* Nat=National; Urb=Urban; Rur=Rural.

5.4.3. Differentials in impact between urban and rural areas in 1996

Using the proximate determinant model, it is possible to explore how regional and educational shifts in the levels of the proximate determinants, contribute to the observed fertility differentials at one point in time. Such evaluations are easier because, unlike the two-point comparison which uses two different surveys, they are based on the same data set.

Table 5.11. Impact of urban-rural differences in proximate determinants (Benin, 1996)

Factors	% change*	Distribution of %change	Absolute change in TFR
Marriage	-19.00	-75.10	-1.34
Contraceptive practice	-1.40	-5.90	-0.10
Postpartum infecundability	10.70	42.20	0.75
Other proximate determinants	-15.50	-61.00	-1.09
Interaction	-0.10	-0.30	-0.01
Total	-25.30	100.00	-1.78

*urban - rural

Focusing on the urban-rural differentials, a decomposition of the change in fertility levels from rural to urban areas is derived in terms of corresponding changes in the proximate determinants between place of residence. From the results, presented in table 5.11, three main points appear. First, differences in marriage patterns account for about 75% of the overall difference in fertility level between urban and rural areas. Secondly, the weakening of traditional practices such as long breastfeeding and postpartum abstinence in urban areas would have resulted in a 42% increase in fertility which is not compensated for by contraceptive use. Thirdly, other proximate determinants account for about 61% of the urban-rural fertility differential.

A number of factors may be considered in this last group. These include natural fecundability, spontaneous intra-uterine mortality, permanent sterility, frequency of intercourse and induced abortion. It is unlikely that natural fecundability and spontaneous intra-uterine mortality levels are very different between urban and rural areas. The level of infertility has remained relatively low in much of West Africa and no urban-rural differences are expected in this respect. Even if secondary sterility due to sexually transmitted diseases have increased in recent years, women in rural areas would have been more affected by such rise because they would have had less access to health services and modern treatments that are available in cities. Furthermore, because the proportions of women who remain childless at the end of their reproductive years do not differ appreciably between urban and rural areas, secondary sterility cannot be considered an explanatory factor. Similarly, the DHS data do not indicate that frequency of intercourse (as defined by sexual activity in the month preceding the survey) is different between urban and rural areas. Given that it is known from external sources that induced abortion is relatively prevalent in urban Benin and that the increase in contraceptive use in too small to compensate for the reduced impact of post-partum infecundability in urban areas, the most likely explanation for this finding is the increasing resort to induced abortion in urban areas.

5.5. Summary

This chapter demonstrates that even though age at union may be rising, the timing of entry into parenthood by Benin women has remained virtually unchanged over the past two to three decades. From the analysis of censored parity progression ratios, there are clear indications of the emergence of both longer child spacing and parity-specific child limitation behaviours at the national level. Apparently, the process is different from urban to rural women because there are only weak signs of birth limitation by rural women. While both urban and rural women are taking more time between their successive births, it seems that in urban areas the birth intervals have slightly declined before they started to rise.

The proximate determinants' model establishes that post-partum infecundability, which is still the main inhibitor of overall fertility in Benin, has considerably weakened in urban areas.

Contrary to expectations, the impact of contraceptive use by urban women is currently too small to compensate for the potential rise in fertility that would result from such changes. External sources indicate that induced abortion may be playing a role in the explanation of fertility transition.

Chapter 6

Contraception and demographic innovation in Benin

6.1. Introduction

The analysis of birth history data from the 1996 Benin DHS has revealed that a fertility transition is underway (see chapters 4 and 5). However, the observed pattern is different from the one expected in African countries because the onset of decline it is not associated with widespread use of modern contraceptive methods. In this sense, it poses a policy question in relation to who uses contraception in Benin and how different those users are from nonusers in terms of their social and reproductive characteristics. In other words, these findings prompt for better knowledge of pioneer women who are the vanguard of reproductive changes toward lower fertility in Benin. The characterization of pioneer women regarding changes in fertility attitudes and behaviours has been the focus of various studies. Some authors analysed only achieved family size (Juarez and Quilodran, 1990) while others examined in detail changes in fertility preferences (Coombs and Freedman, 1985). Although these approaches are useful in understanding the factors that support the desire and achievement of smaller families among individual women, none of them is completely satisfactory, without taking into account the mechanisms through which changes in ideas are implemented.

In the majority of countries where lower fertility has been reached, couples have achieved their intentions of reducing family size mainly by using of modern contraceptive methods. Accordingly, studies of demographic innovation have often concentrated on the relationship between contraceptive use and the desire for lower fertility, especially in Sub-Saharan Africa (Caldwell and Caldwell, 1976; Dow and Werner, 1982; Brown, 1997). For example, in their analysis of contraceptive and demographic innovation in Kenyan women, Dow and Werner (1982), conceptualized modern women as those who desire a family of less than six children and have ever used a modern contraceptive method. This chapter attempts to refine these earlier approaches by considering

demographic innovation as a combination of changes in women's desire for high fertility and the number of children they actually have. Its main aims are to examine the profiles of women at different stages of demographic changes in Benin and to evaluate the association between women's modern status and their use of contraception.

6.2. Analytical framework

Fertility intentions and behaviours are dynamic by nature as they change continuously in the light of a woman's new experiences during her reproductive life. Despite criticisms over the validity and utility of information on child preference[1], such data are very useful for understanding the social and cultural determinants of changes in childbearing patterns, particularly in countries where fertility remains high. The availability of information on child preference and on children born or alive provides an opportunity to examine conjointly the dynamics of childbearing and fertility intentions. The following paragraphs define the main concepts used in this chapter, namely small family size, slow pace of reproduction and demographic status.

6.2.1. What is a small family size intention?

The analysis of family formation patterns in Benin using B60s (Chapter 5) indicates that women are adopting smaller families and that the threshold is four or fewer children. Based on these findings, the present analysis considers women who want four or fewer children to desire a small family. Consequently, those who want more than four children are classified as desiring large families.

6.2.2. The concept of pace of reproduction

The concept of pace of reproduction intends to capture the tempo of the family formation process

---

[1] For example, it is argued that preferences may be stated without conviction and that women's fertility preferences also change over the course of their reproductive life as they either look forward to a reproductive life or look back at past pregnancies and births.

at the woman's level, in comparison with others. In this thesis, the definition of pace of reproduction is based on the number of living children because a woman's decision to have (or not to have) another child depends more on how many surviving children she wants to have rather than the total number of births she has ever had. Since the number of living children is closely related to the woman's age, it seems sensible to compare women within the same age group. An important assumption in defining this concept is that women who are in the lower tail of the distribution of children alive within their age-group are probably slower in building their families than the rest of that age-group and, consequently, they are more likely to achieve smaller family sizes than others at the end of their reproductive years if they continue to reproduce at the same pace. The pace of reproduction is therefore defined using the distribution of the number of children alive to women within five-year age-groups. For the purposes of this thesis these distributions are grouped into quartiles (Table 6.1). In this table, the first quartile of distribution of children alive to women aged 30-34 years is 3.0. This means that at least 25% of women in this age group have three or fewer children. Likewise, the second and third quartiles for this age group are respectively 4.0 and 5.0, indicating that at least 50% of women aged 30-34 years have four or fewer children and 75% have five or fewer children.

Table 6.1. Key measures of the distribution of the number of children alive to ever married women aged 20-49 by age-group (Benin, 1996)

Age-group	Quartiles			Mean
	Q_1	Q_2	Q_3	
20-24	1	1	2	1.4
25-29	2	2	3	2.5
30-34	3	4	5	3.7
35-39	4	5	6	4.8
40-44	4	5	6	5.1
45-49	4	6	7	5.4
All women	2	3	5	3.5

Because the value of the number of children alive is an integer, the actual percentage of women with Q_1 or fewer children alive will be greater than 25% (and likewise for Q_2 and Q_3). The deviation from

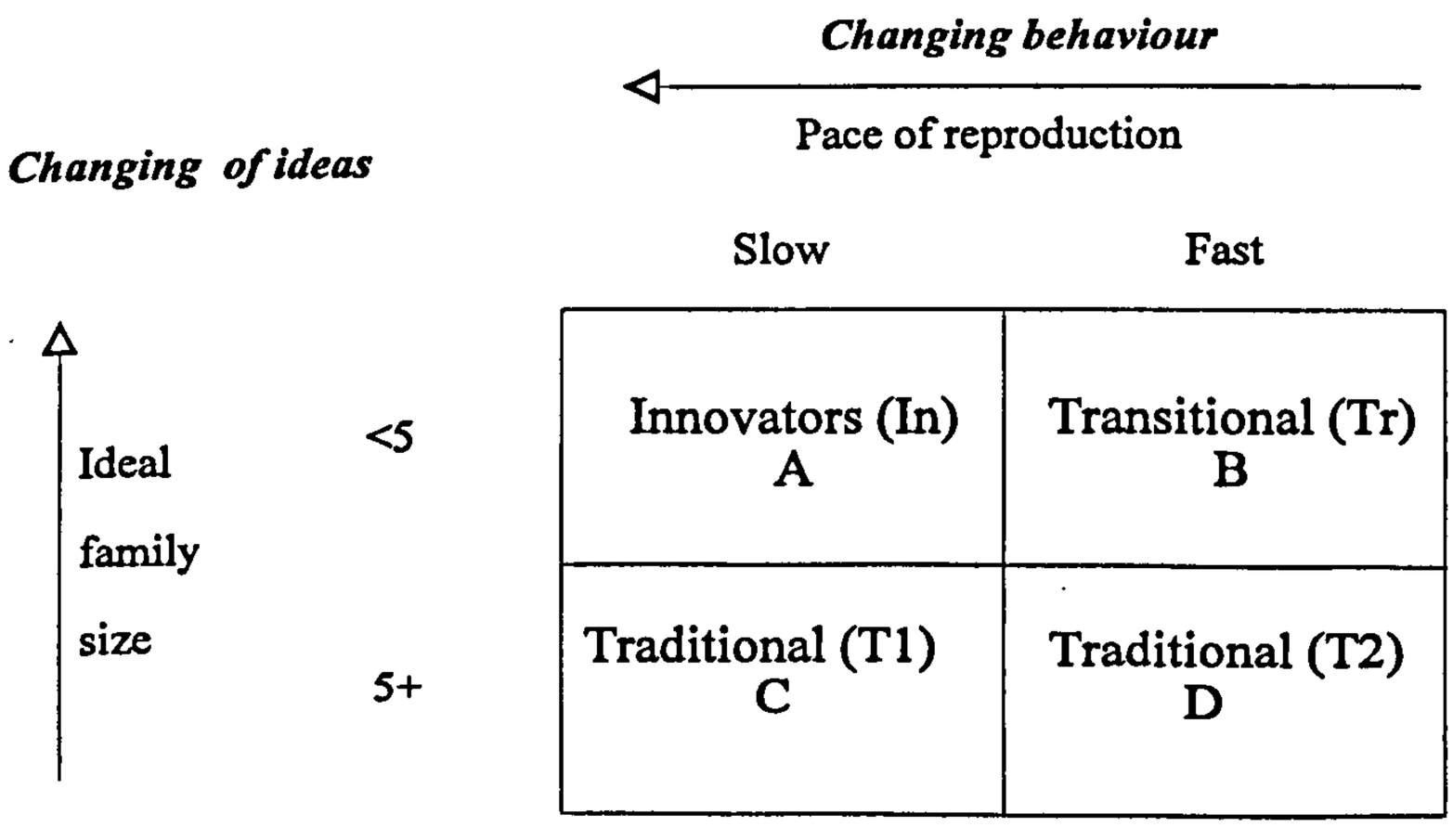
these values will increase in the case that the distribution of children alive is less scattered (e.g. for younger women). This is, for example, the case for the age-group 20-24 where the first and second quartiles are both equal to 1.0, an indication that a substantial proportion of these women have only one child alive.

To define a woman's pace of reproduction, the number of living children she has is compared with the first quartile of children alive in her age-group. If she has more living children than the value of the first quartile, then she is classified as a fast mover. As an example, a 33-year old woman belongs to the age-group of 30-34 years and the corresponding first quartile is 3.0. Therefore, she will be classified as a slow mover if she has three or fewer children alive and fast mover otherwise.

6.2.3. Defining a woman's demographic status

These two variables (fertility intentions and the pace of reproduction) provide a cross-classification of family size intentions and achievements to define a woman's demographic status in four categories. This can be represented in a 2X2 table adapted from Brown (1997) and presented in figure 6.1.

Figure 6.1. Framework for the analysis of demographic innovation in Benin



From this conceptualization, an innovator is a woman who desires four or fewer children and who is a slow mover compared to her age-group (box A, In). Those who want fewer than five children but are moving faster are classified as transitional (box B, Tr). Women in boxes C and D are classified as traditional (respectively T1 and T2), because they desire high fertility. Women in box C (T1) want large families but they will achieve less than the number of children they desire and those in box D (T2) represent the typical pre-transition woman with high fertility intentions and a relatively fast pace of reproduction. A slow pace of reproduction depends on various combinations of the proximate determinants, the most important of which are pathological sterility, age at start of reproduction, type of marriage, contraceptive use and induced abortion. It is hypothesized in the present analysis that factors related to the conscious control of fertility (such as contraception) would be more associated with innovative status. In other words, women with a small family size intention and slow pace of reproduction are more likely to have controlled their fertility. On the contrary, factors outside a woman's control (such as pathological sterility) will be dominant among traditional women with a slow reproductive pace (T1).

6.3. Data source

The analysis presented in this chapter is based on the 1996 Benin DHS, using only ever married women aged 20-49 years. The sample is restricted to ever married women because innovation in a demographic sense is more related to fertility control within marital union. In addition, because of the high rate of remarriage following divorce or widowhood in Benin (as in many other African countries) formerly married, women who remain without a partner after a first marriage, are likely to be different from others in terms of their reproductive behaviours. The age-group 15-19 was excluded in order to limit the potential bias in the definition of speed of reproduction that could result from a strongly skewed distribution of children alive in the youngest age-group.

The results are organized in three sections. First, a descriptive analysis of the two main concepts (desire for small family and pace of reproduction) is presented. Then, the typologies of women that emerge from the analytical framework are presented in order to identify the innovators. In this

section, a descriptive as well as a multinomial logistic regression approach are used. Finally, having described the profile of different types of women, the third section analyses the relationship between women's innovative status and contraceptive use.

6.4. Findings

6.4.1. Family size intentions and achievements: a descriptive analysis

Table 6.2 presents the percent distribution of women who desire small families and those who are slow movers according to selected background characteristics[2]. It indicates that about 38% of ever married women in Benin desire less than five children whereas 46% have fewer children than the average woman for their age. Overall, the table shows that all background variables considered are highly correlated with both types of innovation[3].

The proportion of women who desire few children decreases with age, suggesting that younger women are more likely to desire fewer children than older ones. It is possible that this trend could be due to a rationalization process whereby a woman would adjust her fertility desires according to the current number of children she has. The extent to which such effect is present will be further investigated in the next sections. Similarly, the proportion of women with a slow pace of reproduction declines with age. More than half of the women in their twenties are classified as slow movers compared to only one third for older women.

---

[2] The characteristics selected are self explanatory except two which need further explanation. Marriage type distinguishes between women currently in union (polygynous and monogamous) and those who where not living with a partner at the time of the survey (because of separation, divorce or widowhood). The variable household wealth is an attempt to capture the socio-economic status of the household classified as low or high. The measure of household wealth is derived from ownership of the following items: radio, television, bicycle/motorbike, refrigerator and car. Households with a car or three of the other items are considered wealthy.

[3] Bi-variate p-values not shown in this table are all less than 0.01

Table 6.2. Percent of women who reported low fertility intentions and slow reproductive pace by selected characteristics

	Type of innovation		n
	% desire small families	% slow movers	
All sexually active women	38.0	45.8	4133
Age			
20-24	40.6	56.7	811
25-29	43.1	52.4	909
30-34	35.4	44.4	754
35-39	35.1	41.4	688
40-44	36.1	36.3	526
45-49	34.2	32.6	445
Education			
None	30.0	41.7	3177
Primary	58.7	52.2	669
Secondary+	78.7	76.0	287
Type of marriage			
Polygynous	34.4	43.5	1973
Monogamous	40.8	46.1	1915
Not in union	46.3	62.0	242
Religion			
Traditional	30.9	42.0	1481
Muslim	25.9	41.9	892
Christian	50.4	51.0	1752
Household wealth			
Low	35.7	45.1	3085
High	64.9	53.4	328
Residence			
Rural	31.1	41.4	2669
Urban	50.8	53.9	1463
Region			
Atacora	17.4	41.4	676
Atlantique	64.8	56.2	776
Borgou	23.8	40.0	815
Mono	39.0	44.7	593
Oueme	37.4	45.8	644
Zou	45.5	46.1	629

As regards the woman's education, the observed relationship is classic. More than three quarters of women with secondary or higher education desire small families. A similar proportion of these educated women presents a slow pace of reproduction. The corresponding figures for women with no formal education are 30% and 41% respectively. It is worth noting that almost 60% women with only primary school education wanted less than five children.

Marriage type is also a strong predictor of change in ideas. In effect, the proportion of women with smaller family size intentions is lowest among women in polygynous unions and highest for women who were not in union at the time of the survey. While the relationship between marriage type and the pace of reproduction is similar, the gap between women in union (polygynous and monogamous) and the others is much wider. Only a small difference (and still not in the expected direction) is observed between women in monogamous and polygynous unions in terms of reproductive pace.

Women with Christian faith are far more likely to report smaller family size intentions than those with Traditional or Muslim faith and the same observation holds for reproductive pace. Regarding household wealth and type of place of residence, the observed associations are in the expected directions. Women in wealthier households and those living in urban settings desire smaller families and the same is true for the pace of reproduction. The Atlantique region is ahead of other regions both in terms of desire for smaller families and a slower pace of reproduction. These relationships are not totally unexpected but need further investigation before any firm conclusions can be drawn.

An interesting finding at this stage is the existence of a strong differential in the age patterns of both fertility intentions and reproductive speed when urban and rural women are compared (Figures 6.2 and 6.3). Not surprisingly, there is a higher proportion of women with smaller family size intention in urban areas. However, there are indications that family size intentions have not changed dramatically from older to younger women in rural areas. On the contrary, although there are more urban women with slower pace of reproduction, the data show that younger women are more likely to be slow movers in both urban and rural areas.

Figure 6.2. Percent women who desire a small family by age for urban and rural women (Benin, 1996)

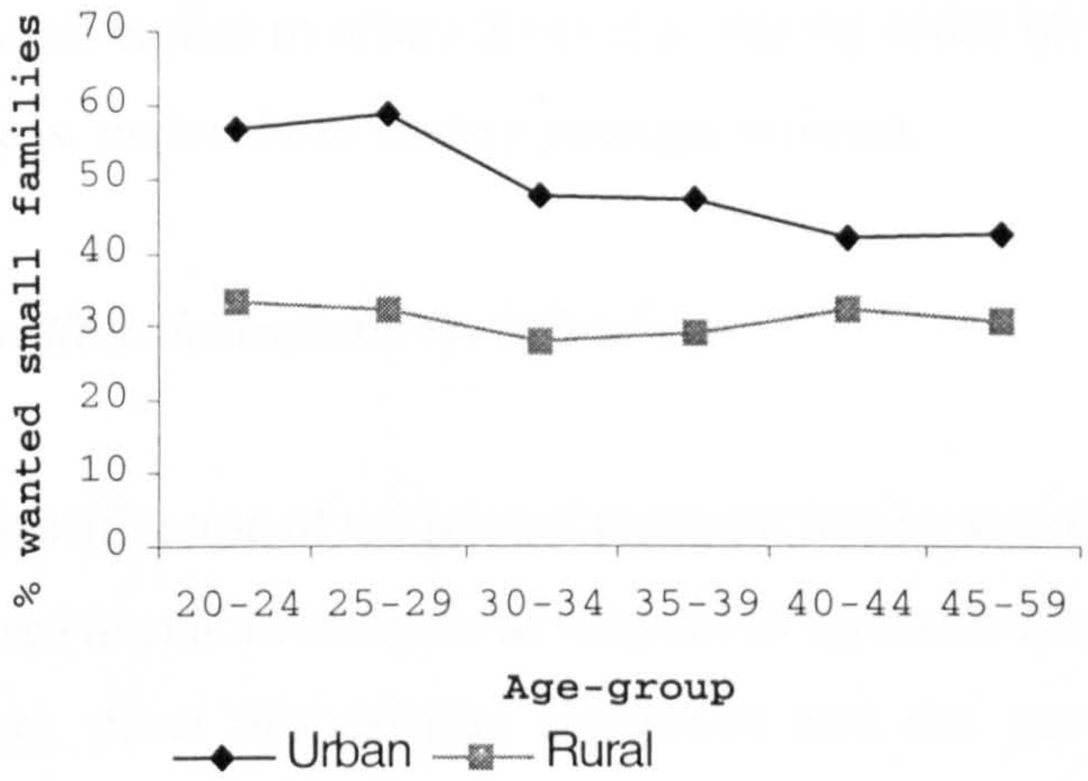
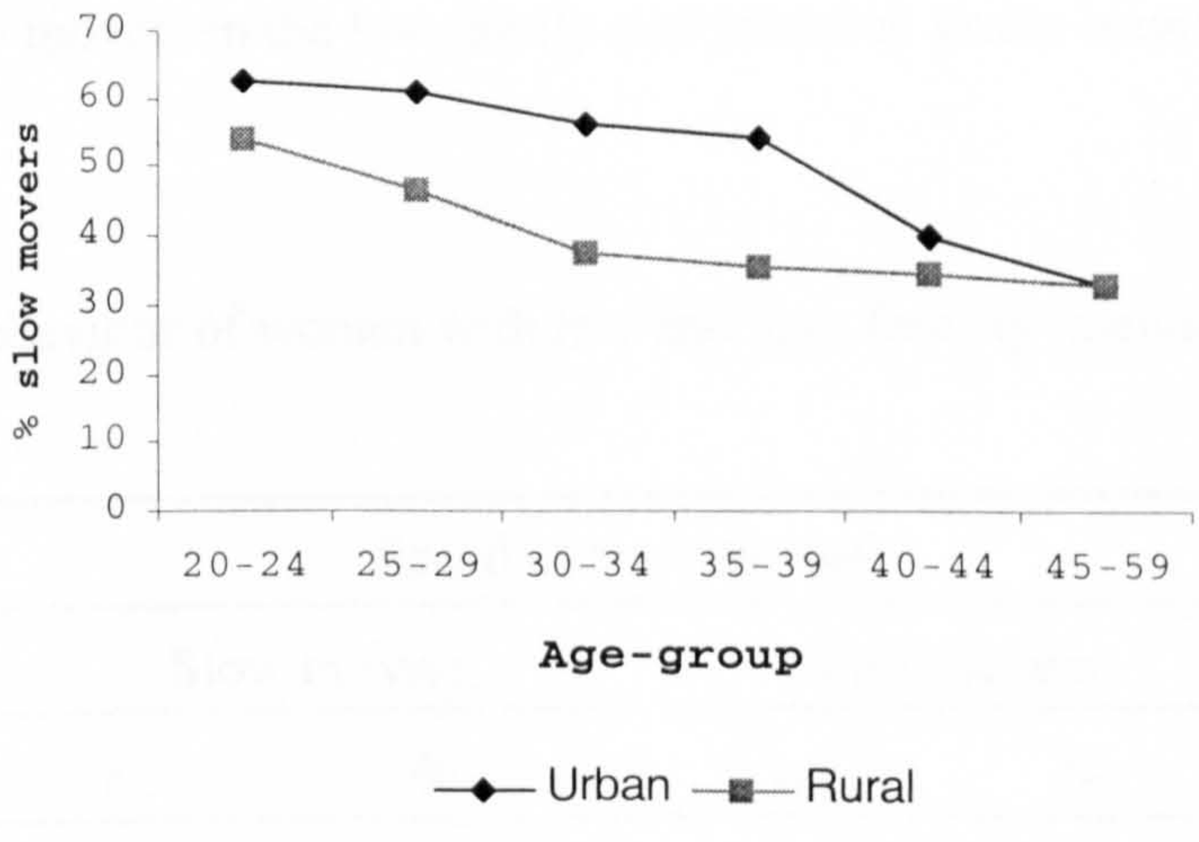


Figure 6.3. Percent women with a slow reproductive pace by age for urban and rural women (Benin, 1996)



Furthermore, the urban-rural gap, both in terms of fertility intentions and reproductive pace rapidly decreases as women's age increases. It is also significant that in urban areas, the greatest increase in the proportion of slow movers occurs in women in their thirties while such increase is observed in rural areas only for women in their twenties. These latter women seem to be "catching up" with their urban counterparts in terms of a slower reproductive speed. This suggests that changes in reproductive behaviours started earlier in urban areas (i.e. among older birth cohorts) but may be taking place also in rural areas, particularly among younger women.

6.4.2. Demographic innovation: intentions vs. behaviour

Table 6.3 presents a cross-classification of the pace of reproduction by women's fertility intentions. Row percentages are presented to enable analyses of the pace of reproduction according to women's fertility intentions. The data show that fertility intentions and the pace of reproduction are significantly correlated (χ^2=69.5; p<.001). Of those who wanted a small family, 54% were slow movers compared to 41% for women who wanted more than five children, with an odds ratio of 1.7. In other words, women who wanted small families are almost twice as likely to be slow movers than those who want larger families. It is possible that part of this association may be due to women adjusting their desires, as already discussed in the previous section. However, it is unlikely that all of the 13% excess of slow movers in the low family size intention group is only due to that single factor.

Table 6.3. Fertility behaviour of women with low and high fertility intentions

Fertility intentions	Speed of reproduction				Total	
	Slow movers		Fast movers			
	n	%	n	%	n	%
Low	849	54.0	723	46.0	1572	100.0
High	1042	40.7	1518	59.3	2560	100.0
Total	1891	45.8	2241	54.2	4132	100.0

Table 6.4. Percent distribution of women's demographic status by selected background characteristics (Benin, 1996)

Background Variables	% women				N
	Traditional (T2)	Traditional (T1)	Transitional(Tr))	Innovators(In)	
All women	36.7	25.2	17.5	20.6	4133
Age					
20-24	29.1	30.2	14.2	26.5	811
25-29	32.8	24.1	14.9	28.3	909
30-34	40.7	23.9	14.9	20.6	754
35-39	40.3	24.7	18.3	16.7	688
40-44	40.0	23.8	23.8	12.4	525
45-49	42.7	23.1	24.7	9.4	445
Education					
None	42.3	27.7	16.0	14.0	3177
Primary	23.5	17.8	24.4	34.4	669
Secondary+	6.3	15.0	17.8	61.0	287
Marriage type					
Polygynous	39.1	26.6	17.4	16.9	1973
Monogamous	35.9	23.2	18.0	22.9	1915
Not in union	23.5	30.5	14.4	31.7	243
Religion					
Traditional	41.5	27.6	16.5	14.4	1481
Muslim	45.2	28.9	12.9	13.0	893
Christian	28.4	21.2	20.7	29.7	1751
Household wealth					
Low	36.4	27.9	16.9	18.8	3805
High	21.0	14.0	24.4	40.5	328
Residence					
Urban	28.0	21.3	18.2	32.6	1463
Rural	41.5	27.4	17.1	13.9	2669
Region					
Atacora	51.9	30.8	6.8	10.5	675
Atlantique	18.5	16.8	25.4	39.4	775
Borgou	47.1	29.1	12.9	10.9	815
Mono	35.9	25.1	19.4	19.7	594
Oueme	36.0	26.6	18.2	19.3	644
Zou	31.2	23.4	22.7	22.7	629

The relationship between women's demographic status and each of the explanatory variables is presented in table 6.4 which shows the percent distribution of women according to whether they are traditional, transitional or innovators by selected background characteristics. In order to facilitate understanding of the table, the following paragraph concentrates on the proportion of innovators as opposed to traditional type 2 women.

As a general pattern, the results point to the expected direction for most background characteristics. For example, the proportion of pioneer women increases with younger women. More than half of the women with secondary education and 41% of women in wealthier households are innovators. Similarly, about 32% of the unmarried women, 30% of Christians and 33% of those in urban areas are innovators. Regarding regional variations, the Atlantique region stands out with 39% of innovators, two to four times higher than in any other region. The inverse relation holds with regard to the proportion of traditional type 2 women. The strongest and most patent correlation is observed between demographic innovation and women's education. The proportion of innovators doubles from women with no schooling to those with primary education only and also from women with primary education to those with secondary or higher education.

6.4.3. Factors associated with demographic innovation: a multi-variate approach

For a more precise description of the profiles of the different categories of women, a multi-variate analysis was performed using a multi-nomial logistic regression procedure (see appendix 6.1 for a statistical description of the multi-nomial logistic regression procedure). In this analysis, demographic status (with four categories) is considered as the dependent variable while the background characteristics (age, education, marriage type, religion, household wealth residence and region) are the explanatory or independent variables. One of the advantages of multi-nomial regressions over other conventional profile analysis methods is that it allows simultaneous comparisons of two or more categories of women either among themselves or to the same baseline. For example, using demographic status as dependent variable, it is possible to fit a model that estimates simultaneously the probabilities of being an innovator, being a transitional woman and

being a traditional type 1 woman, as compared with being a traditional type 2 woman (i.e. In vs. T2 and Tr. vs. T2). In this case, the group of traditional type 2 women is the baseline to which other groups are compared. Conversely, it is also possible to set transitional women as the baseline and, therefore, to fit a model that estimates the probabilities of (In vs. Tr), (T1 vs. Tr) and (T2 vs. Tr). The overall model is the same as the previous one but the resulting relative risks will differ because the baseline group for the comparisons has changed. In the present analyses, three types of comparison are selected, respectively (T1 vs. T2), (In vs. Tr) and (In vs. T2). The results are presented in table 6.5. For each comparison, the table presents a column of adjusted relative risk ratios (RRR[4]), followed by the lower and upper limits of the 95% confidence intervals.

The first panel (T1 vs. T2) compares women with a slow reproductive pace with those who are faster movers. Since both groups are traditional, this panel identifies factors that characterize a slow pace of reproduction within the context of a desire for large families. Net of other background characteristics, secondary education and living outside marital union are the main predictors of a woman's reproductive pace. Women with secondary or higher education are about 3.5 times more likely to be transitional type 1 (i.e., slow movers) than those with no education. Similarly, women who were not married at the time of the survey are twice as likely to be slow movers compared with those in a polygynous union. Therefore, secondary or higher education and living outside a marital union are both associated with a slow pace of reproduction. In other words, given that women desire large families those who are unmarried or with secondary education are more likely to have smaller numbers of children compared with women in the same age-group. This finding is not surprising because, other things being the same, the fact that a woman is in a union or not is important to the number of children. Similarly, the effect of education can also be explained by a delay in the entry into union (and therefore the initiation of childbearing), which would, ultimately, result in a reduced number of children. This panel also shows that being younger (20-24) and living in Atlantique region are significantly associated with a slower pace of reproduction. However, the corresponding relative risk ratios are small (1.6 and 1.5 respectively) and the confidence limits only marginally exclude 1.0.

[4]A coefficient that is equivalent to the Odds Ratio in a (bivariate) logistic regression.

As in the previous panel, the second comparison (In vs. Tr) is that of slow with fast movers, but this time among women who desire small families. The interest of this panel lies in the fact that by relating its results to those in the first panel, it can provide some clues as to what really determines the passage from being a transitional woman to becoming an innovator. As expected, secondary or higher education and living outside a marital union are strongly associated with a slower pace of reproduction. Women with secondary or higher education are 2.5 times as likely to be slow movers compared with those with no education. Similarly, unmarried women are twice as likely to be slow movers than those in polygynous unions. Because the relative risk ratios which correspond to the effects of education and marriage type are somewhat similar to those in the previous panel, it can be concluded that these two factors are associated with a slower pace of reproduction, independent of the woman's desire for a small family. This panel also shows that urban women are almost twice as likely to be pioneers as compared with rural women. This means that given a woman's desire for a small family and, besides the effects of education and marriage type, urban residence is a contributor to lower fertility in its own right. Similarly, there is a strong and linear effect of age, that is, the younger the women, the more likely they are to be achieving their stated goal of having a smaller family.

Finally, Panel 3 compares the innovators with the typical traditional women (T2). It shows that these two groups of women are different in virtually all respects. Having controlled for other factors, all the relationships observed in the bivariate analyses remain basically unchanged. There is a strong and negative effect of age. Compared with the oldest age group, younger women are more likely to be innovators, with relative risk ratios ranging from 1.8 for women aged 35-39 to 4.4 for those aged 20-24. The importance of education is particularly striking. For example, women with primary education are 2.5 times more likely to be innovators compared with those with no education. But those with secondary or higher education are more than twelve times more likely to be innovators.

Table 6.5. Multi-variate exploration of factors associated with women's demographic status (Benin, 1996)

Predictors	Model Comparisons								
	1: T1 vs. T2			2: In vs. Tr			1: In vs. T2		
	RRR	*95% CI*		**RRR**	*95% CI*		**RRR**	*95% CI*	
Age									
45-49	**1.00**			**1.00**			**1.00**		
20-24	**1.56***	*1.09*	*2.24*	**5.75¶**	*3.61*	*9.15*	**4.35¶**	*2.77*	*6.83*
25-29	**1.02**	*0.73*	*1.44*	**4.81¶**	*2.98*	*7.77*	**2.95¶**	*1.97*	*4.40*
30-34	**0.80**	*0.59*	*1.08*	**3.35¶**	*2.08*	*5.38*	**1.78¶**	*1.16*	*2.72*
35-39	**1.14**	*0.82*	*1.58*	**2.34¶**	*1.44*	*3.78*	**1.78¶**	*1.16*	*2.74*
40-44	**0.91**	*0.87*	*1.44*	**1.29**	*0.77*	*2.18*	**1.21**	*0.72*	*2.03*
Education									
None	**1.00**			**1.00**			**1.00**		
Primary	**1.12**	*0.86*	*1.44*	**1.21**	*0.85*	*1.47*	**2.49¶**	*1.88*	*3.28*
Secondary+	**3.45¶**	*1.95*	*6.10*	**2.60¶**	*1.66*	*4.06*	**12.36¶**	*7.03*	*21.74*
Marriage type									
Polygynous	**1.00**			**1.00**			**1.00**		
Monogamous	**0.85**	*0.72*	*1.00*	**0.88**	*0.70*	*1.11*	**0.92**	*0.74*	*1.15*
Not married	**2.16¶**	*1.47*	*3.17*	**2.26¶**	*1.43*	*3.59*	**2.71¶**	*1.73*	*4.26*
Religion									
Traditional	**1.00**			**1.00**			**1.00**		
Muslim	**1.03**	*0.78*	*1.37*	**0.86**	*0.61*	*1.23*	**0.87**	*0.60*	*1.26*
Christian	**0.98**	*0.78*	*1.24*	**1.18**	*0.88*	*1.59*	**1.42***	*1.04*	*1.93*
Household wealth									
Low	**1.00**			**1.00**			**1.00**		
High	**0.74**	*0.48*	*1.13*	**1.03**	*0.70*	*1.51*	**1.64***	*1.06*	*2.52*
Residence									
Rural	**1.00**			**1.00**			**1.00**		
Urban	**1.18**	*0.93*	*1.49*	**1.83***	*1.41*	*2.36*	**2.32¶**	*1.68*	*3.20*
Region									
Atacora	**1.00**			**1.00**			**1.00**		
Atlantique	**1.52***	*1.07*	*2.16*	**0.76**	*0.51*	*1.14*	**6.02¶**	*3.62*	*9.99*
Borgou	**1.07**	*0.77*	*1.48*	**0.55***	*0.34*	*0.88*	**1.16**	*0.68*	*1.99*
Mono	**1.28**	*0.93*	*1.76*	**0.78**	*0.50*	*1.21*	**3.46¶**	*1.92*	*6.24*
Oueme	**1.33**	*0.96*	*1.85*	**0.65**	*0.42*	*1.02*	**2.22¶**	*1.30*	*3.78*
Zou	**1.33**	0.95	1.87	**0.67**	*0.42*	*1.87*	**2.52¶**	2.00	6.19

* p<.05 ¶ p< .01

Therefore, while both primary and secondary schooling are associated with demographic innovation, having secondary or higher education greatly enhances the probability of being a pioneer woman[5]. All other relationships are in the expected direction. For example, unmarried women are almost three times more likely to be innovators compared with women in polygynous unions. Similarly, Christianity, high household wealth and urban residence are associated with demographic innovation. A wide regional variations is also detected. Atlantique women are six times more likely to be innovators compared with those in Atacora while women in Oueme, Zou and Mono regions are two to three times more likely to be innovators. Apparently, there is no difference between Borgou and Atacora in terms of the probability of being an innovator once other factors are taken into account.

In sum, the multi-variate analyses provide the basis to conclude that women in the four categories as defined by their demographic status are different from one another in their background characteristics. As a general pattern, women with secondary or higher education and those living outside a marital union are more likely to be slow movers than others, whatever their fertility intentions. For example, traditional type 1 women are different from traditional type 2 women in the sense that the former are more educated and more likely to be living outside a marital union. A similar difference exists between innovators and transitional women, but it also appears that urban residence and younger age may contribute significantly to the achievement of an expressed desire for a smaller family, that is, the passage from transitional to innovative status.

6.4.4. The relationship to contraceptive use

Having described the profile of pioneers in comparison with traditional women, this section focuses on the relationship between contraceptive practice and demographic innovation. Table 6.6 presents, for different classifications of methods, the proportion of women who ever practised contraception according to their demographic status. A striking feature that appears from this table is that whatever

[5] The larger confidence interval is certainly the reflection of the small sample of women with secondary or higher education.

the classification used, the strongest discriminating factor in relation to ever use of contraceptive methods is desire for smaller families. Traditional women (T1 & T2) generally show smaller and similar proportions of ever use while innovators and transitional women show higher proportions of ever use. When all methods of contraception are considered, only one in three of the traditional women have ever used a method while more about 60% of those who wanted a small family have ever used. Regarding the use of modern contraception, there is also little difference between the two groups of traditional women. Transitional women and innovators are more likely to have ever practised modern contraception, with a slightly greater proportion of ever use among the pioneers. A much larger difference appears between innovators and transitional women when the rhythm method is considered.

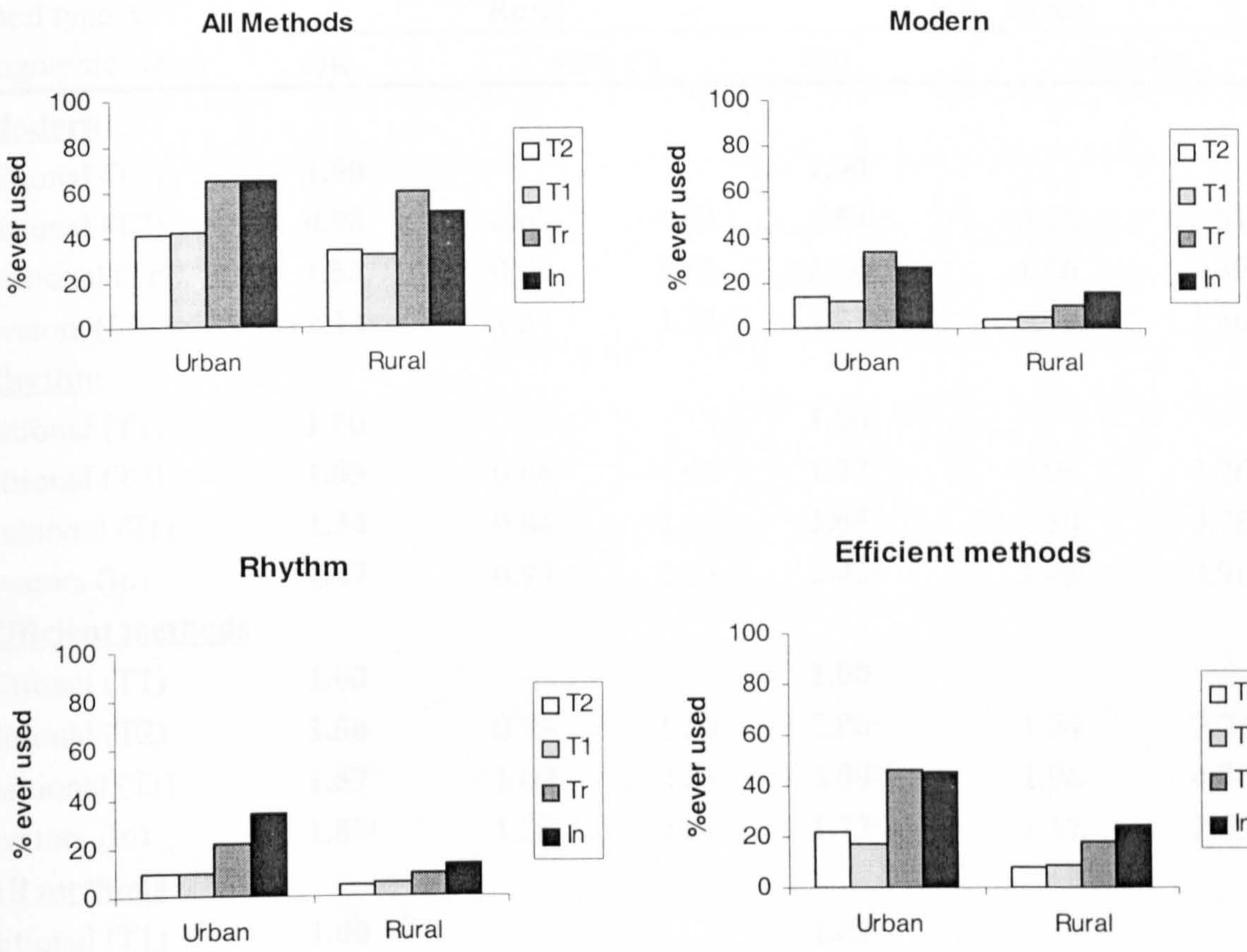
Table 6.6. Percent ever married women aged 20-49 who ever used a contraceptive methods by demographic status (Benin, 1996)

Demographic status	Contraceptive methods				N
	All methods	Modern	Rhythm*	Efficient**	
Traditional (T2)	35.4	7.0	6.0	12.0	1454
Traditional (T1)	34.6	7.1	6.3	11.8	1106
Transitional (Tr)	61.8	18.5	14.1	28.5	723
Innovators (In)	59.2	21.7	25.1	36.4	850
All women	44.7	12.1	11.4	19.8	4133

*Rhythm with correct knowledge of the ovulatory period **Modern methods or rhythm, as defined before

Figure 6.4 presents a breakdown of the same data for urban and rural women separately. The data are roughly consistent with previous findings, with two main exceptions. When all methods are considered, it appears that in rural areas transitional women are more likely to have ever used compared with innovators. Similarly, with regard to modern methods, transitional women in urban areas also present a higher proportion of ever use.

Figure 6.4. Ever use of contraception by demographic status in urban and rural areas (Benin, 1996)



Multi-variate analysis of contraceptive use

This section explores the relationship of contraceptive use to demographic innovation through a series of multiple logistic regression procedures, separately performed for each group of contraceptive methods as previously described. In each regression model, the outcome variable is ever use of contraception.

Table 6.7. Adjusted odds' ratios from multi-variate analysis of ever use of : modern contraception (model A), rhythm (model B), efficient methods (model C) and any contraception (model D).

Method type & demographic status	Rural			Urban		
	OR	95% CI		OR	95% CI	
A: Modern						
Traditional (T1)	**1.00**			**1.00**		
Traditional (T2)	**0.98**	0.63	1.52	**1.54**	0.95	2.51
Transitional (Tr)	**1.58**	0.96	2.58	**2.70¶**	1.66	4.39
Innovators (In)	**2.14**	1.37	3.35	**1.21**	0.79	1.86
B: Rhythm						
Traditional (T1)	**1.00**			**1.00**		
Traditional (T2)	**1.05**	0.66	1.65	**1.77**	0.96	3.26
Transitional (Tr)	**1.34**	0.84	2.16	**2.05***	1.10	3.78
Innovators (In)	**1.47**	0.97	2.23	**2.42¶**	1.48	3.98
C: Efficient methods						
Traditional (T1)	**1.00**			**1.00**		
Traditional (T2)	**1.06**	0.75	1.50	**2.00¶**	1.24	3.24
Transitional (Tr)	**1.57***	1.09	2.25	**3.09¶**	1.96	4.86
Innovators (In)	**1.85¶**	1.32	2.60	**1.72¶**	1.17	2.55
D: All methods						
Traditional (T1)	**1.00**			**1.00**		
Traditional (T2)	**1.31***	1.07	1.61	**1.57**	1.00	2.46
Transitional (Tr)	**2.58¶**	1.95	3.42	**2.09***	1.24	3.51
Innovators (In)	**1.31**	0.97	1.79	**1.14**	0.76	1.71

* $p<.05$ ¶ $p<.01$

In this analysis, women in the traditional (type 1) group used as the baseline, on the assumption that, compared to other groups, they are less likely to use contraception for limiting births. The models estimate odds ratios of ever use of contraception, adjusted for other socio-demographic factors[6]. In this section, only odds ratios for demographic status are discussed. (For full tables, see appendix 6.2). A significant first order interaction between demographic status and type of residence was detected prior to multi-variate analyses. This suggests that the type of place of residence modifies the link between demographic status and ever use of contraception. Accordingly, odds' ratios are estimated for urban and rural women separately. Table 6.7 presents adjusted odds ratios of ever use of contraception by demographic status and their 95% confidence intervals for urban and rural women and for each of the four models.

In rural areas, the results conform to what would be expected. Innovators are significantly more likely to have ever used a modern method of contraception. Transitional women also present a higher adjusted odds ratio, though it is not statistically different from 1.0 at the 5% significance level. On the contrary, there is virtually no difference among the four groups in terms of ever use of the rhythm method, even though women who desire smaller families have slightly higher odds ratios. The data also reveal that with respect to overall contraceptive use in rural areas, transitional women are much more likely to have ever practised at least one method compared with all other groups.

Turning to urban women, the important points in the findings are as follows. Regarding modern contraceptive methods, only transitional women show a significantly higher probability of ever use when other factors are adjusted for. Both innovators and transitional women show higher probability of ever use of the rhythm method. With respect to ever use of an efficient method, all the other groups are more likely to have ever used than traditional type 1 women. It is worth noting here that transitional women present the highest odds ratio. When all methods are considered, again transitional women appear more likely to have ever used compared to other women, as they show a higher and significant odds ratio.

---

[6]Age, schooling, marriage type, religion, household wealth, place of residence and region.

The separate analyses for rhythm and modern methods demonstrate the existence of an important difference in the contraceptive experience of transitional and pioneer women according to the type of place of residence. In rural areas, pioneers are more likely to have ever used modern contraception while, in urban Benin, ever use of modern contraception is more prevalent among transitional women. Apparently, there is no significant association between ever use of the rhythm method and demographic status in rural areas. This can probably be explained by the fact that rural women are illiterate in their great majority and that few of them would know about the use of rhythm. On the contrary, both innovators and transitional women have more experience of the rhythm method with a higher probability of ever use among pioneers.

The timing of first use of contraception

The analysis of the timing of first use of a contraceptive method is useful in understanding why some women still present high fertility, even with the use of efficient methods. The results are presented in table 6.8. They suggest that a high proportion of innovators started their experience of contraception earlier in their reproductive years, even before they had the first child. On the contrary, transitional women started contraception after the first child.

Table 6.8. Number of children at first use of contraception by demographic status (Benin, 1996)

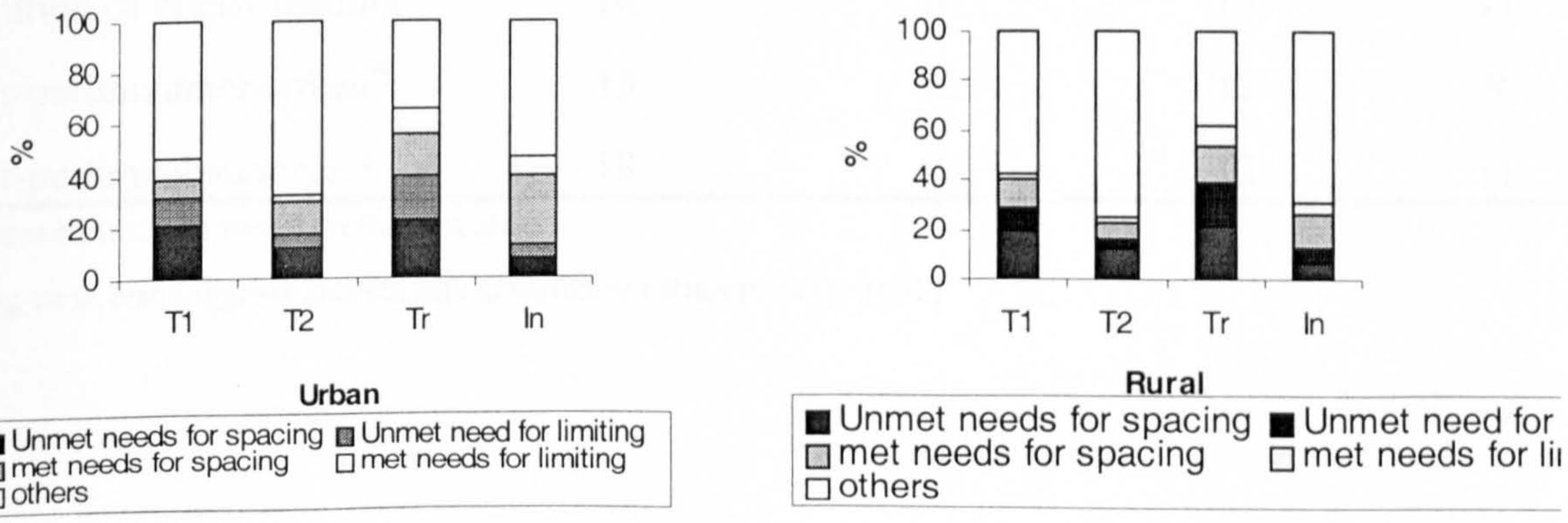
Children at first use	Demographic status				
	Traditional T2	Traditional T1	Transitional	Innovators	All
Never used	64.6	65.5	38.	41.0	55.4
None	2.7	7.2	7.2	24.8	9.2
1-2	22.9	22.6	34.	29.9	26.2
3-5	7.2	4.7	15.	4.0	7.3
6+	2.5	0.1	5.1	0.4	1.9

Unmet needs for contraception

Women's attitude to their fertility in the recent past as well as their future fertility intentions provides a good indication of their contraceptive needs. Unmet needs for contraception can be assessed through a combination of questions on whether the last birth was wanted then, later or not at all, whether they want another birth soon, later or not at all, their current contraceptive status and whether they are pregnant or amenorrheic at the time of the survey. Unmet needs for contraception are a good tool for programme management in the sense that they provide information on the level of potential demand for contraception.

Figure 6.5. shows the percent distribution of women's contraceptive and childbearing intentions according to their demographic status in urban and rural areas respectively. Obviously, unmet needs for contraception are still relatively low in Benin by world standards. However, the data suggest that in both urban and rural areas, transitional women present the greatest proportions of unmet needs for both spacing and limiting purposes. This result is compatible with findings from the previous sections.

Figure 6.5. Unmet needs of contraception by demographic status for urban and rural women (Benin, 1996)



6.4.5. Other fertility determinants

Table 6.9 summarizes a number of fertility determinants that may further differentiate women in the four groups. The typical traditional women still have their first birth relatively early (18years) on average, while pioneer women start childbearing on average three years later. The durations of post-partum amenorrhoea is also different from one type of woman to the other. The largest difference lies in the duration of post-partum sexual abstinence which is considerably reduced for both transitional women and demographic innovators. Compared with the typical traditional woman, the duration of abstinence from sex following childbirth is reduced by one-third for transitional women and innovators. This suggests that both transitional women and innovators are undergoing fundamental changes in terms of one of the most powerful fertility inhibitors in Africa. However, while innovators seem to have managed to offset the potential increase in fertility that would result from shorter sexual abstinence, transitional women have not yet reached that stage.

Table 6.9. Median duration of selected proximate determinant variables by demographic status

Proximate determinants	Demographic status			
	Traditional (T2)	Traditional (T1)	Transitional	Innovators
Age at first birth¶	18	20	18	21
Duration of breast-feeding*	18	16	15	17
Post-partum amenorrhea*¶	13	12	12	9
Post-partum abstinence*¶	18	15	12	11

* current status data based on the last child

¶ A log-rank test suggests statistically significant differences ($p<0.01$)

6.4.6. Attitude towards family planning

Women's attitude towards family planning, especially modern contraceptive methods, and discussion of these matters both with their partners and other relatives are considered as facilitating factors in both contraceptive use and openness to fertility regulation. In table 6.10, the level of positive attitude for a selected number of factors is presented.

Table 6.10. Percent women who approved the use of modern contraception and discussed with others according to demographic status (Benin, 1996)

Attitudinal variables	Demographic status			
	Traditional (T1)	Traditional (T2)	Transitional	Innovators
Woman approves FP	58.0	46.2	79.3	71.6
Partner approves FP	26.8	20.4	40.7	39.4
Discussed FP with partner	11.5	5.2	15.0	12.5
Discussed FP with others	18.0	14.0	26.7	25.3

The results corroborate previous findings. Traditional type 1 women are less positive about family planning in all respects, even compared with type 2 women. This is not surprising because these women have less children than they want.

6.5. Summary

The data presented in this chapter highlight two main features of the current demographic situation of Benin. Firstly, the data suggest that an important proportion of women desire a reduced number of children and that small ideal family size is prevalent in both urban and rural women in Benin. There is an ongoing process of demographic innovation, that is, women trying to achieve their desire

for small families. The analysis of the profile of these pioneer women revealed that, other things being equal, secondary education and marriage disruptions (through divorce, separation or widowhood) reduce the number of children which women have, irrespective of their desire for a large or a small family size. But, more important, when women desire a small family, living in an urban area enhances their chance of achieving their fertility preference. The data also shows the existence of a group of women in a transitional phase, with a desire for a small family but with high fertility.

Secondly, in the exploration of the relationship between demographic innovation and contraceptive use, the major conclusion is that there are strong differentials in method type ever used according to the place of residence. In urban areas, demographic innovators are more likely to have used rhythm while transitional women have more experience with ever using both the rhythm and modern contraceptive methods. In rural areas, both transitional women and pioneers rely on modern contraception and there was no difference among groups in terms of ever use of the rhythm method. The level of unmet needs for contraception is compatible with the patterns of ever use.

Descriptive analysis of other proximate determinants according to demographic status suggests that pioneer women have their first child relatively late compared with other groups. In addition, transitional women and innovators present very short median durations of post-partum abstinence. This suggests that for these women, one of the main traditional practices that moderate overall fertility may be rapidly weakening. While innovators appear to have overcome the adverse effect of the shorter durations of sexual abstinence following childbirth, it seems that transitional women are slower in adopting the necessary new behaviours. This probably explains their higher fertility and the fact that they present the highest proportions of unmet needs for contraception.

Chapter 7

Child spacing in Benin: an exploration of traditions and changes

7.1. Introduction

Although there has been a substantial amount of work on fertility behaviours in Sub-Saharan Africa, specific data on Benin has been relatively scarce. The small body of literature on fertility and nuptiality in Benin suggests that, overall, childbearing practices may be similar in many respects to those of other countries in West Africa (Donadje, 1992; Klissou, 1995; Houedokoho, 1995). It is well documented that child spacing through long breast-feeding and post-partum sexual abstinence are the main mechanisms through which the ultimate fertility levels are moderated in the region[1]. This suggests that significant changes in relation to norms and practices regarding the management of the post-partum period would have major implications on the demography of the region. However, in order to correctly assess whatever changes may be taking place, it was necessary to build a picture of the specific traditional reproductive behaviours and interpretations that shape fertility levels. This is the main objective of this chapter. First, data on how fertility is constructed from the broader social perspective are presented. The second section discusses traditional norms and practices regarding fertility, focusing on child-spacing practices such as breast-feeding and post-partum abstinence. The third section outlines changes that are occurring as regards fertility preferences and child spacing and how these may fit into a more structured picture of fertility transition.

7.2. Data sources and methods of analysis

The results presented in this chapter are derived from two main sources: focus group discussions that took place with both men and women in the city of Cotonou and other qualitative materials that were

[1] See for example Page and Lesthaeghe, 1981, Hobcraft, 1987 and Lesthaeghe, 1989.

referred to by participants in these discussions[2]. Participants in the focus group discussions were all living in Cotonou, an urban cosmopolitan city. Thus, it is possible that their views do not accurately reflect what may have been traditional reproductive norms, because of erosion of traditional values due to urbanization. However, the information that was gathered through the focus groups was, on the whole, supported by materials subsequently collected. It was obvious that these materials, mainly songs and local expressions, that were referred to in most discussions relate to more traditional ways of thinking. It was also apparent that although the principles guiding post-partum practices may be the same, there are variations between ethnic subgroups in terms of how these principles are actually put into practice. In presenting the results, it was decided not to emphasize what appears to be specific to a particular subgroup but, instead, to concentrate on aspects that are similar in all subgroups. The data presented are mainly of a descriptive nature with the use of verbatim quotations from respondents or local expressions and songs. In most instances, the exact wording used in *Fon* are presented, followed by a literal translation into English.

7.3. Results

7.3.1. The social construction of fertility in Fon society in Benin

Children as the object of life

Focus group discussions have revealed that children are an important asset at both the individual and societal levels. Patterns of traditional beliefs that appeared in the study are similar to those reported in previous studies conducted in the Sub-Saharan African region (Caldwell 1981; Lesthaeghe 1989). Clearly, there are benefits of various kinds in having children both in terms of economic and social support. In *Fon* society, children are perceived as the main object of life, giving meaning to the time a person has spent on earth. The data underlines the fact that childlessness is hardly a desirable

[2]See chapter 3 for more details on data collection

condition, even in modern days[3]. The condition is so undesirable at the societal level that in *Fon* society for example, there are social arrangements through which a person who is physiologically unable to bear children may have others bear them in his (or her) name. For instance, if a man is unable to procreate[4], it is common practice that he may agree to his wife getting pregnant by a close relative (e.g. brother) so that the resulting children will take his name. Likewise, if a woman is infecund, she can pay the bride price for another woman to be married to one of her relatives (usually her brother, cousin or nephew) with her own money. In that case, she has every right on the resulting children as if they were her own. It should be noted, however, that this option is not available to all women as it depends on their ability to raise the children, mainly in terms of wealth and social position. The importance of children was summarized by a woman during the focus group discussions, as follows:

> *"Living without children is not an easy life in our society. If God gives you some, you would be happy. They will care for you in your old ages. It is not only money that counts... they can never forget that you are their mother. And when your great day [death!] comes, that is where there is no substitute to your own children. They will take charge of your funerals and you will be dignified."* [Respondent 2: group 4; female, literate]

As regards the numbers of children, it was common for men and women even in the recent past to respond that one should have "as many children as God gives" (Benin, 1984). Besides the main economic and social rationales for desiring large families, there was also the need to account for high mortality. In that sense, it was considered "unsafe" for a person to count the exact number of children he or she has, because of the fear of losing some of them. This has given rise to expressions such as "*one and a half children*" for example.

The social system gives parents different benefits from boys compared with girls. Similarly, gender

---

[3]Though the blame for childlessness is usually put on the woman, it is well recognised that both men and women are likely to be infecund.

[4] As, for instance, when a former wife has managed to bear children to another partner.

roles are very well marked within the *Fon* community and so are their value within the society[5]. This translates directly into reproductive behaviour. While both men and women aim for high fertility, the reasons and means through which they achieve their intended goals may be different. For women, the discourse is clear: maximum number of live births within the reproductive years[6].

> *"In the old days, a woman would have as many children as she could possibly get out of her womb; as many as her husband wanted... because it was good to have many children. Women were respected for the number of children they bear; you could hear that somebody had 10 kids; another one 12 etc..* [Respondent 1, group 2; female, illiterate]

For men, on the other hand, childbearing is expected to continue throughout the life span (ie. at any age), to achieve power and respect within the community. The practice of polygyny is therefore a crucial component of men's strategies towards high fertility.

> "*Before, men could have children at any age. Even when they are over 70 years of age. There was no limit to the number of children they could have or when to have them."* [Respondent 1, group 11; male, literate]

> *"... it [a large family] was a sign of power for men. Having many wives was a means for them to have as many children as they wanted."* [Respondent 1, group 2; female, illiterate]

As in other patrilineal societies, boys are wanted because they are the means for the continuation of the lineage and provider of resources. In addition, they have more access to parental resources, especially land. This probably explains many common stories of competition between co-wives as to who will have the eldest son[7]. Girls on the other hand are wanted because of their ability to care

---

[5]For example, a popular expression in everyday life is that men are born to be out while women are born to stay at home: *sunu glegbenu; nyɔnu xwesi.*

[6]As we will see later on, the underlying reasons are to secure both the woman's health and the child's survival

[7] Or the larger number of sons

for both parents in their old ages. Even when they marry, daughters still retain strong links with their family of origin.

Although the rationale for high fertility in this region is now well understood, little attention has been paid to the mechanisms through which such rationale is passed on from one generation to the other. In Benin as in nearly all countries in the African region, the main channel for transmitting knowledge, even in modern days, is oral. There are two major ways in which social values are expressed. First, as in most cultures of the world, social values whether good or bad may be expressed through songs. For example, popular songs praising courage or gentleness play an important role in raising the growing child's awareness about these values (Goody, 1976). Secondly, values may be expressed as idioms or proverbs and, sometimes, as names given to individuals or groups of individuals.

One striking characteristic of the *Fon* ethnic group of Benin is how these channels are combined to fuel the spread of ideas, particularly the rationale for high fertility. Having children is considered as the main objective of human beings, much for men as for women. In the local language the term "*vi*", (a shortcut for "*aɖivi*" or "*aɖimɛvi*"), means offspring and remains, even in present days, the main focus in both songs, naming practices and a large number of local expressions, some of which are discussed below.

Children as a focus for popular songs

In Benin, the use of songs as a means to express the value of children seems to have started with traditional songs that were sung during funerals. If the dead person, whether a man or a woman, has no offspring, then his funeral will be organized by the extended family or the clan in a modest way. On the contrary, if he/she has many surviving children, the funeral will be their responsibility and they are expected to make it a grand occasion. Here, especially conceived songs will praise the dead person for having such responsible children. Similarly, the songs may also praise the offspring for providing the community with a high class funeral for their parent.

These songs have progressively evolved to become popular, such that most of them have been recorded in the modern media. One of these popular songs that describes children as having benefits beyond money was sung by a participant during a focus group discussion. It summarizes in a broad sens the value of children, indicating that they are important at all stages of life, not only for the wealth they bring but also for the pride they represent.

vi ɖo le loo	there is benefit in children
aɖimɛvi ɖo le	there is benefit in children
bɔ akue ɖeji	even beyond money
vi ɖo le loo	there is benefit in children
aɖimɛvi ɖo le	there is benefit in children
bɔ akue ɖeji	even beyond money

[Respondent 2, group 11; male literate]

Children as the focus for name giving

In giving names to their offspring or even while choosing family names, the *Fon* also stress the importance of children. "*vi*" appears in many local names given to children at birth that are still very popular even in modern days. For example, while conducting the fieldwork, the research team identified various names that referred to the importance of children. Some of these names which appeared to be quite common are presented in the table below. Because it was often difficult to obtain an exact translation into English, two or three alternatives were proposed for each name and the meaning that was closest to each expression was selected. These names not only underline the benefits of children, whether financial or of other sorts, but also their social value for continuing one's own line.

Table 7.1 Some popular names praising offspring in Fon society in Benin

Name	Meaning
vignon	children are good things
vignihoue	children are the household
viɖole	there is benefit in children
vinablo	children will do
viwutu	due to children
vissɔh	children have taken up
vinasse	children will get to know
vignile	children are benefit
vijannagni	it can only be children
vigniwi	children protect from shame

As in other cultures, there are also various local expressions which refer to the importance of the person and especially of offspring. For example, expressions such as

"*e jɛ vi dɔ kun*" [being rich with children]

or "*vi dɔkun nyon hu akuɛ dɔkun*" [being rich with children is better than having fortunes]

emphasize the supremacy of children over money per se.

7.3.2. New reproductive patterns?

One of the objectives of the focus group discussions was to collect data on currently prevailing patterns of preference for children and the reasons for changes, if any. In virtually all discussion groups, men and women responded that they wanted fewer numbers of children. The average number of children desired varies from two to six. In most groups, the majority of participants cited three or four children as the ideal, with a slight bias in favour of boys. Most significantly, in none of the

groups did the traditional "up to God" answer come out. It was also striking that in responding to the question of desired family size, participants of all backgrounds often referred to changing times as compared to "the old days".

> *"Life was very different before... you could have 10 or even 15 children because it was easy to care for them. But this is not the same anymore. The maximum that somebody can have is 6 children."* [Respondent 1, group 1; female, illiterate]

> *"These days, four children are enough because the world is changing . Having too many children is just as if you consciously bear them so that they suffer in their life."* [Respondent 3, group 6; women, current user of contraception]

Many reasons were cited to support the desire for lower fertility. However, it was also evident during the course of the discussions that the process of change and the stage attained in this process differ widely according to respondents' educational status. While the whole society seems to be adopting new reproductive patterns towards smaller families, more educated women appear to desire smaller families than those less educated. For literate respondents, small families with less than four children are already the norm. According to one illiterate woman, they are the "*akɔwe*" (white collar workers), and they behave like the "*yovo*" (white people).

> *"... we the illiterate and poor people, we want many children. But for the educated couples, when they have two or three they stop; just as the yovo do."* [Respondent 1, group 1; female, illiterate]

For literate men and women, the current economic hardship is one additional reason that encourages the limitation of the number of children. To them, what matters is not the quantity but the quality of children as well as the parent-child bond.

> *"The number of children to have is not necessarily a matter of how much money you have... but whether you will be able to look after them properly... spend time for their education and be with them."* [Respondent 3, group 3; female, literate]

On the other hand, illiterate respondents view current changes in childbearing ideals as clearly a recent phenomenon, brought about by the economic crisis of the late eighties and the more recent devaluation of the CFA (the currency used by Benin and 13 other Francophone African countries). They contrast the current economic hardship with the old time, when life was thought to be easier.

> *"... when I got married, my husband used to give me CFA200 for three days and it was enough. But nowadays, even CFA2,000 is not enough for one market day. At school, children need at least CFA100 compared to CFA2 or CFA5 in my time."* Respondent 5, group 2; female, illiterate

For illiterate respondents the immediate concerns are different for men compared with women and point to gender responsibilities within the couples. For women, it has to do with the cost of basic needs such as food and clothing. For men, it is everything from food to housing, including health care and transportation.

> "*In the time of our parents, they could have many children because life was cheap. They have easy access to food which we do not have these days. The cost of cement has more than tripled; rents have increased more than fifteen times... and, as you know, all these things are all linked... if the cost of cement increases then fuel cost increases. So does the cost of food and medicines in the pharmacies and so on... in the same time, salaries have hardly changed."* [Respondent 2, group 7; male, illiterate]

In addition to he rising cost of child rearing, some illiterate men and women believe that what a child becomes is more a matter of luck than how much has been invested in him in terms of money. As many said, "it is God that educates a child" not how much you spend on him.

> *"Even if you have one child and God blesses him, he may be able to do even better than 15 children in the old times."* [Respondent 7, group 4; female, illiterate]

The emerging new reproductive norms do not occur in isolation to other social changes. In the focus group discussions, some participants were concerned with changing social organization and

particularly the erosion of traditional values of solidarity. To these participants, even though there may be changing economic conditions it is the rapidly decaying structure of the society that makes things more difficult.

> "*... the change in the cost of life is real; but this has little to do with the number of children we could have; the reason why it has become more difficult to raise children is that people only car for themselves now. We have become individualist, with delusions of grandeur... Everything for me only... That's why we have problems in raising children now.*" [Respondent 6, group 7; male, illiterate]

7.3.3. Child spacing in Benin

Traditional norms in child spacing

There is a substantial body of evidence that explain why relatively long birth intervals have prevailed in most African countries (Page and Lesthaeghe, 1981; Lesthaeghe, 1989). The main rationale relates to the health and well-being of both the mother and the nursing baby. In Benin, both men and women are concerned with the length of the time interval between successive births. At the societal level, children born too close in time[8] are a matter of concern and it is not surprising that the same reasons as above are cited to avoid short birth intervals. In popular terms, "death, illness and hardship help take care of babies born too close apart". Said locally,

> *"... ku kpo azon kpo ya kpo qɔ*
> *a ji kpɛ ɔ na hin χa we."*

Normative values to promote child spacing are also seen in the local vocabulary. For example, in *Fon* language, the term" *kpɛ*" or *"kpɛdovi"* is used to qualify the first of two children born too close together. The *kpɛjitɔ (the mother of kpɛ*), does not merit respect because, by engaging in premature

[8] Generally, a pregnancy that occurs within less than two years following a birth is considered too soon. But this may also be defined in relation to stages of development of the child. For example, when a child takes time to walk, he may be considered too fragile to have a younger brother or sister.

sex, she has deliberately put her baby at risk of dying, or at least suffering from diseases that could be avoided if she has conducted herself properly. She is unable to restrain herself from her husband. She is considered as egoist, trying to keep the man for herself only.

When asked for the reasons why they believe that short birth intervals are not a good practice, respondents invariably cited the health risks that it poses to both the nursing mother and the child. Some respondents even described the psychological effects of short birth intervals on older children in the medium and long term. In general, a *kpɛ* is a fragile child, in the same way as his mother is fragile. The baby is neglected because of the mother's own needs to take care of herself with the new pregnancy. It appears from the participants' description that these children may growup unhappy. They are cut off from the maternal bond just at the very time they need it. The mother takes care of herself and, thereafter, of the newborn. In the end, these children often feel neglected and isolated.

> *"kpɛ means that the child has not had time to benefit from his babyhood. He has been deprived of his mother's care too soon. Because, in principle, the child is expected to enjoy many things in that period... the milk of his mother, the care that he needed which is his right. But once a pregnancy occurs he will be weaned and may suffer a sort of negligence...since in general, the mother who has just conceived again would not be in good health to take care of her baby. In a way, these are very unhappy children."* [Respondent 6, group 3; female, literate]

> *"When a woman gets pregnant so rapidly the child is at greater risk of dying because of lack of care. Usually, the baby will be weaned when she gets pregnant; but because she is not well she would not be able to take care of him as needed. Even if the baby survives he may have problems growing."* [Respondent 6, group 2; female, illiterate]

For the *Fon* as in many other cultures in Sub-Saharan Africa, the responsibility of avoiding *kpɛ* is usually born by the mother. However, both parents are blamed when it happens. The implication of the husband refers to his power of decision regarding the timing of resumption of sex with the woman.

"... having a kpɛ is considered an assault on the child because the man and his wife are expected to stay apart for sometime to allow the child to grow normally. In this sense they are considered a bad couple with low morality and criticized as such." [Respondent 4, group 11; male, literate]

Contemporary norms in child-spacing

While desired fertility seems to be falling, long birth intervals are still the norm. In virtually all groups of discussions, participants disapproved of short birth intervals, using the same arguments as before. Likewise, there were also concerns about intervals that are considered too long, for instance over 5 or 6 years. It has been reported that women may have difficulties in getting pregnant or delivering if they waited for too long. This idea was especially common among those men and women who were literate. Some respondent even gave their own example to support their views on the subject.

"When it is less than two years, people consider it too short. More than 5 years and the woman would have problems at delivery with the following pregnancy. In my own experience, my first child was only 11 months when I got pregnant. For the third child I waited for 5 years. And I can ensure you that the third delivery was much more difficult for me than the second... because, they said, the womb has had time to switch off." [Respondent 4, group 3; female, literate]

"the time interval between two consecutive children depends on many things. We all know that when it is too short, it is not good because it predisposes the child to various diseases and so he is fragile. But in my understanding, an interval that is too long is not very good either because the woman may have problems conceiving or at delivery. What is advisable is that the child must have school age (3-4years) before another one comes. In this case there are less problems in taking care of him." [Respondent 5, group 10; male, literate]

Child spacing mechanisms

Breast-feeding

In Benin, except in special circumstances, a woman who gives birth is expected to breast-feed her infant and, as in other African countries, long breast-feeding is almost the norm. However, according to women's declaration, there was no such thing as full breast-feeding whereby the woman would give exclusively breast milk to her newborn. In fact, very shortly after birth, the nursing infant will be given fluids such as water and other herbal infusions that will keep him strong and will protect him against such diseases as malaria and "coughing". Almost every morning the baby will be given, in addition to the breast milk, the required infusion which plays probably the same role as anti-malarial syrups in modern days. The duration of breast-feeding is variable and depends on how easy the child grows. On average, children will be breast-fed for about 17 months months. However, it is usually expected that the baby should not be weaned before his teeth have come out because teething is considered as a high risk process for most children.

As much as short breast-feeding durations, "too long" breast-feeding is also stigmatized and perceived as harmful to the child. Some contemporary interpretations even link the intelligence of the child to the duration of breast-feeding.

> *"18 months is the normal duration of breast-feeding... when the child is breast-fed for more than two years, he will not be very bright... because at that time he has been sucking the mother's blood. If you taste the breast milk after the child is two years you will notice that it is salty instead of being sweet. That's why nothing can enter his head[9] when he grows up."* [Respondent 1, group 1; female, illiterate]

The introduction of porridge and other more solid food is gradual and starts around the age of three months. Although this seems to take place long before the child is weaned, its timing is important

[9]Local expression signifying that the child is stupid!

because it may determine how easy the last stage of the weaning[10] will be and whether the child will feed properly after he has been weaned. As regards the duration of the weaning process itself, it is a matter of individual practice and may vary from one to several days to complete.

> *"If you wait too long before introducing other foods to the baby, it will not be easy to wean him and he may not accept ordinary food after weaning."* [Respondent 3, group 2; female, illiterate]

While there seems to have been little change over time in the duration of breast-feeding per se, the practice has suffered some ups and downs due to the introduction of tinned milk. The more recent mood which appeared from the discussions suggests increasing interest in natural breast-feeding, probably the effect of the "Baby Friendly Hospitals" initiative[11] which promotes the concept of full breast-feeding up to the age of four months. Still, the concept of full breast-feeding without other liquids has been questioned by many women. But overall, breast-feeding practices differ according to the type of activities women are engaged in. For example, working mothers are more likely to introduce tinned milk. They also seem to be more likely to wean the child earlier.

> *"... talking about breast-feeding with working women is quite difficult because it is not easy for us to give the breast milk once we resume work. That's why most people will combine breast-feeding and the use of tinned milk. Some women manage to extend their maternity leave up to six months but this is not the case for the majority."* [Respondent 7, group 3; female, literate]

Postpartum sexual abstinence

In the majority of countries in Sub-Saharan Africa, there has always been some period of sexual abstinence on the part of the woman following child birth, even though this period can be relatively

---

[10]When the mother effectively stops breast-feeding

[11]A joint WHO/UNICEF initiative launched in 1989 with the aim of giving each child the best start in life by creating a health care environment where breast-feeding is the norm (WHO and UNICEF, 1989)

short in some areas[12]. It has been suggested for example that the most common subjective rationale for sexual abstention may be to prevent the breast milk from being poisoned by the sperm and thus, harming the nursing infant (Caldwell and Caldwell, 1987). Abstinence was also meant to protect the mother's health (Bledsoe et al., 1994). In Benin, data from various sources suggest that abstention from sex following child birth is a long-standing tradition (Benin, 1984; 1997a). These earlier findings were confirmed by the focus group discussions. In the traditional *Fon* society, long post-partum abstinence was the norm. However, contemporary interpretations of the reasons for abstinence are different for literate and illiterate respondents. For those following the traditional lines, the health of the mother and that of the child are still the main reasons.

> *"My grandmother with whom I stayed taught me many things which used to do before. She said that if you resume sex early and the child suckles the breast-milk he will get sick."* [Respondent 3, group 1; female, illiterate]
>
> *"To me women should be left alone for two years after delivery. That will help them recover from the pains of childbearing and breast-feeding the child."* [Respondent 4, group 7; male, illiterate]

Other women, mostly literate, believe that the main reason for abstinence may be the fear of a pregnancy that would inevitably result in a *kpɛ*, and that instead, the allegory of the poisoning sperm is more to do with frightening young mothers. The following quote summarizes long discussions in many groups about the current interpretations of the post-partum abstinence.

> *"The only thing is to take good care of your baby; as long as it is his father, nothing will happen... what makes a child cannot kill it !"* [Respondent 5, group 2; female, illiterate]

---

[12]See for example Murdoch (1967)

The resumption of sex: "χuχu zokpo" or "gbo nyi ɖɛ"

The resumption of sex following childbirth is a meaningful event which has various code names depending on the region. As with breast-feeding, the duration of abstinence depended on various factors, most important of which is how well the child is growing. Usually, there is no special ceremony but in case of multiple births[13] (twins, triplets etc), a formal twin ceremony has to take place before sex can be resumed. In the majority of cases, resumption of sex will occur after the woman's menses have returned[14]. However, for a few illiterate women the resumption of sex is equivalent to readiness for another pregnancy. Consequently, it can only occur some time after the child has been weaned... so that the mother can recover from breast-feeding.

> *"the normal duration of breast-feeding is 18 months... and a woman who breast-feeds her child for more than that would lose more weight. Since she has to get ready for another pregnancy around two years she needs to get some rest before... otherwise, she may get in trouble when she gets pregnant again."* [Respondent 5, group 2; female, illiterate]

The link between the duration of post-partum amenorrhoea and short birth intervals has been pointed out in most of the focus groups. It is considered that women whose menses return within a few weeks after delivery are more likely to have short-spaced children. In other words, "they have *kpɛ* in their blood". The condition is also thought to be hereditary so that mothers would pay special attention to the post-partum behaviour of their daughters if they themselves experienced short post-partum amenorrhoea.

> *"Even though there are things [contraception] to avoid having kpɛ, women who have kpɛ in their blood will continue to bear them."* [Respondent 7, group 2; female, illiterate]

---

[13] In fact this is part of the belief that multiple births are serious events which require special ceremonies and behaviour on the part of both parents and relatives.

[14] A child born out of a pregnancy that occurs without the return of menses is called *ɖɔ*. Although a *ɖɔ* child is likely to be a *kpɛ* as well, the two phenomena are considered entirely different

Finally, although a *kpɛ* child is highly undesirable, the family will do everything possible to save such a child when it occurs. The practices seem to differ between individuals but there are two main alternatives. First, an older person, usually the mother-in-law, may take the child from her mother once it is known that she is pregnant. She [the older person] will then care of him [the baby] for the rest of his childhood and even long after the other was born. The second alternative is that the woman may be instructed to continue breast-feeding her baby for a few months when he can be weaned with lower risk of dying. The duration of such breast-feeding depends on the age of the child. Another variant of this second alternative is that the mother may be instructed to continue feeding with only one breast until he can be weaned.

Pressures on the duration of post-partum sexual abstinence

It is still a social norm in Cotonou that a period of sexual abstinence has to be observed by women following childbirth. While the function of abstinence has now centred more on the health of the mother its duration has been the object of animated debates during the course of the focus group discussions. The data clearly demonstrate that norms regarding post-partum abstinence have changed.

For example, both men and women, whether literate or not, agree that men who resume sex with their wives within a few days after delivery are careless and irresponsible. Similarly, there was agreement among participants that it is not easy for men and women nowadays to abstain for over six months. For the majority of respondents, abstention from sex following childbirth would last about three months, with a minimum of one month and a maximum of six months.

> *"In general, the child must be at least three months old so that the woman can recover from the pains of delivery. Within three months, it is expected that the wounds caused by delivery would have healed."* [Respondent 1, group 1; female, illiterate]

There were clear differences between literate and illiterate women as regards the reasons which explain the shorter duration of abstinence. For illiterate women, living arrangements in urban areas make it difficult for husband and wife to have separate rooms[15]. In these conditions, spousal separation[16] is impracticable.

> *"if he [the husband] waits for a month then he will start pressing on you to resume sex, with thousands of reasons to convince you. There is no antidote for that when you are living in the same room; waiting for three months is the maximum."* [Respondent 8, group 2; female, illiterate]

For educated women on the other hand, early resumption of sex is a measure of the strength of the conjugal bond. Most of them fear that their husband may seek extra-marital sexual partners (Cleland, Ali and Capo-chichi, 1999).

> *"When you are living with your husband you cannot refuse him sex all the time, otherwise you are asking him to go out... because when men want to have sex... it is just as if they were sick. If you don't treat them at home they will go out to be treated by someone else."* [Respondent 1, group 6; women, user of contraception]

> *"To resume sex early is a sign of love... it is true that in our culture women wait for some time before they resume sex with their husband. But once your menses have returned you feel closer to your husband. Otherwise you feel isolated."* [Respondent 2, group 3; female, literate]

Although the timing of the resumption of sex was usually expressed in terms of absolute duration, some respondents think it should be an after-menses event. This view was especially prevalent among educated men because it would be easier for the couple to "count days".

> *"It happened to me that my wife got pregnant while our baby was only 7 months. That's why now I always wait for her menses to return before we resume sex."* [Respondent 6, group 11; male, literate]

---

[15]Let alone the accomodation of extended families

[16]Spousal separation after birth is one of the means through which the traditional long post-partum abstinence was enforced (Potter et al., 1983)

> *"When a woman gives birth, the man ought to wait for the return of her menses before she can have sex because then the couple could practice rhythm to avoid unwanted pregnancies."* [Respondent 4, group 11; male, literate]

For some men the return of menses is sometimes too long and may be the reason for monogamists to look for other sexual partners.

> *"There are women who could wait for 12 or even 18 months for their menses to return. That's why some men would go out to have sex."* [Respondent 4, group 11; male, literate]

Regarding the decision to resume sex, it is still conventional that men are the ones who make the first move. In principle, the woman cannot ask her husband for sex or she may be considered not well educated by her parents. However, women often resort to indirect means to induce early resumption of sex.

> *"... usually it is the man who makes the first move, but sometimes women also can start... we all go through it. When you give birth and have not had sex after 2 or 3 months, you start wanting your husband. And if he does not do anything you would provoke him. Like for instance you know he is in the room and after you had a shower you come to the room while still naked... or while you used to put the child in-between the two of you at birth, now you put the child at the wall and you come in between... you have not asked him for sex directly but you have shown him that there is something he could have."* [Respondent 5, group 2; female, illiterate]

> *"To me the decision will usually come from the husband; even when the woman wants to have sex she will not say it directly. Maybe she will set you up in an indirect way so that you make the first move. But even then, having sex depends on the man's will. And that's why men are usually responsible for anything that happens thereafter. If the woman has a kpɛ, it would be of the fault of the man."* [Respondent 8, group 7; male, illiterate]

Contraception

Traditional methods

As in many traditional societies, there is evidence of knowledge and use of indigenous contraceptive methods. For example, withdrawal, though not very common, is known to have been practised over generations. Periodic abstinence and particularly the rhythm method, locally known as "*azan χiχa*" (counting days) is also well know and practiced, especially by educated couples. From previous discussions regarding child-spacing, it is obvious that a pregnancy will be regarded as unwanted if the time elapsed since previous birth is considered too short. In addition, discussions suggest that women who are considered too old to bear children, for instance once they have reached grand-maternal status, if not abstaining, may take active actions to avoid unwanted pregnancies.

> "*How will I help my daughter or my daughter-in-law*[17] *if I have a child at the same time as she does?*" [Respondent 1, group 1; female, illiterate]

Several plants and herbs were cited as having contraceptive properties. In particular, "*koqɔ*[18]", the root of Guinea peach tree, initially used by nursing mothers to stimulate the reconstitution of blood, has been described by many participants as having contraceptive virtue. It may be used as an infusion, in which case approximately one litre of the resulting liquid should be drunk every day. Alternatively, it may be steeped into a bottle of local alcohol (*soqabi*). In that case, one "*talokpemi*[19]" of this alcohol shall be taken each morning.

---

[17]In the traditional *Fon* society, relatives are important in helping couples to properly manage the post-partum period, especially when the woman is considered inexperienced. Since she usually lives in her husband's family compound, it is generally the mother-in-law's [or alternatively the woman's own mother's] duty to take charge. Her main role is to show the young mother how to take proper care of her baby both in terms of what is given to him as well as when and how this is done. She [the young mother] will also learn how to take care of herself, for example by using hot water, putting on sanitary towels etc..

[18]The root of Guinea peach tree (Nauclea Latifolia) classified as a Rubiaceae

[19]Small cup used for serving local alcohol (approx 1/16th of a litre)

In a few groups, the use of charms or amulets which are attached around the hip or rings were also cited. However, these are thought not to be authentic local practices but instead, brought in by the Haussa or Fulani immigrants from the northern region of Benin.

Modern contraception

Contraceptive studies in Benin have all revealed that knowledge about modern contraception has improved over the last two decades (Benin, 1984; Alihonou and Gandaho, 1992; Gandaho, 1993; Benin, 1997a). This was reflected in the focus groups where both men and women were able to describe all modern contraceptive methods available in the country. As with many drugs, modern contraceptives have their own local names which participants often refer to. For example, the pill is known as "*gbɛqutinkin*", the enjoyment drug. The condom on the other hand is the "*kofi gbakun*" or the hat of Kofi.

Although the focus group discussions were not concerned with experiences of individual participants, it was surprising that many women were willing to share their experiences of contraception with others. In many cases, the reason for using contraception, whether modern or not was to avoid *kpɛ* while maintaining good relations with the husband. There were also instances where women decided to use contraception because they wanted no more children. But the decision to use contraception can also be in relation to health consequences which both partners are willing to avoid. This happens for example when the woman is advised to avoid or delay a future pregnancy following problems with a previous pregnancy.

> *"... avoid kpɛ... that's the main reason why we go for family planning."* [Respondent 1, group 2; female, illiterate]

> *"I decided to use contraception because I have had so many problems for my last delivery... so the doctor invited my husband to tell him that if I get pregnant again, I may not survive it. My brother-in-law said he already told my husband but he wouldn't. Since that time he allowed me to take the injections."* [Respondent 2, group 5; women, user of contraception]

Men and modern contraception

In the recent past, studies have suggested that men's opposition to contraception may be the main stumbling block to the use of modern methods. The main reason that was cited for men's opposition was the fact that women using contraception may find it easier to cheat their partner (Gandaho, 1993). Contrary to the usual belief of men's opposition to contraceptive use by their partner, the study revealed that men knew more and were generally in favour of contraceptive practice. Some even actively encouraged their partners to use modern contraception.

> "*I never used it before. Then, when I had my 5th child we decided to stop and my husband took me to the family planning clinic. That's how I knew of it.*" [Respondent 3, group 6; women, users of contraception]

Inevitably, there was some opposition due to lack of confidence in the women. However, although such reasons were cited in the focus group discussions, they were by no means the dominant position. Most men who oppose contraception fear for the health consequences of the use of contraception and the economic burden that would result from it. Some of them expressed it very strongly, as follows.

"To me these new methods to avoid conception are not very good for the woman's health. She is even at greater risk. She can put on weight; or bleed abnormally. I would not advise these methods to anyone." [Respondent 1, group 11; male, literate]

"My wife suggested to me that we go to the family planning clinic and that she will pay for it with her own money but I refused. I told her not to go to avoid the health consequences of it... because these methods have consequences on the woman's health. I said no and I do not think I will ever do it." [Respondent 3, group 7; male, illiterate]

Secret use

Secret use of contraception often occurs in conditions where the husband has already opposed the use of contraception following discussion by the couple, or where the woman fears he may do so. From the discussions, it appeared that the decision to use contraception without informing the partner is difficult for most women, given the social consequences that could result from it. For some men, secret use of contraception by a woman is a sign of distrust and may result, ultimately, in the man abandoning her. Similar findings have been reported in a study conducted in Bamako, Mali (Castle et al., 1999) and elsewhere (Biddlecom and Fapohunda, 1998).

> *"Some women would discuss it with their husband; others won't. It all depends on the husband's attitude. Some accept that their wives use contraception; others would refuse and then when you get pregnant they will start blaming you... asking how you managed to get pregnant again etc... that's why some women decide to use contraception secretly."* [Respondent 2, group 6; women, users of contraception]

> *"Secret use of contraception is the sign of distrust; I think that within a couple, these things must be discussed because spacing or limiting births are the problems of both men and women."* [Respondent 6, group 11; male, literate]

Previous information on contraceptive failure

In Benin, as in most developing countries, information about a product that is relatively new usually spreads more easily from one person to the other. In many circumstances, the information given by relatives or their own experiences may be more powerful in shaping a person's decision to experience what appears to be new. This is also true for the use of modern contraception and more generally of anything that is concerned with people's health, even beyond the advice of health professionals. What is more important in understanding resistance to use is that success stories are often kept quiet while experiences that have resulted in failure are amplified and spread more rapidly. Over the course of the study, there have been two reports of women who discredited the practice of contraception to others while at the same time using a method. There were also many

examples of contraceptive failure which participants in the focus groups used to discredit the effectiveness of modern contraception. One that appears virtually in all focus groups was the myth of the baby born with an IUD in his hand. The discussions revealed how active women's imagination can be in order to order to make the myth appear as real as possible.

> *"I refused to go for family planning because I do not want to get into troubles. They even said they would do it free for me but I refused... for instance my uncle's wife got pregnant while she was using an IUD... still she delivered and they came home with the device. This child is 17 years of age today."* [Respondent 6, group 2; female, illiterate]
>
> *"The IUD can also kill the baby before it is born... I know of a woman who had 7 daughters. So she decided to stop since she was looking for a son. Then she went to have an IUD inserted. Still, she got pregnant and when she delivered, the baby was stillborn because, as they said, the IUD hag blocked his nose. Unfortunately for her, it was a baby boy."* [Respondent 3, group 1; female, illiterate

Induced abortion

As in virtually all Sub-Saharan African countries, induced abortion is illegal in Benin and accurate information is often difficult to obtain. However, it is now widely accepted that unsafe abortion and their complications constitute a major cause of maternal mortality (Rogo, 1993). Focus group discussions suggested that the practice of induced abortion has existed over a long time. In traditional *Fon* society, the main reasons that would prompt attempts to terminate a pregnancy are incestuous or extra-marital relations. In modern days, it was believed for a long time that only young and unmarried women resort to pregnancy termination. But this study has revealed that induced abortion may be practised by women of all ages and social levels[20]. Even though it was considered a sensitive issue, it was surprising that many women participating in the discussions spontaneously decided to share their experience of induced abortion. The practice is still highly condemned and considered dangerous. However, most women would resort to induced abortion in case of a pregnancy that is unwanted whether or not it has resulted from contraceptive failure. During the

[20]See also Alihonou, Goufodji and Capo-chichi., 1996

discussions, a user of modern contraception, mother of four children and aged 37, described her own experience as follows:

> *"After my second child I had an IUD inserted which stayed for 5 years before I had it removed. Within 6 months I was pregnant but because of the difficulties which I go through during pregnancy I decided to get rid of that one [pregnancy], even though the midwife advised me to keep it. After that I got pregnant again but this time I kept it. Then I started with the pill but have not used it as they advised me. I got pregnant again and I decided to abort... because my husband also did not want anymore children."* [Participant 6, group 5; women, user of contraception]

7.4. Changing reproductive norms in Benin: a time of uncertainty?

The central focus of this chapter was to describe trends in fertility preferences and reproductive behaviour in urban Benin using data mainly derived from focus group discussions in Cotonou. The results presented suggest two main conclusions.

Firstly, fertility preferences have certainly changed over the past few decades. Men and women of all social levels want fewer children compared with the past. However, while the desire for a small family seems to be an established norm for educated men and women, it is clear that this attitude was adopted by those with little or no education only recently. Long birth intervals are still wanted even though the traditional mechanisms usually involved show rapid erosion. In particular, the long post-partum sexual abstinence no longer holds. As a result, there are attempts by some women to substitute post-partum abstinence with the use of contraception and even induced abortion.

Secondly, for the majority of these men and women who are illiterate, the main reason cited by respondents to justify the desire for smaller family size is increasing hardship. The changing attitude as opposed to the traditional norms of high fertility seems to be a response to a crisis situation. This fits the prospects of fertility decline within the framework of a crisis-led transition. Quantitative data from previous chapters suggest that in urban areas, the changing attitudes are already being translated into new reproductive behaviour. Whether these changes will occur only in urban areas or whether

they will spread to the rural part of the country is uncertain. In the mean time, provisional answers are suggested by a literate participant to the focus group discussions... and another local song.

> *"... myself I had my last child in 1993; I was already pregnant when the CFA was devalued... and I know that if it had happened before I got pregnant I would not... even if there is no campaign for birth limitation, people will go for it... because of the increase in the cost of life... even in villages, our parents are changing the way they think of childbearing." [* Respondent 8, group 3; female, literate]

Table 7.2: Song on birth limitation and the devaluation

Asi ɔ afokpa wɛ lo gni	If women were just like shoes
nyɔnu ɖesu ɔ afokpa wɛ logni	if women were just like shoes
gege datɔ lɛ	those with many of them
ye na ko nɔ ɖe gni gbondemɛ	could have left some by the street
gbeɖe, gbeɖe,	never, never,
madasi we ba da aton yi ma sɔ hon	it's no time for two or three wives anymore
nu kpon tɔ lɛ mi bo ɖoto	you people listen
nu e ɖo tin tin we ɔ alɔkpon ɖɔ mi bo se a	are you aware of what is happening?
devaluation biɔ to mɛ	devaluation has come to town
vi ji gɔhɔ n' sɔɖemɛ a	having children fill a house, I would not recommend
aɖivi ji kpakpa ɖohun ɔ n' sɔɖemɛ a	having children like goats, I would not recommend
aɖivi ji ajaka ɖohun n' sɔɖemɛ a	having children like mice, I would not recommend

Source: Alɔkpon, alias Houndefo Anatole

Chapter 8

In their own words:

women's experiences and perceptions of modern contraception in Benin

8.1. Introduction

This chapter begins with two stories. On the surface, they are not the same because they refer to women with different reproductive goals and behaviour. On closer inspection, however, they provide some insights into understanding why many women are still reluctant to adopt modern contraceptive methods in Benin and how family planning services can be tailored to meet the needs of individual users. Huguette and Hoonɔn are both married women aged 35 and 45 years respectively.

Huguette had four years secondary education and is mother of three children, two boys and one girl aged 11, 7 and 4. Her husband does not want any more children, neither does she. She has been using the rhythm method since the birth of their last child. Eighteen months before the study, she missed her menses and was very worried about the prospects of a pregnancy. A friend advised her to use APC[1], three tablets three times a day for three days but two months later she had to face the truth: a biological test confirmed that she was pregnant. She decided, on her own, to go to a private clinic for a curettage, which she found very painful. But when she got home, she started bleeding heavily and had to be referred to a government maternity hospital. Following what she describes as "a lengthy second curettage", it was suggested to her by the health personnel that she should have an IUD inserted, which she promptly accepted. However, a few days later, she went back to the hospital to get the IUD removed because of lower abdominal pains which started on the very day the IUD was inserted. At the time of interview, she declared: "*... only God protects me now. I don't really know what to do anymore*".

[1]APC is a type of Paracetamol which, many women believe, can be used to induce abortion

Hoonɔn[2] has a different story. She has no formal education and is mother of eight children. Her last born child is 5-years old. Unlike her husband, she does not want any more children because of the economic burden and the difficulties she had both during her last pregnancy and at delivery. To avoid what she believes is "too frequent sexual relations for her age", she even decided to pay the bride-price for another woman to marry her husband. About a year before the interview, one of her market friends told her about contraception. At the clinic, she was asked to provide evidence of her husband's agreement. Her friend testified as a sister-in-law before she started[3] a course of Noristerat injections and, until recently, was happy with it. Now, she is putting on weight and heard that injections and pills can cause cancer. Her comment during the interview was as follows: "*I am now very worried, especially since I started putting on weight, with two menstrual periods in one month; they didn't tell me that at the clinic. The next injection is in one month but I am not sure if I will go for it this time*". By the end of the fieldwork, she had effectively abandoned contraception.

The importance of adopting a users' perspective in the provision of family planning services has been highlighted long ago (Bruce, 1980; Zeidenstein, 1980). Since then, there has been substantial evidence in support of client oriented approaches to reproductive health services, both in Sub-Saharan Africa and elsewhere (Kim, Kols and Mucheke, 1998; Koenig, Hossain and Whittaker, 1997; Cotten et al., 1992; Piriani, Heer and van Arsold, 1991). However, in countries with extremely low prevalence of use of modern contraception such as those in Sub-Saharan Africa, the quality of reproductive health services has often been neglected (Huntington, Lattenmaier and Obeng-Quaidoo, 1990; Cameroon, 1993). For example, in the summary report of one of the major undertakings on the quality of family planning services, Miller et al. (1998) concluded that the main weaknesses of family planning programmes in Africa were the lack of adequate counselling both in terms of information taken from and given to clients and mechanisms to encourage continuation.

---

[2] The mother of twins

[3] Three months after the first visit!

As already discussed in previous chapters, the ongoing fertility transition in Benin is more advanced in urban compared to rural areas. Therefore, given that Cotonou is the largest city of Benin, it can be considered as the vanguard of the transition. Most surprisingly, however, the prevalence of use of modern contraception in Cotonou remains extremely low[4], suggesting that recourse to modern contraception for birth limitation is not an established behaviour. On the other hand, data from focus group discussions conducted in Cotonou suggest that normative values regarding fertility are changing very fast and that adoption of modern contraception is certainly not a new behaviour. In these conditions, it is necessary to understand why so few women practice modern contraception, what the sources of demand for fertility regulation are and what impedes the adoption and continued use of modern contraceptive methods. This chapter explores women's experiences and perceptions of contraception using a qualitative approach, with a particular focus on modern methods.

8.2. Data sources and methods of analysis

The data used in the present chapter were collected during in-depth interviews of 59 women of reproductive age, conducted between September and December 1997 in Cotonou. Details of the selection procedures are provided in chapter 3 which describes data sources and methodological approaches for the thesis. Although the main object of the in-depth interviews is to understand the intentions and experience of users of modern contraception, a broader approach was adopted. In summary, four categories of women were considered for the interviews:

- current users of modern contraception .
- ever (but not current) users of modern contraception
- ever users of traditional contraception[5]
- non users of contraception

---

[4]With a prevalence of use of modern contraception at 5.5%, Cotonou shows one of the lowest prevalence of use of modern contraception in a major city, even by West African standards.

[5] Who never used any modern methods of contraception. Traditional methods of contraception included rhythm, withdrawal and folkloric methods such as herbs, rings etc..

Respondents were selected from a sample of 452 women surveyed during a pre-interview census that took place in four geographical clusters. The clusters were purposely selected to yield maximum numbers of respondents who are *Fon*, the dominant ethnic group of Benin and whose language was used for the interviews.

The analyses presented in the next sections are largely based on the stories of the women about their reproductive intentions, childbearing and contraceptive experience. Accordingly, the framework for the analysis of contraception and demographic innovation presented in chapter 6 was adopted. Table 8.1 presents a simple frequency distribution of interviewed women according to whether they are traditional, transitional or pioneers. Because of their similarities in terms of contraceptive use and also due to the small number of cases in the third group (traditional type 1), the two groups of traditional women were collapsed to form a single group of women with desire for high fertility. Therefore, the analyses are based on three types of women: the innovators, the transitional women with desire for fewer children but still present high fertility and traditional women with continued demand for high fertility.

Table 8.1. Frequency distribution of respondent according to their innovation profile

Innovative status	Number of cases
Innovators	24
Transitional	12
Traditional type 1	6
Traditional type 2	17
Total	59

The findings are presented in three main sections. First, women's perceptions and practices regarding child spacing are investigated. Normative values regarding birth intervals have been discussed using focus group data in chapter 7. However, this section goes further into women's own

perceptions and practices to assess whether any changes are occurring at the individual level. Secondly, contraceptive experiences are analysed according to the innovative status of the women as defined above. Thirdly, the role of rumours, side effects and services provision as barriers to contraceptive adoption is discussed. In most instances, the data presented refer to patterns of behaviours that emerged as fairly common to women in a given condition, highlighting similarities and differences. However, deviations from the overall patterns are also discussed, particularly when they throw new lights on the understanding of what is already known. In presenting the results, verbatim quotations from respondents were used to support important assertions. As in the preceding chapter, these quotations result from a transliteration from *Fon* into English. When necessary, the exact words used in *Fon* are presented in the text, with their closest contextual meaning presented in footnote.

8.3. Findings

8.3.1. Are perceptions of short birth intervals changing?

Long birth intervals and long post-partum sexual abstinence have been the main characteristics of Sub-Saharan African fertility regimes (Schoenmaeckers et al., 1981). The results from in-depth interviews conform with these claims and suggest that the time interval between consecutive births is still a major concern for women in Benin. As already discussed in the previous chapter, the fear of short birth intervals is virtually universal and has been expressed in a variety of ways. At the individual level, women refer mainly to the duration elapsed since last birth to define what is or is not an acceptable birth interval. The individual reports of women indicate that, on average, the desired time interval from one birth to the other should be between three and four years. However, there is no clear agreement on what can be considered the minimum accepted interval, when respondents' views are compared. Among some women, generally those with little or no education, it appears that the time interval between one birth and the following pregnancy must be more than two years, with a resulting minimum birth interval of about three years. This conforms with the traditional patterns and many of these women expressed some sense of guilt when describing a

pregnancy that came too soon after a birth. In some extreme cases, where the timing of the pregnancy was considered unacceptable, resort to induced abortion appeared to be the natural solution adopted by the woman and sometimes with the help of her husband. The following three quotes summarize the general pattern of traditional women's perceptions and behaviours when confronted with the probability of short birth intervals.

> *"Even though I waited for one and a half years before fully resuming sex, what I was trying to avoid happened."* [Subject 11; current user (pills), aged 22 with primary education]
>
> *"... when my first twins were born they were only 10 or 11 months when I got pregnant again. Then I decided to have an abortion..."*[Subject 21; ever user (pills, injections), aged 42 with primary education]
>
> "A*t that time, my baby was 7 months and my husband said that it was not possible that we keep that pregnancy; that the baby was too young; I refused but he forced me, saying that the baby was still too young; so we went to a doctor to have a curettage."*[Subject 43; ever used (pills), aged 42 with no education]

Apparently, most women still fear the social stigma attached to short birth intervals, but there were also clear departures from the normative values. The in-depth interviews reveal the existence of several women to whom it is the time interval between the two births that needs to be more than two years and, even then, failure to comply is not necessarily a cause for concern. As a result, a pregnancy that occurs, say fifteen or sixteen months after a birth can still be acceptable. Obviously, this new interpretation which relaxes the rules on sexual abstinence is more prevalent among the more modern and urban section of the society. Clearly, these women do not view "short" birth intervals as threatening their health or that of their child. This sets an emerging pattern of family formation where women will have a few children in a short span and then cease childbearing altogether.

> *"Myself I am trying to have my children quickly... so that I can finish with these problems of childbearing early."* [Subject 39; never used, aged 25 with secondary education].

pregnancy that came too soon after a birth. In some extreme cases, where the timing of the pregnancy was considered unacceptable, resort to induced abortion appeared to be the natural solution adopted by the woman and sometimes with the help of her husband. The following three quotes summarize the general pattern of traditional women's perceptions and behaviours when confronted with the probability of short birth intervals.

> *"Even though I waited for one and a half years before fully resuming sex, what I was trying to avoid happened."* [Subject 11; current user (pills), aged 22 with primary education]
>
> *"... when my first twins were born they were only 10 or 11 months when I got pregnant again. Then I decided to have an abortion..."*[Subject 21; ever user (pills, injections), aged 42 with primary education]
>
> "A*t that time, my baby was 7 months and my husband said that it was not possible that we keep that pregnancy; that the baby was too young; I refused but he forced me, saying that the baby was still too young; so we went to a doctor to have a curettage."*[Subject 43; ever used (pills), aged 42 with no education]

Apparently, most women still fear the social stigma attached to short birth intervals, but there were also clear departures from the normative values. The in-depth interviews reveal the existence of several women to whom it is the time interval between the two births that needs to be more than two years and, even then, failure to comply is not necessarily a cause for concern. As a result, a pregnancy that occurs, say fifteen or sixteen months after a birth can still be acceptable. Obviously, this new interpretation which relaxes the rules on sexual abstinence is more prevalent among the more modern and urban section of the society. Clearly, these women do not view "short" birth intervals as threatening their health or that of their child. This sets an emerging pattern of family formation where women will have a few children in a short span and then cease childbearing altogether.

> *"Myself I am trying to have my children quickly... so that I can finish with these problems of childbearing early."* [Subject 39; never used, aged 25 with secondary education].

> *"My daughter was about 12 months when I got pregnant. There was no problem with that...but I think that one year was a little short, two or three months more would have been fine."* [Subject 32; ever user (condoms, rhythm, withdrawal), aged 38 with higher education]

But there are also cases where women seemed ambivalent about what is or is not a short birth interval. To these women who are in an intermediate stage, their traditional beliefs are in contradiction with what they are told by others. Manifestly, the influence of key actors such as health services providers could rapidly change what these women would regard as a normal birth interval.

> *"My daughter was 15 months and still breast feeding when I got pregnant. So when I knew I was pregnant I cried and said that she was still too young; she was less than two years old... but the midwife told me that it was all right since she will be two years by the time I deliver."* [Subject 51; ever used (rhythm), aged 30 with secondary education]

8.3.2. Perceptions and experiences of contraception

This section describes the three main groups of women according to their reproductive goals and behaviours focusing on their fertility preferences, the context of contraceptive adoption and experience of use.

The innovators

Innovators are the pioneers, the vanguard of the fertility transition. The majority of these women have secondary or higher education. But several respondents in this group also have only primary school education and two of them have no education at all. A common characteristic of pioneer women is that they all expressed some autonomy of decision in the number of children they desire. With regards to fertility intentions, women in this group want very small numbers of children by country standards. Without exception, the desired number of children varies between two and three for all of them. In some sense, they can be considered as true modern women.

"At the age of 37, I think that two children are enough... I am not young anymore. After the first I wanted to delay. Now I want to stop and spend the rest of my time caring for my two children... for their education." [subject 2; current user (IUD), aged 37 with secondary education]

"My first child came quite late. But after the second, my husband and I did not want to have another. We decided to stop [for health reasons]." [Subject 57; ever used (rhythm), aged 31 with no education]

Studies of gender differences in reproductive intentions have consistently found that men wanted more children than their wives. While this was implicitly apparent in many modern women's declaration, several of them also reported that they wanted more children than their partner. The difference between husband and wife in terms of desired family size is usually small, in the order of one additional child. But the data clearly indicate that the family size intentions of pioneer women often prevail over that of their husband, that is the couple having less children if the woman wants less and more if she wants more.

"...my husband did not really want to have a third child; he said it is more and more difficult to care for children at present. But for me, one more was not yet too many." [Subject 49; ever used (rhythm), aged 37 with secondary education]

"If a pregnancy comes now it would be good; because myself I want to have three children; my husband does not want any more but me I want three."[Subject 32; ever user (condoms, rhythm, withdrawal), aged 38 with higher education]

To a modern woman, having a small family is an established norm, the reflexion of early exposure to new ideas and behaviours, especially through education. In Cotonou, many women qualify for this description. But there are also women whose decision to limit the number of their children was triggered by painful events such as difficulties in their marriage or health problems. To women with marriage problems, it is the potential difficulties involved in caring for children alone that drives them to adopt innovative attitudes and behaviours such as stopping childbearing.

"I don't know what he [husband] wants to do with me. What if he lets me down now? I want to be able to take care of myself and my children with or without him. That's why I think two children are already enough. I know he wants more... but not me. If he decides, he can have them with other women." [subject 1; current user (pills), aged 25 with secondary education].

Women with health-related problems during the previous pregnancy or complications at delivery often recounted with graphic details their ordeal as regards the painful events which they have been through. Indeed, it could be said that once the pains are over, the expressed desires would fade out rapidly. In this study, however, the perception of the life-threatening nature of the problems, as reported by these women, was strong enough to justify active steps to prevent further unwanted pregnancies. In all these cases, the decision to stop childbearing was taken in accord with the husband or partner. *Oscar-nɔ* and Maman Fabrice, both mothers of two children said it in the following way:

> *"I decided to stop having children because when I delivered, I had a lot of problems which I do not want anymore... I nearly died."* [Subject 7; current user (pills), aged 30 with primary education]

> *"There have been too many difficulties with my last pregnancy... right from start to finish. My husband spent so much money to keep me alive. That's why he said we should stop having children... and I agree with him."* [Subject 57; ever used (rhythm), aged 31 with no education]

The adoption of contraception

Birth spacing is by far the most common reason for women to initiate the use of modern contraception in Sub-Saharan Africa (Caldwell and Caldwell, 1987; Ware 1969; Benin, 1997a). This is also true for other forms of contraception, even among modern women in the present study. However, as is already well known, the paths to modern contraception are not the same for all women (Fathalla, 1990). In our sample and with respect to innovators, two main patterns of initiation of contraception emerged.

First, there are women who know about the rhythm method[6] and have started their contraceptive experience with it. Generally, they are educated women who learnt about the method at school or through friends. In some cases, the husband or partner is the one who knows it, helping the wife to

[6]Locally referred to as "counting days"

use it properly. For these women, the rhythm method has already been used for birth spacing and also for stopping purposes. Most of them combine the rhythm method with occasional use of condoms which, they consider, do not present the same health risks as other modern methods. This is the case of Judith, Elsie and Rose, three women with different schooling levels.

> *"I count days; we learnt it at school but during my first pregnancy my brother-in-law also taught me how to do it."* [Subject 31; ever user (condoms, rhythm), aged 43 with secondary education]

> *"I count days. When I have my menses, from the 9th to the 16th day nothing... we will not have sex. That's how it is with me. I am already used to that system."* [Subject 34; ever user (rhythm), aged 34 with primary education]

> *"To avoid pregnancies my husband and I we count days... he knows how to do it and I always tell him when I have my menses."* [Subject 57; ever used (rhythm), aged 31 with no education]

The second pattern of contraceptive use was exhibited by women who started their contraceptive experience with modern methods. These women are usually less educated than the previous ones. In general, contraceptive adoption is the indication of a strong desire to stop childbearing. For most of them, the modern contraceptives are "like medicines" and have several drawbacks. In particular, women using contraception can become sterile in the long run. Therefore, modern contraceptives should be used only when desired family size has been achieved.

> *"I did not like taking medicines to avoid a pregnancy because people say that at the end you can't give birth anymore. But since I had the three kids I wanted, I decided it was time I adopted a method of family planning."* [Subject 6; current user (pills), aged 30 with primary education].

<u>Commitment to use, switching and discontinuation</u>

Women whose primary method of contraception is rhythm are often committed to it. Switching to modern methods occurs usually after a failure or when they fear it might fail. The decision to adopt a modern method other than condoms involves an analysis of the pros and cons and even when they

switch, modern methods are subject to a trial period. Commitment to the use of modern contraception[7] by these women is generally weak and they easily pull back to their initial method when side effects arise, especially if no alternative is offered to them by service providers. The case of Aline summarizes the stories of many women but it also underlines important issues in the relation to medical barriers and the quality of care provided to women in family planning clinics in Benin.

> *"I started the pill but I did not use it for long because I was putting on weight... so I stopped. Then I went to see a midwife who said the IUD was forbidden for women aged less than 35; she suggested the pill which I already decided not to use anymore; so we pulled back and continued with counting days... but if we really want to have sex during the fertile period we would use condoms."* [Subject 49; ever used (rhythm, pills, condoms), aged 37 with secondary education]

Strong commitment to the use of modern methods is the indication that no side effects or complications have occurred yet in relation to the method or that the desire to stop childbearing and that the fears of an unwanted pregnancy have overtaken side effects. It is possible that women who are very committed to the use of modern methods either do not know the rhythm method or, if they do, they have already experienced failure while using it. For Anasthasie who has been through two consecutive experiences of induced abortion[8], she will do anything to avoid having another one, whatever the cost.

> *"After my second curettage... it was in '93, I was demoralized. Around me everything was smelling blood and I just hate thinking of it. I decided not to have it again. I tried everything... pills, injections and the IUD... now I have been inserted the Norplant which seems to work with less problems."* [Subject 9; current user (Norplant), aged 30 with primary education]

---

[7] Other than the condom

[8] Let alone a c-section which is the main reason why she decided to have no more children

The role of men

Researchers' views on mens' attitudes regarding their partners using modern methods of fertility regulation have been variable. In some settings in developing countries, men's opposition has been perceived as a major barrier to contraceptive use (Harel, 1997; Ward, Bertrand and Puac, 1996). While many of the early African family planning programmes have been designed on the basis of these premises, there are recent studies which found that men are interested in family planning programmes and may be even more favourable to the use of modern contraceptive methods than women (Toure, 1996). Moreover, it is now widely accepted that instead of men being considered as a barrier to contraceptive adoption, it is the lack of communication between husband and wife that explains most women's reluctance (Salway, 1995; Ezeh, 1993). Among innovators in this study, there is evidence that most women who decided to use modern contraceptive methods benefited from the support of their partners. For some women, their partners simply agreed that they could use contraception with little or no further participation. But there are many other cases where the support is described as active, meaning discussions and participation in the process including taking the woman to the clinic and paying for the contraceptives. Inevitably, some women perceived their partner's attitude as negative. For all these women, the desire to stop childbearing is strong enough to outweigh opposition from partners. To a few of them, it resulted in secret use of modern contraception. But to the majority, even when the partner clearly expressed disagreement, his opinion was bypassed openly. Ironically, there are also a few cases where opposition to contraceptive practice came from the woman despite suggestions by the husband.

> *"I decided to do family planning by myself. Then I went on to discuss it with my husband and he said he did not want me to use it ...that sometimes it does not do good to people. But me I told him that's what I wanted and I chose to go for it... since I am the one who pays for it anyway."* [Subject 6; current user (Norplant), aged 30 with primary education]

> *"My husband wanted me to get inserted the IUD or start the injections... he said we would be more free. Me I said I did not want to. After many attempts, he realized that he was wasting his time. For me, I only want to count my days... and use condoms if necessary... these medicines are too dangerous for our health."* [Subject 32; ever

user(condom, rhythm, withdrawal), aged 38 with higher education]

These observations indicate that within the group of pioneer women, there is usually good communication between husband and wife regarding reproductive goals[9]. But more important, it appears that the woman's attitude and her desire to use or not to use modern contraceptive methods is a determining factor in subsequent adoption of a modern method.

Transitional women

The main characteristic of transitional women in this study is that they expressed a desire for small family size even though the number of children they currently have indicates otherwise. Though some of these women have been educated up to the level of secondary school, the overwhelming majority have only primary school education and many of them have no education at all. To understand the discrepancies between expressed fertility desires and actual behaviour, women were prompted in the course of the discussions for the reasons why they continue to bear children. For transitional women, the data suggest three main reasons.

In the first instance, women put the blame for having "too" many children on their desire to have a son. Indeed, in the traditional *Fon* society as in most others, the desire for male heirs is strong. Usually, it is the man and his family who will exert direct or indirect pressures for continuation of childbearing until the couple has at least one or two boys[10]. As a general observation, preference for either sex by couples was rare in this study and this probably indicates an ongoing change in traditional values. However, as a reason for having more children, it was relatively common. For Leonie who already decided she wanted no more children, the situation was untenable. After a long wait of almost seven years, she decided to try again. Maybe this time she might have a son.

---

[9]Even though they do not always agree on these goals.

[10]But traditionally, women also benefit from having sons and, in polygynous marriages, not only does it bring prestige to be the mother of the first son of one's husband but having at least one male heir also ensures that one has access to the inheritance.

Unfortunately, it turned out to be a daughter, not the son she expected. In explaining why she resumed childbearing after so many years of "inactivity", she said the following.

> Moderator: *So, why did you wait for seven years after the third child?*
>
> Respondent: *I did not want to have it even. I wanted two children; one boy and one girl; but now, I have five daughters... and still not even one boy. For all this time, I have lived in the fear that he [husband] might go and have it [son] with another woman; but in any case I have now finished with childbearing.* [Subject 33; ever user (rhythm), aged 30 with primary education]

The same condition was portrayed by Odette who already had four children (including one boy), at the age of 29, but in this case, the pressure came from the husband.

> *"If it was up to myself I would say I have finished with children but my husband says he wants another boy."* [Subject 20; ever user (pills, IUD), aged 29 with secondary education].

The second indication for having a number of children that is greater than actually desired is the subsequent remarriage by women who have been in a previous union because women who remarry are expected to bear children for their new partner if the relationship is to be considered sincere. For many women with little financial autonomy, the security of marriage and the social recognition are definite advantages of having other children. For Alberte, mother of five, her first three children belong to her first marriage.

> *"My first [three] children are from my previous husband and I thought that was the end of it. But when I met this one, I realized that it wouldn't last unless we had children together."* [Subject 29; ever user (pills), aged 37 with no education]

Marie-Laure, a mother of three, would prefer not to have anymore; but apparently, she will not do anything to prevent a pregnancy for the sake of their relationship.

> *"My current partner is not the father of my three children and he would like me to have some for him. But for me, if I have OK... otherwise, I do not mind very much."* [Subject 26; ever user (IUD), aged 29 with secondary education

The lack of knowledge of appropriate means for fertility control has also been cited as a reason why some women have failed to stop childbearing once they have reached their desired family size. Obviously, this was more common among older women and it reflects the fact that contraceptive awareness and availability were both very low in Benin not long ago. However, there were also a few cases of very young mothers who said they did not do anything to stop childbearing because they did not know what to do. For Melanie, two children at the age of 22 are already a burden. The rhythm method has often failed with her and she could not avoid the third pregnancy for lack of awareness of modern fertility control.

> *"That pregnancy was a total surprise to me because I had already decided not to have anymore children; I already had two kids; one boy and one girl and I thought it was enough. But I did not use any method because I did not know what to do..."* [Subject 52; ever used (rhythm), aged 22 with primary education]

The adoption of modern contraception

Experience of the rhythm method was relatively uncommon among transitional women and, for the minority who attempted it, they quickly realized that they could not use it consistently. This is hardly surprising since most of them have little formal education. But even for those with secondary education, the rhythm method can fail. The anxieties and difficulties that result from an unwanted pregnancy and, most important, the abortion which they often resort to, led many of them to adopt a modern method. *"Maman Remy*[11]*"*, mother of five, explains.

> *"At that time, I was using only periodic abstinence. But it failed twice and I had to go for curettage. It is after these two curettages that I decided not to use that method anymore. Then I got the twins and thereafter my last son. Now I have had the Norplant inserted for two years"*[Subject 10; current user (Norplant), aged 36 with secondary education]

To most transitional women who did not know about the rhythm method but who adopted modern

[11] It is considered polite and more friendly to call women by maman (mother), followed by the name of their first born. Thus, maman Remy locally would mean Remy's mother.

contraception, they did so primarily for spacing purposes. With no exception, none of these women adopted a method to stop childbearing. It could be said that for them, modern contraception was adopted for the first time with the intention of achieving traditional long birth intervals.

> *"It was when one of my friends got an IUD inserted... at the time of my son. She told me about it and I decided to have one inserted myself to avoid having a kpɛ. I used it for about three years."* [Subject 26; ever user (IUD), aged37 with primary education]

> *"I used the pills for sometime... because when I weaned the twins, they were one and a half years and I did not want to have a kpɛ. That's why I decided to use the pill... I found it very good because when I decided to get pregnant again I stopped and I got pregnant."* [Subject 25; ever user (pills), aged 32 with secondary education]

In a few cases, health concerns prompted for even longer birth intervals than would be expected from traditional patterns, as was the case for Floriane below.

> *"My husband decided I should use it because I have sickle cell anaemia and between two births I was advised to wait for at least three or four years. This helps me recover from the tiredness of child bearing."* [Subject 20; ever user (pills, IUD), aged 29 with secondary education]

<u>Commitment to use, switching and discontinuation.</u>

As already discussed, initial adoption of contraception among transitional women is, in most cases, for spacing purposes. As a result, one would expect a pattern of use with short time spans which correspond to the periods when women want to avoid a pregnancy (Bledsoe et al., 1994). Though this is the case for the majority of transitional women who adopted western contraception in this study, it is also clear that most women used modern contraception for a shorter time span than intended in the first place. The main reason cited for stopping the use of contraception was the experience of unexpected side effects. There have been few cases of switching to different methods when side effects occur. But as a general pattern, women simply avoid going back to the clinic and stop taking their pills or the injection. Even for those who had an IUD inserted, some reported that they went to a different clinic to have it removed. Many of these women find it difficult to return to

the same method and even long after the experience, the stigma of the side effect remains attached to the method.

> *"I bought the pills once but I did not finish the pack because it was not good for me. That is almost ten years now but I am sure the headaches that I had at that time were due to the pills I was taking."* [Subject 29;ever user (pills), aged 37 with no education]

Transitional women are also likely to stop their method for side effect when they can link rumours and myths to their personal experience or that of close relatives. Moreover, there were cases where the method chosen depended not on the information that was actually given to the woman by services providers but, rather, on the user's own perception of the method, based on the rumours she was exposed to before she decided to use a modern method of contraception. These considerations are clearly summarised in the declarations of "*Maman Remy*".

> *"I didn't choose to use the IUD because I was told that some people use it and they get pregnant.. then the baby would come out with it in his hand. In addition to that, I know my sister-in-law had the IUD inserted some time ago; and she used to complain all the time of abdominal pain and loss of blood ...for the injection, you need to be at the hospital every two or three months and this is too constraining. The pill causes even more constraints; you have to remember every day to take it. I used kofi gbakun once; but I didn't like it because I feared I might break and I would have what [a pregnancy] I did not want. That is why I decided to go for the Norplant."*[Subject 10; current user (Norplant), aged 36 sith secondary education].

Traditional women

Women classified as traditional all have numbers of children that are in agreement with their continued demand for high fertility. The distinctive characteristic of traditional women that shows up in the qualitative data is old age. Only one of these women is less than 35 years of age. In addition, they all have little or no education at all. In a sense, they would represent the average woman in some more or less distant past. Although they all wanted to have many children, half of the traditional women clearly expressed the desire to stop childbearing at the time of the interviews while the other half remained undecided. Not surprisingly, the "late stoppers" were all older than the

"undecided", with a minimum of 42 years of age. One of the main reasons for stopping childbearing was economic hardship. Apparently, these older women bear almost all the responsibilities of raising and caring for their children, with little financial support from the husband. It is therefore a rational decision that these women decide to stop childbearing, as described by Hoonɔn and fellow respondents[12].

> *"... my husband still wants me to give birth afer I've given him 8 children. When he says it I ask him what he would do if I get pregnant again. The expenses are just too much. We use one litre of kerosene every day; five measures of corn and CFA300 to grind it; sometimes, he would provide for the corn but nothing else; how am I going to continue caring for all these children?"* [Subject 53; current user (injection), aged 45 with no education]
>
> *"I am still fecund but want no more children... my husband is a retired man and has no more resources. I have to support him."* [Subject 48; never used, aged 42 with no education]

There are also cases where the economic reasons appear only as an addition to health and delivery problems. Contrary to innovators, these women believe that their difficulties at delivery are an indication of advanced age. Often, they compare their last childbearing experience with previous ones. Similar beliefs have been described by Bledsoe and her colleagues for rural Gambian women in their body-resources framework[13] (Bledsoe, Banja and Hill, 1998).

> *" I suffered a lot during this pregnancy. I never suffered like that for any of my other children. It means I am getting old and it is time to stop."* [Subject 15; ever user (pills, condoms), aged 42 with no education]
>
> *"... for these children, they did not develop well in the womb and I got terribly sick. I nearly died during that pregnancy and when I delivered I decided not to have any more children... because my womb is now too tired."* [Subject 21; ever user (pills, injections), aged 42 with primary education]

---

[12]In the traditional context, most of these women who have reached grand-maternal status would have stopped childbearing mainly through terminal abstinence.

[13]The body-resources framework proposed by these authors in the Gambian context suggests that a woman's reproductive potential is a finite bodily capacity that can be exhausted, sometimes well before menopause. In this context, it is not the number of deliveries that counts but all lost pregnancies whatever the age. In a specific relation to the present findings, the body-resources framework argues that women's exhaustion can be expressed through various means such as fatigue of childbearing, old womb, difficulties at delivery, etc...

Contraceptive adoption and practice

Contrary to what would be expected, the experience of modern contraception is relatively common among traditional women. Although initial adoption is almost always for spacing purposes, subsequent use for stopping purposes was also described by more than half of these women. Not surprisingly, they know little about the rhythm method and only one of them ever practised it successfully.

For spacers who would use modern contraception only for a short time span anyway, commitment to use is often weak in the face of side effects. But for stoppers, it depends on the conditions within which the woman decided to cease reproduction in the first place. For Nagan, the only case of sterilization in the whole study, the desire to stop childbearing was so strong that she accepted to be sterilized. Unfortunately, the first attempt resulted in a failure and even then, she accepted to start it all over again.

> *"It is the boy [7th child] I wanted to consider as my last [child] and I even gave him the name of Benjamin[14]; the midwives said they could turn my womb around so that I would never give birth again and I accepted. But even after they did it, I got pregnant... and when I delivered, another doctor had to do it all over. This time, he told me it should be all right. I just hope he's done it properly."* [Subject 13; sterilized, aged 44 with no education]

On the contrary Alexandrine, who was prescribed injectable contraceptives for birth limitation, stopped using because of their side effects.

> *"I nearly died during that pregnancy and when I delivered I said I will not have any more children... I went to the family planning clinic and started injections... but it made me sick with dizziness and headaches. That's why I decided to stop."* [Subject 21; ever user (pills, injections), aged 42 with primary education]

---

[14] In Benin which is a former French colony, Benjamin (or Benjamine if it is a girl) means the last child.

8.3.3. Barriers to contraceptive adoption and use

The stories presented in the previous sections indicate that the sources of demand for contraception include child-spacing as well as limiting purposes. But they also suggest a number of factors that inhibit women's desire for adoption and commitment to using modern contraceptive methods.

Knowledge of modern methods and its sources

The first moderating factor on contraceptive adoption is related to what women know about the methods and where they get that knowledge from. Over the past three decades, contraceptive studies in Benin as well as elsewhere in the world, have consistently found large discrepancies between knowledge of methods and actual use. However, as Bongaarts and Bruce (1995) correctly pointed out, there are different levels of knowledge and the mere mention or citing of a method is only a very loose indicator of what women know about contraceptive methods. In the present study, women's knowledge of contraception was addressed through a series of questions regarding not only the citing of methods but also the description of how they are used, the sources of supply and potential side effects. The results are presented in table 8.2.

Table 8.2. Frequency distribution of women according to the type of knowledge by use-status

Type of knowledge	Current users (N=14)	Ever users (N=22)	Never users (N=23)	Total (N=59)
Cited	14	22	20	56
Described how to use	14	20	3	37
Knows source	14	21	18	53
Side effects	14	22	20	56

Virtually all respondents of the in-depth interviews know of at least one modern method of contraception. As would be expected, almost all women who ever used a method know how to use

it, the sources of supply and some side effects of the methods cited. On the other hand, women who never used any method were mostly unable to describe their use but could cite the sources of supply. More surprisingly, they knew a lot, almost as much about the side effects as ever users. Direct inquiry into the source of information suggests that the primary source of information for most women was relatives and friends, as shown in table 8.3.

Table 8.3. Frequency distribution of primary source of information on modern contraception

Primary source of information	Frequency
Relatives (including partner)	14
Friends(school, market etc..)	30
TV/Radio	3
Health personnel	10
Total	57

The informal context in which information regarding contraception is disseminated is favourable for the spread of rumours and misbeliefs. Studies in the African setting have documented the existence of rumours and misbeliefs about contraception and their potentially negative impact on adoption, use and use-effectiveness (Nakato, 1994; DeClerque et al, 1995; Rutenberg and Watkins, 1997). As in these countries, unconfirmed messages related to modern contraceptive methods, passed on from one person to the other, are common in Benin and have also been documented throughout the present study. As a general belief, all contraceptive methods have the potential of making a woman sterile if she uses it over a long period. The most common subjective rationale behind such belief is that the woman's body would get accustomed to the contraception and, since their primary purpose is to prevent conception, even if she stops using it, she may not recover her fecundity. A typical attitude of scepticism, but which also underlines many women's perceptions of the potential long-term sterility effect of contraception was expressed by one informant, as below:

> *"...one day I was talking with some friends about family planning. During the discussion they asked me what I thought of modern contraceptive methods. I laughed and told them.. those things that people use and are unable to get pregnant afterwards."* [Subject; ever user(condom, rhythm), aged 21 with no education]

But there are also rumours that are specific to the methods. While the previous rumour suggests that women may be concerned about the health effect of modern contraceptive methods in general, method-specific rumours seems to be related to both their efficacy as well as their safety. It is believed, for example, that women using the IUD can get pregnant and thereafter the baby will be born "with the device in his hand". This belief is particularly common among women and has been cited by more than half of the respondents in this study.

> *"... they talk about a plastic thing... which you get inserted and have to check every three months. But I also heard that some people even with that, they got pregnant and when the baby came, he had the plastic thing in his hand."* [Subject 36; ever used (creams, rhythm), aged 26 with primary education]

Although common among women the myth of the baby coming with the IUD in his hand is by no means the only one in relation to IUDs. In some cases, unconfirmed rumours were even cited as the main reason for discontinuing the method, as explained by *Maman Jo* and Florence.

"...people I was talking to told me that it [the IUD] can harm the uterus and then I went and took it off. After that I started the pills." [Subject 12; current user (pills), aged 36 with secondary education].

"When I had my 4th son, I went to the hospital to have and IUD inserted; it stayed there for about one year. Then one day I was discussing with some friends and I told them that I had an IUD. They strongly advised me to have it taken out because... they said it could migrate into my womb. So, the following menses I went to the hospital to take it out. Since that time I have not used any other method. After that, I got pregnant of my child A... he is currently 12 years old." [Subject 35; ever user (IUD, rhythm), aged 40 with primary education]

Another common misbelief is in relation to the pill and the injectables which, many women think, can cause cancer in the long term. For the condom, women fear it might break during sexual intercourse or get off the penis and migrate into the womb so that one would need an operation to have it removed.

"I used the kofi gbakun one; but I did not like it because I was worried it might break... and then what I was trying to avoid [a pregnancy] would happen" [subject 40; current user (Norplant), aged 36 with secondary eucation].

"I stopped taking the injections because I heard it gives cancer in the long run. That's why I would not recommend it to others."[Subject 22; ever user (pills, injections), aged 42 with secondary education].

Side effects and their management

Contraceptive methods often have some side effects, most of which disappear within a few weeks, if dealt with properly (Huezo and Carignan, 1997). The experience of side effects such as weight gain, dizziness or prolonged bleeding by contraceptive users is therefore not totally unexpected. However, it appears from women's accounts that most of them are not aware that the potential side effects of their methods are temporary and this has led many of them to stop their contraception. As was typically the case for both Huguette and Hoonɔn, they were not told that they could have lower abdominal pain (for Huguette), weight gain and spotting (for Hoonɔn).

Rutenberg and Watkins (1997), have documented that in Kenya, contraceptive users often talk to each other about their fears and experiences of side effects. In the present study, there are numerous instances where women said they discussed their contraceptive practices with their peers. In many of these cases, the discovery that other women were having similar problems to their own led to the abandonment of the method.

"When I started the injections, I told a friend of mine and she also adopted the method. But she had the same problems as myself [headaches and extended bleeding]; they even changed her method to the pills but it did not work...in the end she stopped using it... that's why I also stopped using." [Subject 30; ever user (injections), aged 32 with secondary education]

"I tried to get some information from friends and relatives... some said they used the pills and injections with no problem... others who used it sometimes did not have their menses or have it twice a month. So I concluded that it would depend on one's body. For me, it was not good." [Subject 25; ever user (pills), aged 32 with secondary education]

While there is no doubt that most discontinuations in this study are due to side effects, there are also suggestions that women who never used modern contraceptive methods often resist adoption for fear of side effects and complications. Obviously, in the context of low prevalence of contraceptive use, women would have few encounters with satisfied users. In these conditions, negative experiences are likely to have a greater impact on potential acceptors. In a society where even unconfirmed information is easily passed on from one person to the other, such negative experiences are also likely to be amplified. This is the most plausible explanation to the high proportion of non-users who are able to cite many side effects of modern contraceptive methods.

The data suggest that women need to be reassured about the potential side effects of modern contraception. This is the case of many women who clearly have unmet needs, are willing to use but still very concerned about the potential health implications. Even when they appear reluctant in the first place, further probing often reveals that women have a secret desire, at least to try the methods. But they seem to have learnt so much about the negative effects that they prefer to resist use. The following excerpt is revealing about one woman's opposition to contraceptive use while she was discussing the methods she used to space her five children evenly.

Moderator: ...but then how do you manage to have such regular intervals in-between your children?
Respondent: I count days... and it works for me. For the last pregnancy, it was because we wanted a son. But since we did not succeed we are stopping; and since I know how to count days and my periods are regular, that's what I am going to do.
Moderator: How did you learn to count days?
Respondent: My husband does it. He is the one who counts and taught me how to do it. I always tell him when I have my menses.
Moderator: so you will not use modern contraception.
Respondent: never, you put on weight and you bleed; I know of a friend who used it. She's put so much weight on now. Myself I do not want that... I would like to go to the hospital but I heard people have so many problems with these things.
[Subject 33; ever user (rhythm), aged 30 with primary education]

To a large extent, the success of a family planning programme is the reflexion of the credibility of the methods it provides. But the credibility of a contraceptive method lies not only in its ability to protect from unwanted pregnancies but, more important, in its safety, that is whether or not it could present some unexpected side effects or complications. Given the central importance of the informal

context in which much of women's knowledge of contraception is acquired, the credibility of the national family planning services depends on the satisfaction it would provide to early adopters of contraceptive methods. As in other countries, the adequate management of side effects and the appropriateness of the information given to adopters is certainly one of the keys to successful expansion of family planning services in Benin. A current user who discovered modern contraception in Cotonou while on a visit to her husband clearly expressed this.

> *"If I use it and if I am satisfied with it [no pregnancy, no side effects], then I will tell my friends who are in the same condition as myself to use it... or those who have so many children they can't care for... because back there in our village, there are so many women who continue childbearing even after seven kids, without caring for them..."*[Subject 8; current user(IUD), aged 32 with no education].

The providers

Though the main focus of this study was on women's experience of contraception, their stories underline some major weaknesses in the provision of services. It is obvious from the previous discussions that there is a lack of information as revealed by women's attitude to side effects. In addition, the data suggest that the range of services that are proposed to women is limited. For example, only one woman knew about female sterilization and none of them seemed to be aware of the existence of male sterilization. The inadequacy of the services that are currently offered is further reinforced by the discrepancies between women's reproductive goals and the methods they are offered. For example, there were many cases such as Hoonɔn, with clear intentions to stop childbearing but who were prescribed pills or injections. These findings are in line with an earlier situation analysis of family planning services in Benin which found that injectables were recommended to more than 50% of family planning clients whose objectives were to cease childbearing. Most paradoxically, 63% of women with spacing purposes were recommended the IUD (Benin, 1994b). It can be argued that these observations are the reflexion of provider biases in the presentation of contraceptive methods or their prescription. But they also suggest the lack of uniform and updated guidelines for service provision.

Over the past decade, there has been growing concern about how medical barriers and provider

biases can affect the utilization of family planning services (Barry, 1996; Rees, 1994; Cottingham and Mehta, 1993; Shelton, Angle and Jacobstein, 1992). Women's stories in the previous sections also provide evidence of the existence of medical barriers to access to contraceptive methods in Benin. The existence of overly restrictive eligibility criteria with respect to age and parity, inappropriate contraindications and limitation of the types of health care provider authorized to dispense various types of contraception were documented[15]. These are indications of lack of adequate information among programme officials and failure to recognize outdated or erroneous information. It is therefore not surprising that rumours and misinformation, on the long term cancer risks of the pill and injectables for example, still persist.

8.4. Summary

The aim of this chapter is to describe patterns of women's attitudes and contraceptive experiences, the sources of demand for contraception and barriers to adoption and practice using a qualitative approach. The data revealed that both child-spacing and limiting purposes are important sources of the demand for contraceptive methods.

As regards the use of modern contraception, the data revealed clear differences in reproductive strategies and abilities among the three main categories of women. Demographic innovators are actively taking steps to achieve their desired numbers of children, using mainly the rhythm method, but also modern contraceptive methods when necessary, irrespective of their partners' attitude. These trend-setters expressed some autonomy of decision but their stories also suggest the existence of discussions between husband and wife in relation to childbearing. Transitional women, those with small family size ideas but still high fertility, appear irresolute and less autonomous in their decision power. Even after deciding to use modern contraceptive methods, they may still vacillate because of the fear of side effects. Traditional women, with their persistent desire for high fertility, have the distinctive characteristic of being the older and least educated women. Though initial use of contraception by these women is for spacing, many of them were using contraception at the time

[15] In several instances, respondents cited one famous Benin Gynecologist as the source of their information.

of the study with the aim of stopping conception. In this case modern contraceptive methods seem to be replacing the traditional terminal abstinence.

Barriers to adoption of modern methods of contraception include poor knowledge by women, the persistence of rumours and misbeliefs, the widespread expression of fears of side effects and other health concerns, but also the existence of provider biases with respect to both presentation and prescription of methods and medical barriers. Although not specifically addressed in the present study, the data also suggest that the quality of family planning services may be poor, especially with respect to the range of methods offered, to counselling and to the management of side effects and complications. These results suggest that:

. family planning clients should be given methods that are compatible with their reproductive goals. More specifically, the range of methods offered to family planning clients needs to be extended to include irreversible methods such as male and female sterilization to those who need them

. women need to be given adequate information during their first encounter with the services, with regards to both the use of different methods and their potential side effects as well as how to manage them when they occur.

Chapter 9

Discussions and conclusions: lessons from the quantitative and qualitative data

9.1. Introduction

Benin is one of the least developed countries of West Africa, ranking very low according to the United Nation's Human Development Index (UNDP, 1998). Infant mortality, though declining, remains among the highest in the region. Compared to other Sub-Saharan African countries where fertility transition is clearly underway, far fewer women have any formal education. By African standards, the prevalence of use of modern contraception is low, even in urban areas. It would have been hardly surprising, in these conditions, to observe similar behaviour to that of rural Gambian women: modern contraceptive methods being adapted to achieve traditional goals of long birth intervals, with no fertility decline likely to occur in the foreseeable future (Bledsoe et al., 1994). Yet, there is clear evidence from quantitative and qualitative data that a fertility transition is underway, as the result of an emerging pattern of birth limitation and continued desire for traditional long birth intervals. So far, quantitative and qualitative approaches have been used separately to provide partial answers to the main research questions. This chapter draws on both types of data to analyse the changing demographic environment in Benin. First, the current trends in fertility and its proximate determinants are discussed . The main focus of this section is to review the evidence of fertility decline in Benin, with an emphasis on its patterns (how it is happening and what its particularities are). The second section analyses the reasons why such changes are taking place, with reference to the main theoretical interpretations of fertility change (i.e. structuralists vs. diffusionists), and how these might be useful in understanding the Benin transition. Finally, the policy implications of the findings are examined, followed by the limitations of the study and further research topics.

9.2. The mechanisms of change: how is fertility declining in Benin?

Estimates derived from the Benin WFS (1982) and the Benin DHS (1996) suggest that current fertility has started to decline. Moreover, in-depth evaluation of birth histories from the two data sets

using different techniques has shown that a genuine transition towards lower fertility is underway. It could be said that the absolute change in fertility (.7 child per woman) is relatively small and that the pace of decline is slow given the time span between the two surveys. However, the data provide evidence that the onset of a nationwide decline is relatively recent and that it has initiated at a faster speed than would otherwise be predicted. The decline of fertility is particularly concentrated among younger women but a significant change is also observed among women who have reached the end of their reproductive years. While part of this decline may be due to some women postponing their births, this is by no means the dominant pattern. Analyses of the family formation process using a truncation approach from indices similar to the parity progression ratios provide a powerful means for detecting the existence of parity-specific family size limitation behaviours. Changes in the patterns of transition to high order births are well established and the adoption of smaller families is underway, expanding from older to younger cohorts. From the qualitative as well as quantitative data, it is clear that there is a trend towards a desire for smaller families in Benin. In particular, the qualitative material reported local practices such as songs which may indicate that the observed changes are well accepted among the local population. These findings are compatible with other studies which suggest the start of a wider regional transition to lower fertility in Sub-Saharan Africa, including many countries in West Africa (Cohen, 1998; Gould and Brown, 1996).

Transition theorists have forecast a fertility decline in Africa that would be driven by a rise in the age at entry into parenthood and massive adoption of modern contraception (Caldwell, Orubuloye and Caldwell, 1992; Cohen, 1993; 1998). The Benin experience presents a different pattern. The examination of the mechanisms through which lower fertility has been delivered reveals that neither childbearing age, nor modern contraceptive use have changed significantly to account for the observed decline on their own. Regarding changes in marriage patterns, comparison of singulate mean age at marriage between 1982 and 1996 suggests that age at first marriage has risen by more than one and a half years, in urban as well as rural areas between the two surveys. In spite of the change in marriage age, early childbearing (as determined by the young age at first birth), remains a feature of the demography of Benin that has hardly changed. Comparable findings are reported in the literature in terms of an increase in pre-marital childbirth in Africa (Meekers, 1993). This

provides additional support to studies which suggest that, in Africa, sexual activity rather than marriage per se, is a better indicator of exposure to the risk of conception (Stover, 1998).

A distinctive feature of the Benin fertility transition is how the rhythm method and induced abortion are playing an important role in the process of fertility regulation. Unlike other African countries where fertility is declining, there has been only a very small increase in the prevalence of use of modern contraception between 1982 and 1996 in Benin. The overall prevalence of use of contraceptive methods in 1996 (16.4%) is dominated by the rhythm method, a method that is commonly classified as "traditional", but which is associated with high education, a usual characteristic of modern women. The importance of the rhythm method is highlighted by findings from chapters 6 and 8 in relation to contraception and demographic innovation in Benin. The exploration of contraceptive use by pioneer women provides important clues as to how women may be achieving their small family size intentions. It reveals that in urban areas where the transition is more advanced, demographic innovation is associated with ever use of the rhythm method while transitional women, those with small family ideas but who still present high fertility, are more likely to have ever used modern methods. The explanation for the use of the rhythm method by pioneer women in Benin is provided by two main reasons. First, they are more educated and have greater knowledge of contraceptive methods. In particular, they have a correct knowledge of the ovulatory period and can use the rhythm method for family control with some degree of effectiveness. Second, they have concerns over the potential risks associated with modern contraceptives. These health concerns are even more widespread and exist among transitional and traditional women as well. The findings indicate that side effects such as bleeding, headache and weight gain, often considered as minor in the clinical sense, are important to women and affect a large proportion of users.

As a general pattern in the whole population, rumours and misinformation about modern contraceptives are very powerful deterrents for the uptake of modern contraception. Findings of this study show that friends and relatives are a key channel for the transmission of myths and misbeliefs about modern contraceptive methods. This negative "propaganda" has detrimental effects on the adoption of modern contraception and even more so in a context where the official position about

birth control has long been ambivalent and where information about modern contraception has been scanty[1]. The existence of traditional beliefs in relation to the physiological basis of modern contraceptive methods have also been reported in an intervention study in Benin by Gandaho (1993). In this study conducted in a rural area of southern Benin, Gandaho (1993) found that both men and women reported fears of sterility from pills and injectables, feeling of burning from the use of spermicides and foams and bursting and loss of condoms inside women's bodies. These misconceptions are corroborated in Nag's comment:

> "*In less developed countries, there are widespread perceptions and beliefs about the potential health hazards resulting from the use of modern contraceptive methods, based on ethnic concepts of physiology. They often constitute important reasons for non-use of contraception.*" (Nag, 1986:p44).

A number of other studies also found similar results in Africa and elsewhere. For example, Bongaarts and Bruce (1995), using data from 12 DHS surveys conducted in Africa, Asia and Latin America observed that, on average, health concerns reduce the prevalence of use of the pill by 71 percent and that of the IUD by 86 percent. The low prevalence of modern contraception in Benin persists even though the majority of women are able to cite many of these methods. This underlines the fact that general awareness of contraception often hides the lack of the type of information (i.e. how the methods work and how to deal with side effects and complications) that would alleviate women's fears and anxieties and facilitate their decision to adopt and use these methods. The same conclusions have been drawn by Rutenberg et al.(1991) and other studies which suggested that poor knowledge about proper use, and about risks and benefits, and beliefs in rumours account for a large proportion of resistance to use, especially in low prevalence countries (Bruce, 1990; Bongaarts and Bruce, 1995). The findings of the qualitative study are valuable in explaining why so many women, and particularly the more educated, resort to the rhythm method, contrary to expectations.

---

[1] For example, a newspaper article published in 1994 was entitled "Stérilet = stérilité". In a country where access to quality information is limited, such publications are likely to affect the confidence of the small minority of early adopters of modern contraception. Indeed, this very article has not been without consequences. In the maternity hospital of CUGO, staff in the family planning unit reported that there were at least four cases of women who came to get their IUD removed following the publication.

It is possible that women in urban areas may be using traditional methods (i.e. rhythm and withdrawal) more efficiently than would be otherwise expected, especially because the rhythm method is being used by more educated women. Still, there are also indications from qualitative and quantitative data that many of these women who relied on rhythm or withdrawal have experienced, in the past, contraceptive failure which resulted in induced abortion. Indeed, the sensitive nature of induced abortion has made it difficult to collect reliable quantitative data on the subject in most developing countries and, even where some data existed, some authors have expressed doubts over the potential fertility effects of induced abortion in Sub-Saharan Africa (Frank, 1987). Hospital studies in Benin and elsewhere in the African region have revealed that induced abortion is a major reproductive health problem but it is also considered as a fertility regulation method (Alihonou, Goufodji and Capo-chichi, 1996; Konate et al., 1998; Rogo, 1993). In a study of 27 countries about the reasons why women have induced abortion, Bankole, Singh and Hass (1998) found that postponing and stopping births are the most commonly cited causes and that older and married women are more likely to identify limiting childbearing as their main reason for abortion. Furthermore, the study identified no association between women's education and their main reason for seeking an abortion. The findings of this thesis point in the same direction. As in other African settings, the existence of beliefs which make abortion an alternative that is more acceptable than modern contraception in the first place have been documented. The study findings are also in agreement with previous suggestions by Bongaarts (1997) that unwanted fertility and abortion tend to rise at the early stages of transition in the absence of strong family planning programmes. In Benin, the fact that women still desire long birth intervals but use little contraception further supports the plausibility of greater resort to induced abortion, especially in an urban area where traditional practices of post-partum abstinence are eroding rapidly.

The investigation of women's motivation for contraceptive use reveals a highly dynamic process. In the majority of cases, initial use of contraception is for spacing purposes, a finding that is compatible with other studies, particularly those of the DHS programme (Cohen, 1998). The study found that whatever the motivations, modern contraception was usually not the first choice for women, particularly those who knew about the rhythm method. Among pioneer women, the majority

of those who turn to modern contraception have either experienced failure with traditional methods (with subsequent abortion) or fear that it might be so. In other words, the rhythm method appears to be the best alternative for pioneer women in the context of a very weak family planning programme. The adoption of western methods of contraception by transitional women seems to reflect primarily their recognition that they achieved a "large enough" family. In short, it is an indication of late adoption and, apparently, it seems most of these women have no other viable alternative. This conforms to the existence of the belief, among these women, that western contraceptives are dangerous and should be used only when the desired fertility have been completed.

9.3. The determinants of change: why is fertility declining in Benin?

Even if there is evidence that sustained fertility transition is underway in Benin, the driving forces behind the decline remain to be understood. Explaining changing fertility levels in Benin requires the exploration of different dimensions. More specifically, it is necessary to discern the particular combination of social, political and economic forces that have combined to launch the country into transition (Cohen and Montgomery, 1998). This section examines the role of mortality changes, the economic crisis and the importance of ideational diffusion.

9.3.1. The impact of mortality decline: perceptions, child cost and control decisions

Countries in the forefront of the African transition to lower fertility have shown low infant and childhood mortality. In Benin, levels of infant mortality remain among the highest in the region. However, there is little doubt that infant and child mortality have declined dramatically over the past two to three decades, mainly as a result of sustained efforts towards high coverage of children by childhood immunization programs, increased awareness and control of diarrhoeal and acute respiratory diseases. Between 1982 and 1996 the mean number of surviving children to women aged 45-49 has increased by more than one child, from 4.3 to 5.4. The examination of fertility preferences also shows that a consistent reduction of more than one and a half children in the mean ideal family size has occurred between 1982 and 1996. These findings seem in agreement with the child

replacement hypothesis observed in the African context by Kuate Defo (1998) using data from Cameroon. The qualitative data suggest that perception of a greater survival chance for children is improving as indicated by the following, one of many quotes on this issue.

> *"Before, when you have children, you needed to account for disease and witchcraft. You could not know in advance how many of them will not survive to become adults... over the past decade, there has been less and less children dying, especially from azon vovo [measles]. So why do you want me to have more? So that they will start begging in the streets as is so common these days?"* [Respondent 1, group 10; men, literate]

In Costa Rica, Rosero-Bixby and Casterline (1994) found that it was not the perception of lower mortality that drove women to desire smaller families. One of the reasons which they thought important was the perception by women of "... *the burden of helping their mothers to rear large families.*" (Rosero-Bixby, 1998: p406). For Benin, there are no direct indications from the quantitative data on how the balance between child costs and benefits are being perceived. However, the qualitative data revealed that in Cotonou both men and women are increasingly concerned with the number of children they should have. The erosion of the traditional systems of solidarity has been pointed out in many discussions. This increase in individualism and the copying of western behaviours by literate as well as illiterate couples certainly indicate that traditional kin obligations may no longer be strong enough to sustain the demand (or the desire) for high fertility.

It is difficult to infer from the data at hand that there has been a modification in the relative cost of different mechanisms of control, for example pre-natal birth control as opposed to post-natal controls. Child fostering, one of the most prominent means of post-natal control in Sub-Saharan Africa was a widespread practice in Benin. There is reliable external information which suggests, however, that this may be changing in recent years. There is now a shift towards an exploitative, child-labour phenomenon where rural or poor parents would place their children (almost exclusively

girls), not with relatives as used to be the case, but with wealthier couples in urban areas[2] to work as servants. This practice known as "Vidomegon" has gained increasing attention in the last decade following studies by Comlan (1987) and the local UNICEF office (Benin and Unicef, 1994). A corresponding phenomenon is also observed for boys. But unlike girls, these boys are the "street children", left on their own to find their way without support from adults. At present, there are Government initiatives the objectives of which are to limit or at least to "humanize" the practice (Gnanvi, 1999). It is therefore plausible that the rise in child survival and the reduction in opportunities for spreading the cost of child-rearing may have increased the burden of childcare on women, creating a latent demand for fertility control. The adoption and enforcement of laws protecting children might have greater impact on the process of childbearing decisions by women.

9.3.2. The contribution of the economic crisis

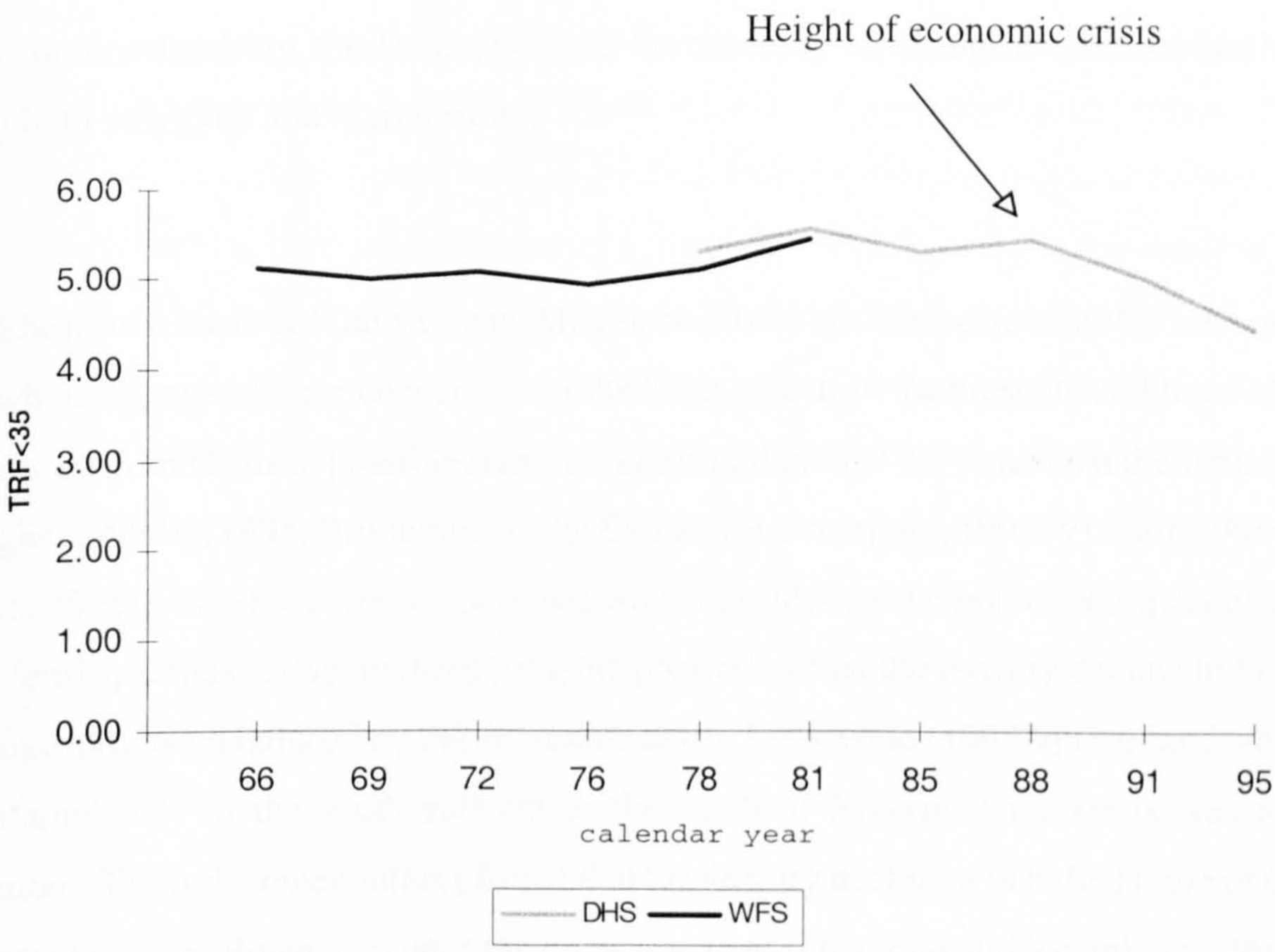
At the beginning of the 1990s, there were sustained discussions in relation to the possible effects of economic reversals on mortality and fertility trends in Africa. However, the evidence suggests that the particular fertility response of a country to economic hardship may be hardly predictable (National Research Council, 1993). In their study of fertility transition in Ekiti district, Caldwell et al. (1992) suggested that an important player in the onset of fertility decline in the region has been the dramatic economic crisis which Nigeria has been through in the past fifteen years. There are also similarities to this process in Benin. While there is clear evidence that the most urban and educated sub-groups of the population initiated their fertility transition much earlier, the main cause of the sudden change in fertility ideals for less educated couples, appears to be economic hardship as revealed by data from chapters 7 and 8. It is undeniable that the economic crisis of the 1980s and its related massive structural adjustment programmes, together with the devaluation of the CFA, have had profound effects on living conditions of the individual woman in Benin. The subsequent increase in the cost of living has certainly not been compensated by the macro-level improvement in the country's economic performance. The crisis followed a period of rising aspirations in living

---

[2] It has been documented that more than 100,000 children, most of whom are girls aged 6-12 years were placed in 1994 as Vidomegon, almost 25% of which are in foreign countries (Nigeria and Gabon being the most popular destinations)

standards and returns from children, brought about by the ideas of "the country where life would be easy for everyone". In local terms, "*le pays où il fera bon vivre pour chacun et pour tous*" was the promise of the military communist government which seized power at the beginning of the1970s[3]. It is tempting therefore to fit the ongoing changes into the picture of a crisis-led transition as described by Boserup (1985). Illustration of the plausibility of the crisis-led transition hypothesis is presented in figure 9.1, where the trends in fertility cumulated up to 35 years of age are graphed against calendar years. Fertility has remained virtually constant since the sixties through to the mid-eighties, with a slight increase in the late seventies. It is significant that the irreversible downturn of fertility levels occurred at the height of the economic crisis.

Figure 9.1. Trends in fertility cumulated up to age 35 in Benin (1966-1996)



[3] It is also worth noting that this period corresponds to the "booming years" of Benin's socialist economy, with the creation of tens of thousands of jobs and tens of Government enterprises (les elephants blancs), most of which survived less than five years

Indeed, it could be argued that the Benin crisis was relatively mild and short-lived as compared to other countries such as Ghana or even Nigeria. Yet it is the massive consequences of that mild crisis that makes it a unique feature of Benin because its political and social implications have been unprecedented in Africa. This "brief and innocent" downturn of the economy has created a national consensus to overthrow[4] a military regime in the most pacific way possible. If it has resulted in a true democratic regime in contemporary Africa, it must have been an immense social shockwave.

As important as the economic crisis was the timing of the devaluation of the regional currency, the CFA. Although they may be limited in their ability to generalize beyond the city of Cotonou, the qualitative data provide an impressive portrait of their implications on reproductive behaviours. They endlessly draw attention to the traditional mechanisms through which contemporary changes in norms are expressed and, more particularly, to local songs which clearly underlined the link between economic hardship, the devaluation and the necessity for change in attitudes and behaviour regarding both polygyny and high fertility.

The hypothesis of a crisis-led transition in African countries has been discussed by various authors, many of whom expressed some concerns over the likely effects of the present conditions of stagnant economic growth and fears of possible setbacks, or a retardation of the process, if the crisis continues (Lesthaeghe and Jolly, 1995; Orubuloye, 1995; Ekouevi and Adepoju, 1995; Vimard, 1996; Barbieri and Vallin, 1996). These are important issues when considering the potential impact of economic crises on fertility trends. Also, in discussing the possibility that the fertility decline in South-West Nigeria may have been induced by the economic crash, Lockwood (1995) questioned why fertility decline started only in the south and not in the north of Nigeria if the crisis was a national phenomenon. Similarly, other authors found that the fertility decline was halted (case of Ghana) or even reversed (case of Botswana) once the crisis was over (Diamond and Rutenberg, 1995; Locoh,

[4] "Nous avons vaincu la fatalite (we have won over fate)" were the words of Albert Tevoedjre, while he was presenting the General report of the Conference on February 10, 1990, a declaration that is directly in opposition to the "We did not call the Conference to be overthrown" of Martin Dohou Azonhiho, a member of the Government of that time a few days after the start of the conference.

1994). Furthermore, the experience of Ghana provided the basis on which Locoh (1994) warned against extrapolations to reproductive behaviours of the effects of economic crises. To date and in the majority of West African countries, the fertility response to the economic hardship, even in some rural areas, has been a change in reproductive strategies that usually resulted in modest but noticeable fertility decline (Adjamagbo, 1998). Essentially, the crisis may have only induced the perception of greater child survival and the increased burden of childcare which women report as economic hardship. Obviously, the doubling (or even tripling) of the cost of treatment of a malaria episode and increased speculations over the food price cannot go unnoticed. This is especially true in large urban cities where the traditional solidarity systems are likely not to be in place anymore and where the great majority depend on earnings provided by public services.

9.3.3. Education, urbanization and the role of diffusion

The importance of education as a key player in fertility transition has become classic. However, there have been variations in the trends in both fertility and mortality according to schooling levels. On the one hand, some earlier studies found that women with only primary education were more likely to present higher mortality and fertility than both uneducated women and those with secondary or higher education (United Nations, 1983). These findings were usually explained by the fact that women with very little education were often "quick" in abandoning the traditional practices that mitigate high fertility and mortality levels while, at the same time, not being fully equipped to adopt the necessary "modern" behaviours that are required. However, a series of more recent studies have observed a negative association between education and fertility, a small effect of primary education but a larger impact of secondary or higher education (see for example DHS findings in both Sub-Saharan Africa and elsewhere). The relationship of education to both fertility and mortality in Benin is clear as suggested by table 9.1.

Table 9.1. Infant mortality and total fertility rates by level of education (Benin, 1996)

Level of education	Infant mortality rate	Total Fertility Rate
None	108	7.0
primary	94	5.0
Secondary or higher	50	3.2
Benin	104	6.3

The analysis of the differential trends in fertility according to women's schooling level concluded in the expected direction. Women with secondary or higher education show very low fertility and infant mortality, especially in the DHS where their fertility is only slightly above 3 children per woman. But there was also a significant drop in fertility for women with primary education only who achieved the highest absolute reduction in overall fertility. This supports the idea that the fertility-reducing effect of schooling may be greatest in low-literacy high fertility groups (Castro Martín, 1995). In these conditions, the modest but sudden increase in the proportion of women with primary education can be considered as a potential factor which explains some of the observed decline.

Urban women present lower fertility compared with rural women in both surveys. Moreover, the decline in fertility levels is greater for urban women. Apparently, there has been only a slight decline in rural areas and more detailed explorations show that urban women initiated their fertility transition as early as the late seventies to the early eighties, while the transition seems to have started in rural areas only recently (i.e. in the last five years preceding the DHS). Further exploration of the effect of the changing composition of the population due to urbanization and increase in education levels suggests that the fertility decline observed between 1982 and 1996 occurred mainly within residential and educational groups. It can therefore be inferred that although fertility transition may be stronger and more advanced in urban areas and within the more educated groups, it has also started among the rural and less educated women, a finding which supports the hypothesis of a diffusion-type transition. Such patterns were also recorded during the in-depth interviews as well

as the focus groups conducted with men and women of reproductive age. In discussing changing ideals in family size, respondents invariably referred to social differences, educated women behaving more like westerners and a "copying" process being underway. It is also believed that small family ideas have already reached beyond the boundary of large cities and that even rural people now talk about the importance, in the current context, of limiting polygyny and the number of their children. On many occasions, men and women "spoke" through traditional songs, as is customary in *Fɔn* society. A male participant in the focus group discussions pointed out:

> *"... if these [ideas] have been translated into songs by traditional singers, it means that they have gained wider acceptance even to the most traditionalist people in our culture."* [Respondent 3, group 8; male, literate].

The existence of a diffusion process at the individual level has also been uncovered in this study in relation to contraceptive adoption, but this time, as an element of resistance to adoption rather than a facilitating factor. Unlike small family ideas which appear to be accepted as positive change, it is clear from the data presented in chapter 8 that interpersonal communication about modern contraceptive methods remains essentially dissuasive.

The diffusion hypothesis can also be inferred at a more global level, owing to the geographical location of Benin with respect to other countries where decline has already started. In effect, the cultural and linguistic proximity of Benin to West Nigeria is well known. The two countries share more than 1,000km of common border along which live communities that are virtually indistinguishable in terms of dialects and other cultural practices. Caldwell and his colleagues (1992) have shown that fertility transition is underway in South-West Nigeria but not in the north. It is probably no coincidence that in Benin, fertility transition is more advanced in Atlantique and Oueme, the regions closest to South West Nigeria and that in Borgou, the region closest to North-West Nigeria, little change has occurred as well. The fact that it started in a context where it was least expected gives some support to claims by Bongaarts and Watkins (1996) who suggest that ideational diffusion processes may be more powerful in the spread of transition, especially in the present era of mass communication.

This study has revealed that a combination of structuralist and diffusionist perspectives is useful in understanding fertility changes in Benin. One the one hand, changes in fertility attitudes and behaviour started with the more educated and urban sections of the population. They present, as expected, much lower mortality and are better equipped to control their fertility. On the other hand, there is evidence that other sections of the population, the least educated and rural are also entering the change process. However, even though the final objectives may be the same (reduced fertility), the reasons for it and the means through which these changes will come about may differ.

9.4. Policy and programme implications

Theories of fertility transition have forecast a contraception-driven decline in Sub-Saharan Africa that will be closely related to levels of mortality and educational achievements. As a result, conjectures over regions where fertility decline may be more plausible have consistently pointed to countries with improving family planning programmes (Caldwell, Orubuloye and Caldwell, 1992; Cohen, 1993; Caldwell and Caldwell, 1997; Kirk and Pillet, 1998). Benin has entered fertility transition despite its very low prevalence of use of modern contraception. This study provides strong evidence to anticipate an increase in the demand for fertility control and the necessity for programme efforts to meet that demand. Without consequent improvements in the provision of reproductive health services, the Benin family planning programme may become not only "a technical wonder", as already revealed by recent evaluations (Benin, 1996b; Benin 1994a) but also a "social failure". The importance of service availability and accessibility (geographical, financial and cultural) is a well-known aspect of the provision of family planning services. It is also known that there is still much to do to make services available to the majority of couples in Benin, especially in rural areas (Gandaho, 1993). These issues have been dealt with in many national as well as local studies and reports and require little further extension here. Some have or are being addressed, others not. What is less known is how whatever services are being delivered can be improved, to address the central question of providing better reproductive health services for women. A number of policy directions can be suggested, many of which have a direct link with the implementation of quality of care strategies (Bruce, 1990).

The most obvious policy recommendation from this study is the urgency for new thinking about the mission of the programme in relation to the needs of its beneficiaries. There is clear that programme efforts should address women's fears of side effects and complications and minimize the impact of rumours and misinformation on contraceptive adoption. This implies essentially training of service providers to improve both their knowledge and communication abilities, with a particular attention to screening and counselling and the use of educational materials. At present, service delivery points are attended by one person (a nurse or a midwife), which is considered responsible for providing family planning and all training activities are directed towards that single person. This is certainly inappropriate as, in many instances, other staff may be required to provide such services. The presence of even one provider with no training in the provision of family planning services may have a detrimental effect on services.

The sources of demand for contraception include both spacing and limiting purposes. It may be extremely useful to build on practices that are already widely accepted within the population. For example, it has been observed in this study that the rhythm method is very popular and, even more so among educated women. In addition, the rhythm method seems particularly well suited for couples who want to postpone their next pregnancy. Promoting its use in combination with condoms among women with some education may therefore be a useful strategy both for avoiding unwanted pregnancies and reducing fears of side effects. Similarly, because the majority of women are using contraception for spacing purposes and because many of them may be breast-feeding, the promotion of the Lactational Amenorrhoea Method (LAM) might be an attractive option since longer and fuller breast-feeding are already an accepted Government strategy. The introduction of LAM in the family planning programme requires little beyond training providers for appropriate counselling and support to women and therefore may be easy to add to the list of methods available. It would certainly be of benefit to women if family planning providers were to take a more active role in promoting breast-feeding for its contraceptive effects.

Increasing contraceptive prevalence rates, requires both a rise in the number of new acceptors and continuation rates. However, where contraceptive methods are still very much part of deliberate

strategies by women to achieve adequate spacing between successive births, it is important to differentiate between women using contraception for child spacing and those adopting because they want to stop childbearing. It is therefore essential that the methods prescribed effectively reflect women's needs. In other words, the method-mix should incorporate short and long acting, reversible as well as irreversible contraception. The idea of introducing permanent contraception such as tubal ligation and vasectomy in family planning programmes in Africa has been discussed by several authors (Bertrand et al., 1989; Chibalonza, Chirhamolekwa and Bertrand, 1989; Dwyer and Haws 1990). On the basis of the experience of the Association of Voluntary Surgical Contraception, Dwyer and Haws (1990) concluded that permanent contraception may be well accepted as a contraceptive method in African countries with the appropriate delivery system that can be attractive to service providers while at the same time reducing clients' fears. It is believed that such a position may also be applicable to the current situation of Benin. The fact that fertility decline has started in Benin implies the existence of a demand for family size limitation. Moreover, that the issue is certainly not whether permanent contraception can help to further reduce fertility in Benin but rather how to provide services that are appropriate to the needs of individual couples (or women). Many women in this study expressed the desire to stop childbearing. Some even went as far as attempting permanent contraception. But their ordeal, as they described it, is far from being a model for others to follow. If available and attractive, such services may well become a choice for younger women at lower parities in Benin once the necessary conditions regarding child mortality are met. To minimize the cost of implementing such a strategy, it may be useful to start with a limited number of maternities and expand as demand increases.

Finally, as seen in the present analyses, macro levels forces do have an impact on childbearing behaviours and cannot be overlooked. Therefore, a broader and long term perspective is required for lasting effects of any programmes that would be implemented. It is clear from the results of this study that although not a necessary precondition, education may be sufficient in its own right to induce major changes in both mortality and fertility. In this sense, one can only agree with Caldwell (1980b) when he insisted:

> *"The movement toward a global economy makes the movement toward a global society inevitable, but such social movement as the spread of mass schooling can*

> *greatly accelerate economic change at every level from the family to the nation. With these changes will come demographic change... Furthermore, the evidence suggests that the most potent force for change is the breadth of education (the proportion of the community receiving some schooling) rather than the depth (the average duration of schooling among those who have attended school)*" (p:245, 249)

This view seems particularly relevant to Benin and possibly to the African region in general.

9.5. Study limitations

Before concluding this thesis, a number of limitations of the study will be highlighted and future research identified. First, a major difficulty in this study lies in its heavy reliance on the DHS data for quantitative analyses. For example, there are issues of data quality in relation to interview fatigue because of the use of very large questionnaires. As in most retrospective surveys, the DHS also presents opportunities for problems of recall errors due to omission and displacement of vital events (Blacker, 1994). It has also been argued that as a cross-sectional survey, the DHS data does not usually take into account the dynamic nature of fertility change at the individual level, a phenomenon that is central in understanding reproductive strategies (Brown, 1997). Some of these issues have been addressed in chapters 3 and 5 and others have been discussed at length by Gould (1995) and Brown (1997). However, the most important difficulties with the use of DHS (and WFS) data, with respect to the findings of this study, relate to sample size and the scope of DHS questionnaires. While a total sample of 5491 women of reproductive age could be considered reasonably large at the national level, it has proved limited for some of the analyses that were envisaged. A clear example of this appeared during the decomposition of fertility change by type of place of residence and by level of education (chapter 4). Because the more educated women tend to live in urban areas, it would have been more informative to investigate the fertility-reduction effect of urban residence net of the effect of education. However, this was hampered by the fact that the available samples became extremely small, particularly for women with secondary or higher education who represent only a small minority of the population.

While they provide considerable data on fertility and contraceptive use, the DHS surveys have proved more limited in investigating some specific issues such as the role of induced abortion in

fertility change or the nature of fertility preferences. For example, the qualitative study and external evidence suggest that the role of induced abortion among other proximate determinants should not be underestimated. However, the quantitative data did not allow the possibility of estimating its true extent at the population level. Furthermore, there have been calls by many scholars to incorporate other proximate determinants within the framework of large scale surveys in Africa (Gould, 1995; Brown, 1997). Such suggestions seem even more justified in the face of findings that indicate the potential interest of carefully designed data collection instruments in yielding useful data on induced abortion in Africa (see for example Okonofua et al., 1998). Also, given the importance of economic factors in the onset of fertility transition, it would have been useful to examine their effects using quantitative data. However, the DHS data are limited in the collection of socio-economic variable determinants of fertility and even for those which were collected, their cross-sectional nature limits their use for such analyses.

This study has investigated changing reproductive strategies in Cotonou, the largest and most urban city of Benin not only for its convenience, but also because of time and resources constraints. It is well known, however, that Cotonou, even though it is a multi-ethnic city, is not representative of all urban areas, let alone rural Benin. Many of the conclusions of this study may therefore apply only to this region or at most to urban areas. To gain a better understanding of reproductive strategies that are being developed in other parts of Benin would require therefore a more thorough investigation of patterns of behaviours in rural areas.

For the same reasons as above, men have been left out of the in-depth interview study. This limits understanding on couple communication and contraceptive-decision making as only the woman's side of the story was available. To some extent, men's inclusion in the focus group study has corroborated most of the findings from women in the qualitative analysis but a fuller investigation would certainly have been more useful.

It has been recognized long ago that qualitative or quantitative methodologies alone are insufficient to understand demographic phenomena. In particular, it is well known that fertility decisions are the outcome of a combination of political, social and economic constraints, which are likely to be missed if only one approach is used. Until recently, the overwhelming majority of data available on

the subject remain one-sided (i.e. based on only one of the approaches). Fortunately, there are now signs that combinations of methods are being increasingly used as part of project designs with respect to major data collection efforts, in particular the DHS programme (see for example Blanc et al., 1996 and other DHS-funded studies). Such a stand is certainly useful "*to conciliate the comparative approach [of standard cross sectional surveys] with an accurate description of the specific sociological context of each society*" (Locoh, 1994:p108). This study has demonstrated that combining methods may be particularly suited to understanding the driving forces behind demographic transitions in Sub-Saharan Africa.

9.6. Final conclusions

The use of a combination of qualitative and quantitative methods permits to conclude that a genuine and irreversible fertility transition towards lower fertility is underway in Benin. The changing demographic environment in Benin shows a mixture of new reproductive patterns (such as the emergence of parity specific family size limitation) and the persistence of some traditional behaviours (such as the existence of continued desire for long birth intervals). It has been argued in this thesis that changes in childhood mortality in combination with increased women's education, though modest, have probably created a latent demand for fertility control among women; that the use of the rhythm method and induced abortion among other factors, may be some of the means through which such demand was met, particularly in urban areas, and that the economic crisis of the 1980s was the main catalyst which precipitated the onset of transition. Though the crisis has not been as severe in Benin as in other countries there are good indications that an economic recovery that would restore the pro-natalist conditions of the early independence years is highly unlikely in the foreseeable future. There is no doubt that improving reproductive health services and the availability of effective and safe contraceptive methods will accelerate the process of change that is already underway. It is urgent that programme efforts are redirected towards meeting the needs of programme beneficiaries. To improve uptake of modern contraception, a high quality and a more aggressive and marketing-type of service is required in order to overcome current barriers to contraceptive adoption.

The observed changes are compatible with the homeostasis hypothesis which suggests that improved

child survival ultimately results in lower fertility (Wilson and Airey, 1999). However, that a reversal (most probably short-term) in the downward trend in infant mortality will necessarily trigger a fertility response whereby couples would desire larger families in the current context of massive social changes seems quite implausible. Given the recent political developments in Benin where democratically-elected governments have become a reality rather than a dream, there is little prospect that the trends in infant and child mortality, educational opportunities and desire for lower fertility could reverse. At present, the main question is certainly not whether these changes will continue, but how fast and how far they will go in the coming decades.

On a more global scale, it is unlikely that Benin would be unique in the patterns of initiation of its fertility transition. However, the extent to which other West African countries would present similar patterns in their experience of demographic changes is still unclear and requires extensive investigation. These are additional challenges in the interpretation of demographic transitions. Obviously, the debate over the likely course of an African fertility transition is not over yet.

References

Adjamagbo A (1998) "Crise et changements de comportements de fécondité et de planification familiale en milieu rural Ivoirien" A paper presented at the *Séminaire International Crise, Fécondité et Planification Familiale.* CICRED & IISUNAM, Mexico 1998

Akoha J (1991) *Action Research Based In-Service Education and Training of Teachers (INSET) and English Language Teaching (ELT) Curriculum Innovation in Benin: An Experimental Study.* PhD thesis Institute of Education. University of London.

Alihonou E and Gandaho T (1992) "Family planning in Benin: knowledge, attitudes and practice" *IPPF Medical Bulletin.* **26**(4): 3-4

Alihonou E, Carré N, Capo-chichi V and Thonneau P (1997) "Contraceptive discontinuation and its determinants in Benin" *Contraception.* **55**(2):97-101

Alihonou E, Goufodji S and Capo-chichi V (1996) "Morbidity and Mortality Related to Induced Abortion in Benin" A paper presented at the *Stimezo Conference on Abortion Matters.* Amsterdam 27-29 March 1996

Arnold F and Blanc AK (1990) *Fertility Levels and Trends.* Demographic and Health Survey Comparative Studies No 2. Institute for Resources Development. Macro Systems Inc., Columbia, Maryland.

Arnold F (1990) "An assessment of the quality of birth history data in the Demographic and Health Surveys" In: *Assessment of DHS-I data quality* Demographic and Health Surveys Methodological Reports No 1. Institute for Resources Development. Macro Systems Inc., Columbia, Maryland

Avodagbé CV (1988) *Devenir des Grossesses, Connaissances, Attitudes et Pratiques de la Contraception en Milieu Scolaire et Universitaire en Republique Populaire du Bénin: D'après une Etude Menée Auprès de 1740 Elèves et Etudiants.* Thèse the médecine No 376 Université Nationale du Bénin.

Bankole A, Singh S and Hass T (1998) "Reasons why women have induced abortions: evidence from 27 countries" *International Family Planning Perspectives.* **24**(3):117-127, 152

Barbieri M and Vallin J (1996) "Les conséquences de la crise économique africaine sur l'évolution de la mortalité" In: *Crise et Population en Afrique: Crises Economiques, Politiques d'Ajustement et Dynamiques Démographiques.* Edited by Coussy J and Vallin J. Paris, Centre Français sur la Population et le Développement (Les études du CEPED, No 13)

Barry TM (1996) "Quality of care: from concept to action. A way ahead for Sub-Saharan Africa FP and RH programmes" *African Journal of Fertility Sexuality and Reproductive Health.* 1(2):85-91

Becker SG (1981) *A Treatise on the Family.* Cambridge Massachusetts, Harvard University Press

Benin and UNICEF (1994) *Les Enfants Vidomègon, les Enfants en Rupture, les Enfants Abandonnés au Bénin. Ministère du Travail, et des Affaires Sociales. Cotonou*

Benin (1984) *Enquête Nationale sur la Fécondité au Bénin 1982: Rapport National* Vol 1&2. Institut National de la Statistique et de l'Analyse Economique. Cotonou, 1984

Benin (1993) *Deuxième Recensement Général de la Population et de l'Habitation Février 1992, Vol 1: Résultats définitifs.* Institut National de la Statistique et de l'Analyse Economique. Cotonou, 1993

Benin (1994a) *Deuxième Recensement Général de la Population et de l'Habitation Février 1992. Vol 2: Tome 2. Dynamyque de la Population.* Institut National de la Statistique et de l'Analyse Economique. Cotonou, 1993

Benin (1994b) *Analyse Situationnelle de la Planification Familiale au Bénin.* Ministere de la Santé- USAID-The Population Council

Benin (1994c) *Surveillance Epidémiologique de l'Infection à VIH.* Programme National de Lutte contre le SIDA, Ministère de la Santé. Cotonou, 1994

Benin (1995a) *Rapport de la Consultation sur le Secteur de la Santé" Vol 2, Documents annexes.* Cotonou, Mars 1995.

Benin (1995b). *Politique et Stratégie Sanitaires Nationales.* Ministère de la Santé, Cotonou 1995

Benin (1995c). *Plan Triénal de Développement.* Ministère de la Santé, Cotonou 1995

Benin (1995d) *Statistiques Sanitaires Année 1994.* Ministère de la Santé, Cotonou, 1995

Benin (1996a) *Déclaration de Politique de Popoulation de la République du Bénin.* Ministère du Plan, de la Restructuration Economique et de la Promotion de l'Emploi. Cotonou, Mai 1996

Benin (1996b) *Recensement des Besoins Formation en Santé de la Reproduction/Planification Familiale au* Bénin. Rapport technique, Direction de la Santé Familiale. Ministère de la Santé, de la Protection Sociale et de la Condition Féminine. Cotonou

Benin (1997a) *Enquête Démographique et de Santé 1996.* Institut National de Statistique et de l'Analyse Economique and Macro International Inc., Cotonou, 1997

Benin (1997b) *Statistiques Sanitaires Année 1996.* Ministère de la Santé, Cotonou 1997

Benin (1997c) *Rapport sur le Développement Humain au Bénin - 1997.* Proramme des Nations Unies pour le Développement. Cotonou, 1997

Bertrand JT, Mathu N, Dwyer J, Thuo M and Wambwa G (1989) "Attitudes toward voluntary surgical contraception in four districts of Kenya" *Studies in Family Planning.* **20**(5):281-288

Biddlecom AE and Fapohunda BM (1998) "Covert contraceptive use: prevalence, motivations, and consequences" *Studies in Family Planning.* **29**(4):360-372

Blacker J (1994) "Some thoughts on the evidence of fertility decline in eastern and southern Africa" *Population and Development Review.***20**(1):200-205

Blanc AK, Wolff B, Gage AJ, Ezeh AC, Neema S and Ssekamatte-Ssebuliba (1996) *Negotiating Reproductive Outcomes in Uganda.* Macro International Inc and Institute of Applied Statistics, Makerere University, Kampala, Uganda

Bledsoe C, Banja F and Hill AG (1998) "Reproductive mishaps and western contraception: an African challenge to fertility theory" *Population and Development Review.* **24**(1):15-57

Bledsoe C, Hill AG, d'Alessandro U and Langerock P (1994) "Constructing natural fertility: the use of western contraceptive technologies in rural Gambia". *Population and Development Review.* **20**(1):81-113

Bledsoe C (1987) "Side-stepping the post-partum taboo: Mende cultural perceptions of tinned milk in Sierra Leone" A paper presented at the conference *The true Determinants of Fertility: The cultural Roots of African Ferttility Regimes.* Ile Ife, Nigeria

Bongaarts J and Bruce J (1995) "The causes of unmet needs and the social content of services" *Studies in Family Planning* **26**(2):57-75

Bongaarts J and Potter RG (1983) *Fertility, Biology and Behaviors: An Analysis of the Proximate Determinants.* Academic Press

Bongaarts J and Watkins SC (1996) "Social interaction and contemporary fertility transitions" *Population and Development Review.* **22**(4):639-682

Bongaarts J, Frank O and Lestheaghe R (1984) "The proximate determinants of fertility" In: *Population Growth and Reproduction in Sub-Saharan Africa.* Edited by Ascadi GTF, Johnson-Ascadi G and Bulatao RA. Washington DC, The World Bank

Bongaarts J (1982) "The fertility-inhibiting effect of the intermediate fertility variables". *Studies in Family Planning.* **13**(6/7):pp179-189

Bongaarts J (1992) "Do reproductive intentions matter?" *International Family Planning perspectives.* **18**(3):102-108

Bongaarts J (1997) "Trends in unwanted childbearing in the developing world" *Studies in Family Planning.* **28**(4):267-277

Boserup Esther (1985) "Economic and demographic interrelationship in Sub-Saharan Africa" *Population and Development Review.* **11**(3): 383-398

Brannen J (1992) "Combining qualitative and quantitative approaches: an overview" In: *Mixing methods: Qualitative and Quantitative Research.* Edited by Brannen J. Avebury

Brass W and Jolly CL, Eds (1993) *Population Dynamics of Kenya* National Research Council, National Academy Press Washington DC

Brass W and Juarez F (1983) "Censored cohort parity progression ratios from birth histories" *Asian and Pacific Census Forum.* **10**(1):5-13

Brass W and Rashad H (1992) "Exploratory analysis of imperfect maternity histories to determine level and trends in fertility" In: *The Analysis of Maternity Histories.* Edited by Hill A and Brass W. Liège, Belgium, Derouaux-Ordina Editions

Brass W, Coale AJ, Heisel DF, Lorimer F, Romaniuk A and van de Walle E, Eds (1968) *The demography of Tropical Africa.* Princeton university press, Princeton, New Jersey

Brass W, Juarez F and Scott A (1997) "Analysis of parity dependent fertility falls in tropical Africa" In: *The Continuing Demographic Transition.* Edited by Jones GW, Douglas RM, Caldwell JC and D'Souza RM Clarendon press, Oxford

Brass W (1980) *Birth History Analysis.* International Statistical Institute, Voorburg. Netherlands

Brown LA (1981) *Innovation Diffusion: A New Perspective.* Methuen: London and New York

Brown MS (1997) *Aspects of Fertility Control in Sub-Saharan Africa.* PhD Thesis, Univeristy of Liverpool, Department of Geography England.

Bruce J (1980) "Implementing the user perspective" *Studies in Family Planning.* **11**(1):29-34

Bruce J (1990) "Fundamental elements of quality of care: a simple framework" *Studies in Family Planning.* **21**(2):61-91

Bulatao RA and Lee RD, Eds (1983) *The Determinants of Fertility in Developing Countries.* New York, Academic Press

Cain M (1982) "Perspectives on family and fertility in developing countries" *Population Studies.* **36**(2):159-175

Caldwell JC (1977) "The economic rationality of high fertility: an investigation illustrated with Nigerian survey data" *Population Studies.* **31**(1):5-27

Caldwell JC .(1980b) "Mass education as a determinant of the timing of fertility decline" *Population and Development Review.* **6**(2): 225-255

Caldwell JC and Caldwell P (1976) "Demographic and contraceptive innovators: a study of transitional African society" *Journal of Biosocial Sciences.* **8**:347-365

Caldwell JC and Caldwell P (1987) "The Cultural context of high fertility in Sub-Saharan Africa" *Population and Development Review.* **13**(3): 409-437

Caldwell JC and Caldwell P (1988) "Is the Asian family planning model suited to Africa?" *Studies in Family Planning.* **19**(1):347-363

Caldwell JC and Caldwell P (1990) "Cultural forces tending to sustain high fertility" In: *Population Growth and Reproduction in Sub-Saharan Africa.* Edited by Ascadi GT, Johnson-Ascadi G and Bulatao RA. Washington DC, The World Bank

Caldwell JC and Caldwell P (1997) "What do we know about fetility transition?" In: *The continuing Demographic Transition.* Edited by Gavin WJ, Douglas RM, Caldwell JC and D'Souza RM. Clarendon Press, Oxfors, 1997.

Caldwell JC, Orubuloye IO and Caldwell P (1992) "Fertility decline in Africa: a new type of transition?" *Population and Development Review.* **18**(2):211-242

Caldwell JC (1978) "A theory of fertility: from high plateau to destabilisation" *Population and Development Review.***4**(4):553-577

Caldwell JC (1980a) "The wealth flow theory of fertility decline" In: *Determinants of Fertility Trends: Theories Re-examined* Edited by Hörn C and Mackensen R. Liège, Ordina Editions

Caldwell JC (1981) *Theory of fertility decline.* Academic Press

Caldwell P and Caldwell J (1987) "Fertility control as an innovation: a report on in-depth interviews in Ibadan, Nigeria" In: *The cultural roots of African fertility regimes. Proceedings of the Ife Conference* Edited by Ebigbola JA and van de Walle E. February 25 - March 1 1987

Cameroon (1993) "Quality of family planning services offered in Yaounde and Douala" In: *Operations Research Family Planning Database Project Summaries.* The Population Council, New York

Casltle S, Konate MK and Martin S (1999) *Sex, Lies and Audiotape: A Qualitative Study of Clandestine Contraceptive Use in Urban Mali.* Unpublished report.

Castro Martin T (1995) "Women's education and fertility: results from 26 demographic and health surveys" *Studies in Family Planning*. **26**(4):187-202

Catraye SG (1995) *Les Causes de la Faible Acceptation des Méthodes Contraceptives Modernes par les Femmes dans la Commune Urbaine de Bassila*. Rapport de recherche-action CFDS/Ouagadougou

Chesnais JC (1992) *The Demographic Transition: Stages, Patterns and Economic Implications*. Clarendon Press, Oxford

Chibalonza K Chirhamolekwa C and Bertrand JT (1989) "Attitudes toward tubal ligation among acceptors, potential candidates and husbands in Zaire" *Studies in Family Planning*. **20**(5):273-280

Chidambaram VC, Cleland JG and Verma V (1980) *Some Aspects of WFS Data Quality:A Preliminary Assessment*. World Fertility Survey Comparative Studies No 16. International Statistical Institute. Vooburg, The Hague, Netherland

Chmere-Dan O (1993) "Maternal education and marital fertility in four African countries" *Genus*. **49**(3-4):87-100; Jul-Dec

Cleland J And Scott C (Eds). *The World Fertility Survey: An Assessment*. Oxford University Press 1987

Cleland J and Wilson C (1987) "Demand theories of fertility transition: an iconoclastic view" *Population Studies*. **41**(1):5-30

Cleland J, Onuoha N and Timaeus I (1994). "Fertility change in sub-Saharan Africa: A review of the evidence" In: *The onset of Fertility Transition in Sub-Saharan Africa*. Edited by Locoh T and Hertrich V. Derouaux Ordina Editions Liège- Belgium 1994

Cleland J (1985) "Marital fertility decline in developing countries: theories and the evidence" In: *Reproductive Change in Developing Countries: Insights from the World Fertility Survey*. Edited by Cleland J and Hobcraft J. Oxford University Press

Cleland J (1994) "Different pathways to demographic transition" in *Population: the complex reality*. A report of the population summit of the world scientific academics Edited by Francis Graham-Smith London: Englan Royal Society. pp. 229-247

Cleland JG (1998) "Potatoes and pills: an overview of innovation-diffusion contributions to explanations of fertility decline" A paper presented at the workshop on *Social Processes Underlying Fertility Change in Developing Countries*. Washington DC, January 29-30, 1998

Cleland JG (1999) "Restating the obvious: the effects of improved survival on fertility" *Population and Development Review*. Forthcoming.

Cleland JG, Ali MM and Capo-chichi V (1999) "Post-partum sexual abstinence in West Africa: implications for AIDS-control and family planning programmes" *AIDS*. **13**:125-131

Coale AJ and Lorimer F (1968) "Summary estimates of fertility and mortality" In *The Demography of Tropical Africa*. Edited by Brass W, Coale AJ, Demeny P, Heisel DF, Lorimer F, Romaniuk A and van de Walle E. Princeton University Press, Princeton, New Jersey.

Coale AJ and Watkins SC (1986) *Fertility Decline in Europe*. Princeton University Press, Priceton New Jersey

Coale AJ (1969) "The decline of fertility in Europe from the French Revolution to World War II" In: *Fertility and Family Planning: A World View*. Edited by SJ Behrman et al. Ann Arbor, University of Michigan Press

Coale AJ (1973) "The Demographic transition reconsidered" In *Internation Popualtion conference, Liège 1973*. Vol. 1, pp53-72. Liege, Belgium. International Union for the Scientific Study of Population

Cohen B and Montgomery MR (1998) "Introduction" In: *From Death to Birth: Mortality Decline and Reproductive Change*. Edited by Montgomery MR and Cohen B. National Research Council, National Academy Press. Washington DC

Cohen B (1993) "Fertility levels, differentials, and trends". In *Demographic changes in Sub-Saharan Africa*. Edited by Foote KA, Hill KH and Martin LG. National Academic Press, National Research Council. Washington, DC

Cohen B (1998) "The emerging fertility transition in Sub-Saharan Africa" *World Development*. **26**(8):1431-1461

Cohen JE (1995) *How Many People can the Earth Support?* New York and London: WW Norton

Comlan E (1987) *Le Travail des Enfant en République Populaire du Bénin: Cas des Vidomègon*. Mémoire de Maitrise de Sociologie. Faculté de Lettres, Arts et Sciences Humaines. Université Nationale du Bénin.

Coombs LC and Freedman R (1985) "Some roots of preference: role, activities and family values" *Demography*. **16**(3):359-376

Cotten N, Stanback J, Maidouka H, Taylor-Thomas JT and Turk T (1992) "Early discontinuation of contraceptive use in Niger and The Gambia" *International Family Planning Perspectives*. **18**(4):145-149

Cottingham J and Mehta S (1993) "Medical barriers to contraceptive use" *Reproductive Health Matters*. **1**:97-100

Coussy J and Vallin J, Eds (1996) *Crise et Population en Afrique: crises économiques, politiques d'ajustement et dynamiques démographiques.* Paris, Centre français sur la population et le développement (Les études du CEPED, No 13)

Davis K and Blake J. (1956) "Social structure and fertility" *Economic Development and Cultural Changes.* 4(4):211-325

Davis, K (1963) "The theory of change and response in modern demographic history" *Population Index.* **29**(October):345-366

DeClerque J, Tsui AO, Abul-Ata M and Barcelona D (1995) "Rumor, misinformation and oral contraceptive use in Egypt" *Social Science and Medicine.* **23**(1):83-92

Defo BK (1998) "Fertility response to infant and child mortality with special reference to Cameroon" In: *From Death to Birth: Mortality Decline and Reproductive Change.* Edited by Montgomery MR and Cohen B. National Research Council, National Academy Press. Washington DC

Diamantides ND (1992) "The macrodynamics of international migration as a socio-cultural diffusion process: part A theory" *Technological Forecasting and Social Change.* **42**(3): 273-289

Diamond I and Rutenberg N (1995) "Recent trends in fertility in Botswana" *Journal of International Development.* **7**(1):145-161

Donadjè F and Tabutin D (1994) " Male Nuptiality and Fertility in Southern Benin." in *The Onset of Fertility Transition in Sub-Saharan Africa.* Edited by Thérèse Locoh and Véronique Hertrich. IUSSP. Derouaux-Ordina Edition Liège Belgium

Donadjè F (1992) *Nuptialité et Fécondité au Bénin: Pour une Approche des Stratégies de Reproduction au Bénin.* Academia, Louvain-la-Neuve

Dow TE Jr and Werner LH (1982) "Modern, transitional and traditional demographic and contraceptive patterns among Kenyan women" *Studies in Family Planning.* **13**(1):12-23

Dwyer JC and Haws JM (1990) "Is permanent contraception acceptable in Sub-Saharan Africa?" *Studies in Family Planning.* **21**(6):322-326

Dyson T and Murphy M (1985) "The onset of fertility transition" *Population and Development Review.* **11**(3):399-440

Easterlin RA (1975) "An Ecnonomic framework for fertility analysis" *Studies in Family Planning.* **6** (3): 54 - 63

Easterlin RA (1983) Modernization and fertility: a critical essay. In: *The Determinants of Fertility in Developing Countries.* Volume 2 Edited by Bulatao RA and Lee RD Academic Press, New York:562-586

Easterlin RA and Crimmins EM (1985) *The Fertility Revolution: A Supply-Demand Analysis.* The University of Chicago Press, Chicago and London

Easterlin RA, Pollack RA and Wachter ML (1980) "Toward a more general model of fertility determination: endogenous preferences and natural fertility" In: *Popualation and Economic Change in Developing Countries.* Edited by Easterlin RA. Chicago, University of Chicago Press

Ebigbola JA and van de Walle E (1987) *The Cultural Roots of African Fertility Regimes. Proceedings of the Ife Conference.* February 25 - March 1 1987

Ekouevi K and Adepoju A (1995) " Adjustment, social sectors, and demographic change in Sub-Saharan Africa" *Journal of International Development.* **7**(1): 47-59

Ezeh AC (1993) "The influence of spouses over each other's contraceptive attitudes in Ghana" Studies in Family Planning. **24**(3):163-174

Fathalla M (1990) "Tailoring contraceptives to human needs" *People.* **17**(3):3-5

Foote KA, Hill KH and Martin LG, Eds (1993) *Demographic changes in Sub-Saharan Africa.* National Research Council, National Academic Press. Washington, DC

Frank O (1987) "The demand for fertility control in Sub-Saharan Africa" *Studies in Family Planning.* **18**(4):181-201

Freedman R and Berelson B (1976) "The record of family planning programs" *Studies in Family Planning.* **7**(1):1- 40

Freedman R and Blanc AK (1992) "Fertility transition: an update" *International Family Planning Perspectives.* **18**:44-50

Freedman R and Takeshita JY (1969) *Family Planning in Taiwan: An Experiment in Social Change.* Princeton University Press

Gandaho T (1993) *Changing Contraceptive Knowledge, Attitudes and Practices in Rural Benin: Elements of Success in a Community-Based Family Planning Intervention.* PhD thesis, London School of Hygiene and tropical Medicine, University of London

Gnanvi P (1999) "Séminaire de formation des journalistes sur les droits de l'enfant: le mouvement Vidomègon, une nouvelle forme de lutte contre la maltraitance des enfants" *La Nation.* No 2237. Mai 14, 1999

Goody J (1976) *Production and Reproduction: A Comparative Study of the Domestic Domain.* Cambridge University Press London, England 1976.

Gould WTS and Brown MS (1996) "A fertility transition in Sub-Saharan Africa?" *International Journal of Population Geography.* **2**:1-22

Gould WTS (1995) "Ideology and data analysis in African population policies: the case of Kenya" *Applied Geography.* **15**(3):203-218

Greenhalgh S (1990) "Toward a political economy of fertility: anthropological contributions" *Population and Development Review.* **16**(1):85-106

Guedou F. (1987) *Contribution à l'Etude des Malatdies Sexuellement Transmissibles en Milieu Scolaire: A Propos de 127 Cas de Gonococcie, de Trichomonase et de Candidose Uro-Génitale Dépistées en Milieu Scolaire à Cotonou.* Thèse de médecine. Faculté des Sciences de la Santé. Université Nationale de Bénin

Guingnido GKJ (1993) "Croissance urbaine et population au Bénin". A paper presented at the *Séminaire National de Dissémination des Résultats de Recherche sur la Population au Bénin.* Cotonou, 27-30 April 1993.

Guzman JM, Singh S, Rodriguez G and Pantelides EA. Eds (1997) *The Fertility Transition in Latin America.* Clarendon Press Oxford

Hammersley M (1990) *Reading Ethnographic Research: A Critical Guide.* Longman, London and New York.

Harel K (1997) "Barriers to contraceptive use among Pakistani couples" *Population Briefs.* **3**(3):2

Henshaw SK, Singh S, Oye-Adeniran B, Adewole IF , Iwere N and Cuca IP (1998) "The incidence of induced abortion in Nigeria" *International Family Planning Perspectives.* **24** (4):156-164

Hirschman C, Tan J, Chamratrithirong A and Guest P (1993) *The Path to Below Replacement-level Fertility in Thailand.* Seattle Population Research Center working paper No 93-12, Seattle, Washington, University of Washington.

Hirschman C (1994) "Why fertility changes" *Annual Review of Sociology.* **20**:203-233

Hobcraft J (1987) "The proximate determinants of fertility" In: The World Fertility Survey: An Assessment. Edited by Cleland J. And Scott C. Clarendon, Oxford University Press 1987

Hobcraft JN, Goldman N and Chidambaram VC (1982). "Advances in the P/F ratio method for the analysis of birth histories" *Population Studies.* **32**(2): 291-316

Houèdokoho T (1995) *An Event History Approach to the Study of Nuptiality Among Women in Benin.* Institut de Démographie, Département des Sciences de la Population et du Développement. Louvain-la-Neuve, Belgium

Huezo CM and Carignan CS (1997) *Medical and Service Delivery Guidelines for Family Planning.* International Planned Parenthood Federation in collaboration with the World

Health Organization and AVSC International. Second Edition. IPPF Medical Publications. London

Huntington D, Lattenmaier C and Obeng-Quaidoo I. (1990) "User's perspective of counseling traing: the 'mystery client' trial" *Studies in Family Planning*. **21**(3):171-177

Jain AK (1989) "Fertility reduction and the quality of family planning services". *Studies in Family Planning*. **20**(1):1-16

Jolly CL and Gribble NJ (1993) "The proximate determinants of fertility". In: *Demographic Changes in Sub-Saharan Africa*. Edited by Foote KA, Hill KH and Martin LG. Nationa Academic Press

Juarez F and Llera S (1996) "The process of family formation during the fertility transition" In: *The fertility transition in Latin America*. Edited by Guzman JM, Singh S, Rodriguez G and Pantelides EA. Clarendon Press, Oxford 1996.

Juarez F and Quilodran J (1990) "Mujeres pioneras del cambio reproductivo en México" *Revista Mexicana de Sociologia*. **1/90**:33-49

Juarez F (1983) *Family Formation in Mexico: A Study Based on Maternity Histories from a Retrospective Fertility Survey*. Unpublished PhD Thesis, University of London

Kaplan H (1994) "Evolutionary and wealth flow theories of fertility: empirical tests and new models" *Population and Development Review*. **20**(4):753-791

Kim YM, Kols A and Mucheke S (1998) "Informed choice and decision-making in family planning counseling in Kenya" *International Family Planning Perspectives*. **24**(1):4-11, 42

Kirk D and Pillet B (1998) "Fertility levels, trends and differentials in Sub-Saharan Africa in the 1980s and 1990s" *Studies in Family Planning*.**29**(1): 1-22

Kirk D (1996) "Demographic transition theory" *Population Studies*. **50**(3):361-387

Kitagawa EM (1955) "Components of a difference between two rates" *J. Amer. Statist. Assoc.* **50**:1168-1194

Klissou P (1993) "La polygamie au Bénin". A paper presented at the *Séminaire National de Dissémination des Résultats de Recherche sur la Population au Bénin*. Cotonou, 27-30 April 1993.

Klissou P (1995) *La Polygamie au Bénin: Pour une Approche Régionale des Tendances et des Déterminants*. Institut de Démographie, Département des Sciences de la Population et du Développement. Louvain-la-Neuve, Belgium

Koenig MA, Hossain MB and Whittaker M (1997) " The influence of quality of care upon contraceptive use in rural Bangladesh" *Studies in Family Planning.* **28**(4):278-289

Konaté MK, Sissoko F, Guèye M, Traoré B and Diabaté DFS (1998) *Les Conséquences Sociales de l'Avortement Provoqué à Bamako.* CERPOD, Unpublished report.

Leete R and Alam I, Eds (1993) *The Revolution in Asian Fertility: Dimensions, Causes and Implications*. Clarendon Press Oxford.

Leibenstein H (1975) "Relation of economic development to fertility" In*: Population Growth and Economic Development in the Third World.* Edited by Tabah L. Vol 2 Dolhain, Belgium, Ordina Editions

Leibensten H (1974) An interpretation of the economic theory of fertility: promising path or blind alley? *Journal of Economic literature.* **12**(2): 457-479

Lesthaeghe R and Eelens F (1989) "The components of Sub-saharan reproductive regimes and their social cultural determinants: empirical evidence" In: *Reproduction and Social Organization in Sub-Saharan Africa* Edited by Lesthaeghe R. Berkeley, University of California Press

Lesthaeghe R, Ed (1989) *Reproduction and Social Organization in Sub-Saharan Africa.* Berkeley, University of California Press

Lesthaeghe R (1984) "Fertility and its proximate determinants in Subsaharan Africa: the record of the 1960s and 70s" A paper presented at the WFS seminar on *Integrating Proximate Determinants into the Analysis of Fertility Levels and Trend* London. Liege, Belgium: Ordina Edition

Letheaghe R and Jolly CC (1995) "The start of the Sub-Saharan fertility transition: some answers and many questions" *Journal of International Development.* **7**(1):25-45

Lockwood M. (1995) "Development policy and the African demographic transition: issues and questions" *Journal of International Development.* **7**(1):1-23.

Locoh T and Hertrich V, Eds (1994) *The onset of fertility transition in Subsaharan Africa.* Derouaux Ordina Editions Liège- Belgium 1994

Locoh T (1994) "Will the decline in fertility in Sub-Saharan Africa last?" In:*The Onset of Fertility Transition in Sub-Saharan Africa.* Edited by Locoh T and Hertrich V. Derouaux Ordina Editions Liège- Belgium 1994

Malthus TR (1973) *An Essay on the Principles of Population.* 5th Edition, JM Dent and Sons (Eds) London

Mason KO (1997) "Explaining fertility transition" *Demography.* **34**(4):443-454

Mboup G and Saha T (1998) *Fertility Levels, Trends and Differentials.* Demographic and health Surveys Comparative Studies No 28. Macro International Inc, Calverton, Maryland

Meekers D (1993) *Sexual Initiation and Premarital Childbearing in Sub-Saharan Africa.* Demographic and Health Surveys Working Paper No 5. Macro International Inc. Columbia, Maryland USA

Miller K, Miller R, Askew I, Horn MC and Ndlovu L (1998) *Clinic-Based Family Planning and Reproductive Health Services in Africa: Findings from Situation Analysis Studies.* The Population Council, New York

Mita R and Simmons R (1995) "Diffusion of the culture of contraception: program effect on young women in Rural Bangladesh" *Studies in Family Planning.* **26**(1): 1-13

Montgomery MR (1993) "The diffusion of fertility control in Taiwan: a multi-level analysis" A paper presented at the *Annual Meeting of the Population Associaon of America.* Cincinnati, Ohio

Muhwava WB (1997) *Fertility Decline and Determinants of Reproductive Change in Zimbabwe.* PhD Thesis, London School of Hygiene and Tropical Medicine. University of London

Murdoch GP (1967) "Ethnographic Atlas: a summary" *Ethnology.* **6**:109-234

Nag M (1984) "Some cultural factors affecting the cost of fertility regulation" *Population Bulletin of the United Nations* **17**:17

Nag M (1986) "Why people desiring birth control still do not use contraception" *Populi.* **13**(2):39-49

Nakato L (1994) "Have you heard the rumour?" *Africa, Women and Health.* **2**(3):23-27

National Research Council (1993) *Demographic Effects of Economic Reversals in Sub-Saharan Africa.* National Academy Press. Washington DC

Ndiaye S, Ayad M and Gaye A (1997) *Enquête Démographique et de Santé au Sénégal (EDS-III) 1997.* Ministère de l'Economie, des Finances et du Plan, Direction de la Prévision et de la Statistique, Division des Statistiques Démographiques.

Ndiaye S, Diouf PD and Ayad M (1994) *Enquête Démographique et de Santé au Sénégal (EDS-II) 1992/93.* Ministère de l'Economie, des Finances et du Plan, Direction de la Prévision et de la Statistique, Division des Statistiques Démographiques.

Notestein FW (1945). "Population - the long view" In: *Food for the world.* Edited by Schultz T. Chicago Press, pp. 36-57.

Offrin G (1989) *Les Infections Basses à Chlamydia Trachomatis.* Thèse médicale; Faculté des Sciences de la Santé, Université Nationale du Bénin (1989)

Okonofua FE, Odimegwu C, Ajabor H, Daru PH and Johnson A (1999) "Assessing the prevalence and determinants of unwanted pregnanvy and induced abortion in Nigeria" *Studies in Family Planning.* **30**(1):67-77

Omondi LO, Persson LA and Staugard F (1990) "Determinants for breast feeding and bottle feeding in Botswana" *Journal of Tropical Pediatrics.* **36**(1):28-33

Onuoha NC and Timaeus IM (1995) "Has fertility transition begun in West Africa?" *Journal of International Development.* 7(1): 93-116

Orubuloye IO (1995) "The demographic situation in Nigeria and prospects for fertility transition" *Journal of International Development.* 7(1): 135-144

Page H (1981) "Introduction to case studies, their context, content and some common practical issues" In: *Child-Spacing in Tropical Africa: Traditions and Change*. Edited by Page HJ and Lesthaeghe R. Academic Press, 1981

Page HJ and Lesthaeghe R, Eds (1981) *Child-Spacing in Tropical Africa: Traditions and Change*. Academic Press

Phillips JF, Binka FN, Adjuik M, Nazzar A and Kubaje A (1997) *The Determinants of Contraceptive Innovation: A Case-Control Study of Family Planning Acceptance in a Traditional African Society*. The Population Council Working Paper No 93

Piriani S, Heer DM and Van Arsold MD Jr (1991) "Does choice make a difference to contraceptive use? Evidence from East Java" *Studies in Family Planning.* **22**(6):384-390

Potter JE (1977) "Problems in using birth-history to estimate trends in fertility" *Population Studies.* **31**(2): 335-364

Reed J and Payton VR (1997) "Focus groups: issues of analysis and interpretation" *Journal of Advanced Nursing.* **26**: 765-771

Rees H (1994) "Acquiring the pill: safety issues" *Reproductive Health Matters.* **3**:41-45

Reinis KI (1992) "The impact of the proximate determinants of fertility: evaluating Bongaarts's and Hobcraft and Little's methods of estimation". *Population Studies.* **46**(2): 309-326

Reinis KI (1994) "The impact of the proximate determinants of fertility: a rejoinder to comments from J. Bongaarts" *Population Studies* **48**(1), 161-162

Retherford AD and Palmore JA (1983) "Diffusion process affecting fertility regulation" In:*Determinants of Fertility in Developing Countries.* Edited by Bulatao RA and Lee RD. Vol. 2, New York: Academic Press, pp. 761-796.

Retherford D and Ogawa N (1978) "Decomposition of the change in the total fertility rate in the Republic of Korea 1966-1970" *Social Biology.* **25**(2): 115-127

Retherford D (1985) "A theory of marital fertility decline" *Population Studies.* **39**(2): 249-268

Robey B, Rustein SO, Morris L and Blackburn R (1992) "The reproductive revolution: new survey findings", *Population Reports.* Series M **11**, Baltimore: John Hopkins University Press

Rodiguez G and Hobcraft J (1980) *Illustrative Analysis: Life Table Analysis of Birth Intervals in Columbia.* World Fertility Survey Scientific Report No 16. International Statistical Institute. Voorburg, The Hague. Netherland

Rodriguez G (1997) "The spacing and limiting components of fertility transition in Latin America" In: *The Fertility Transition in Latin America* Edited by Guzman JM, Singh S, Rodriguez G and Pantelides EA. Clarendon Press Oxford 1997

Rogers EM (1995) *Diffusion of Innovations.* 4th Edition, Free Press. New York

Rogo K (1993) "Induced abortion in Sub-Saharan Africa" *East African Medical Journal.* **70**(6):386-394

Rosero-Bixby L and Casterline J (1994) "Interaction diffusion and fertility transition in Costa Rica" *Social Forces.* **73**(2):435-462

Rosero-Bixby L (1998) "Child mortality and fertility transition: aggregate and multilevel evidence from Costa Rica" In: *From Death to Birth: Mortality Decline and Reproductive Change.* Edited by Montgomery MR and Cohen B. National Research Council, National Academy Press. Washington DC

Ross J and Frejka T (1999) "The future of subreplacement fertility" A paper presented at the *1999 Annual Conference of the Population Association of America* New York.

Rutenberg N and Watkins S (1997) "The buzz outside the clinics: conversations and contraception in Nyanza Province, Kenya" *Studies in Family Planning.* **28**(4): 290-307

Rutenberg N, Ayad M, Ochoa LH and Wilkinson M (1991) *Knowledge and Use of Contraception.* Demographic and Health Survey Comparative Studies No 6. Macro International Inc, Columbia, Maryland. USA

Salway S (1995) "How attitudes toward family planning and discussions between wives and husbands affect contraceptive use in Ghana" *International Family Planning Perspectives.* **20**(2):44-47,74

Salway S (1996) *Contraception following childbirth in Bangladesh.* PhD dissertation Center for Population Studies, London School of Hygiene and Tropical Medicine. University of London

Santos P (1994). *La Contraception chez les Adolescentes (D'après une Etude Menées Auprès de 513 Elèves et Apprenties couturières de la Circonscription Urbaine de Ouidah).* Thse de médecine No 55. Faculté des Sciences de la Santé, Cotonou - Bénin.

Schoenmaeckers R, Shah I, Leasthaeghe R and Tambashe O (1981) "The child-spacing tradition and the post-partum taboo in tropical Africa: an anthropological evidence" In: *Child-Spacing in Tropical Africa: Traditions and Change.* Edited by Page HJ and Lesthaeghe R. Academic Press

Schultz T, Eds (1974) *Economics of the Family: Marriage, Children and Human Capital.* Chicago, Chicago University Press

Schultz T (1983) "Review of John C Caldwell's theory of fertility decline" *Population and Development Review.* **9**(1):161-168

Seidel J, Friese S and Leonard DC (1995) *The Ethnograph v4.0: A Users Guide.* Qualis Research Associates. Colorado, The wainting room Press

Senegal (1998) *Enquête Démographique et de Santé au Sénégal 1997 (EDS III): Rapport Préliminaire.* Ministère de l'Economie, des Finances et du Plan and Macro International Inc.

Shelton JD, Angle MA and Jacobstein RA (1992) "Medical Barriers to access to family planning" *The Lancet. **340***(8831):1334-1335, Nov 28

Singh S and Ferry B (1984). *Biological and Traditional Factors that Influence Fertility: Results from WFS surveys.* World fertility Survey Comparative Studies, Cross National Summaries No 40

Singh S (1987) "Evaluation of data quality" In: *The World fertility Surveys: An assessment.* Edited by Cleland J and Scott C. Clarendon Press, Oxford. pp 619-643

StatCorp (1997) *Stata Statistical Software.* Reference manual release 5. Vol 3, P-Z

Stecklov G (1997) "Intergenerational resource flows in Côte d'Ivoire" *Population and development Review.* **23**(3):525-553

Stover J (1998) "Revisiting the proximate determinants of fertility framework: what have we learned in the past 20 years?" *Studies in Family Planning.* **29**(3):255-267

Szretzer S (1993) "The idea of demographic transition and the study of fertility change: a critical intellectual history" *Population and Development Review.* **19**(4):659-701

Thadani VN (1978) "The logic of sentiment: the family and social change" *Population and Development Review.* **4**(3):457-499

The Population Council (1999) *Fertility Decline in Kenya: Assessment of Underlying Factors.* Forthcoming.

Touré L (1996) *Male Involvement in Family Planning: A Review of the Literature and Selected Program Initiatives in Africa.* SARA Project, Washington DC

UNDP (1998) *World Development Report 1998.* United Nation Development Program New-York

United Nations (1983) *Relationship Between Fertility and Education: A Comparative Analysis of World Fertility Survey Data for Twenty-Two Developing Countries.* Population Division, Department of International Economic and Social Affairs. New York.

United Nations (1987) *Fertility Behaviour in the Context of Development: Evidence from the World Fertility Survey.* Department of Social and Economic Affairs. Population Studies No 100. United Nations, New York

United Nations (1990). *Patterns of First Marriage: Timing and Prevalence.* New York

Valente TW (1995) *Network models in the diffusion of innovations.* Cresskill, New Jersey, Hampton press

van de Kaa D (1996) "Anchored narratives: the story and findings of half a century of research into the determinants of fertility" *Population Studies.* **50**(3):389-432

van de Walle E (1993) "Recent trends in marriage ages" In: *Demographic changes in subsaharan Africa.* Edited by Foote KA, Hill KH and Martin LG. Nationa Academic Press

van de Walle F (1986) "Infant mortality and the European demographic transition" In: *Fertility decline in Europe.* Edited by Coale AJ and Watkins SC. Princeton University Press, Priceton New Jersey.

Vimard P (1996) "Evolution de la fécondité et crises africaines" In:*Crise et Population en Afrique: crises économiques, politiques d'ajustement et dynamiques démographiques.* Edited by Coussy J and Vallin J. Paris, Centre français sur la population et le développement (Les études du CEPED No 13)

Ward VM, Bertrand JT and Puac F (1992) "Exploring sociocultural barriers to family planning among Mayans in Guatemala" *International family Planning perspectives.* **18**(2):59-65

Ware H (1969) "Motivations for the use of birth control: evidence from west Africa" *Demography.* **13**(4):479 - 493

Watkins SC (1986) "Conclusions" In: *Fertility Decline in Europe.* Edited by Coale AJ and Watkins SC. Princeton University Press, Priceton New Jersey.

Watkins SC (1991)" More lessons from the past: women's informal networks and fertility decline" A paper presented at the *IUSSP Committee on Comparative Analysis of Fertility and University of Zimbabwe Seminar on the Course of Fertility Transition in Sub-Saharan Africa.* Nov 19-22 1991

Weinberger MB, Lloyd C, and Blanc AK (1989) "Women's education and fertility: a decade of change in four Latin American Countries" *International family Planning Perspectives.* **15**(1): 4-14

Westoff C and Bankole A (1995) *Unmet Needs.* Demographic and Health Surveys Comparative Studies Number 16. Macro International Inc. Calverton, Maryland.

Westoff C, Blanc AK and Nyblade L (1994) *Marriage and Entry into Parenthood.* Demographic and Health Surveys Comparative Studies Number 10. Macro International Inc. Calverton, Maryland.

WHO and Unicef (1989) *Protecting, Promoting and Supporting Breast-feeding: The Special Role of Maternity Services: A Joint WHO/UNICEF Statement.* WHO, Geneva

Wilson C and Airey P (1999) "How can a homeostatic perspective enhance demographic transition theory" *Population Studies.* Forthcoming 1999

Wolff B, Knodel J and Sittitrai W (1993) Focus groups and surveys as complementary research methods. In: *Successful Focus Groups: Advancing the State of the Art.* Edited by Morgan DL. Sage Publications, Newbury park, London, New Delhi

World Bank (1986) *Population Growth and Policies in Sub-Saharan Africa.* Washington DC

World Bank (1989) *Sub-Saharan Africa: From Crisis to Sustainable Growth: A Long-Term Perspective Study.* Washington DC

Zavala de Cosio ME (1997) "The demographic transition in Latin America and Europe" In: *The fertility transition in Latin America.* Edited by Guzman JM, Singh S, Rodriguez G and Pantelides EA. Clarendon Press Oxford

Zeidenstein G (1980) "The user-perspective: an evolutionary step in contraceptive service programs" *Studies in Family Planning*. **11**(1):24-29

Zomahoun S (1991). *Connaissances, Attitudes et Pratiques en Matières de Contraception dans Deux Collèges d'Enseignement Général dans la Ville de Bohicon.* Mémoire IRSP No 31/91. Cotonou-Bénin

Appendices

Appendix 1.1. The health system organization in Benin

NIVEAUX		STRUCTURES	INSTITUTIONS HOSPITALIERES ET SOCIO-SANITAIRES	SPECIALITES
CENTRAL		Ministère de la Santé de la Protection Sociale et de la Conditin Féminine (MSPSCF)	Centre National Hospitalier et Universitaire (CNHU)	-Médecine -Pédiatrie -Chirurgie -Gynéco-obstétrique -Radi ologie -Laboratoire -Autres spécialités
INTERMEDIAIRE OU DEPARTEMENTAL		Direction Départementale de la Santé de la Protection Sociale et de la Condition Féminine (DDSPSCF)	Centre Hospitalier Départemental (CHD)	-Médecine -Pédiatrie -Chirurgie -Gynéco-obstétrique ORL-Ophtalmo -Radi ologie -Laboratoire -Autres spécialités
PERIPHERIQUE	Chef-lieu de Sous-Préfecture ou de Circonscription Urbaine	Centre de Santé de sous-préfecture ou de circonscription urbaine (CSSP/CSCU)	Centre de Santé de sous-préfecture ou de circonscription urbaine (CSSP/CSCU) Centre de Promotion Sociale (CPS) dans la S/P ou CU -Service Social Spécialisé dans les CU	-Médecine générale -Chirurgie générale -maternité -Radiologie -Laboratoire -Pharmacie -Services sociaux
	Chef-lieu de Commune	Complexe Communal de Santé (CCS)	Complexe Communal de Santé (CCS)	-Dispensaire -Maternité Pharmacie ou dépot pharmaceutique
	Village ou quartier de ville	Unité Villageois de Santé (UVS)	Unité Villageois de Santé (UVS)	-Soins -Accouchements -Caisse de pharmacie

Appendix 3.1a. FOCUS GROUP GUIDELINES (women's discussions)

1. Introduction, greetings and presentations

Dear participants, welcome. We hope you are all well and the same for your respective families. We would like to thank you very much for coming to this discussion because you have accepted to spend part of you valuable time with us. It is a great pleasure and honour for us. My name is ..... and my colleague is ..... We work at the national hospital in Cotonou. Especially, we work at the hospital maternity called CUGO where women come to give birth. We work closely with the doctors, nurses and midwives to help them improve their services. Now, we would be grateful if people can present themselves, what they do, their age and number of children.

2. Study objectives

We have invited you here today because we are working on a subject which concerns the health and well-being of women in their household. However, its also concerns some very sensitive aspects of a woman's life with her partner. You have been chosen because people think that you are the ones who can help us get a more in-depth understanding of this subject. We would like to discuss freely, "from women to women", with you of what happens between a woman and her husband from the onset of a delivery to another pregnancy; how this critical period is managed, with respect to sexual activities, what the woman's feelings are and how men accommodate this. We know that this is a very sensitive subject. What we really want is what people usually do. However, you are also free to cite your personal experiences as this might be very helpful. We have also made sure that all the information you will give us will be used anonymously, so that nobody except us will have access to it.

Before we start, let us ask for a permission. Because it is not easy to write down quickly all the things we will be saying, we thought it might be better if we could record our discussions on audio tapes. This will save us (you and us) some precious time we might use for other things. If you agree, we could do the tape recording. Do you agree that we do it ?

In case of agreement, **Thank you very much for this.**

3. Questions for discussion

A. Reproduction and fertility preferences

☞ It is usually agreed that children are the main object of marriage. What is considered to be an ideal number of children women can have in your area and why ?

B. birth intervals

- What would be an ideal time length between one birth and another one ? why ?

- Are there any consequences to having intervals that are too short ? [too long ?]

C. Birth spacing dynamics: the story from one birth to another

☞ Suppose that a woman gives birth to a baby today. We would like to know what will happen from today on until she gets pregnant again and gives birth to another baby in an ideal case.

c1. breastfeeding

- In your opinion, how long should a woman breastfeed her baby for / what is an appropriate length for breastfeeding ?

- How is it decided when to stop breastfeeding ?

- When do you think it is good to start giving a baby other things apart from the breast milk (like water, juice and solids) ? [When is too late ? too early]

c2. post partum abstinence

- Around here, what is considered to be an appropriate time for sexual abstinence after a woman has given birth ? Why ?

- How do couples decide on when to resume sexual relations ? [Are there special ritual or some specific names for that ?]

- What if the man has other wives ?
- What about couples who resume early ?[What do men think of]

c3. contraception

- Is there anything a woman can do to avert pregnancies ?
- What are the reasons why a woman can choose to use contraception ?
- [Is that the same for modern and traditional methods]
- Do men generally agree to their wife using contraception ?
- Do women use methods without their husband's approval ?

Appendix 3.1b. FOCUS GROUP GUIDELINES (Men's discussions)

1. greetings and presentations

Good morning ....., how are you ? and your respective families ? my name is ..... and my colleague is ..... We work at the national hospital in Cotonou. Especially, we work at the hospital maternity called CUGO where women come to give birth. We work closely with the doctors, nurses and midwives to help them improve their services.

2. introduction + study objectives

We have invited you here today because we are working on a subject which concerns the health and well-being of a man and his wife (wives) in their household. However, its also concerns some very sensitive aspects of a man's life with his partner. We would like to discuss freely, "*from men to men*", with you of what happens between your wives and yourself from the onset of a pregnancy to another pregnancy; how you manage this critical period, with respect to sexual activities, what are your feelings and how your partner accommodates this. We know that this is a very sensitive subject. But we have also made sure that all the information you will give us will be use anonymously, so that nobody except us will have access to it. We would also like to record our discussions because it is not easy to write down quickly all the things we will be saying. This will save us (you and us) some precious time we might use for other things. The records will be use only for research purposes. For this reason, we will not write down your name, so the conversation can be really anonymous. Do you think we can proceed ? Thank you very much for accepting.

3. individual characteristics and marriage

- At the beginning, we would grateful if people can present themselves, how old they are, the number of living children they have, whether what type of union they are in, how many wives they have etc..

- In general, what is the role of marriage in the society ?
- what do you think of the concept of marriage ?
- In your community, how is marriage arranged ?
- how do men generally participate in the decision process ?
- Can anyone tell us what happened in his specific case(s) ?

4. reproduction and fertility preferences

In general, it is agreed that children are the main object of marriage. In your opinion, how many children do you think that a man can reasonably have.

- is it possible that you tell us the number of children you would like to have in terms of

number of boys and girls ?
- what are the reasons for this numbers ?

- Do you think that the sex of a child is an important element in counting them ?
- what are the reasons for this ?
- In your opinion, by whom are the decisions concerning the number of children a couple should have taken ?
- in case your wife wants less children than you would like, what would you do ?
- in case she wants more than you do, what would be your reaction ?

5. **a story of birth to birth**

- Suppose that a woman has given birth to a baby today. Could you tell us what will happen from today on until she gets pregnant again and give birth to another baby ?
- it would also be very good if some people can tell us what happened in they own case.

The details we want here are wether the children were breastfed, for how long, the duration of the post partum abstinence, how sexual relations were resumed, who decided and how women felt about it, including how they think their partners managed this period.

6. **birth intervals and post-partum abstinence**

- Usually, how many months should one try to maintain between one child and the following from the same mother ?
- in your opinion, what is the normal time length between two successive deliveries ?
- when a woman delivers after a pregnancy, does she have to wait for some time before resuming sexual contacts with her partner ?
- if yes, why is it necessary to wait according to you ?
- for how long is it necessary to wait ?
- who decides on the duration of this period ?
- does the time when she resumes sexual relations with her partner/husband have any meaning, name or connotation ?

7. **management of the post partum period**

- what do people do to avert a pregnancy when a new baby is born in your community ?
- people think that men can have sexual outlets outside when a new baby is born in order to avert a pregnancy. what do you think of this ?
- what happens when a woman, gets pregnant to a married man to whom she was not married. ***Here we would like to know what would be the attitudes of the respective partners, they relatives and so on.***
- what are the reasons for such an attitude ?

8. **contraception**

- what can couples do when she don't want a pregnancy ?
- Has any of you been in a situation where she did not want to get pregnant, at least for some time ?
- if yes, what did the person do ?

- have you ever used (in the past) any method or strategy to avert pregnancies
- what do you know of methods to avert pregnancies ?
- what do you think of them ?
- What is your opinion regarding the use of a method to avert pregnancies ?

9. **spousal discussions**

- according to you, whose opinion prevails concerning family life affairs within a couple?
- Have you ever discussed with your partner about the number of your children you would like to have ? how often ?
- Does she have the same opinion as you have ?
- Have you ever discussed with your partner/husband about the timing of your chidren?
- Does she have the same opinion as you have ?

11. **perceived female strategies for managing the post-partum period**

- in your opinion, how do women manage to keep up while abstaining from sex.
- what do you think of men who have other sexual partners outside ?

Appendix 3.2. In-depth interviews: Training programme

Day 1: 03/09/97

Bloc 1:08h30-11h30 Facilitator: Capo-chichi V
Presentations [individual experiences]
Contracts
Training objectives
Programme contents
Themes, objectives & research methods

Bloc 2: 12h00-14h30 Facilitator: Agossou C
Qualitative studies 1: object & methods
In-depth interviews
a. Theoretical description

Day 2: 04/09/97

Bloc 1: 08h00-11h30 Facilitator: Capo-chichi V
In-depth studies 2
b. the interview guidelines

Bloc 2: 12h00-14h30 Facilitator: Agossou C & Tossou E
In-depth studies 3
c. data quality & validity
d. ethics & confidentiality
e. Practical difficulties

Day 3: 05/09/97

Bloc 1: 08h00-11h30 Facilitator: Capo-chichi V
Analysing in-depth interviews 1
a. listening & transcription

Bloc 2: 1h-14h30 Facilitator: Capo-chichi V
Analysing in-depth interviews 2
b. Reading and theme definition
c. Passage identification & coding

Day 4: 08/09/97

Bloc 1: 08h00-11h30 Facilitator: Capo-chichi V & Agossou C
The practice of in-depth interviews 1
a. role plays

Bloc 2: 12h-14h30 Facilitator: Capo-chichi V & Laourou M
The practice of in-depth interviews 2
b. Household and individuals enumeration: object & methods

Day 5: 09/09/97 Facilitator: Capo-chichi V & Agossou C

The practice of in-depth interviews 3
c. pre-test: enumeration

Day 6: 10/09/97 Facilitator: Capo-chichi V & Agossou C

The practice of in-depth interviews 4
d. Pre-test: interviews

Day 7: 11/09/97

Bloc 1: 08h30-11h30 Facilitator: Capo-chichi V & Agossou C
The practice of in-depth interviews 5
e. pre-test: analysis

Bloc 2: 12h00-14h30 Facilitator: Capo-chichi V & Agossou C
The practice of in-depth interviews 6
f. pre-test: presentation of results

Day 8: 12/09/97

Bloc 1: 08h30-11h30 Facilitator: Capo-chichi V & Agossou C
Evaluation & finalisation of methods & guidelines

Bloc 2: 12h00-14h30 Ahouanse B & Capo-chichi V
Other preparatory activities [packetage giving; payments etc..]

Appendix 3.3a Enumeration form

Study title: The use of modern contraception in Benin: Innovation or adaptation?

==========

Household & individuals enumeration schedule

IDENTIFICATION OF HEAD OF HOUSEHOLD

Q001 Cluster number /__/__/__/__/__/__/

Q002 Compound number /__/__/__/__/__/__/

Compound owner _____

Head of household _____

	Visit 1	Visit 2	Visit 3
Date	_____	_____	_____

Result of last visit

1. Questionnaire completed
2. Questionnaire partially completed
3. Refusal
4. Household not available
5. Compound not found
6. Other (describe).....

Household listing

"I would like you to give us some information on all the people who live in this household, starting by the head of household"

Interviewer Go on to ask the following questions, for the head of household first, the for each wife and her offsprings living in this household before going on to another wife. Then on for other persons who spent the last night in the household (tenants, household aids etc..) Please feel free to add another sheet.

Usual name	Relation to head	Sex	Age	Usually Resident	Spent preceding Night	Eligible
01_____	_____	/__/	/__/__/	Y/N	Y/N	Y/N
02_____	_____	/__/	/__/__/	Y/N	Y/N	Y/N
03_____	_____	/__/	/__/__/	Y/N	Y/N	Y/N
04_____	_____	/__/	/__/__/	Y/N	Y/N	Y/N
05_____	_____	/__/	/__/__/	Y/N	Y/N	Y/N
06_____	_____	/__/	/__/__/	Y/N	Y/N	Y/N
07_____	_____	/__/	/__/__/	Y/N	Y/N	Y/N
08_____	_____	/__/	/__/__/	Y/N	Y/N	Y/N
09_____	_____	/__/	/__/__/	Y/N	Y/N	Y/N
10_____	_____	/__/	/__/__/	Y/N	Y/N	Y/N
11_____	_____	/__/	/__/__/	Y/N	Y/N	Y/N
12_____	_____	/__/	/__/__/	Y/N	Y/N	Y/N
13_____	_____	/__/	/__/__/	Y/N	Y/N	Y/N
14_____	_____	/__/	/__/__/	Y/N	Y/N	Y/N
15_____	_____	/__/	/__/__/	Y/N	Y/N	Y/N
16_____	_____	/__/	/__/__/	Y/N	Y/N	Y/N
17_____	_____	/__/	/__/__/	Y/N	Y/N	Y/N
18_____	_____	/__/	/__/__/	Y/N	Y/N	Y/N
19_____	_____	/__/	/__/__/	Y/N	Y/N	Y/N
20_____	_____	/__/	/__/__/	Y/N	Y/N	Y/N

Appendix 3.3b. Contraceptive screening form

HOUSEHOLD IDENTIFICATION

Q001 Cluster number /__/__/__/__/__/
Q002 Compound number /__/__/__/__/__/
Compound owner _____
Name household head _____
Woman's usual name _____

	Visit 1	Visit 2	Visit 3
Date	_____	_____	_____

Result of last visit

1. Questionnaire completed
2. Questionnaire partially completed
3. Refusal
4. Household not available
5. Empty compound
6. Other (specify).....

QUESTIONS		ANSWERS & CODES
1.	What is your current age?	Age in competed years /__/__/
2.	Have you ever been to school?	Yes = 1 NO = 2
3.	What is the highest you attained at school ?	Primary=1 Secondary=2 University=3
4.	What is your religion?	Traditional=1 Islamic=2 Catholic= 3 Protestant=4 Other 5
5.	What is your ethnicity?	.....
7.	What is you current marital status ?	Mari ed=1 Concubinage=2 Widowed=3 Divorced=4 Separated=5 Single=6
8.	How many live births have you ever had?	Number of live births /__/__/
9.	Does your husband have other wives? (how many?)	Number of co-wives /__ /__/

CONTRACEPTIVE METHODS	HAVE YOU EVER HEARD OF THIS METHOD ?	HAVE YOU EVER USED THIS METHOD?
1. PILLS	Yes (s)=1; Yes(ad)=2; No=3	Yes = 1 ; No = 2
2. IUD	Yes (s)=1; Yes(ad)=2; No=3	Yes = 1 ; No = 2
3. INJECTION	Yes (s)=1; Yes(ad)=2; No=3	Yes = 1 ; No = 2
4. NORPLANT	Yes (s)=1; Yes(ad)=2; No=3	Yes = 1 ; No = 2
5. DIAPHRAGM, FOAM, GELS	Yes (s)=1; Yes(ad)=2; No=3	Yes = 1 ; No = 2
6. CONDOM	Yes (s)=1; Yes(ad)=2; No=3	Yes = 1 ; No = 2
7. FEMALE STERILISATION	Yes (s)=1; Yes(ad)=2; No=3	Yes = 1 ; No = 2
8. MALE STERILISATION	Yes (s)=1; Yes(ad)=2; No=3	Yes = 1 ; No = 2
9. RHYTHM, PERIODIC ABSTINENCE	Yes (s)=1; Yes(ad)=2; No=3	Yes = 1 ; No = 2
10. WITHDRAWAL	Yes (s)=1; Yes(ad)=2; No=3	Yes = 1 ; No = 2
11. OTHER	Yes (s)=1; Yes(ad)=2; No=3	Yes = 1 ; No = 2

(s)=spontaneous; (ad)=after description

Are you currently using anything in order to avoid getting pregnant? Yes=1; No=2

If yes, what are you using ?.....

In case you are selected, would you be willing to participate in the second part of this study?

Yes = 1 No = 2

What time are you usually available if I wanted to see you again for this study.....

Appendix 3.3c. In-depth interview guidelines

A. **Introduction/ethical consent** (to be obtained from each participant)

✎ ***Interviewer: greet the woman and present yourself very politely. Thank her for accepting to spent some of her precious time to discuss with you. Go on to present the study for example like this:***

The work we are doing concerns the well being of couples and especially women's conjugal life. The subject of this work is very sensitive because it concerns the intimate life of women and that of their partner. You have been selected to participate in this study because of your specific characteristics. As you know, not all those whom I have seen in the first round have been selected for this round. So, you have been selected because we think you are the most qualified to help us understand the questions we are trying to answer by this research. I would like to discuss freely with you, at your convenience. I would like it to be a woman to woman discussion, if how things are going with you; of what happens between one delivery and the pregnancy that follows; how people behave during that period, especially with respect to sexual intercourse, contraception and how you perceive the role of your partner in all this. As I was saying, you can see it is a sensitive subject. That is why I would like if you could talk to me the most sincerely about your experience of these different things. For that reason, I would like to insist on four main points that are very important to both of us:

1. These discussions will be used only for the work we are doing now and nobody will use it for anything else. That's why the interview will be anonymous and confidential.

2. To make things easier for us, the discussion will be held at your convenience. We will come to see you only when you say you will be free to talk to us.

3. To shorten the interviews, I will record them with a small tape recorder so that I do not ask you to repeat what you have already said during the interview. You do not have to worry, it will be anonymous and the tapes will be destroyed once the study is finished.

4. What you will say here cannot be used against you in any circumstance, be it at the hospital or anywhere else.

Now I would like to ask you a few questions:

a. Do you think you have understood all the things I have said so far so that you feel confident enough to participate in the study? Yes___/No__

b. Do you accept to participate in this study? Yes__/No__

c. Do you authorize me to record the interview? Yes__/No__

Interviewer: Make sure the woman has answered YES for all three questions. If she said YES for the a. and b. but

does not want the sessions to be recorded, do not insist. Just try to conduct the interview and take note as suggested during the training. In this case, you should write down the summary of the interview as soon as it is finished.

A. Fertility profile

<u>Interviewer</u>: In this section, emphasis will be on the last birth. Questions may be dig in if needed for other births. It is important however to note all events such as births and deaths, especially the timing and circumstances of these events

During this visit, we will talk about your children and especially the last one; how you take care of them; when we met last time, you told me that you have a total of ... live births.

1. Could you tell me about your last birth? What is the name of your last child?

How old is him (her)
probe: duration of pregnancy
problems during that pregnancy
pregnancy was wanted or not?
Pregnancy was planned or not?
Interval between this child and the preceding child

In case of short birth interval (less than 2 years)

How did it happen
Was there any social pressure
How the couple manage to cope with it
Did they thought of having an abortion
why/why not

2. Could you tell me a little bit about your other children [interviewer: go from youngest to oldest and make sure we have a clear idea of birth intervals]

probe: duration of pregnancy
specific problems
at birth
during the pregnancy
education

3. Have you ever lost a pregnancy or had any still births?

Probe: number
circumstances
pregnancy was adequately followed up for antenatal care
personal appreciation of causes of pregnancy lost
what meaning did she give to this loss
what did the husband think

what did the parents think
what did her other relatives think

4. Could you tell me how many children yoy would like to have in your life

probe: boys
girls

B. ***Breastfeeding***

Now I would like if we could talk about how you take care of your kids, especially about breastfeeding. As before, we will talk more about ..... (the last child).

Could you describe to me how you fed baby ....., from birth to say two years?

probe: type of feeding (exclusive breastfeeding till 1, 2, 3, 4 months?)
Freqency, duration, intensity
who decided on the type of feeding
how was it decided
if breastfeeding,
when supplementation starts (liquids, fruits, solids)
How are they introduced (gradually or not)
who is in charge of providing these things

Is there any other person who influences the choice of how to feed the children?

Probe: who
how does this influence manifest
what does she think of such influence
does she respect what she is suggested to do?

Could you describe to me how you manage to wean baby ..... (last child)

probe: who decided
at what age
on what basis
what was the process of decision
why was the baby weaned in this manner
was there any notable change in how he was taken care of

Did you wean all your children in the same way?

Probe differences and similarities
why is it different

was there ant particular difficulties for any other child

Now, I would like if you could tell me a little bit about your current partner. Could you describe to me how you got to become husband and wife?

Probe: friendship
initiation of sexual intercourse
conjugal relations
her own appreciation of her partner
freedom in decision making in various situations
relations with others
participation in children's education
any current difficulties
preceding relationships

Visit 2

E Return of menses and post-partum abstinence

Today we will discuss about the return of menses, abstinence and the use of contraception. We will mostly talk about your last experience. But you could also tell me if it happened the same for the other births.

When baby .... was born, approximately how long did it last before your menses returned? **(<u>Interviewer</u>: In case she had an abortion or still birth for the last pregnancy, please discuss about the last live birth)**

probe: where you still amenorrheic at 1, 2, 3, 4 months? 6 months? 1 year?
How did the menses come back (describe)
was it a surprise
what she thought about
was there any particular signs
what the return of menses means to her
did it affect her relations with her husband
in what terms
did it affect the way she takes care of the baby
in what terms
is it the same with other children
similarities and differences

When baby.... (last child) was born, how many months did you wait before you resumed sex with your husband?

Probe: does she live together with her husband
who decided on when to resume

what has been her personal role
what about the husband
did she think she should wait longer
how long more
why
are there any ceremonies before resumption of sex
meaning/role of post-partum abstinence
was it before or after the return of menses
was she worried
how does she think her husband manage while she is abstaining
was it the same for other children
if decision was taken by husband, what would woman do if he did not decide so
was there any constraints
did it affect the way she takes care of her baby

Have you ever had a KPEDOVU?

Probe: how did she feel about it
was there any comments from others
from whom
how did it happen
did she take any steps to prevent from another case

E. ***Contraception***

Now, I would like if we could talk about what to do if a woman does not want to get pregnant.

Interviewer: For current and ever users of [modern] contraception

Could you tell me about the first time you decided to do something to avoid a pregnancy?

Probe: circumstances
how and where she knew about contraception for the first time
who gave he information
why she decided to use
what made her decide
what type of contraception
who decided
how was her partner [current or other] involved in the decision
was it natural or did she think it was an important decision
was there any fear
did she know anybody who was practising contraception at that time
did they play any role in her decision
what she thinks of that experience

is she satisfied
where to find contraception
how did relatives/friends/neighbours react when they found about her using contraception
[how she thinks they would react if they are not unformed]
did anybody oppose the use of contraception
did your partner accept that you use contraception
    how did he react/what did he say
    did you discuss with him before hand
    what would you do if he refused

Could you tell me a little bit about your other contraceptive experiences?

Probe: different methods used
    reasons for switching
    specific problems with methods
    why stopped
    will use in the future/why
    would advice other to use/why
    participate in group activities (tontine/women's groups/others)

What do you think of contraception in general

probe: limitation/negative effects
    advantages, if any

Interviewer: for women who never used modern contraception

Could you tell me what you know about contraceptive methods?

Probe: knowledge
    sources of information
    knows other sources she did not use
    where she can get contraceptives
    knows relatives who use (used) modern contraception
    what she thinks of their experience
    knows side effects/complications
    what her husband/partners thinks of contraception
    what relatives/friend think of contraception
    personal attitude
    will use in the future/why
    will advice other to use it/why
    participate in group activities (tontine/women's groups/others)

Interviewer In case the woman had birth intervals that are less than two years

When your baby ... was born, did you want to delay or avoid the pregnancy which followed?

Probe: why
for how ling
did she do anything for that
how did she decide
did she discuss it with her husband

In case of longer birth intervals

probe: how long she wanted to wait for
how did she managed to have such a long interval

<u>Interviewer</u> insist if necessary to ensure you know whether or not she ever used any traditional method for that long birth interval be it periodic abstinence, withdrawal or other herbal methods

Appendix 3.3.d

Contact Summary Sheet (example)

---

1. ***Identification*** :AUAE1Z4 Cluster: 20
   Age :42 Education: None
   Use status :Ever user of pills; condoms

2. ***Salient points***

2.1. ***Working & social status***
Married housewife, low income and small trader. Husband has no fixed income although carpenter. Live in a very small two-room apartment with her 6 children and husband if he is available

2.2. ***Parity & (last) birth interval***
has 8 births but 6 living children; last birth interval=4 years

2.3. ***Status of (last) pregnancy (planned or not)***
Last pregnancy not planned; decided to abort and tried many things; but abortion products didn't work

2.4. ***Marriage and marital relations***
Has a stable, positive relationship with her husband; but not with her brother-in-law; due to a land problem.

2.5. ***Experience of contraceptive use***
Used pills, condoms and withdrawal. Got her contraception from hospital and the market; has a negative perception of it; side effects such as headaches; poor compliance to hospital prescription

2.6. ***Perception of contraception***
Positive attitude to modern contraception but thinks it's better for literate women; would like to use the Norplant for its long acting characteristics;
fears of long term effects if used by younger women/adolescents (esp: her daughter)

Appendix 3.4a. Focus group coding scheme

Themes:	Code words
1. Ideal number of children	idchild
2. Birth interval	birth_i
3. Breastfeeding	breast_f
4. Post-partum abstinence	ppabst
5. Contraception	contr
6. Abortion	abort

Adding ups (may be single or in combination with others)

1. Ideal number/time	ideal
2. Societal motivation	smot
3. Individual motivation	imot
4. Long/large	lg
5. Short	sht
6. Small	sm
7. Strategy	str
8. Wean	wean
9. Full	full
10. Knowledge	know
11. Attitude	att
12. Practice	pract
13 Traditional	trad
14. Modern	mod
15. Natural	nat
16. Secrete use	secrete
17. Constraints	cst
18. Conditions favouring	cfav
19. Male (involvement)	male
20. Negative	neg
21. Positive	pos
22. Health reason	health
23. Water & breastfeeding	water

Appendix 3.4b. In-depth interviews coding scheme

Themes:		Code words
1.	Birth and pregnancy history	Bph
2.	Breastfeeding	Breast_f
3.	Marriage history	Marriage
4.	Return of menses	Menses_r
5.	Post-partum abstinence	Ppabst
6.	Contraception	Contr
7.	Abortion	Abort

Adding ups (may be single or in combination with others)

1.	Ideal duration	Ideald
2.	Ideal number	Idealn
3.	Societal motivation	Smot
4.	Individual motivation	Imot
5.	Short duration	Sht
6.	Long duration/large number	Lg/lgn
7.	Small number	Sm
8.	Strategy/tactics	Str
9.	Weaning	Wean
10.	Full	Full
11.	Knowledge	Know
12.	Attitude	Att
13.	Practice	Pract
14.	Traditional	Trad
15.	Modern/modernization	Mod/modz
16.	Natural	Nat
17.	Secrete use	Secrete
18.	Decision process	Decis
19.	Conditions favouring	Cfav
20.	Male involvement	Male
21.	Negative	Neg
22.	Positive	Pos
23.	Health reason	Health
24.	Water & breastfeeding	Water
25.	Causes/explanation	Cause
26.	Conditions	Condt
27.	Consequences	Consq
28.	Interaction among actors	Inter_act

29.	Advantages	Advtg
30.	Methods	Meth
31.	Individual perception	Iper
32.	Societal perception	Sper
33.	Birth interval	Binterv
34.	Birth limitation	Blimit
35.	Pregnancy	Pregn
36.	Delivery	Deliv
37.	Management	Mgt
38.	Old age pregnancy	Opregn
39.	Explanation	Expln
40.	Process	Process
41.	Partner	Ptn
42.	Other family	Otherf
43.	Diffusion process	Difuss
44.	Distribution sources	Distr
45.	Information source	Info
46.	Compliance	Compl
47.	Birth interval	Birth_i
48.	Contraceptive failure	Fail

Appendix 6.1. Binomial and multi-nomial Logistic regression: statistical description

Simply stated, consider an outcome variable Y, with k unordered categories (Y=1, Y=2.. Y=k) and an explanatory variable X. A logistic model estimates a set of coefficients $\beta_1, \beta_2, .. \beta_k$, corresponding to each outcome category:

$$Pr(Y=i)=\frac{e^{X\beta_i}}{e^{X\beta_1}+e^{X\beta_2}..+e^{X\beta_k}}$$

where the index *i* vary from *1* to *k*.

Such model is unidentified because there is more than one solution to $\beta_1, \beta_2.., \beta_k$ that lead to the same probabilities for Y=1, Y=2 .. Y=k. To identify the model, one of the coefficients, say β_1 is arbitrarily set to zero. The remaining coefficients would measure the change relative to the (Y=1) group which is then considered as the baseline value. While the regression coefficients would be different if the baseline value changes[1], the predicted probabilities for Y=1, Y=2..Y=k would still be the same. It is demonstrated that the exponential value of a coefficient ($e^{\beta i}$) is the risk ratio for a one unit change in the corresponding variable relative to the baseline category. Obviously, the model boils down to the ordinary binomial logistic regression when *k*=2.

[1]To Y=2 instead of Y=1 for example

Appendix 6.2. Multiple Logistic Regression output from Stata 6.0.

A. Coding scheme

Variables	Categories	Codes
Demographic status	Traditional type 1	0
	Traditional type 2	1
	Transitional	2
	Innovator	3
Age	45-49	0
	20-24	1
	25-29	2
	30-34	3
	35-39	4
	40-44	5
Schooling	None	0
	Primary	1
	Secondary+	2
Marriage type	Polygynous	0
	Monogamous	1
	Not in union	2
Religion	Traditional	0
	Muslim	1
	Christian	2
Household wealth	Low	0
	High	1
Place of residence	Rural	0
	Urban	1
Region	Atacora	0
	Atlantique	1
	Borgou	2
	Mono	3
	Ouémé	4
	Zou	5

Survey logistic regression

pweight: pds
Strata: reg_ur
PSU: v004

Number of obs = 4179
Number of strata = 12
Number of PSUs = 200
Population size = 4125.5414
F(24, 171) = 16.55
Prob > F = 0.0000

modern	Odds Ratio	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Iinq2_1	.9788262	.2176914	-0.096	0.923	.631262	1.517755
Iinq2_2	1.576454	.3960338	1.812	0.072	.9605099	2.587384
Iinq2_3	2.144493	.4854179	3.370	0.001	1.372274	3.351262
Iresid_1	1.588504	.3925763	1.873	0.063	.9756756	2.586255
IiXr_1_1	1.579172	.5259246	1.372	0.172	.8187802	3.045731
IiXr_2_1	1.715173	.6073621	1.524	0.129	.8530918	3.44842
IiXr_3_1	.5659157	.1724697	-1.868	0.063	.3102482	1.032272
Iage2_2	1.166271	.2756082	0.651	0.516	.731787	1.858723
Iage2_3	1.432416	.3349963	1.537	0.126	.9031304	2.271891
Iage2_4	1.196933	.2922937	0.736	0.463	.7394349	1.937493
Iage2_5	1.432288	.3356778	1.533	0.127	.9021659	2.273915
Iage2_6	1.869014	.4511446	2.591	0.010	1.161071	3.008613
Ischoo_1	3.282972	.4269707	9.140	0.000	2.540202	4.242932
Ischoo_2	6.24538	1.30704	8.753	0.000	4.133331	9.436643
Irelig_2	1.482249	.3056721	1.908	0.058	.9869226	2.226176
Irelig_3	1.53986	.2391141	2.780	0.006	1.133638	2.091645
Iwtst_1	1.618183	.2891598	2.693	0.008	1.137544	2.301904
Imtype_1	1.211032	.1535209	1.510	0.133	.9431319	1.555029
Imtype_2	1.4844	.3311842	1.770	0.078	.9559768	2.304913
Iregio_2	1.682106	.3707552	2.359	0.019	1.089084	2.598038
Iregio_3	.782176	.1845825	-1.041	0.299	.4911023	1.245768
Iregio_4	1.418859	.3849889	1.289	0.199	.8308583	2.42299
Iregio_5	1.629	.344084	2.310	0.022	1.073985	2.470836
Iregio_6	1.316807	.3469158	1.045	0.297	.7831838	2.214017

Survey logistic regression

pweight: pds
Strata: reg_ur
PSU: v004

Number of obs	= 4179
Number of strata	= 12
Number of PSUs	= 200
Population size	= 4125.5414
F(24, 171)	= 16.55
Prob > F	= 0.0000

modern	Odds Ratio	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Iinq2_1	1.545735	.3823867	1.760	0.080	.9489459	2.517843
Iinq2_2	2.703892	.6656855	4.040	0.000	1.663842	4.394067
Iinq2_3	1.213602	.2640991	0.890	0.375	.7900939	1.864121
Ires2_1	.629523	.1555777	-1.873	0.063	.3866595	1.024931
IiXr_1_1	.6332432	.2108942	-1.372	0.172	.3283284	1.221329
IiXr_2_1	.5830315	.206458	-1.524	0.129	.2899879	1.172207
IiXr_3_1	1.767047	.5385292	1.868	0.063	.9687367	3.223225
Iage2_2	1.166271	.2756082	0.651	0.516	.731787	1.858723
Iage2_3	1.432416	.3349963	1.537	0.126	.9031304	2.271891
Iage2_4	1.196933	.2922937	0.736	0.463	.7394349	1.937493
Iage2_5	1.432288	.3356778	1.533	0.127	.9021659	2.273915
Iage2_6	1.869014	.4511446	2.591	0.010	1.161071	3.008613
Ischoo_1	3.282972	.4269707	9.140	0.000	2.540202	4.242932
Ischoo_2	6.24538	1.30704	8.753	0.000	4.133331	9.436643
Irelig_2	1.482249	.3056721	1.908	0.058	.9869226	2.226176
Irelig_3	1.53986	.2391141	2.780	0.006	1.133638	2.091645
Iwtst_1	1.618183	.2891598	2.693	0.008	1.137544	2.301904
Imtype_1	1.211032	.1535209	1.510	0.133	.9431319	1.555029
Imtype_2	1.4844	.3311842	1.770	0.078	.9559768	2.304913
Iregio_2	1.682106	.3707552	2.359	0.019	1.089084	2.598038
Iregio_3	.782176	.1845825	-1.041	0.299	.4911023	1.245768
Iregio_4	1.418859	.3849889	1.289	0.199	.8308583	2.42299
Iregio_5	1.629	.344084	2.310	0.022	1.073985	2.470836
Iregio_6	1.316807	.3469158	1.045	0.297	.7831838	2.214017

Survey logistic regression

pweight: pds
Strata: reg_ur
PSU: v004

Number of obs = 4179
Number of strata = 12
Number of PSUs = 200
Population size = 4125.5414
F(24, 171) = 18.59
Prob > F = 0.0000

rhythm	Odds Ratio	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Iinq2_1	1.045711	.2415077	0.194	0.847	.6631195	1.64904
Iinq2_2	1.342592	.3231587	1.224	0.222	.8351719	2.158303
Iinq2_3	1.471933	.3097264	1.837	0.068	.971969	2.229069
Iresid_1	1.10661	.3416331	0.328	0.743	.6019513	2.034358
IiXr_1_1	1.688546	.6484438	1.364	0.174	.791732	3.601202
IiXr_2_1	1.523199	.5933615	1.080	0.281	.7064637	3.284153
IiXr_3_1	1.64825	.5354771	1.538	0.126	.8684646	3.128197
Iage2_2	1.321175	.3378511	1.089	0.277	.7978556	2.187742
Iage2_3	1.266051	.3140082	0.951	0.343	.7762644	2.064872
Iage2_4	1.41611	.3542163	1.391	0.166	.8646623	2.319249
Iage2_5	1.195034	.3213436	0.663	0.508	.7031634	2.030974
Iage2_6	1.207774	.3413812	0.668	0.505	.6916411	2.10907
Ischoo_1	2.503472	.3836212	5.989	0.000	1.850501	3.38685
Ischoo_2	7.082456	1.554356	8.920	0.000	4.594113	10.91858
Irelig_2	.7181647	.194466	-1.223	0.223	.4210049	1.22507
Irelig_3	1.617794	.2424621	3.210	0.002	1.203791	2.174179
Iwtst_1	1.323693	.2425449	1.530	0.128	.9222307	1.899919
Imtype_1	.9839148	.1186531	-0.134	0.893	.7756472	1.248104
Imtype_2	1.23938	.2605156	1.021	0.309	.8187663	1.876069
Iregio_2	5.743343	1.776827	5.650	0.000	3.12014	10.57196
Iregio_3	1.275974	.4732659	0.657	0.512	.6139665	2.65179
Iregio_4	5.320139	1.677213	5.302	0.000	2.856873	9.907296
Iregio_5	5.225104	1.605181	5.382	0.000	2.850753	9.577016
Iregio_6	1.963789	.7064558	1.876	0.062	.965963	3.992357

Survey logistic regression

pweight: pds
Strata: reg_ur
PSU: v004

Number of obs = 4179
Number of strata = 12
Number of PSUs = 200
Population size = 4125.5414
F(24, 171) = 18.59
Prob > F = 0.0000

rhythm	Odds Ratio	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Iinq2_1	1.76573	.5489505	1.829	0.069	.9563829	3.259995
Iinq2_2	2.045035	.6368686	2.297	0.023	1.106506	3.779615
Iinq2_3	2.426113	.6086793	3.533	0.001	1.479161	3.9793
Ires2_1	.9036611	.2789788	-0.328	0.743	.4915555	1.661264
IiXr_1_1	.5922256	.2274294	-1.364	0.174	.2776851	1.263054
IiXr_2_1	.6565131	.2557444	-1.080	0.281	.3044925	1.415501
IiXr_3_1	.606704	.1971036	-1.538	0.126	.319673	1.151457
Iage2_2	1.321175	.3378511	1.089	0.277	.7978556	2.187742
Iage2_3	1.266051	.3140082	0.951	0.343	.7762644	2.064872
Iage2_4	1.41611	.3542163	1.391	0.166	.8646623	2.319249
Iage2_5	1.195034	.3213436	0.663	0.508	.7031634	2.030974
Iage2_6	1.207774	.3413812	0.668	0.505	.6916411	2.10907
Ischoo_1	2.503472	.3836212	5.989	0.000	1.850501	3.38685
Ischoo_2	7.082456	1.554356	8.920	0.000	4.594113	10.91858
Irelig_2	.7181647	.194466	-1.223	0.223	.4210049	1.22507
Irelig_3	1.617794	.2424621	3.210	0.002	1.203791	2.174179
Iwtst_1	1.323693	.2425449	1.530	0.128	.9222307	1.899919
Imtype_1	.9839148	.1186531	-0.134	0.893	.7756472	1.248104
Imtype_2	1.23938	.2605156	1.021	0.309	.8187663	1.876069
Iregio_2	5.743343	1.776827	5.650	0.000	3.12014	10.57196
Iregio_3	1.275974	.4732659	0.657	0.512	.6139665	2.65179
Iregio_4	5.320139	1.677213	5.302	0.000	2.856873	9.907296
Iregio_5	5.225104	1.605181	5.382	0.000	2.850753	9.577016
Iregio_6	1.963789	.7064558	1.876	0.062	.965963	3.992357

Survey logistic regression

pweight: pds
Strata: reg_ur
PSU: v004

Number of obs = 4179
Number of strata = 12
Number of PSUs = 200
Population size = 4125.5414
F(24, 171) = 25.23
Prob > F = 0.0000

effic	Odds Ratio	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Iinq2_1	1.063462	.1851053	0.354	0.724	.7544539	1.499034
Iinq2_2	1.564792	.2888002	2.426	0.016	1.087355	2.251862
Iinq2_3	1.857694	.317941	3.619	0.000	1.325495	2.603576
Iresid_1	1.264916	.2781984	1.069	0.287	.819744	1.951845
IiXr_1_1	1.884826	.5651271	2.114	0.036	1.043406	3.404779
IiXr_2_1	1.971839	.5852719	2.288	0.023	1.098085	3.540846
IiXr_3_1	.9282341	.2398019	-0.288	0.773	.5576683	1.545038
Iage2_2	1.310658	.2535013	1.399	0.164	.8949944	1.919368
Iage2_3	1.319391	.2582035	1.416	0.158	.8969094	1.940879
Iage2_4	1.320702	.2607027	1.409	0.160	.8947986	1.949325
Iage2_5	1.384314	.2808121	1.603	0.111	.9278591	2.06532
Iage2_6	1.651664	.3584267	2.312	0.022	1.076572	2.533961
Ischoo_1	3.127166	.3663524	9.732	0.000	2.48202	3.940002
Ischoo_2	9.292266	1.801294	11.500	0.000	6.339887	13.61952
Irelig_2	1.1323	.1909126	0.737	0.462	.8119755	1.578993
Irelig_3	1.558971	.1843963	3.754	0.000	1.234597	1.96857
Iwtst_1	1.78678	.3098694	3.347	0.001	1.269189	2.515452
Imtype_1	1.164647	.1195165	1.485	0.139	.9512513	1.425914
Imtype_2	1.478541	.2867576	2.016	0.045	1.008578	2.16749
Iregio_2	3.569027	.7026998	6.462	0.000	2.420506	5.262517
Iregio_3	1.021239	.2209382	0.097	0.923	.6665297	1.564715
Iregio_4	3.137569	.6720371	5.338	0.000	2.056504	4.786929
Iregio_5	3.050953	.5997542	5.674	0.000	2.07041	4.495877
Iregio_6	1.626732	.4113646	1.924	0.056	.9879042	2.678658

Survey logistic regression

pweight: pds
Strata: reg_ur
PSU: v004

Number of obs = 4179
Number of strata = 12
Number of PSUs = 200
Population size = 4125.5414
F(24, 171) = 25.23
Prob > F = 0.0000

effic	Odds Ratio	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Iinq2_1	2.004441	.4894197	2.848	0.005	1.238377	3.244396
Iinq2_2	3.085518	.7108288	4.891	0.000	1.958849	4.860213
Iinq2_3	1.724375	.3402192	2.762	0.006	1.168518	2.544649
Ires2_1	.7905661	.1738726	-1.069	0.287	.5123357	1.219893
IiXr_1_1	.5305531	.1590757	-2.114	0.036	.2937048	.9583996
IiXr_2_1	.5071408	.1505271	-2.288	0.023	.2824184	.9106764
IiXr_3_1	1.077314	.2783156	0.288	0.773	.6472334	1.793181
Iage2_2	1.310658	.2535013	1.399	0.164	.8949944	1.919368
Iage2_3	1.319391	.2582035	1.416	0.158	.8969094	1.940879
Iage2_4	1.320702	.2607027	1.409	0.160	.8947986	1.949325
Iage2_5	1.384314	.2808121	1.603	0.111	.9278591	2.06532
Iage2_6	1.651664	.3584267	2.312	0.022	1.076572	2.533961
Ischoo_1	3.127166	.3663524	9.732	0.000	2.48202	3.940002
Ischoo_2	9.292266	1.801294	11.500	0.000	6.339887	13.61952
Irelig_2	1.1323	.1909126	0.737	0.462	.8119755	1.578993
Irelig_3	1.558971	.1843963	3.754	0.000	1.234597	1.96857
Iwtst_1	1.78678	.3098694	3.347	0.001	1.269189	2.515452
Imtype_1	1.164647	.1195165	1.485	0.139	.9512513	1.425914
Imtype_2	1.478541	.2867576	2.016	0.045	1.008578	2.16749
Iregio_2	3.569027	.7026998	6.462	0.000	2.420506	5.262517
Iregio_3	1.021239	.2209382	0.097	0.923	.6665297	1.564715
Iregio_4	3.137569	.6720371	5.338	0.000	2.056504	4.786929
Iregio_5	3.050953	.5997542	5.674	0.000	2.07041	4.495877
Iregio_6	1.626732	.4113646	1.924	0.056	.9879042	2.678658

Survey logistic regression

pweight: pds
Strata: reg_ur
PSU: v004

Number of obs	= 4179
Number of strata	= 12
Number of PSUs	= 200
Population size	= 4125.5414
F(24, 171)	= 22.17
Prob > F	= 0.0000

allmet	Odds Ratio	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Iinq2_1	1.30841	.1360453	2.585	0.010	1.065817	1.606221
Iinq2_2	2.582661	.3690742	6.640	0.000	1.948333	3.42351
Iinq2_3	1.315991	.206591	1.749	0.082	.9655801	1.793568
Iresid_1	1.112279	.2332689	0.507	0.612	.735492	1.682092
IiXr_1_1	1.20061	.2982461	0.736	0.463	.7355726	1.959648
IiXr_2_1	.8087066	.2420355	-0.709	0.479	.4481652	1.459298
IiXr_3_1	.8636069	.2263725	-0.559	0.577	.5149852	1.44823
Iage2_2	1.174061	.1824761	1.032	0.303	.8640999	1.595209
Iage2_3	1.411729	.2058414	2.365	0.019	1.058913	1.882099
Iage2_4	1.370951	.2054193	2.106	0.037	1.020187	1.842316
Iage2_5	1.514736	.2501739	2.514	0.013	1.093629	2.097993
Iage2_6	1.199654	.2185542	0.999	0.319	.8375486	1.718313
Ischoo_1	2.155164	.271677	6.091	0.000	1.680759	2.763473
Ischoo_2	8.279295	1.923609	9.098	0.000	5.235811	13.0919
Irelig_2	1.103348	.2127992	0.510	0.611	.7542467	1.61403
Irelig_3	1.142268	.1272313	1.194	0.234	.9169847	1.422899
Iwtst_1	1.054644	.1981139	0.283	0.777	.7281234	1.527591
Imtype_1	1.282848	.1111963	2.874	0.005	1.081261	1.522019
Imtype_2	1.25768	.2509786	1.149	0.252	.8484781	1.86423
Iregio_2	13.02561	4.049376	8.257	0.000	7.055329	24.04801
Iregio_3	.4464544	.1541232	-2.336	0.021	.2259873	.8820032
Iregio_4	5.108668	1.574616	5.291	0.000	2.781632	9.382436
Iregio_5	14.78876	4.790067	8.317	0.000	7.807245	28.01341
Iregio_6	2.585416	.8386369	2.928	0.004	1.363613	4.90196

Survey logistic regression

pweight: pds
Strata: reg_ur
PSU: v004

Number of obs = 4179
Number of strata = 12
Number of PSUs = 200
Population size = 4125.5414
F(24, 171) = 22.17
Prob > F = 0.0000

allmet	Odds Ratio	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Iinq2_1	1.57089	.3544339	2.002	0.047	1.006669	2.451346
Iinq2_2	2.088615	.5491462	2.801	0.006	1.243519	3.508038
Iinq2_3	1.136499	.2358565	0.617	0.538	.7547643	1.711304
Ires2_1	.8990548	.1885511	-0.507	0.612	.5944978	1.359634
IiXr_1_1	.8329103	.2069051	-0.736	0.463	.5102958	1.359485
IiXr_2_1	1.236542	.3700812	0.709	0.479	.6852612	2.23132
IiXr_3_1	1.157934	.3035229	0.559	0.577	.6904981	1.941803
Iage2_2	1.174061	.1824761	1.032	0.303	.8640999	1.595209
Iage2_3	1.411729	.2058414	2.365	0.019	1.058913	1.882099
Iage2_4	1.370951	.2054193	2.106	0.037	1.020187	1.842316
Iage2_5	1.514736	.2501739	2.514	0.013	1.093629	2.097993
Iage2_6	1.199654	.2185542	0.999	0.319	.8375486	1.718313
Ischoo_1	2.155164	.271677	6.091	0.000	1.680759	2.763473
Ischoo_2	8.279295	1.923609	9.098	0.000	5.235811	13.0919
Irelig_2	1.103348	.2127992	0.510	0.611	.7542467	1.61403
Irelig_3	1.142268	.1272313	1.194	0.234	.9169847	1.422899
Iwtst_1	1.054644	.1981139	0.283	0.777	.7281234	1.527591
Imtype_1	1.282848	.1111963	2.874	0.005	1.081261	1.522019
Imtype_2	1.25768	.2509786	1.149	0.252	.8484781	1.86423
Iregio_2	13.02561	4.049376	8.257	0.000	7.055329	24.04801
Iregio_3	.4464544	.1541232	-2.336	0.021	.2259873	.8820032
Iregio_4	5.108668	1.574616	5.291	0.000	2.781632	9.382436
Iregio_5	14.78876	4.790067	8.317	0.000	7.807245	28.01341
Iregio_6	2.585416	.8386369	2.928	0.004	1.363613	4.90196